

جامعة محمد خيضر بسكرة - الجزائر
كلية العلوم الاقتصادية و التجارية و علوم التسيير

MOHAMED KHEIDER UNIVERSITY OF BISKRA ALGERIA
FACULTY OF ECONOMIC, TRADE AND MANAGEMENT SCIENCES

جامعة بسكرة - الجزائر

university of BISKRA ALGERIA

أبحاث اقتصادية وإدارية

كلية العلوم الاقتصادية والتجارية وعلوم التسيير

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EDITORIAL

Housed at the [University of Mohamed kheider Biskra](#), [Economic and Management Researches](#) journal publishes its second issue in English. Despite its short term experience, [Economic and Management Researches](#) journal has attracted two types of researchers. These researchers are willing to publish in English to reach the maximum number of readers and spread creative ideas. This later is the chief role for which journal are created.

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Biskra 30 June 2020

Chief editor

Pr. HEDJAZI Smail

Characteristics, motivations, and challenges of Algerian Women Entrepreneurs

خصائص، دوافع وتحديات المقاومات الجزائريات

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Abstract:

This paper identifies and discusses the characteristics, motivations and obstacles of women entrepreneurs focusing on jijel region of Algeria. Both quantitative (survey) and qualitative approaches (interview), were used in order to achieve the overall aim of the study. This research identifies the major characteristics that inspired women to start their businesses. A desire to work and earn money, and high self esteem were identified as main motivators. The major difficulties faced by these entrepreneurs were sociocultural constraints, the jealousy between women entrepreneurs, and insufficient financial resources.

keyword: entrepreneurs; characteristics; motivations; challenges;

JEL classification code : XN1, XN2

ملخص:

تتناقش هذه الورقة البحثية مجموعة من الخصائص، الدوافع والعقبات التي تواجه سيدات الأعمال في الجزائر و بالأخص في ولاية جيجل. حيث تم استخدام المقاربات الكمية (المسحية) والنوعية (المقابلة) لتحقيق الهدف العام للدراسة ، وقد خلص هذا البحث لمجموعة من المحفزات الرئيسية التي ألهمت النساء لاقتحام ميدان المقاولتية مثل تحقيق الرغبة في العمل ، كسب المال ، و فرض احترام الذات. أما فيما يخص المصاعب التي يواجهونها فتتمثل أساسا في صعوبة الحصول على القروض المالية ، والغيرة الكبيرة بين صاحبات المشاريع ، إضافة للقيود الاجتماعية والثقافية التي لا تحبذ عمل المرأة في الخارج أو ولوجها لمصادر القرار .

الكلمات المفتاحية : المرأة المقاولة؛ الخصائص ؛ الدوافع ؛ العقبات؛

تصنيف JEL : XN1 ، XN2

Berreziga Amina, e-mail: mk.senouci@gmail.com

1. Introduction :

Women's economic empowerment is a cornerstone of the 2030 agenda for sustainable development. They are in greater numbers than even before; they are stepping away from traditional economic roles and venturing out to start their own businesses. In every field imaginable, even the most "masculine," you don't have to look hard to find female entrepreneur who have overcome seemingly impossible odds to achieve success.

Numerous studies demonstrate the positive impact of female entrepreneurs on economic growth and development, as well as sustainable and durable peaces. Nonetheless, women have always actively participates in their localeconomies. In the United States of America, eleven percent of women are entrepreneurs. In Asian developed countries such as Japan and Korea, two percent of women are engaged in entrepreneurial activities (GEM, 2012). It is not startling that (Lituchy et al. 2003, p64) stated that the concept of female entrepreneurship is rare in Japan because the corporate world is viewed as a man's domain. Entrepreneurial activities among women in Taiwan measure a little above five percent while in Singapore, ten percent of women are entrepreneurs. In developed Europe, the situation is not much more encouraging. The majority of the countries, such as Slovenia, Belgium, Italy, Denmark, Germany, Norway, Ireland, Spain, France, Finland and Greece, all have a TEA index below five percent (The Total Early-Stage Entrepreneurial Activity (TEA) index is a primary measure used by GEM to gauge the level of dynamic entrepreneurial activity in an economy by considering the incidence of startup and businesses (nascent entrepreneurs) and new firms (up to 3.5 years old) in an adult population).

On the other hand, female entrepreneurial activities in Sweden, Switzerland, Portugal, United Kingdom, Netherlands, Slovakia and Austria are a little above five percent, with Austria leading with seven percent (GEM, 2012). (Carter 2000, pp 326-334) argues that, despite the extensive rise in the number of female entrepreneurs worldwide,

low business start-up rate is recorded in the UK and across many northern European countries.

In Africa, The highest rate of female entrepreneurs is recorded to Ghana, Angola, Malawi, Nigeria and Uganda (GEM, 2012). In the Maghreb, embracing Morocco, Algeria, and Tunisia, Muslim women create one in every ten new enterprises. According to Moncef Bouchrara, president of the consulting firm Afkar/Ich'Har, many researchers have failed to notice the emergence of an entrepreneurial class of women in the Arab world: "It is assumed to be non-existent. Nevertheless, it is becoming a clear and observable reality throughout the Mediterranean Basin, including the Maghreb." (Jeanne Halladay Coughlin, Andrew R. Thomas, 2003, p9)

By looking at the context of entrepreneurs in Algeria, the participation of women in the labor force has steadily increased, since the 1990s, thanks to the generalization of compulsory education, which has gradually increased the number of women in secondary and university education. Even that, the number of female entrepreneurs has been increasing quietly; they make up only 19% of the female workforce compared to 30.9% of men. According to statistics from National Center of Commerce (CNRC) of 2017, women registered as business owners (legal persons) represent only 6% of total business owners in the country. In this context, this paper attempts to answer these following questions:

- What are the characteristics of Algerian women entrepreneurs?
- What are their motivations to become entrepreneurs?
- What kind of hindrances may affect Algerian women entrepreneurs to enter on an entrepreneurial activity?

2. Women entrepreneurship:chronological history of the field :

More than thirty years have elapsed since studies of female entrepreneurs first appeared in the entrepreneurship literature (e.g. DeCarlo & Lyons, 1979; Hisrich & O'Brien, 1981; Pellegrino & Reece, 1982; Schwartz, 1976; Sexton & Kent, 1981). The literature on

mainstream entrepreneurship primarily focusing on the male entrepreneur emerged in the 1930s. The late of 1970s witnessed the emergence of an explicit sub-domain of women entrepreneurship (Jennings and al, 2010, p81), indeed, Schwartz published in 1976, the first academic article on female entrepreneurship in the Journal of Contemporary Business titled “The bottom line: Unequal enterprise in America” was released in 1979 in Washington DC. The first academic conference presentation (Hisrich & O’Brien, 1981, p 26) and academic oriented book (Goffee & Scase, 1985, p169) devoted to the topic did not appear until early 1980s. The explanation for this delayed attention is because the assumption that women were not widely counted as a distinct group of business owners in most countries prior to this time (Holmquist, 1997, p179-182), also, early scholars may have also assumed that male and female entrepreneurs were generally the same and there was no specific need for a separate investigation.

As a result, the sub-domain of women entrepreneurship did not develop as a significant area until the late 1990s to early 2000s (Jennings, JE, Hughes, K and Jennings, PD, 2010, p88) with the launch of two dedicated conferences, a policy oriented Organization for (OECD) Conference on women entrepreneurs held in 1998, then an academic conference of Diana International was held in 2003 respectively. And it was only very recently in 2009, that the specialty niche journal titled International Journal of Gender and Entrepreneurship was launched. Eventually, leading journals in the mainstream entrepreneurship area recognized the growing need for research in this area; this concern is due to the high presence of women as policy makers and their expanding capacity to serve the global business development.

3. Characteristics of female entrepreneurship :

There has been relatively little research on women entrepreneurs, one of the reasons for the scarcity of related research is that people believe that there is not any actual differences between men and woman entrepreneurs’ activities to be a successful one (Gartner, 2001, p39).

However, thanks to an increase in the availability of data and to an improvement in the related research, a significant amount of facts on female entrepreneurs are revealed.

According to (Joachim Wagner and Rolf Sternberg, 2004, p229), women entrepreneurs are influenced by socio-demographic variables and attitudes. (Dale Krueger, 2000, p54) observes that females who are assertive, creative, restless, and venturesome are more likely to start businesses. Brush and Greene announce that female entrepreneurs are in lack of business operating experience, especially in high managerial positions (Brush, Greene & Hart, 2006, p65). Female entrepreneurs are mainly motivated by survival pressure, unfavorable situations and loss of jobs (Buttner, 1997,p56). Meanwhile, they have to balance the responsibility of taking care of their families and of their entrepreneurial careers. (zimmerer, 2007,p36) identify further characteristics as a sense of responsibility, preference for a moderate risk, confidence in their ability, high level of optimism and energy, desire for immediate feedback, future orientation, organizational skills, and high degree of commitment.

In the process of entrepreneurship, female entrepreneurs attach great importance to the sense of personal achievement and social responsibility and their companies are more flexible and humanistic, as a result the economic index has never been their only concern (Anna, 1999,pp 279-303).

As (Amit R, 1995, p67) mentioned two types of entrepreneurs, according to their motivation for engagement in entrepreneurial activity. (Bruni, 2004, p285), draws up an interesting typology of female entrepreneurs' profiles based on driving factors and their incentives. The main points of the typology are presented in Table 01.

Table 1: typologie of profiles of women entrepreneurs:

<i>Type</i>	<i>Incentives</i>
<i>Aimless</i>	Young females who enter entrepreneurship as a result of unemployment
<i>Success oriented</i>	Young women who perceive entrepreneurial activity as a long-term strategy
<i>Strongly success oriented</i>	Women who perceive entrepreneurship as an opportunity for self-fulfillment or as a mean to overcome the "glass ceiling" phenomenon
<i>Dualists</i>	Females seeking flexibility to balance their family and job obligations
<i>Return workers</i>	Women who left their jobs to care for family duties and are still motivated to self-fulfillment outside their families
<i>Traditionalists</i>	Women who have a strong family entrepreneurial tradition background
<i>Radicals</i>	Women who initiate introducing more pro-female tendencies in society

Source: Bruni, Gherardi, and Poggio, 2004, p285.

4. Motivational factors influencing female entrepreneurship:

Some of the early theories of entrepreneurship, point out that an entrepreneurial pursuit is the pursuit of money and recognition (Cromie, 1987, p94).

On the one hand, female entrepreneurs are influenced by the so-called push factors. Duchéneaut stated that push factors are primarily determined as factors “of necessity such as insufficient family income, dissatisfaction with a salaried job, difficulty in finding work and a need for a flexible work schedule because of family responsibilities” (Orhan, 2001,p233)

Thus, push factors “often have negative connotations” (Kirkwood, 2009, p346). Historically, push factors dominated pull factors in triggering female entrepreneurship. While job redundancy, the glass ceiling, economic recessions, financial reasons, and job dissatisfaction

act as push factors (Itani, 2009, p346), the need for accomplishment and independence, self fulfillment, and social status work as pull factors (sarri, 2005, p28).

Push and pull factors affect the functions of the firm. Pull factors encourage women to start business and push factors force women to start business (Mordi, 2010, p11).

Although, it is agreed that women differ from men in their personal and professional vision of life, there are some researchers who point out that female and male motivations regarding entrepreneurship initiatives are more similar than they are different (Buttner and Moore, 1997; Birley, 1989; Batory, 2004). (Buttner and Moore,1997, p233) argue that both genders seek independence, autonomy and higher incomes for their efforts. (Berry, 1994, p187) avers that the main different factor between genders is self-confidence.

(Gadar, 2009, p159) conducted research using survey methods of questionnaire and interview found that women entrepreneurs are motivated by their perception and believe about the economic situation in the places they live. This research reveals that women entrepreneurs are motivated by the need of economical freedom, ability to do both business and family affairs, to become decision maker on the business, unwilling to do salaried work and boredom on previous salaried work.

In addition to the diversities indicated above, (Coughlin, 2002, p317) believes that it will be useful to clarify several motivational factors that support female initiatives to become entrepreneurs, like: 1- generate income 2- achieve those things that the system fails to provide in developed countries and to fight poverty in developing countries, 3- Pride in achievement (The need for achievement, personal growth and self determination are high motivating factors among women who have already started some entrepreneurial activities), 4- Need for change (Women become entrepreneurs in order to make change), 5- Autonomy

and independence, 6- Women having a motherhood role are less satisfied with their careers and perceive entrepreneurship as a tool to adjust their career needs to their family obligations, 7- Frustration and boredom with the present job (These factors highly impact on women to embark on entrepreneurship.), 8- Dissatisfaction with the present job (Many women are driven to improve and expand new ideas, products and services by self-owned businesses.), 9- Work environment (Some women perceive work environments in big firms as not friendly and hence they search for entrepreneurship to change this situation), 10- Glass ceiling" (Coughlin and Thomas, 2002, p 321).

5. Obstacles to female entrepreneurship:

In most societies of the world, entrepreneurship is predominantly a male dominated phenomenon. In different parts of the world, status of women in society is different. It has been widely argued that women do not get equal opportunities for entering entrepreneurship. This statement is not limited to any specific country or society. Reasons for poor involvement of women in entrepreneurship are fairly similar across the world, differences exist too. (ILO, 2004; Mas-Tur, Roig-Tierno, & Soriano, 2016; Mathew, 2010; McCracken et al., 2015; Roomi & Parrott, 2008; Tambunan, 2009).

(Delmar, 2004, p42) notes obstacles in four-stages of entrepreneurial process: (a). Identification of an opportunity and willingness to enter the process; (b). Achievement of essential information, resources and start up; (c). Management of the business and; (d). Growth of the business.

(Pardo -del-Val 2010, p 147) argues that a lack of knowledge, insufficient training and experience, and family responsibilities impose obstacles for women entrepreneurs in Europe, as well, (Ganesan, 2002,

p78) posit that working capital, equity finance, and marketing products are the most difficult areas for women entrepreneurs.

According to Majority Report of of the U.S. Senate Committee on Small Business and Entrepreneurship (2014), women do not get sufficient access to loans and venture capital; they also face challenges getting access to relevant and sufficient specialized business counseling and training, which is important for business growth.

(Mathew , 2010, p167) mentions that, in the Middle East, lack of education, skills, seriousness in undertaking work, exposure and social network along with the social norms and suppressed conditions are major barriers for women.

(Sadi, 2010, p 09-11) investigated how difficult it was for women to run their own enterprises in Saudi Arabia. They revealed that while self-achievement was the greatest motivation for women engaged in business in Saudi Arabia, key barriers were as follows: insufficient institutional support, lack of market studies, lack of cooperation from the government departments, lack of support from the society, societal restrictions and oligopolistic approach of investors.

Same to sadi, Al ghazali, (Al-Sadi, 2011, p64) identified the factors hindering women entrepreneurship in Al-Batinah (Oman) and discovered that barriers associated with education and training infrastructure, occupation, behaviour, sociocultural factors, judicial system and role-affected female entrepreneurs.

6. Study methodology :

In order to study the phenomenon of female entrepreneurship in Algeria in an objective way, we choose the quantitative approach, using a questionnaire developed for this purpose. The questionnaire was

carried out and used for the investigation of the profile of women entrepreneurs, and their motivational factors. Following the quantitative phase, a qualitative approach was adopted, using interviews analysis to achieve the third objective of the study about the challenges of Algerian women entrepreneurs.

6.1. Data collection:

A questionnaire was developed and filled in by 33 women entrepreneurs, in order to answer questions about their profiles, and their motivational factors. The questions, which were originally developed in english, were administered in Arabic, as most respondents did not understand english. Furthermore, two senior academics checked the questionnaire to ensure clarity in expressions and ease of communication. The questionnaires were given directly to women entrepreneurs, who had to choose the appropriate answers.

Semi structured interviews were used mainly to get answers about the constraints and challengers of women entrepreneurs.

7. Study results :

The data from a sample of 33 women entrepreneurs was analyzed, and helped to draw the following conclusions:

Table 2 : Profile of participants

<i>Variables</i>	<i>Percentage %</i>
<i>Age</i>	
<i>18-24</i>	12,12 %
<i>25-40</i>	63,64%
<i>More than 40</i>	24,24%
<i>Marital status</i>	
<i>Single</i>	16%
<i>Married</i>	73,5%
<i>Divorced</i>	5,50%
<i>Widowed</i>	5%

<i>Educational level</i>	
<i>No education</i>	6%
<i>Primary</i>	6%
<i>Middle school</i>	21%
<i>Secondary</i>	36%
<i>Higher</i>	30%
<i>Type of sector</i>	
<i>Service</i>	52%
<i>Retail distribution</i>	27%
<i>Manufacturing</i>	09%
<i>Agriculture</i>	12%
<i>Working in a corporate establishment before starting up</i>	
<i>Yes</i>	70%
<i>No</i>	30%
<i>Number of years worked in corporate establishment</i>	
<i>0-5 years</i>	72%
<i>6-10 years</i>	24%
<i>More than 11 years</i>	04%
<i>Who initiated the business idea</i>	
<i>My self</i>	71%
<i>My husband</i>	10%
<i>Other family's member</i>	12%
<i>Friends</i>	01%
<i>Bought existing businesses</i>	06%
<i>Form of ownership:</i>	
<i>Individual proprietorship</i>	95%
<i>Partnership</i>	05%
<i>How did you get the skills to develop the business:</i>	
<i>By training</i>	04%
<i>By advice</i>	27%
<i>Own experience</i>	65%
<i>Other</i>	04%

Plus than half (63, 64%) of the respondents reported their age as being between 25 to 45 years; and (24 %) of them are more than 45 years. The majority of women are married (73%), and 36 % had education to the secondary level, not far from women with higher

educational degree (30%).

More than half of female entrepreneurs (52%) prefer working ran ventures in the areas of services (e.g., beauty parlors, fashion boutiques, home decoration, and information technology) and (27%) of them are working on retail distribution. The majority had worked in a corporate establishment before starting up their own business: (72%) worked for five years or less, while (24 %) worked for six to ten years, and 4 % for more than eleven years.

The women who initiated alone their business are about (71%). (10%) of the women’s business idea are initiated from their husbands, (12%) run a business that was initially the idea came from family member and only (01%) said that the idea was from friends. (95%) of the businesses run by the women investigated are sole proprietorship and only (05%) their business is partnership.

(65%) develop their business by their own experience and (27%) by advice, the rest by skills gained through training or other means.

Table 3: Motivational Factors of Women Entrepreneurs to enter to entrepreneurial activity:

<i>Factors</i>	<i>Percentage</i>
<i>Personal growth</i>	32 %
<i>Economic reasons</i>	27%
<i>Desire for achievement</i>	09%
<i>Recommendations from friends or family</i>	08 %
<i>High self-esteem</i>	21 %
<i>Creativity</i>	03 %

As table 03 explains, the reasons that can cause business start-up are selected 6 factors to analyze. After the collection of the data, results revealed that factors like personal growth, need for economic opportunity and high self esteem are the major factors that motivate women entrepreneurs in jijel region where they score the highest percentage with 32%, 27% and 21% respectively.

8. Discussion :

Women entrepreneurs of JIJEL shared certain characteristics. The majority of them were between twenty-five and forty five years old. More than half of them are married, had secondary education and had worked in a corporate establishment before. The majority had fewer than five years of prior experience and had relied to their experience and advices from local role models to develop their sole proprietorship businesses. These women prefer service and retail distribution sectors. These findings conform to most of the characteristics of women entrepreneurs (namely, age group, perceived opportunities, and confidence in their abilities) as reported by the Global Entrepreneurship Monitor (2010) report.

The most important factor that motivates any new business entrepreneur is the amount he or she needs to be invested in a new business venture. The requirement of capital for a business venture is same for all kind of businesses and it is not different from small or medium sector business ventures. In order to start a small scale business, the new entrants has to think of various expenditures like infrastructure, manpower, machineries, raw materials, capital etc., and has to make the project viable in accordance with the expectations. It is well pointed out in many countries that the key issues facing new and growing women-owned enterprises are access to capital, access to information and access to networks. The present findings in this study

indicate a number of factors motivated Algerian women to become entrepreneurs. These motivations include: a vision towards personal and professional development, a desire to work and earn money, and high self esteem are the three major entrepreneurial factors which motivate women to get into new business ventures.

Based on interviews, additional factors prevented an enables these women to become entrepreneurs. The major problems of jijilien women entrepreneurs come from their socio cultural environment, more than half of female entrepreneurs consider that the success of women entrepreneurs requires a radical change in the attitudes of people in Algerian society. Different responses show that women entrepreneurs face sociocultural constraints, as a result to attitudes, behaviors and practices of people in a male society. Another challenge is the jealousy between women entrepreneurs, and more than 30 percent of them found that their competitors were jealous of them. They also suffer from financial constraints specially the limited access to loans, Lack of entrepreneurship training and education.

9. Conclusion :

The aim of this study was to determine the characteristics and motivations for women entrepreneurs and to understand the main obstacles they faced to achieve their success. Data analysis and interpretation revealed the following major findings under this objective. It revealed that the age of women in business in JIJEL region is in between twenty five and forty; more than half had secondary education and had worked in a corporate establishment before.

Their decision to become an entrepreneur is a result of the economic conditions, cultural context, as well as intrinsic and extrinsic motivations, “push” and “pull” factors, i.e. individual (socio-demographic variables) and environmental factors. Motivation plays an important role in an entrepreneurial venture and can thus be considered

as a valuable “resource”. Empirical studies have shown that Algerian women are highly intrinsically motivated by personal and professional development, a desire to work and earn money, high self esteem, search for stability, and individual efficiencies. Additional factors prevented an enables these women to become entrepreneurs, they face difficulties in developing their own ventures due to several challenges, such as competition and jealous between woman, lack of education, experience and training, sociocultural restrictions and financial constraints specially the limited access to loans.

To encourage and enable women to initiate and become successful in their own business ventures, the barriers mentioned in this study need to be removed through increasing awareness, providing vocational training and skill development not only to women but also behavioral training to men so that they understand and acknowledge the importance of women becoming entrepreneurs, and respect them for it.

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***Business Ethics and Corporate Social Responsibility –
Analytical Study of North Africa and the Middle East (MENA)
Region***

**أخلاقيات الأعمال والمسؤولية الاجتماعية للشركات – دراسة تحليلية لمنطقة الشرق الأوسط
وشمال أفريقيا**

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Abstract: The study aimed to identify CSR practices in the MENA region. This descriptive-analytical study has relied on reports and statistics from different sources: *the study of (Gerged & Christopher J Cowton, 2017), Report of “HAWKAMAH “, Civil Society Organization Index 2016, ESG Index... etc.* Results show that companies in the region are oriented towards philanthropic responsibilities more than economic and legal ones. Opportunities for improvement are expected if companies overcome political, socio-cultural, and environmental challenges.

keyword: Ethics; Business ethics; Corporate Social Responsibility (CSR); Corporate Social Performance, Ethical and Philanthropic Responsibility.

JEL classification code : M14, N37, N47, O13, O18, O44, O53, O55.

ملخص: هدفت الدراسة للتعرف على ممارسات المسؤولية الاجتماعية للشركات في منطقة الشرق الأوسط وشمال أفريقيا MENA. اعتمدت الدراسة الوصفية التحليلية على إحصائيات وتقارير من مصادر مختلفة: دراسة (Gerged & Christopher J Cowton, 2017)، تقرير حوكمة، تقرير مؤشر منظمة المجتمع المدني 2016، مؤشر ESG ... إلخ. أظهرت نتائج الدراسة توجه العديد من الشركات في المنطقة إلى تلبية المسؤوليات الخيرية بشكل أكبر من المسؤوليات الاقتصادية، القانونية والأخلاقية. هناك فرص للتحسين متوقعة إذا ماتم تجاوزت الشركات التحديات السياسية، الاجتماعية والثقافية والبيئية.

الكلمات المفتاحية: الأخلاقيات؛ أخلاقيات الأعمال؛ المسؤولية الاجتماعية للشركات؛ الأداء الاجتماعي للشركات، المسؤولية الأخلاقية والخيرية.

تصنيف JEL: M14, N37, N47, O13, O18, O44, O53, O55.

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1. Introduction :

The Middle East and North Africa (MENA) is a region rich in energy and human resources, like the rest of the world it seeks to improve its economic and social conditions and take care of the issues raised by the societal and business environment, in health, education, unemployment, corruption, political stability ...etc. Despite the opportunities available to the region, manifested in various programs and initiatives promoting the work of companies, especially small and medium enterprises (SME's), it still needs more attention to catch up countries in the developed world. The adoption of social responsibility concepts by businesses in the region, therefore, a developmental and ethical necessity according to leaders in the region.

Archie B. Carroll is known as one of the pioneers in Corporate Social Responsibility (CSR) field, representing its 4-dimensional pyramid as CSR model, regarding the ethical responsibility as one of the dimension' sides by side to economic, legal and philanthropic responsibilities. To explore more the contributions of MENA companies to different social and economic aspects in the area, the following key question was asked: ***“What are the contributions of CSR practices in the MENA region”?*** besides the following set of sub-questions:

- Are companies in the MENA region socially responsible?
- What have companies in the region done to demonstrate their commitment to their economic, legal, ethical and philanthropic responsibilities?
- What are the obstacles facing companies in their performances and social responsibilities in the region?

2. Literature review: This part presents the literature review to different concepts related to ethics and corporate social responsibility.

2.1. Ethics and Corporate Social Responsibility (CSR):

A study conducted in Europe on CSR education, confirms that there are 50 different brands referred to CSR models and 40 different referred to CSR programs and a number of their vocabulary most commonly used: “*business ethics, corporate citizenship, sustainability or sustainable development, management Corporate Environmental, Business and Society, Business and Governance, Business and society, Globalization and Stakeholder Management*” (Visser, 2006, p. 32).

- **Ethics:** Is from the Greek word: *Ethos*, means: **personality or custom**. The word origin refers to individual personality and the meaning of being "good". It is what governs individual's behaviour from social rules and standards of wrong and right (Turnipseed, 2002, p. 02) what individuals should do, usually about duties, principles, certain virtues and benefits to society (James Savara, 2015, p. 12).

- **Business Ethics:** Is a field of applied ethics that examines ethical rules and principles in a business context, various ethical problems may arise in a business environment, and any special duties or obligations of persons involved in the business (Christensen & al, 2007, p. 351). It is the daily conduct of business with the world (*business interaction with the world as a whole and to individuals dealing with the customer*) (Velentzas & Broni, 2010, p. 795).

1.2. Corporate Social Responsibility (CSR): There is a great deal of uncertainty about what CSR really means and what drives business to pursue it (Schwartz & Archie B, 2003, p. 503) (Chauhan & Amit, 2014, p. 24) What contributes to this blur is the lack of agreement on what the term really means (B. Caroll, 1979, p. 479) in theory and practice (Schwartz & Archie B. Carroll, 2008, p. 156). CSR combines some theories and different methods that use the same terms in different meanings. This problem is old, Votaw wrote 30 years ago: “**CSR means something, but not always the same for everyone**” (Garriga & Dome`nec Mele, 2004, p. 52). Carroll described the situation as a selection of training / perspectives field, “**a multidisciplinary, encompassing a wide range of literature**” (Garriga & Dome`nec Mele, 2004, p. 52). Definitions of what social responsibility means have been exceeded 37 definitions (Carroll & Kareem M. Shabana, 2010, p. 89).

The concept of social responsibility (SR) has evolved over decades, it was set in 1930 in the work of Wendell Wilkie who helped teach entrepreneurs a new meaning of SR, the first who directly point

to the subject was Howard Bowen in 1953 in his book: “*Social Responsibilities of the Businessman*” (B. Carroll, 1979, p. 497). In 1960, Keith Davis suggested that SR refers to decisions and actions taken by companies for reasons beyond the direct economic or technical interest. Walton & Ells in 1961 pointed out the problems occurred when a corporation casts a shadow on social and principle ethics that governs the relationship between company and society (Carroll AB, 1991, p. 40). The controversy over social responsibility has escalated as a result of the large trend in this direction. Friedman (1961) argued that if accepting social responsibility rather than collecting as much money as possible for stakeholders, this will undermine freedom as a principal of American society (Carroll, 1979, p. 497), he argued also that social issues are not business concerns and that these problems must be solved through the mechanism of the free market system (Carroll & Kareem M. Shabana, 2010, p. 88).

Peter Drucker's views on corporate social responsibility make it clear that the prime responsibility is the economic performance of businesses; “*businesses that do not show a profit at least equal to the cost of capital, are socially irresponsible and are a waste of community resources*” (Ashokkumar, 2014, p. 21). Making money is not a mistake in itself, but the way companies perceived their work raises the issue of ethical behaviour (Velentzas & Broni, 2010, p. 795). CSR is a part of the Company's operations where it contributes to the environment in terms of financial, environmental, ethical and social investment voluntarily. They are responsible for actions that affect consumption; it is a competition to meet the needs of today's generation without risking the ability of future generations to meet the same requirements (Chauhan & Amit, 2014, p. 24). They have a responsibility to shape the future by following ethics and socially responsible practices (Ashokkumar, 2014, p. 21). Organizations have developed a different approach to address contradictions between community needs and environment and business fundamentals, especially in the integration of the CSR approach into global strategy and daily operations (Chauhan & Amit, 2014, p. 24). In the beginning, the original focus of CSR was to reduce negative social impacts, over time through the focus shifted to the general idea of “*doing good*” for society (Schwartz & Archie B. Carroll, 2008, p. 156). The pyramid of social responsibility is a model

illustrates a four (04) level: economic, legal, ethical and philanthropic (B.Carroll, 1979), (B.Carroll, 1991); (Schwartz & Archie B. Carroll, 2003), (Al-Ghalbi and Saleh Mahdi Mohsen Al-Amri, 2008), (Carroll & Kareem M. Shabana, 2010).

- **Economic responsibility:** Enterprises have the responsibility to produce goods and services that society wants and sell them for a profit. Any other role of business is based on this element (B. Carroll, 1979, p. 500). The principle of profit was originally defined in terms of “*acceptable profits*” and then turned into “*maximization of profit*” (Carroll & Kareem M. Shabana, 2010, p. 90).

- **Legal Responsibility:** Business activity is expected to comply with governmental laws and regulations. It acts as a bridge for a social contract between business and society. Companies are expected to pursue their economic tasks within the framework of the law. In the sense that they embody the basic concepts of fair operations as defined by legislators as Codified Ethics (B. Carroll, 1991, p. 41).

- **Ethical Responsibility:** Is those activities and practices that community members prohibit, even though they are not codified in law. It includes standards or expectations that reflect concern about what consumers, employees, shareholders and what society perceived as equitable, fair or harmonious while respecting or protecting the moral rights of stakeholders beyond the legal sphere as the driving force behind the creation of laws or regulations (B.Carroll, 1991, p. 41).

- **Philanthropic/ Voluntary Responsibility:** Philanthropy encompasses collective actions that are in response to community expectations of good corporate citizenship. This includes active participation in actions or programs to promote human well-being. Philanthropy includes business contributions for financial resources or execution time to arts, education, or society in general (B. Carroll, 1991, p. 42). Economic and legal responsibilities are classical business responsibilities, both of which are required, while ethical and philanthropic responsibilities (voluntary) are modern responsibilities the first is expected while the second is desirable (Carroll & Kareem M. Shabana, 2010, p. 90) (Schwartz & Archie B. Carroll, 2003, p. 504).

Most of the major corporate websites today focus on the commitment to non-economic social values within a variety of labels (*ethical codes, social responsibility codes*). Companies are redefining their core values under the light of business ethical considerations

(Velentzas & Broni, 2010, p. 796). Working on a wide range of culturally complex and diverse territories confirms that the CSR agenda needs to be localized ...this may include emphasizing some aspects of CSR more than others or giving greater priority to prominent stakeholder groups in the host countries, especially when talking about international business (Halkos & Antonis Skouloudis, 2016, p. 24). There is very little research on the extent and nature of corporate social responsibility in developing countries. Moreover, there is little literature explaining the involvement of SMEs in corporate social responsibility - particularly in the MENA region where most companies are SMEs - (Lythreatis & Ahmed Mostafa, 2017, pp. 05-06).

2.2. Overview of Corporate Social Responsibility in MENA Countries: It is not always clear which countries are listed under the term of MENA region, sometimes **Mauritania and Turkey** are included. It is therefore important to provide some geographical clarification of what the MENA region covers. According to “**Manarah**” project identified a wide area including *Mauritania, Morocco, Algeria, Libya, Tunisia, Egypt, Oman, Yemen, Saudi Arabia, United Arab Emirates, Qatar, Bahrain, Kuwait, Iraq, Iran, Sudan, Syria, Jordan, Lebanon, Occupied Palestinian Territories, Israel and Turkey*. Studies refer to the Palestinian territories in different ways in studies: (*Palestine, west bank or Gaza*).

2.2.1. Business and Investment Climate in the Middle East and North Africa (MENA): The (MENA) region covers 6% of the world's population, estimated at 300 million people. Community-based organizations in the region faced a variety of challenges, particularly on security, leading to logistical and legal problems (The 2016 Civil Society Organization Sustainability Index for the Middle East and North Africa, 2016, p. 07). MENA countries suffered from 69% of the total number of terrorist attacks between 2003-2012. The region is also characterized by a high level of violence in neighbouring countries (Baleix & Federico Carril Caccia, 2018, p. 01). Besides the political conflict between the West Bank and the Gaza Strip, the formation of a government of national salvation of the Houthis, the survival of Morocco without a government for six months, the election of a new parliament in Egypt ... where the efforts did not achieve the hope of reforming the situations (The 2016 Civil Society Organization

Sustainability Index for the Middle East and North Africa, 2016, p. 07). Greenfield investments account for more than 80% of FDI: Foreign Direct Investment projects during the period 2003-2012, in most countries of the region, with foreign companies contributing more than 50,000 jobs in *Algeria, Egypt, Morocco, Saudi Arabia, Tunisia United Arab Emirates* (Baleix & Federico Carril Caccia, 2018, p. 01). In some MENA countries, these investments account for more than 3% of GDP, which means more than 1,500 billion \$ annually (Sustainable Investment in the Middle East and North Africa Region Report, 2009, p. 08). The average number of days required to start a business in the MENA is lower than any other developing countries; Iran, Kuwait, Lebanon, Saudi Arabia, Syria and Yemen have not been able to reach this share (Baleix & Federico Carril Caccia, 2018, p. 01). The onset of the Western economic crisis and the Arab Spring has had a major impact on attracting FDI to the region and in most countries, these investments no longer exceed the threshold of 3% of GDP (Baleix & Federico Carril Caccia, 2018, p. 01).

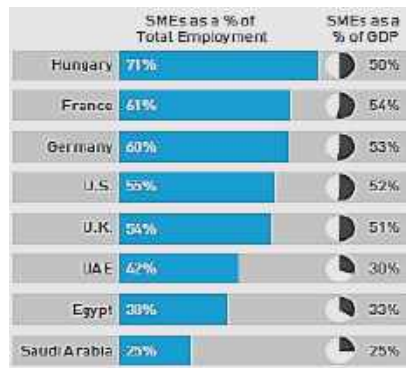
Companies in the (MENA) region began to accept CSR after the establishment of the United Nations Global Compact (UNGC) in 2000, with 306 companies signing up (**4% of the world's companies**). In the first phase of the region's development plan (**2005-2007**); a Regional Institute for Corporate Governance (**HAWKAMA**) was established in Dubai in 2006. Many regional governments at the national level are an engaging business in achieving environmental and social goals through public-private partnerships (PPP) ... (A. Qureshi, 2015, p. 09). [BAYT.com](https://www.bayt.com/en/blog/27020/bayt-com-infographic-how-csr-is-making-an-impact-in-the-middle-east-and-north-africa/) has conducted a survey of employees across 13 countries in the MENA worldwide, its results that the orientation towards social responsibility has not been limited to boardrooms only, nearly two-thirds of employees in the region have already started participating in social or charitable activities. 95% want to increase their commitment to CSR issues, even as consumers 90% of those respondents prefer to buy products and services from socially responsible companies (<https://www.bayt.com/en/blog/27020/bayt-com-infographic-how-csr-is-making-an-impact-in-the-middle-east-and-north-africa/>, consulted on: 06/02/2019, 19: 02).

2.2.2. Addressing the problem of unemployment in the MENA region: Unemployment in the region is enormous as the Middle East

alone must create 75 million jobs by 2020, according to the World Economic Forum (WEF). Lack of jobs for large numbers of young people could have serious consequences for social turbulences and economic activity loses

(www.strategybusiness.com/article/00234?gko=b365d, Consulted on: 06/02/2019, 18: 47). Clearly, the solution to this problem doesn't lie only in government institutions. Countries in the region have found that improving links between the private sector and educational institutions is a key way to address youth unemployment in the region (What's Holding Back the Private Sector in MENA? Lessons from the Enterprise survey, 2016, p. 67).

Fig.1: Comparing the contributions of SMEs in some developed and developing countries to employment and GDP:



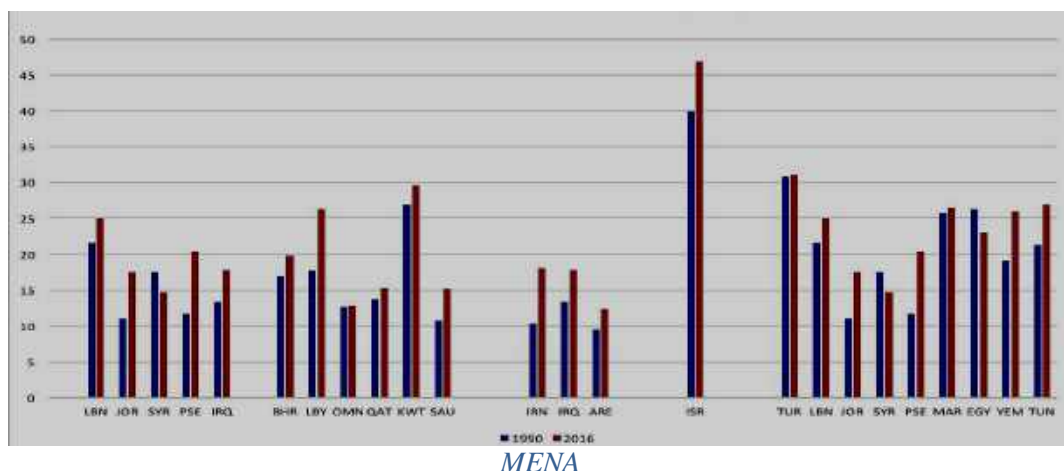
Source: (www.strategy-business.com/article/00234?gko=b365d, consulted on : 06/02/2019, 18: 47)

Therefore, developing countries generally turn to small and medium enterprises (SMEs) to create economic stability and jobs. SMEs in Germany and France present 60% and 61% of employment, while in Saudi Arabia and Egypt SME's represents only 25% and 38% of jobs. In the United Kingdom, the United States, Germany and France, SMEs contribute slightly more than half of GDP, while in Saudi Arabia and Egypt SME's contribute up to 25% and 33% to the GDP. Local governments and the private sector in the MENA region are increasingly recognizing to make a way for SMEs. For example, the Ministry of Labour in Saudi Arabia has identified 36 initiatives as part

of the “SME Ecosystem” project, these initiatives include: *a digital portal provides information on requirements for startups in various industries, restructuring of SMEs, financing process and promoting entrepreneurship, training programs and developing ideas*. From 2005 to 2011, the number of startups increased to eightfold.

2.2.3. Woman participation in economic and labour life: Female participation in the labour market is remarkably low in most countries. Israel has a relatively equal workforce between men and women, with women accounting for 47% of employment. The share of the female labour force in Turkey and Kuwait is about 30%, all other economies are well below 30% and with a trend towards a gradual increase in women's participation in the labour force. Palestine achieved remarkable success in doubling the percentage of women in the labour force from 11.6% from 1990 to 20.3% in 2016. Employment has seen a decline in the female labour market in Egypt (**from 26.3% to 23.1%**) and Syria (**from 17.5% to 14.7%**). While the Syrian labour market has been adversely affected by the war, Egyptian women are discriminated against through poor educational opportunities, high illiteracy rates (37%) and socio-economic conditions that developed after the 2011 Egyptian revolution (McKee & al, 2017, p. 25).

Fig. 04: Comparison of female market labour between 1990-2016 in



Source: (McKee & al, 2017, p. 25)

Except for Israel, Lebanon and Turkey, the MENA region has generally low-quality education systems with a gap between education and the labour market. For example, 63% of Saudi university students who complete their higher education face a low demand from the private sector in fields of agriculture, science, educational services, humanities and arts. Governments in the region increased their spending on education to 5.3% of GDP, on average girls in schools outperform their male counterparts on topics such as mathematics, the rates also of enrollment have risen to nearly 92% across the region. The image of labour markets is described as a ***“Bargaining-authoritarian social contract”*** between systems and communities to politically satisfy the region's population, such a contract only works if the public sector has the financial means to Job creation (McKee & al, 2017, p. 25). Overall, there has been a remarkable increase in women's participation in employment from 1990 to 2016. **Figure (04).**

2.2.4. Energy sources in the region: The (MENA) region is a diversified economy where natural resources vary from a country to another. Morocco and Egypt are scarce of energy resources compared to oil-rich countries such as Saudi Arabia, Qatar and Kuwait. There are many companies operate in polluting sectors (energy or other industrial sectors), So at the environmental level, Arab countries account for 60% of the world's oil reserves and only 0.5% of renewable freshwater resources; which means severe water shortages, the countries in the region need better waste management and there are concerns about poor air quality (<https://www.bayt.com/en/blog/27020/bayt-com-infographic-how-csr-is-making-an-impact-in-the-middle-east-and-north-africa/>: 06/02/2019, 19: 02). The vast majority of water consumed in the MENA region is used directly or indirectly to produce food and up to 85% in agriculture, besides that household's consumption is unusually high. The region has the lowest water tariffs in the world, with the highest proportion of GDP (2%), spent on public water subsidies, the inefficient water supply infrastructure exacerbates the problem: 35 to 50% of the treated water supply is lost in water systems in the Middle East. From 33 countries, 14 countries are expected to be the most vulnerable to water stress in 2040, which the World Bank has warned about, unless the countries take unto

consideration making the necessary reforms (Hot & Dry: Water Scarcity in The MENA Region, 2018, p. 02).

2.2.5. Establishment of "Hawkamah" Regional Institute of Companies: The advancement of CSR is not just about companies (and their employees), it also about governments and nonprofits in the region. **HAWKAMA - MENA's** Regional Institute was established in the MENA region in 2006 in Dubai to promote the formation of corporate governance as well as public-private partnerships, (<https://www.bayt.com/en/blog/27020/bayt-com-infographic-how-csr-is-making-an-impact-in-the-middle-east-and-north-africa/>, consulted on: 06/02/2019, 19: 02), to help bridge the corporate governance gap in the region, the Institute was established in partnership with international organizations: the Organization for Economic Cooperation and Development (OCED), the International Finance Corporation (IFC), the World Bank (WB) and regional organizations including the Union of Arab Banks and the Dubai International Financial Center (DIFC). The Institute grew out of the recognition of the growing need for a regional organization working on the ground to build regional institutions for corporate governance for stakeholder participation (*Environmental, Social & Corporate Governance, Practices in the MENA, 2012-2013, p. 10*). "Hawkamah", in partnership with Standards & Poors and IFC, established the region's first Environmental, Social and Governance Index (ESG) that ranks and tracks transparency and disclosure of regional companies listed on ESG issues. The components of this index are drawn from 11 Arab stock markets. The purpose of the index is to identify companies in the MENA region that are advancing in ESG reporting and policy implementation. it is also a tool for international and regional investors who may not have experience in the region's companies or integrate corporate governance into their investment operations and for companies where listing in the index provides general recognition to the local company of its ESG practices (*Environmental, Social & Corporate Governance Practices in the MENA, 2012-2013, p. 11*). The methodology used to create the index was to choose from the 150 largest and high liquidity companies listed on the national stock exchanges for 11 markets: *Bahrain, Egypt, Jordan, Lebanon, Kuwait, Morocco, Oman, Qatar, Saudi Arabia, Tunisia and the United Arab*

Emirates. Each company was analyzed through nearly 200 environmental, social and governance issues, including *carbon emissions, water and energy consumption, employee health and safety, community investment, charitable donations, financial reporting, audit and board independence and executive remuneration*. Including the top 50 performing companies (Environmental, Social & Corporate Governance Practices in the MENA, 2012-2013, p. 11).

Fig. 5: The weighted, annual compound growth rate of the ESG Index



Source: (Environmental, Social & Corporate Governance Practices in the MENA, 2012-2013, pp. 30-31)

The figure on the left above shows the weighted growth rate of each of the ESG: Economic, Social and Governance pillars between 2011-2012; the region experienced an increase where the highest growth is seen in the social pillar. The figure shows the annual complex growth rate of ECG of the year 2012 reached 12% in the MENA region, in Qatar and Morocco 17% and 16%. The reason for the high growth rate in both countries is that Moroccan companies have started reporting on ESG, while Qatari companies have shown relatively low participation in ESG reports in recent years and are steadily improving them (Environmental, Social & Corporate Governance Practices in the MENA, 2012-2013, pp. 30-31)

The region is seeking to establish the principles of governance, and this through the initiatives of the countries in the region towards the issuing of corporate governance rules by national regulators in parallel with the establishment of national corporate governance institutes.

Oman and Egypt pioneered the region since they developed local governance laws between 2002 and 2005, both of which are based on the OECD principles of corporate governance. Between 2005 and 2009, 11 corporate governance codes were introduced through national regulations as well as specialized guidance for state-owned enterprises, banks and family businesses, accompanied by the tremendous need for education and training services. The emergence of corporate management centres was a natural extension of the process, today 03 of Only 17 countries in the MENA region do not have specific corporate governance codes (Koldertsova, 2010, p. 04).

The degree of compliance and mandatory general charters of governance, as well as the areas of guidance, vary from country to country in the MENA region. For example: *in 2009 Algeria issued a general charter of governance however, it does not have the force of compulsion and has not been accompanied by other directives and charters*. Several countries issued their charters such as: Qatar and Palestine (2009), Bahrain and Yemen in 2010 which is binding, Saudi Arabia (started in 2006 and become binding in 2009), Morocco, Syria, Jordan and Lebanon in (2008), United Arab Emirates (2007 and it is binding), Egypt (in 2005 also is binding), Qatar and Oman (2002 Binding). Libya, Iraq and Kuwait have not adopted governance charters or codes. Some countries have attached this charter with codes and directives for banks and lending institutions, government institutions, small and medium enterprises and commercial intermediaries (Koldertsova, 2010, p. 05)

2.5. Islamic microcredit as a tool to improve the social performance of banks:

These predominantly Arab and Muslim countries share many common cultural characteristics to a varying degree (Gerged & Christopher J Cowton, 2017, p. 03), among these characteristics is Islamic religion and culture. Islamic microcredit is one of the tools that contribute to social performance of the banks. A study done by (Berguiga & Yosra Said, 2017, p. 01) included 67 microfinance institutions in the MENA region and 18 IMF: International Monetary Fund institutions during 2004-2015 as a comparison of their financial and social performance. There is a trade-off for financial performance over social performance weather in Islamic institutions or ordinary institutions despite the practices of IMFIs differs from microfinance

institutions (CMFIs). The Islamic microfinance targeting the poorest groups affects less on their economic sustainability, while its impact is higher on employee productivity beside that granting loans and working in rural areas increases social communication.

2.6. Ethical Climate and Transparency in the Middle East and

North Africa: The annual Anti-Corruption and Integrity Forum of the Organization for Economic Co-operation and Development (OECD) concluded in its last sessions the importance of Fighting against corruption at the global and regional levels, provides an opportunity to connect with the MENA Business Network (MOBIN: MENA-OECD Business Network). It brought together more than 60 stakeholders and experts representing 14 countries as well as international organizations, civil society, the private sector and academia to discuss existing provisions on public-private dialogue on combating corruption ([Institutionalizing Public-Private Dialogue to Fight Against Corruption in the MENA Region, 2018, p. 01](#)). Tunisia along with Jordan, ranked relatively high in Transparency International's Corruption Perceptions Index 2013, while the Republic of Yemen ranked 167 out of 177 economies worldwide. The Rule of Law Index ranks Jordan at 79, Tunisia at 103 and Morocco at 111, Egypt, Lebanon and Yemen ranked much lower ([What's Holding Back the Private Sector in MENA? Lessons from the Enterprise survey, 2016, p. 20](#)). The 2014 Corruption Perceptions Index ranked Lebanon and Egypt at 136 and 94 of the 175 most corrupt countries ([Elgammal & Abdul-Nasser El-Kassar, 2018](#)).

In the year of 2018, United Arab Emirates (UAE) scored 70 and came first on Corruption Perceptions Index 2018 (CPI), the rest of countries seems to fail in their fight against corruption; Syria, Yemen and Libya at the very bottom of the region. MENA region falls behind the Americas and Asia Pacific regions and a little better than eastern Europe and central Asia and at last sub-Saharan Africa. Morocco and Egypt improved by 3 points with scores of 43 and 35, especially since the Moroccan government passed an access to information law, enabled the country to join the Open Government Partnership (OGP), while Egypt despite the increasing the improvements didn't appear on the ground. Syria, Libya, Yemen and Iraq where instable facing terrorism, war and conflicts. Sudan also remains last scoring 16 points due to the

previous reasons (Many protesters against government corruption killed) (<https://www.transparency.org/news/feature/regional-analysis-MENA>, consulted on: 02/12/2019, 20 :39). In a study of 6083 private companies in the MENA region, political instability, corruption and unreliable electricity supplies are obstacles to performance in the region, which It is the highest in MENA companies than in other economies (*What's Holding Back the Private Sector in MENA? Lessons from the Enterprise survey, 2016, p. 22*). Tunisia has a high risk of corruption, followed by countries such as Iran, Jordan, Lebanon, the United Arab Emirates and Saudi Arabia. Algeria, Egypt, Iraq, Kuwait, Libya, Morocco, Oman, Qatar, Syria and Yemen are among the most vulnerable countries at the top of the corruption-prone countries: Iraq, Syria and Yemen are fragile (Tehmina & al, 2015, p. 05). Bribery and corruption programs are ranked 04th among the programs adopted by financial institutions in the region according to the Financial Crimes Report 2015, in addition to: Combating Money Laundering (Ranked 1st), Penalties (Ranked 2nd), Internal and external fraud (ranked 03rd), Financing the fight against terrorism (5th) and Cybercrime (6th) (*Financial Crime in The Middle East and North Africa 2015, 2015*). Statistics and shareholding structures in the region have not changed since 2012. MENA markets continue to be dominated by shareholders (*Index Environmental, Social and Corporate Governance Practices in the Middle East and North Africa Region 2007-2017, 2017, p. 20*). The World Economic Forum estimates that the region needs to create 75 million jobs. by 2020 to maintain current employment levels. In such a scenario, one would expect CSR initiatives to focus on addressing these key needs areas (www.strategybusiness.com/article/00234?gko=b365d, consulted on: 06/02/2019, 18: 47). Corporate social responsibility remains synonymous with philanthropy for most companies and key areas of the focus remains unaddressed. The 2013 BAYT.com survey found that the most common CSR activities in the MENA region include 25% of food, clothing and housing for the poor, 13% work with orphans and disadvantaged children, 7% for education and scholarship activities, 6% Of the activities targeted at individuals with special needs, 4% are for food, clothing and housing for refugees, 4% for environmental reasons, 4% for medical studies, 14% for all previous activities, 12% for other charitable activities, and 11% for none. Even within the corporate sector, the practices of multinational corporations tend to

focus on leading CSR mandates through local corporations and their cultural inclination towards charity, which means that other needs are neglected (<https://www.bayt.com/en/blog/27020/bayt-com-infographic-how-csr-is-making-an-impact-in-the-middle-east-and-north-africa/>, consulted on: 06/02/2019, 19: 02).

3. Study Methodology:

The study is a descriptive-analytical study of statistics, studies, global reports: (Koldertsova, 2010), (McKee & al, 2017), (Gerged & Christopher J Cowton, 2017), Global Reports and Indexes: Reports of the Regional Institute of Companies “**HAWKAMAH**”, Civil Society Organization Index 2016, ESG Index, OCED... etc which included the practices of companies and countries for social responsibility in the MENA region. In addition to identifying its many contributions in the countries of the region and its implications on the business climate and investments and the economic and social situation.

4. Study Results:

To address the problem of unemployment and motivate unemployed youth energies, the countries of the region launched several initiatives to encourage partnership between public and private companies and develop accompaniment programs to help entrepreneurs establishing small and medium enterprises and start-ups, this is led to an increasing in its number to eight times during 2005-2011.

Unstable political conditions are considered as barriers to some projects to be implemented in conflict and war zones, but the results of the trend towards women's participation in economic life have been somewhat contradictory. For example, Palestine experienced success in doubling the female labour force during (1990-2016); This is due to several measures and legislation adopted by Palestinian government to increase the participation of women in economic life, including the adoption of the Palestinian Labour Law in 2000, which enshrined the principle of non-discrimination between men and women at work, with emphasis on their right to do so and employers' commitment providing the right working conditions. The National Employment Strategy 2000-2004 is designed to alleviate unemployment for both men and women, one of its objectives are to increase the participation of women in the

labour market and to take the necessary measures to achieve it ... (<https://www.un.org/womenwatch/daw/Review/responses/PALESTINE-Arabic.pdf>, consulted on: 30/03/2019, 20: 55). On the other hand, the percentage in both Egypt and Syria declined due to the turbulent political situation that accompanied the Arab Spring 2010-2011, Female employment is also linked to the quality of education in the region, study fields and their compatibility with the labour market in the countries under study, overall there has been an increase in women's participation in most countries between 1990 and 2016.

The exploitation of energy resources in the MENA region is usually in polluting industries. Most of these countries have rentier economies (60% of the world's oil reserves), desert areas suffer from freshwater scarcity (only 0.5%), and water tariffs are the lowest in the world. Inefficient supply infrastructure and loss of between 35% and 50% in Middle Eastern countries.

Regional Institute of Companies “ **Hawkamah** ” has contributed to the creation of the region's first environmental, social and governance index to track the region's commitment to transparency, which had an impact on attracting foreign investment. It is noteworthy that the commitment of preparing reports is variant since Morocco and Qatar committing to do it. In general, 14 countries in the region have rules, codes and charters of corporate governance, although there are differences in: *degrees of compliance, mandatory and guidance*.

Bribery and corruption programs rank fourth in the concerns of financial institutions in the region (**Financial Crimes Report 2015**) and countries in the region have failed to fight corruption, as reflected in low perceptions of corruption (**Transparency International Report 2018, Transparency International Defense and Security Report 2015**). Companies in the region have been more focused on shareholders since 2012, and despite the negligence of other stakeholders, it is indicative of the companies' economic and legal responsibilities. The Arab and Islamic culture has contributed to innovative and contemporary economic trends such as Islamic banks and microcredit, which offers variant social objectives, but the social performance of these institutions has not been verified according to the study of (**Berguiga & Yosra Said, 2017**), although they reflect the tolerance of these institutions to its Social responsibilities by targeting the poorest, which affects their economic sustainability. This culture

has also made social responsibility synonymous to philanthropy (25% food, clothing and housing, 13% to the disadvantage people, 7% to education, 6% to people with special needs, 4% to refugees, 4% to environmental studies, 4% to medical studies, and the rest for all these activities 14%, other activities 12% and 11% in other areas).

5. Conclusion:

CSR can only be socially responsible when it is ethically responsible; ethical responsibility is reflected in the corporate practices of its economic, social and environmental responsibilities by complying with and anticipating its legal obligations to shareholders and other stakeholders. Social, legal and ethical responsibilities overlap so that they can be viewed in an intertwined way; the realization of each step helps to achieve the rest. The region interest in corporate social responsibility is a moral imperative for Arab and Islamic culture in MENA societies, which may explain why the companies are moving to a one-sided view towards philanthropic responsibilities through subsidies to their communities.

Companies in the region have found many ways to achieve sustainable development through public-private partnerships and their attempts to reduce the gap between education and formation and the labour market, by encouraging personal and youth initiatives in the establishment of small and medium enterprises, supporting youth employment initiatives in the region, and encouraging the involvement of women in economic life and leadership positions and fair opportunities for both genders.

The contributions of corporate social responsibility at the local and global levels and the efforts of public and private companies and civil society organizations of countries in the region cannot be denied, but they are still insufficient to promote the economies and societies of these countries for several reasons:

Instability in some countries of the region (**civil wars, cross-border displacement of refugees, terrorist attacks and military interventions**), which makes these areas unattractive to foreign investments and weakens its status and its negative impact on the business climate, it creates the inappropriate environment for the development of laws, amended to apply and comply it, to organize elections or forming governments in democratic ways;

- Although some countries in the region are rich in natural and oil resources, they are suffering from excessive energy consumption and a severe shortage of water resources. The dependence of some MENA countries on industrial activities negatively affects the environment;
- Companies in the region do not abide by common laws or standards or to prepare or submit annual development reports regularly due to the differences in laws defined for work and ethical and social responsibility charters and general charters of governance, initiative (eg. **“Hawkamah”** Regional Institute of Companies), drawn up by countries and companies in parallel with their cultural, societal needs, characteristics and the business environment;
- There is a broad trend towards new economic ideas and practices as Islamic microcredit in some countries of the region and despite the recognition of their impact on improving the social conditions of disadvantaged groups, the study of (**Berguiga & Yosra Said, 2017**) did not show significant differences compared to other financial institutions, such as the International Monetary Fund (IMF) and its branches, especially in regards to the social performance offered primarily to different groups;
- Figures indicating the rates of corruption and bribery or the possibility of it in the countries of the region or moral commitment, in general, cannot be viewed in a positive way, even in sensitive government sectors in areas of defence, security and financial crimes. This the most prominent challenges facing public and private companies in the region. This indicates a lack of commitment to law enforcement and compliance to legislation;
- Levels of transparency in the countries are also not high and do not exceed the companies’ commitments to shareholders and their financial shares and the activities of the company and some financial reports, but they are also insufficient with regard to responsibilities towards other stakeholders outside the companies.

Despite the efforts made in the MENA countries' to meet the requirements of social responsibility, there is an insufficient in activities and practices in the (03) key pillars underpinning the prevailing concept of social responsibility (economic, legal and ethical responsibilities) which in some way intersect to complement one another and to fulfil economic obligations only by setting, Comply with and enforce laws that guarantee shareholder rights, and laws do not

exist without a specific ethical framework that guarantees the rights of other stakeholders.

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The extent to which organizational health dimensions are available in business organizations Field Study in Djelfa Mills Complex

مدى توفر أبعاد الصحة التنظيمية في منظمات الاعمال دراسة ميدانية بمركب مطاحن الجلفة

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Abstract:

The study aims to identify the availability of organizational health dimensions from the point of view of workers in D M C, To achieve the objectives of this study, a questionnaire was distributed to a random sample (85) workers in the investigated complex, after the analysis of the data The study concluded to result the following: The availability of Organizational Health dimensions in D M Cis at an average level, In the light of this result, a number of recommendations have been formulated, the most important of which is to enhance the availability of Organizational Health dimensions in D M C.

keyword: organizational health; Djelfa Mills complex.

JEL classification code : I19

ملخص:

تستهدف الدراسة التعرف على مدى توفر ابعاد الصحة التنظيمية من وجهة نظر العاملين بمركب مطاحن الجلفة، ولتحقيق اهداف الدراسة تم تطوير استبانة لجمع البيانات، وزعت على عينة عشوائية مكونة من (85) عامل، وقد تم التوصل الى النتيجة التالية: توفر أبعاد الصحة التنظيمية بمركب مطاحن الجلفة بمستوى متوسط، وفي ضوء هذه النتيجة تم صياغة مجموعة من التوصيات أهمها العمل على تعزيز توفر أبعاد الصحة التنظيمية بمركب مطاحن الجلفة .
الكلمات المفتاحية: الصحة التنظيمية؛ مركب مطاحن الجلفة.

I19: تصنيف JEL

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1. Introduction :

we noticed an increase interest in studying and analysing of the work environment in business organizations in the past years, and that's due to the rapid changes in the internal and external business environment, and the technological revolution, the organizations had to use their inputs effectively To achieve the desired goals and maintain its survival and continuity, and organizational health was one of the modern approaches to the study of the work environment.

Many researchers argue that organizational health is the ability of the organization to adapt to the surrounding environment, and the ability to achieve its goals efficiently and effectively, so that all subsystems in the organization work harmoniously to be a healthy organization

Therefore, the Problematic of our study can be formulated as follows:

What is the availability of organizational health dimensions in Djelfa Mills complex from the point of view of its employees?

As an answer to the initial problematic, We relied on the following hypothesis:

“The level of awareness of the organizational health dimensions of workers in Djelfa Mills Complex is average”.

This study aims to achieve a set of goals as follows:

- Comprehension of the most important concepts of the organizational health
- Analysis of the most important dimensions of organizational health
- The study provides also a diagnosis of organizational health on Djelfa Mills Complex, and then, it offers solutions and recommendations for decision-makers with a view to taking the necessary measures

2. LITERATURE REVIEW:

1.2. the Concept of Organization Health:

Traditionally, in the literature of health promotion, concepts like occupational health, healthy workplaces and workplace health promotion have been used to describe and analyze health issues in organizations (Mowday , Steers, & Porter, 1979), These concepts have mainly focused on individuals and group dimensions of health at the workplace, but more recently, organizational dimensions have also been included (Patrick, 2012)(Pernica, 2011, p. 45), On the other hand,

organizational health has been used for a long time in the management literature, mainly as an abstract idea of what constitutes a ‘good organization structure’(Rai, 2013, p. 268), but also in connection with organizational diagnosis for design and development of organizations (Robert, 1992, p. 51)(Simpson & Kaminski, 2007, p. 61).

In empirical research, organizational health has been used in assessments of organizational climate in educational institutions(Sudin, 2011, p. 61), Also in studies of industrial restructuring and downsizing(Sušanj & Jakopec, 2012), and recently in studies of occupational health with a focus on the organizational context(Tziner, Oren, Bar, & Kadosh, 2011) (Xiong, 1997), Although the concept of organization health was first used by Argyris in the 1950s(Tutar, 2010, p. 184), its foundations go back to the 1960s, when the specialists of human relations and behavioural sciences who strived to produce a solution to the question of how the employees should be treated (GÜL, 2007, p. 321).

Accordingly, the concept of organizational health, first put forward in 1969 by Matthew Miles, it is a simulation developed on the climate of schools (Miles, 1969, p. 376), He believed that the organizational health depends on the organization’s durability and survive in its environment(Hoy K. W., 1990).

2.2.The importance of organizational health :

Organizational health is considered as an administrative approach to the development of organizations and continuity of growth through raising the levels of performance (Polatci, Kadir, & Adem, 2008), It also contributes to changing the planning process and improving the regulatory environment(Cemaloğlu, 2007, p. 6), It is also the main assessment tool for relations and circumstances within the Organization (Hill, 2003), It also enables the organization to meet the needs of employees for welfare, productivity and self-positive experiences(Raya & Panneerselvam, 2013).

2.3.The dimensions of organizational health :

Since 1965, “organization health” has particularly attracted the attention of Matthew B. Miles and Wayne K. Hoy, and based on the researches, they have defined this concept, stressed its importance, and then developed dimensions to be able to measure the organization

health, which they argued to be important for the organization success (Polatci, Kadir, & Adem, 2008, p. 147).

2.3.1. The Organizational Health Dimensions Developed by Miles:

As stated By the model brought by Miles, dimensions of the organization health may be outlined as follows (BULUÇ, 2008)

(Hoy & Fedman, 1987, p. 30).

• The TaskNeeds Dimension

1. **Objective-Focus:** The objectives are easily understandable, acceptable and achievable by the organization members.
2. **Communication Adequacy:** An in-organization communication system preventing misunderstandings is present. Then, the employees access information that are correct and therefor increase organization efficiency.
3. **Optimal Power Uniformity:** Distribution of the power is relatively uniform in the organization. They always think that those at lower state can influence those at the immediate upper state or level.

• SurvivalNeeds Dimension

4. **Effective Use of Resources:** Task distribution within the organization is done in the most effective way - neither less nor more than as required. There is a coherence between the demands and needs.
5. **Organizational Commitment:** The workers love the organization and desire to stay there. They are influenced by the organization, and spend all their powers for unity of the organization.
6. **Morale:** In general there is workers health and team fulfilment in the organization.

• Growth and DevelopmentNeeds Dimension

7. **Innovativeness:** The organization develops new procedures, sets new targets and constantly develops.
8. **Autonomy:** It shows multiple independent attributes to the outer factors.
9. **Adaptation:** The organization has the ability of making the essential modifications in itself for growth and development.
10. **Problem Solving Competency:** The problems are solved with minimum energy. Problem solving mechanism is constantly supported and strengthened.

2.3.2. The Organizational Health Dimensions Developed by Hoy:

Hoy and Feldman studied organization health in seven dimensions. These seven dimensions are as follows (Hoy & Fedman, 1987, p. 32)(BULUÇ, 2008):

1. Organizational Integrity: The organization's ensuring an integrity in its programs through its capability of adaptation to its environment.

2. Influence of the Organization Manager: The organization managers can influence decisions of the senior system they are subordinate to. The possibility and ability to convince their decision supervisors, to have reputation and not being stopped by the hierarchic obstacle are important element of the organization managers.

3. Respect: This involves the friendly, supportive, overtly and sincerely behaviours exhibited by the organization managers to the employees. Such behaviours are important for increase of performances of the employees.

4. Work Order: This involves behaviours of the organization manager relating to his/her tasks and achievements. Expectations from the employees, performance standards and polices are clearly expressed by the organization manager.

5. Resource Support: This includes accessibility of enough machinery and equipment in the organizations, and obtaining of more resources when wanted.

6. Morale: This is the sum of friendship, openness between the organization members, and the senses of excite and confidence they feel about the work they do. The workers treat each other with tolerance, they I'm to be helpful to each other and feel proud of the organization they work in, and finishing the work make them very happy.

7. Importance of the work: This is about the organizations' seeking for work excellence. Work is started by setting high but achievable targets for the employees and production activities are carried out in a serious and orderly fashion.

it is not hard to group these dimensions as organization health dimensions at the institutional, managerial and technical level. Appropriately, Institutional Level is composed of institutional integrity dimension, Managerial Level is composed of the dimensions of work, respect, influence of the organization manager and resource support,

and lastly Technical Level consists of the levels of morale and importance of the work (Ardıç & Sema, 2007).

1.3. Measuring Organizational Health:

People usually do not know the value of their health and pay the necessary attention to their health until they get sick. Likewise, in the organization management, methods of doing business, policies and practices are not paid attention to until a warning is received. Managers usually don't take the measurement of organization health until they meet a critical point or a crisis. but, to reach and sustain organizational health, a healthy organization structure should be established starting from setting up of the organization, measures should be taken for the problems that may happen, and organization health should be measured periodically (Yüceler & Burcu, 2013, p. 138).

The aim of measuring health of the organizations is not only to reveal the situation, but also to prepare improvement plans based on the obtained results. The organization's being healthy or unhealthy is a confirmation for need of change and for innovation as well. The essential thing is determining what causes the unhealthy organization structure. Briefly, measurements set the conceptual basics in the identification and solution of the problems. The strengths and weaknesses of the organization as well as the opportunities and threats it has are revealed through measurement of organization health. Thus, it is strived to derive more resources from the strengths, and to improve and strengthen the weaknesses (Ardıç & Sema, 2007) (Yüceler & Burcu, 2013, p. 138)

3. Study Methodology :

3.1. Sample:

Data used in this study were collected using a questionnaire with items obtained through an earlier investigation of the literature and based on scale (Hart, Wearing, Conn, Carter, & Dingle, 2000). The questionnaire consisted of demographic characteristics of the respondents and multiple-item survey Instruments.

The population of the study was 230 employees, A total of

100 copies of questionnaires were distributed for the survey, 85 employees have returned completed questionnaires with response rate of 36.95%.

3.2. Measures:

The data were obtained by means of a self-reported questionnaire including a socio-demographic section and the OHQ (Hart et al. 2000). The original version of OHQ consisted of 57 items grouped in 12 sub-dimensions, but in this study we used 36 items grouped in 9 sub-dimension: **Morale(M, 4 items)**, **Effective Discipline Policy (EDP, 4 items)**, **Excessive Work Demands(EWD, 4 items)**, **Goal Congruence(GC, 4 items)**, **Participative Decision Making(PDM, 4 items)**, **Professional Growth(PG, 4 items)**, **Professional Interaction(PI, 4 items)**, **Role Clarity(RC, 4 items)**, **Support Leadership(SL, 4 items)**.the measure was assessed on a five point Likert format with a scale of 1=**strongly disagree** to 5=**strongly agree**.

3.3. normality distribution test of study variables :

Before reviewing the results of the field study, we must obtain the result of **Kulmogorov-Smirnov** distribution test (**K-S**).and we have acquired the following table

Table 1 : the results of the test normality distribution of this study

<i>the variable</i>	<i>K-S</i>	<i>sig</i>
<i>Oragnizational health</i>	0.182	0.00

Source: Prepared by the researchers based on the output (spss).

Table (01) shows that the probability value (**Sig.**) Of the organizational health variable was less than the level of significance (**$\alpha = 0.01$**), so we can say that the study data is not subject to normal distribution, which leads us to take another type of tests They are called non-parametric tests to answer questions and hypotheses of the study.

3.4. Reliability:

Reliability of the multi-item scale for each dimension was measured using Cronbach alphas measures of reliability were above the recommended minimum standard of 0.60 .

Table 2 : the results of the test Reliability .

<i>the variable</i>	<i>Cronbach's Alpha</i>
<i>Oragnizational health</i>	0.980

Source: Prepared by the researchers based on the output (spss).

4. Study Results :

4.1. The Description of the Study Sample:

4.1.1. The Demographic variables of the study sample :

We will address the diagnosis and analysis of Demographic data through three basic variables: gender, employee age, educational level, where we have reached after the processing of the data to the following results:

Table 3: the Demographic variables of the study sample

<i>Variables</i>	<i>Demographic</i>	<i>Frequency</i>	<i>%</i>
<i>Gender</i>	Male	71	83.5
	Female	14	16.5
<i>Age</i>	20-30	28	32.9
	31-40	18	21.2
	41-49	21	24.7
	50 years and above	18	21.2
<i>Educational level</i>	Secondary	25	29.4
	Technical	27	31.8
	L	11	12.9
	Master	5	5.9
	Engineer	17	20

Source: Prepared by the researchers based on the output (spss).

It is clear from the **table (03)**, that the study sample consists of the majority of **males (83.5%)**, and **(67.1%)** of the sample Exceeded 30 years old, and We noted that the majority of the study sample had a high level (secondary and up), and this's an indication that a high proportion of members of the study population are aware and qualified to a high level, which enables them to provide logical answers and transparency which is required on the Study within the Djelfa mills complex , which helped us even more to diagnose and analyze the variables of study within the complex.

4.1.2. the Functional variables of the study sample:

We will address the diagnosis and analysis of Functional data through three basic variables: Job level, Functional experience, The nature of the job, and we have reached after the processing of the data to the following results:

Table 4: the Functional variables of the study sample

<i>Variables</i>	<i>Demographic</i>	<i>Frequency</i>	<i>%</i>
<i>Job level</i>	Top level	09	10.6
	Middle level	31	36.5
	lower level	45	52.9
<i>Functional experience</i>	Less than 5	21	24.7
	6-15 years	27	31.8
	16-25 years	21	24.7
	26 years and above	16	18.8
<i>The nature of the job</i>	Productive	33	38.8
	Technical	30	35.3
	Administrative	16	18.8
	Mixed	06	7.1

Source: Prepared by the researchers based on the output (spss).

It is clear from **table (04)**, that (75.3%) of the respondents have years of experience (more than 5 years), and we also noted that (38.8%) of jobs were of a productive nature, and this Percentage was predictable for the Djelfa mills complex as it is requiring jobs of this type.

4.2. Presentation of the level of awareness the dimensions of organizational health of workers at Djelfa Mills Complex:

The objective of this result is to give a visualisation of the reality of organizational health in Djelfa mills complex

Table 5: Means and standard deviations of the workers responses to the dimensions organizational health in complex

<i>the dimensions</i>	<i>Mean</i>	<i>Std. Deviation</i>	<i>General level</i>	<i>Ranking</i>
<i>Morale</i>	<i>3.250</i>	<i>0.642</i>	<i>Medium</i>	<i>1</i>
<i>Goal Congruence</i>	<i>2.9500</i>	<i>0.618</i>	<i>Medium</i>	<i>7</i>
<i>Effective Discipline Policy</i>	<i>3.1765</i>	<i>0.990</i>	<i>Medium</i>	<i>2</i>
<i>Excessive Work Demands</i>	<i>2.9000</i>	<i>0.518</i>	<i>Medium</i>	<i>8</i>
<i>Professional Growth</i>	<i>3.0765</i>	<i>0.590</i>	<i>Medium</i>	<i>4</i>
<i>Participant decisionmaking</i>	<i>2.8824</i>	<i>0.798</i>	<i>Medium</i>	<i>9</i>
<i>Professional Interaction</i>	<i>2.9941</i>	<i>0.812</i>	<i>Medium</i>	<i>6</i>

<i>RoleClarity</i>	3.0824	0.998	Medium	3
<i>Supportive leadership</i>	3.0559	0.949	Medium	5
<i>The O H</i>	3.0686	0.820	Medium	-

Source: Prepared by the researchers based on the output (spss).

It is clear from **table (05)** that the level of awareness of organizational health dimensions was an average in the study sample, This is reflected by the weighted average arithmetic of this variable as it reached **(3.068)**, with a standard deviation of **(0.820)**, which indicates that there is no significant discrepancy in the answers of the study sample.

the mean score for Morale (**M**) was 3.250 (SD, 0.642); the mean score for Effective Discipline Policy (**EDP**) was 3.176 (SD, 0.990); the mean score for Role Clarity (**RC**) was 3.082 (SD, 0.998); the mean score for Professional Growth (**PG**) was 3.076 (SD, 0.590)); the mean score for Supportive leadership (**SL**) was 3.055 (SD, 0.949); the mean score for Professional Interaction (**PI**) was 2.994 (SD, 0.812); and the mean score for Goal Congruence (**GC**) was 4.25 (SD, 0.29); and the mean score for Work Demands (**WD**) was 2.900 (SD, 0.512); and the mean score for Participant decision making (**PDM**) was 2.882 (SD, 0.798).

According to these findings, there is a strong justification for accepting the main hypothesis, which states: “The level of awareness of the organizational health dimensions of workers in Djelfa Mills Complex is average”.

5. Conclusion :

5.1.Results:

- ✓ forming and developing the organizational health reduces the organization costs while positively influencing many factors such as organization effectiveness, work satisfaction, organizational commitment, organizational performance and employee health.
- ✓ The perception of the level of organizational health was average among the study sample, which is reflected in the average level for most of its dimensions, it has come the Morale in the first place, followed by Effective Discipline Policy in the second place, followed by Role Clarity in the third place, followed by Professional Growth in the fourth place, in the Fifth place is Supportive leadership , followed by Professional Interaction in the Sixth place, followed by Goal Congruence in the Seventh place, the Eighth place were Excessive Work Demands, And in last place Participant decision making. as we recorded all achieved at Intermediate levels.

5.2. Recommendations :

- ✓ Organization health must be enhanced in order to retain the human resources, which are an extremely important value for the employers.
- ✓ The managers should make efforts towards enhancing organization health of the enterprises to increase commitment of the employees and keeping the personnel turnover rate low.
- ✓ Enhancing the availability of morale in Djelfa Mills Complex through providing moral and material incentives, developing work procedures and improving the organizational climate.
- ✓ Work to strengthen the relations of cooperation and cordiality among employees by encouraging social events.

- ✓ The necessity to adopt complex strategies that contribute to Enhance employees' knowledge of the objectives and future vision of the complex.
- ✓ The necessity workers to contribute in the making of some decision.

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UK Brexit crisis: Modelling Stock Market Volatility Using an Intervention ARIMA Model

أزمة البريكسيت: نمذجة تقلبات أسواق المال باستخدام تحليل التدخل مع نموذج الإنحدار

الذاتي والمتوسط المتحرك

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Abstract:

The study aims to demonstrate the immediate effect of Brexit crisis on the stock indices of four countries- US, UK, Germany and france using ARIMA model intervantion time series analysis.

The Brexit was not anticipated by the financial markets and its impacts are still ongoing today; on June 23rd2016 the financial market witnessed serve turmoil and volatility in their indices. The results show that event had an immediate effect on UK, US index while the Germany and France did not show an immediate significant change.

keyword: Brexit; Stock indices; ARIMA model; Intervention Analysis.

JEL classification code : C5, G01.

ملخص:

تهدف الدراسة إلى توضيح التأثير الفوري لأزمة البريكسيت على مؤشرات الأسواق المالية لأربع دول، هي: الولايات المتحدة وبريطانيا وألمانيا وفرنسا باستخدام تحليل التدخل (نموذج الإنحدار الذاتي والمتوسط المتحرك). لم تتوقع الأسواق المالية أزمة البريكسيت، فتبعياتها لازالت مستمرة ليومنا هذا، ففي 23 جوان 2016، شهدت الأسواق المالية اضطرابات حادة وتقلبات في مؤشراتنا. وأظهرت نتائج الدراسة أن الحدث كان له تأثير مباشر على كل من مؤشر السوق المالي للمملكة المتحدة والولايات المتحدة، في حين لم تظهر مؤشرات أسواق المال لكل من ألمانيا وفرنسا تغييراً فورياً كبيراً.

الكلمات المفتاحية: بريكسيت؛ مؤشرات أسواق المال؛ تحليل التدخل؛ نموذج ARIMA.

تصنيف JEL: C5، G01.

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1. Introduction :

The debate on the UK leaving the European Union is still ongoing today due to many economic, political, social, and other consequences on many different countries over the world.

On 23 June 2016 (51.9%) of participating voters voted to leave the UK from the European Union, commonly known as the Brexit vote, in March 2017 starting a two-year process that was due to conclude with the UK withdrawing on 29 March 2019.

The decision made by the UK to leave the EU as a result of the referendum commonly known as Brexit, undoubtedly represents a significant shock to the UK economy and a strong blow to the European Union; the result caused huge amount of turbulence in the global financial markets and volatility in their indices stock markets.

The present study is an attempt to understand and quantify the effect of this event on the stock market of major economies of the and examine whether Brexit has led to any significant changes in the degree of persistence of the indices stock exchange of US, UK, Germany and France.

Research Questions:

This study aims to answer the following question: **What are the effects of Brexit crisis on the stock indices markets?**

2. REVIEW OF LITERATURE:

The effect of BREXIT is analyzed by many researchers, For (Aloysius & Jyothi, 2017) studied the impact of brexit on the Stock Indices of US, UK and India The results derived indicate that event had an immediate effect only on UK index The study only evaluates the immediate impact and not the long run effect.

For instance (Guglielmo, Luis, & Tommaso, 2018) has fitted an intervention model to the FTSE occasioned by Brexit, by examines the effects of Brexit on uncertainty in European financial markets the results provides evidence of a significant increase in the persistence of all the series considered except the GBP-JPY, which indicates that Brexit has had a noticeable impact.

An ARIMA intervention study has been conducted by (Mohamed, 2018) on GBP PAIRS and FTSE 100 post Brexit, The Brexit vote immediately caused Thus, the result of the research study indicates that

previous ARIMA models can still be used to forecast efficiently post-Brexit daily exchange rat.

Primarily, the paper was aimed at testing the Autoregressive Integrated Moving Average (ARIMA) modelling on indices stock market after Brexit referendum vote.

It is achieved by observing the effects of Brexit on the value of the four indice stock market of of major economies of US, UK, Germany and France, the modelling it using ARIMA technique.

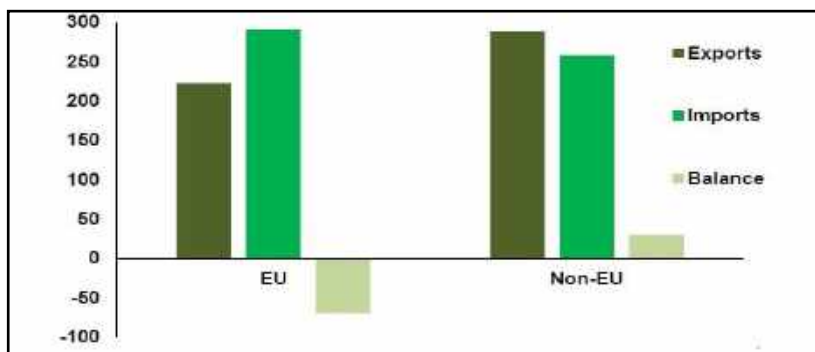
The literature that was conducted reviewed insightful information that was useful in developing the model for the study. First, it confirmed that the Brexit crisis event greatly affected the indice stock market. In particular, it caused the Decrease in the index FTSE by high level of volatility in the financial market .

Secondly, the literature Review shows that ARIMA intervention model is one of the commonly used methods for modelling and forecasting the volatility of indices stock markets in brexit crisis.

3. Global Financial Effects of Brexit Crisis:

Taken the EU is by far the UK's most important trading partner. In 2015 it accounted for 44% of UK goods and services exports (£222 billion) and 53% of UK imports (£291 billion). These figures are shown in the chart below (Vaughne, 2016, p. 23).

Figure.1: UK trade with EU and non- EU countries



Source: (bulletin, 2016)

Table 1: Pattern of Trade between EU Members and UK, 2015

	Share of UK Exports to EU	Share of UK Imports from EU	UK as share of total exports	EU member as share of UK total
Austria	1.21%	1.31%	3.06%	0.53%
Belgium	8.54%	10.50%	8.92%	3.77%
Bulgaria	0.25%	0.19%	2.55%	0.11%
Cyprus	0.28%	0.03%	10.07%	0.12%
Czech Rep.	1.47%	2.48%	5.25%	0.65%
Germany	23.01%	28.34%	7.43%	10.16%
Denmark	1.71%	1.63%	6.36%	0.75%
Spain	6.46%	6.12%	7.45%	2.85%
Estonia	0.16%	0.10%	2.58%	0.07%
Finland	1.01%	0.82%	4.94%	0.45%
France	13.33%	10.81%	6.27%	5.89%
Greece	0.66%	0.36%	4.25%	0.29%
Croatia	0.10%	0.07%	1.72%	0.05%
Hungary	0.96%	1.15%	3.88%	0.42%
Ireland	12.56%	5.05%	13.66%	5.55%
Italy	6.37%	7.30%	5.53%	2.81%
Lithuania	0.20%	0.34%	4.46%	0.09%
Luxembo	0.16%	0.14%	3.88%	0.07%
Latvia	0.16%	0.16%	5.12%	0.07%
Malta	0.28%	0.05%	6.45%	0.12%
Netherlan ds	12.97%	12.73%	8.98%	5.73%
Poland	2.73%	4.02%	6.81%	1.20%
Portugal	0.94%	1.13%	6.72%	0.41%
Romania	0.73%	0.78%	4.36%	0.32%
Slovakia	0.33%	1.27%	5.54%	0.15%
Slovenia	0.15%	0.18%	2.23%	0.07%
Sweden	3.25%	2.93%	7.19%	1.44%
Total	100.00%	100.00%	6.99%	44.16%

Source: (Martina & Edgar, 2016, p. 8).

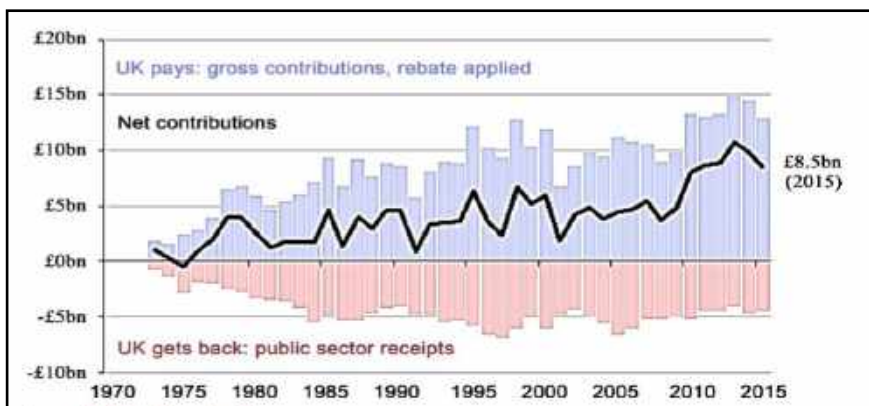
London hosts some 358 banks, many insurance companies and institutional investors, hedge funds and specialized finance providers, and is now also spearheading the growth of fintech companies. It is home to the largest stock exchange in the EU, the most developed derivative market and related clearing and settlement infrastructures (Karel, 2016, p. 2).

The UK’s departure from the EU will have a major impact on the European economy.

Based on agreements financial activities between the UK and the EU are especially affected. After Brexit, most activities will no longer be possible or their regulatory basis too unsecure to rely on it (Michaela & Christian, 2018, p. 8).

The results of the referendum caused "volcanic eruption" across the global financial markets a day after the referendum. This is because many people never expected this outcome (Isaac, Yinping, Braimah, & Ramous, 2016, p. 289).

Figure.2: UK payment to US budget



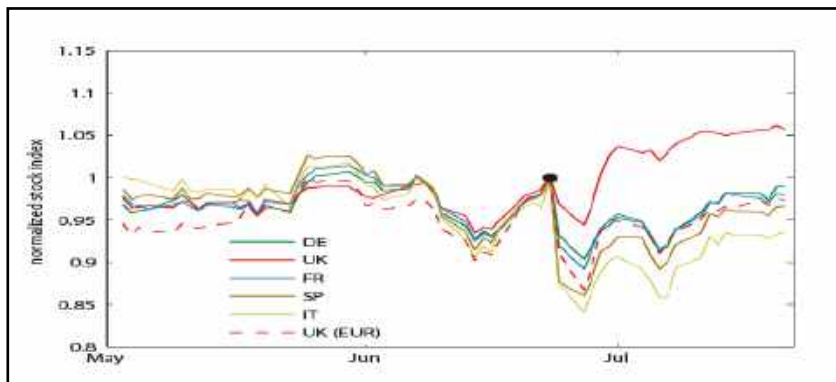
Source: (Full, 2019)

The costs and benefits of Britain’s membership of the European Union was a controversial issue even before the decision was taken to hold a referendum.

In 2018 the government spent £864.9 billion on all aspects of public spending, and the UK abatement was £4.5 billion. This means £15.5 billion was transferred from the UK government to the EU in official payments

The Office for National Statistics (ONS) reports that £4.5 billion came back to the UK public sector in credits in 2018.

Figure.3: Brexit risk effect financial markets in the United Kingdom and the euro area

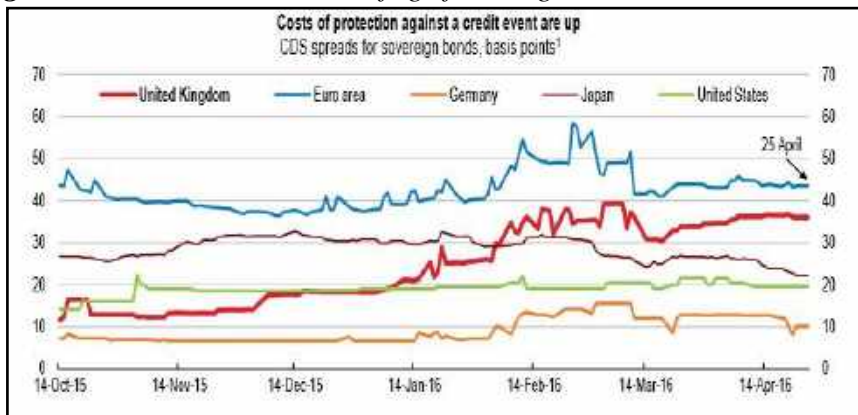


Source: (Rafal, Nigel, Elena, & Sanne, 2016, p. 11).

The risk of Brexit is increasingly reflected in financial asset prices. The cost of insuring UK public debt against sovereign default has been rising since 14 October. We can say that CDS spreads remain low relative to the financial crisis period, but their increase since mid-October is significant and higher than for peers.

CDS spreads have also edged up in the euro area. For the UK, the rise reflects investors fears rather than a genuine risk of sovereign default following Brexit, Equity prices in the UK and the euro area have rebounded less than in the US, but remain resilient as many listed companies are global (Rafal, Nigel, Elena, & Sanne, 2016, p. 10).

Figure.4: Brexit stock indices of tge five largest EU stock markets

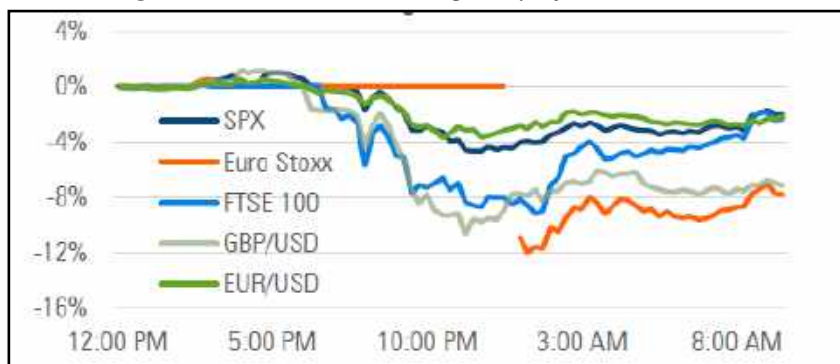


Source: (Matthias, 2016, p. 4).

From the figure above we can see the European stock market indices were in a slight upward movement in the first half of 2016 until the beginning of June. After the Brexit vote stock prices dropped by around (10%) and have since then only slowly returned to mid June levels, the day of the Brexit vote is marked by black dot (Matthias, 2016, p. 4).

The Brexit sent waves of shocks across the global financial system. Global stock markets wiped about \$2 trillion in value. The FTSE retraced about (9%) Dow Jones plummeted (3.5%) the NASDAQ composite index dropped by (4%) (Akram & Murad, 2018, p. 1), Germany Dax index closed down nearly (7%) (Isaac, Yinping, Braimah, & Ramous, 2016, p. 300).

Figure.5: cumulative change day of the Brexit vote



Source: (Joe, Adam, & Jeff, 2016, p. 2).

The pound has devalued by 11% against other major currencies— an indication that foreign investors have less confidence in the UK’s economic prospects (Gemma & Alex, 2018, p. 9).

More specifically, on the 27th of June 2016 the pound fell to £1.315 to the U.S.dollar, reaching its 31-year low since 1985, below the value of sterling’s Black Wednesday of 1921(Vasilios, Rangan, & Mark, 2017, p. 2).

4. Econometric Analysis:

4.1 Methodology:

Let $[X_t]$ be a time series encountering an intervention at time $t=T$. Box and Tiao (1975) proposed that the pre-intervention part of the series be modeled by ARIMA techniques. That is, for $t < T$, suppose that the ARIMA (p, d, q) model (Ette & Unyime, 2018, p. 48)

The ARIMA (p,d,q) model (Gujarati, y Porter, & Gunasekhar, 2012, p. 873) of a time series refers to the model which is stationary at level with autoregressive terms and q moving average terms. It may be denoted by:

$$\theta(B)(1 - b)^d Y_t = \theta(B)\varepsilon_t$$

Where $\Phi(B) = 1 - \Phi_1 B - \Phi_2 B^2 \dots - \Phi_p B^p$ (Autoregressive parameter)

$\theta(B) = 1 - \theta_1 B - \theta_2 B^2 \dots - \theta_q B^q$ (Moving Average parameter)

ε_t – is the noise term and B is the backshift operator.

The intervention model has two components- the noise component which represents the pre-intervention period and the intervention component that incorporates the effect of the intervention in the model. It may be represented as: (Aloysius & Jyothi, 2017, p. 2)

$$Y_t = \frac{\omega(B)}{\delta(B)} B_b I_t + \frac{\theta(B)}{\phi(B)} \varepsilon_t$$

Where:

Y_t: the response series

I: the indicator variable (dummy variable)

ω(B): the slope parameter

δ(B): the impact parameter

φ(B): the autoregressive parameter (AR)

θ(B): the moving average (MA)

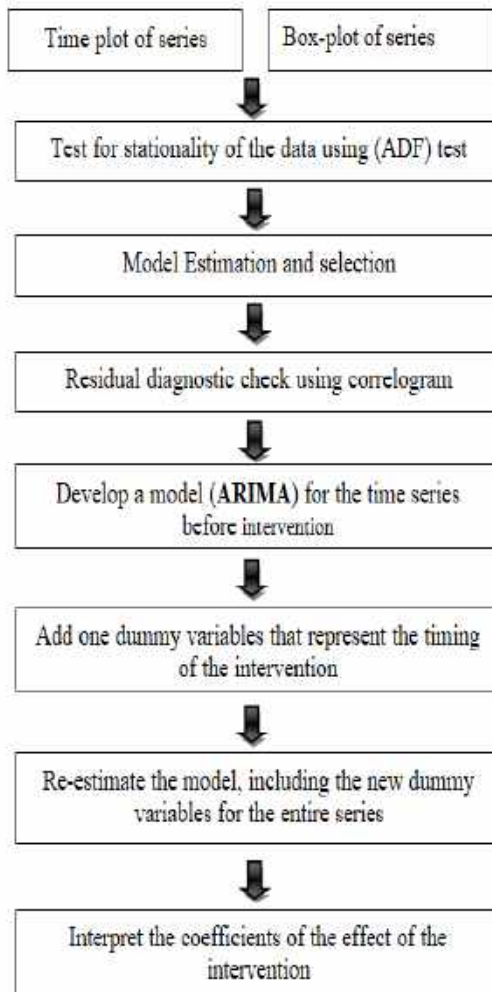
4.2 DATA Description:

We considered the Brexit crisis to be the major event affecting the stock markets in EU countries the period under study, The data used in the study includes pre and post stock indices of four economies- Britain, France, Germany and the United States.

The daily index of **SandP**, **FTSE**, **CAC** and **DAX** are collected from June 23rd 2015 to June 23rd 2016 as pre- intervention period and from 24 June 2016 to June 23rd 2017 as post-intervention period

It is worth noting here that the Brexit referendum was on Thursday, 23 June, but the results were released on Friday, 24th and both are trading days.

Figure.6: Step involving ARIMA model Intervention

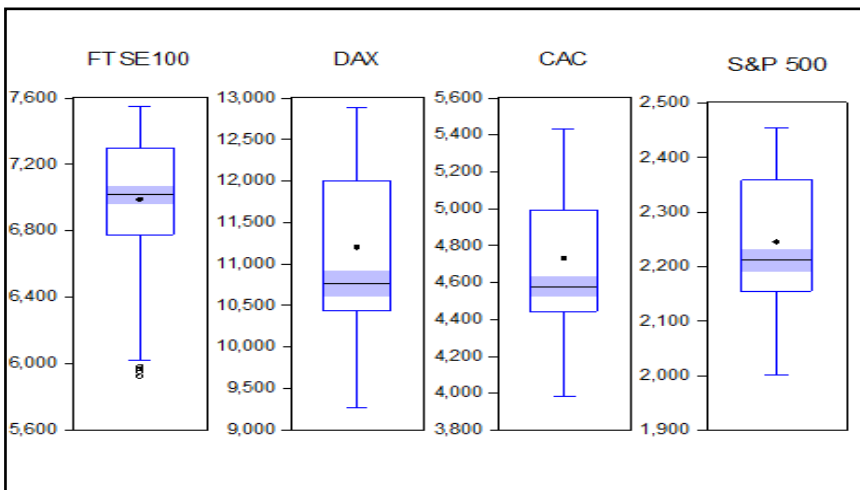


Source: Authors' Construct.

4.3 Descriptive analysis:

In the descriptive analysis, a brief description that summarised the whole dataset is provided; the descriptive analysis of the four indices is carried out Box-plots of four sets of indices presented in Figure (7).

Figure.7: Box-plot of the four indices



Source: Data Processed EViews.10.

The series is A Daily Closing prices of financial markets indices from 23 May 2016 to 23 June 2017 The researcher used **Eviews 10** in the statistical analysis.

Figure.8: Time plot of the four indices



Source: Data Processed EViews.10.

From time series plot of a realization of daily indice stock markets we noticed an irregular movement, with two sudden jumps the first in the period 23 June 2016 the effect of the Brexit vote, therefore there is two intervention points.

Table 2: Descriptive statistics of the pre and post Brexit data

	FTSE		dax		cac		SandP	
	Pre	post	Pre	post	Pre	post	Pre	post
Average	6 178,9	7 062,33	9977,7	11307,26	4353,3	4762,3	2094,3	2259
SD	119.17	298.68	259.55	930.34	122.74	351.22	17.36	108.04
Skewness	-0.93	-0.39	-0.71	0.04	-0.77	0.22	-0.41	0.096
Kurtosis	2.66	2.86	2.08	1.86	2.27	1.94	2.90	1.74
Jarque-Bera	3.42 (0.18)	6.59* (0.03)	2.76 (0.25)	13.51* (0.001)	2.76 (0.25)	13.64* (0.001)	0.65 (0.72)	16.75* (0.0002)
N	24	248	24	248	24	248	24	248

Source: By Authors from Eviews.10 output.

•Statistical value of a coefficient Skewness:

We compared it to zero indicating the uniformity of distribution so achieve the hypothesis of normal distribution, the negative skewness of turned to be positive skewness at post-Brexit period for dax cac SandP while the other are negatively skewed in pre and post Brexit.

•**Statistical value of a coefficient Kurtosis:**

According to the table, the values of Kurtosis refer to normal distribution because it's more than 3.

•**Statistical value of Jarque-Bera:**

We find that the value of probability (p.value) less than the level of significance for the four indice which indicates that were following Normality assumption just in the pre- Brexit period.

4.4Stationarity test:

To analyse the impact ARIMA model with intervention analysis is carried out. As a pre-requisite for ARIMA the series are check for their stationarity. The stationarity of the series is tested by Augmented Dickey Fuller test whose results are given in table (3).

Table 3: ADF test for stationarity

Index	Level	P value	Conclusion	First diff	P value	Conclusion
FTSE	-2.907531	0.0459	stationary	-	-	-
dax	-1.162265	0.6910	Not stationary	-15.57834	0.0000	stationary
cac	-1.286738	0.6362	Not stationary	-17.99175	0.0000	stationary
SandP	-1.726313	0.4167	Not stationary	-17.99175	0.0000	stationary

Source: By Authors from Eviews.10 output.

Note from the table (3) that the first series is stable at level but the all three remaining series seem to attain stationarity only at first difference. Hence the series at first difference is used for developing ARIMA model. As the first part of the study, best fit ARIMA model is estimated for the pre- Brexit period, this is done by considering the least AIC values.

Among the various suggested models. Hence the best models for the pre-Brexit period are found to be ARIMA(2,1,2) for FTSE, ARIMA(1,1,0)for DAX, ARIMA(1,1,0) for CAC and ARIMA (1,1,1).

Table 4: ARIMA Models of the Pre- Intervention Period

	C	AR(1)	AR(2)	AR(4)	MA(1)	MA(2)	AIC
FTSE	8.81806	-	-	-	-	0.953777	11.39222
TStatistic	0.44074	-	0.283383	0.571449	-	0.563222	
P value	0.6646	-	0.0627	0.0026	-	0.0604	
DAX	33.9045	0.498479	-	-	-	-	12.70109
TStatistic	0.67877	0.212035	-	-	-	-	
P value	0.5055	0.0297	-	-	-	-	
CAC	13.8057	0.497326	-	-	-	-	11.09310
TStatistic	0.55924	0.193844	-	-	-	-	
P value	0.5825	0.0189	-	-	-	-	
SandP	1.39220	0.942160	-	-	-	-	7.959962
TStatistic	7.12082	31.66939	-	-	-	-	
P value	0.0000	0.0000	-	-	1.00000	0.01685	
					0.9866	-	

Source: By Authors from Eviews.10 output.

As the second part of the study intervention ARIMA model is developed by introducing an intervention variable as dummy variables with values:

$$\begin{cases} 0 & \text{for pre-Brexit} \\ 1 & \text{for Post- Brexit period} \end{cases}$$

The hypothesis model is:

$$Y_t = \frac{\omega(B)}{\partial(B)} B_b I_t + \frac{\theta(B)}{\phi(B)} \varepsilon_t$$

Table 5: ARIMA Models of the post-Intervention Period

FTSE100	Coefficient - p	t	p - value
AR(2)	0.460547	1.818960	0.0701
MA (2)	-0.598335	-2.515949	0.0125
General Mean (μ)	129.9234	3.018118	0.0028
Impact(ω)	17.77747	1.818960	0.0710
Slope(δ)	0.979740	137.5775	0.0000
DAX	Coefficient - p	t	p - value
AR(1)	0.115145	2.439827	0.0154
General Mean (μ)	83.31161	0.901425	0.3682
Impact(ω)	-8.929799	-0.381566	0.7031
Slope(δ)	0.994251	109.6326	0.0154
CAC	Coefficient - p	t	p - value
AR(1)	0.120011	2.477701	0.0138
General Mean (μ)	48.85368	1.030871	0.3035
Impact(ω)	4.893480	0.456054	0.6487
Slope(δ)	0.120011	2.477701	0.0138
SandP	Coefficient - p	t	p - value
AR(1)	0.996857	147.4781	0.0000
MA (1)	0.999900	0.626363	0.5316
General Mean (μ)	2245.393	15.94998	0.0000
Impact(ω)	2.408763	2.2361139	0.0262
Slope(δ)	0.495555	122.5925	0.0000

Source: By Authors from Eviews.10 output.

5. Conclusions and Implications:

This paper attempts to empirically examine certain indice stock market reaction to the crisis of Brexit referendum that occurred on 24 Jun 2016, by using the Intervention Arima model.

The result of Intervention model of FTSE indicates a significant impact (17.77747) and slope (0.979740) is negligible, also the SandP indicates has a significant impact (2.408763) and slope (0.495555) is negligible. But the DAX and CAC indicate a non -significant impact.

The analysis show that Brexit Crisis had an immediate effect in UK and US stock index values but their impact was not significant in France and Germany.

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Analysis of interactions between fiscal and monetary policy in Algeria

تدليل التفاعلات بين السياسة الجبائية والنقدية في الجزائر

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Abstract:

Fiscal policy can impact the conduct of monetary policy through multiple channels. Indeed, the increase in public spending short-term demand, while long-term investments act on the production path of the economy and, ultimately, on the trajectory future of inflation. For its part, monetary policy, through the interest rates, would also affect the refinancing costs of the Treasury public, and hence on the level of the budget deficit and to some extent on the sustainability of the public debt.

keyword : Fiscal Policy; Monetary Policy; interactions ; model DSGE

JEL classification code : C5 ,H30 , E5

ملخص:

يمكن أن تؤثر السياسة المالية على إدارة السياسة النقدية من خلال قنوات متعددة، و في الواقع ، فإن الزيادة في الطلب العام على الإنفاق على المدى القصير ، من شأنه ان يشجع الاستثمارات طويلة الأجل التي تعمل على نمو الاقتصاد ، الى جانب ، تأثيرها على التضخم. و من جانبها ، ستؤثر السياسة النقدية ، من خلال أسعار الفائدة ، أيضاً على تكاليف إعادة تمويل الخزينة ، وبالتالي على مستوى العجز في الميزانية وإلى حد ما على استدامة الدين العام

الكلمات المفتاحية : السياسة المالية ; السياسة النقدية; التفاعلات; نماذج التوازن العام

تصنيف JEL : C5 ,H30 , E5

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1. Introduction :

Interactions between fiscal policy and emerging monetary policy since the Government and the Central Bank are targeting the same objectives and use instruments that affect the economy through the same channel. Indeed, from a Keynesian point of view, the existence of distortions and rigidities within of the economy, as well as the imperfections that can be accentuated within of the financial market, contribute significantly to Ricardian economic agents. In this context, fiscal policy consolidates its effectiveness in stimulating demand through the mechanism multiplier by increasing spending or acting on revenue. at the same time, with the strengthening of the independence of central banks and sophistication of financial products, changes in the key interest rate may influence the financing conditions of economic agents, act on the medium-term expectations and to orient the value of the local currency in a flexible exchange rate regime. the interrogations related to the interactions arise with all the more acuteness when public authorities face dilemmas of economic policies. To the extent that Governments are more oriented towards the stabilization of growth cycle and job creation, their efforts are becoming more stimulation of production. On the side of the Central Bank, with the abandonment inflation-growth arbitrage, price stability has emerged as the

main mission of the issuing institutions. therefore, monetary policy is refocused on maintaining the purchasing power of economic agents and the anchoring of expectations. this is how the economic work concerning this theme developed in two directions: the first concerns the "Policy mix" or optimal mix of fiscal policy and policy monetary. These reflections are particularly interested in the model that adopt the Government and the Central Bank in economic policy in order to successfully achieve the goals they have set for themselves, increase the efficiency their interventions and thus preserve their credibility. The second current, as to him, has attempted to describe empirically the reactions of each authority following actions undertaken by the other. Since it would be extremely difficult to suggest a universally optimal model of collaboration or combination, the study of the behavior of the political decision-makers makes it possible to give an idea on the model actually adopted and evaluate it accordingly according to the

results. For emerging or developing countries, this theme contains another dimension. Economic policies are more concerned with development

productive structures in the country with a view to reducing unemployment and improving the living conditions of citizens, only by the management of short-term imbalances sometimes necessary to achieve the strategic objectives. As well, the environment for implementing economic policies is not similar advanced countries because institutional rigidities and margins of available to the Central Banks significantly Interactions between fiscal policy and other economic policies in Algeria

the conclusion of cyclical policies. Therefore, the nature of interactions depends to a large extent both on the directions of the powers and the range of opportunities offered by the macroeconomic framework. This work is organized in three parts. The first comes back to the debates theories surrounding the allocation of economic policy instruments to strategic objectives and its implications for the nature of the interactions that can derive from the crossings of these objectives and instruments as well as the evolution of the statutes and powers of the institutions. The second, for its part, will present the dynamic and stochastic general equilibrium model (DSGE) estimated to valuate the coordination between fiscal policy and monetary policy in Algeria. Finally, the last part will discuss the simulations from the model.

2. Literature review:

The theorem of Tinbergen (1952)¹ made a seminal contribution to identifying the number of objectives to be monitored by decision makers depending on the number of instruments available to them. Indeed, Tinbergen advocates that economic policy must have, at least, as much instruments than independent objectives. Nevertheless, these works were not interested in the constraints linked to the optimal allocation of instruments objectives. It is in this perspective that Mundell (1962)²

provided insights into the unwelcome repercussions of cross-media effects instruments on bjectives. So and starting from an economic policy that pursues two objectives using two instruments, the use of an instrument in particular, may exceed the objective initially

associated with it by other targets. Interference that can emerge between instruments and Targets are becoming costly for governments in terms of efficiency and credibility if the "unwanted" indirect effects take precedence over main goals. For Mundell (1962)³, indirect or "crossed" effects can be minimized if instruments are allocated to targets based on "comparative advantages". This principle is inspired by the work of Ricardo (1817)⁴ on trade the "assignment" of each instrument to the objective that can be the most influence relatively, in another way, the assignment of instruments is operated taking into consideration the intensity of the impact that it can have both on the priority target than on other macroeconomic magnitudes Thus and to the extent that fiscal and monetary policy by the same channel of aggregated demand, the only criterion retained for the implementation economic policies is the effectiveness of instruments regardless of the optimality of coordination between the different public decision-makers. Qualified by Tobin (1982)⁵ of principle of the common funnel, this reasoning implies that no optimal allocation of instruments to the targeted objectives can be discounted. Indeed, the public authorities can act by the prices (interest rate) or activity (public expenditure) as long as they are forced to transit through the same channel of aggregated demand. However, the mechanism of the common funnel initiated by Tobin (1982)⁶ displays his limitations in models representing more open and / or the hypothesis of inAccording to proponents of the current Keynesian synthesis, the funding of deficit by raising taxes or through the use of public debt impact on household wealth and household behavior. consumption and investment. This policy is thus able to stimulate volume of aggregate output of the economy as a whole. However, the theorem of the Ricardian equivalence, taken up in particular by Barro in (1974)⁷ cause the certainties of Keynesian synthesis by demonstrating that every time the government uses indebtedness, the repayment of this loan is synonymous with the imminent rise in tax rates in the years to come. Therefore, boosting consumption through increased spending public would probably be sanctioned by mixed success. Indeed, in an environment characterized by rational households, tax expenditures would not have any effect on household consumption to the extent where if the generation presents

its concerns of the conditions of life of the generation next, it will accumulate more wealth during phases of lower taxes (by consuming less in order to increase savings) and this to compensate Interactions between fiscal policy and other economic policies in Algeria his descendants of the additional taxation that would be required. Are all, the financing of public expenditure by debt becomes perfectly substitutable for financing by raising taxes. interdependence between time horizons (specification model dynamics). Like the critics of early Keynesian inspired models, models proposed by Barro, integrating the Ricardian equivalence, were handed involved for many reasons. In the first place, this hypothesis households a strong rationality that allows them to analyze in depth the impact changes in the public debt on the maintenance of the inter temporal constraint of the government. Secondly, Ricardian equivalence only concerns "flat-rate" type of taxation, whereas in reality Taxation mechanisms are more diversified and more complex. In third place generational altruism may take other forms than those presented by Barro, which concerns only the financial legacies, insofar as the parents invest in health, education and skills development

of their children. Finally, Ricardian equivalence only analyzes the implications of arbitration between the financing of the deficit by tax or by indebtedness, while governments can also resort to monetising the budget deficit. This last criticism was thus the basis for the development of a large literature Debt Monetization Initiative Initiated by Sargent's Work and Wallace (1981)⁸. The Sargent and Wallace model is a model with overlapping generations or each period t coexist N_t young and N_{t-1} old with $N_t = (1+n)N_{t-1} = N_{t-1}$ where $n > 0$ is the growth rate of the population. Thus, each agent receives an endowment

The literature on the fiscal theory of the price level has been mainly developed by Leeper (1991)⁹ Sims (1994)¹⁰ and Woodford (2001). Overall, this work examines the impact of a non-Ricardian budgetary policy, which specifies the level of expenditure and tax burden without actually taking into account the maintenance of the intertemporal constraint of the government. the latter to be ensured by price level adjustments and therefore implicitly by the Central Bank. Also, the investigations conducted by some economists at As in Benhabib, Schmitt and Uribe (2001)¹¹ were interested in the conditions of stability of macroeconomic models in which the Central Bank

conducts policy based primarily on the handling of rates. According to this research, the models globally display very unstable behavior in the measure where the paradigm behind the monetary rules imply that interest rates are set as an increasing function of inflation, thus setting the stage for explosive price trajectories. Therefore, a fiscal policy, noricardian and dominant, can only strengthen the conditions of balance and model stability especially in an environment where prices are increasingly rigid and persistent in the short term.

3.Framework for theoretical reflection:

. Formally, Semmler and Zhang (2003)¹² analyzed the influence of politics the price level through a very simple macroeconomic model

$$\tau t = Tt/Pt : \text{real taxes} \quad (1)$$

$$\Delta t = (R^d - R^m)/R^d: \text{cost of holding money} \quad (2)$$

$$Rt^b = Rt^d \left(\frac{P}{Pt+1} \right) - 1: \text{real rate of return on bonds} \quad (3)$$

$$mt = Mt/Pt: \text{real cash} \quad (4)$$

with p_t the price level at the date t , W_t the nominal value of the asset date t , g_t government expenditures at date t , T_t the nominal value of taxes net paid in period t , R_t^b

the gross nominal yield on bonds on the period t to $t + 1$, R_t^m the gross nominal yield of the currency. From the seminal work of Woodford (1995)¹³ on the budgetary theory of price level, the equilibrium condition which determines the price level p_t at the date t knowing W_t the net face value of government liabilities and expectations at the date t from the present and future value of the real quantities and relative prices, can be expressed in the following form:

$$\frac{W_t}{P_t} = \sum_{s=t}^{\infty} \frac{(\tau_s - g_s) + \Delta_s m_s}{\prod_{j=t}^{s-1} (1 + r_j^b)} \quad (5)$$

Therefore, the price level should change as soon as the agents different perceptions of the future evolution of public finances or interest rates. By way of illustration, a stronger than anticipated increase in the deficit

public policy in relation to an accommodative fiscal policy could lead to a deterioration of the intertemporal constraint of the government. According to described above through the equation above, the general level of prices should be imperatively to increase the viability of public finances. So, the Central Bank would be obliged to raise interest rates in order to

boost inflation and trigger the previously explained wealth effect In a small open economy, households, whose life is infinite, seek to maximize their intertemporal utility under the constraint of the budget to their disposal:

$$E_0 \sum_{t=0}^{\infty} \beta^t \left(\frac{C_t^{1-\sigma}}{1-\sigma} + \chi \frac{G_t^{1-\sigma}}{1-\sigma} - \frac{\varepsilon^t}{1-\rho} - \frac{N_t^{1+\varphi}}{1+\varphi} \right) \quad (6)$$

with $\beta \in (0,1)$ is the discount factor of households, σ is the inverse of elasticity inter-temporal substitution of consumption, φ is the inverse of the elasticity of the labor supply taking into account the level of the real wage and χ is the fraction consumption of public goods. Aggregated variables in the utility function, C_t , G_t and N_t represent respectively private consumption, expenditure and

government and the work offered (measured in hours of work). The constraint Intertemporal budget of households can be written as follows

$$P_t C_t + E_t \{ Q_{t+1} D_{t+1} \} + T \leq D_t + (1 - \Gamma) W_t N_t \quad (7)$$

On this constraint, $Q_{t+1} = 1/1+r_t$ is the stochastic discount factor on a later period, r_t is the nominal interest rate, T and denotes taxes lump sum and the income tax rate. W_t is the nominal wage, D_t is the nominal portfolio, P_t is the consumer price index (CPI) and C_t is a composite consumption index which consists of the combination of the index of local production of goods (CH_t) and the index of imported goods (CF_t). To note that these goods are produced by operating firms in a competitive market monopolistic.

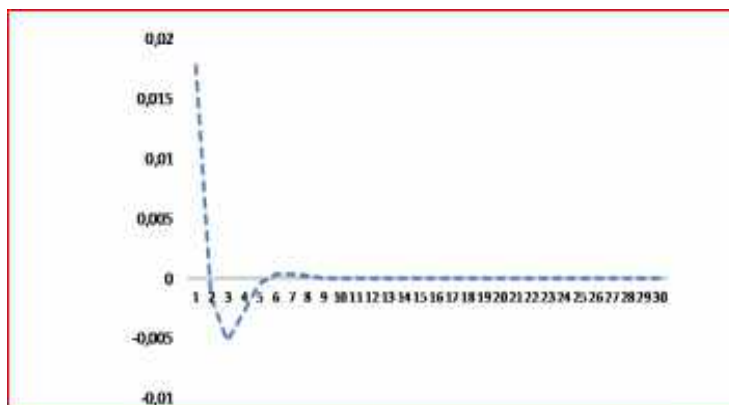
4. Resultat and descusion

the DSGE model implemented in order to analyze the interactions between the policy budget and monetary policy in Algeria will be estimated over the period from First quarter of 1990 to the fourth quarter of 2013. This period remains marked by multitude of reforms concerning both strategic and operational frameworks development and implementation of economic policies. So the data used are Real Gross Domestic Product (GDPR), the Consumer Price Index (CPI), the average interbank interest rate (MTR), public expenditure and tax revenues. These variables were decomposed using the HP filter in order to to extract the cyclic component which is stationary. The estimation of the structural parameters of the DSGE makes it possible to simulate shocks stochastic on the different equations of the model. Like the works empirical evidence presented in this section, the purpose of these simulations is to assess the interdependencies between monetary policy and politics budgetary. In other words, what is the response of the TMP following an increase in budget expenditure or tax revenue? And what about the reaction of Budget Expenditures and Tax Revenue in Response to Monetary Policy restrictive? These results will make it possible to analyze the interactions between Central Bank and the budgetary authorities and to identify the nature of the in Algeria: Monetary Dominance, Fiscal Dominance or Equilibrium strategic

4.1 Reaction to fiscal policy following a shock monetary policy:

An increase in interest rates, approximated by the increase in the TMP, acts negatively on budgetary revenues as well as on expenditure. Indeed, revenues show an instant decline following the increase in the TMP and which is extends almost to the first 4 quarters of the simulation exercise. note also that the effect of rising interest rates on government revenues only disappears after 8 quarters

Fig 1 : interest rates evaluation (DGSE model)

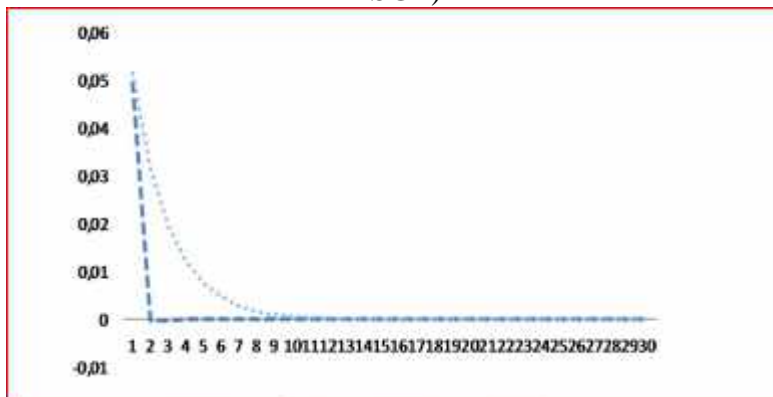


This reaction thus reflects the impact of interest rates on activity in the measure where the tightening of monetary policy causes a widening of the gap production, a drop in inflation and a slowdown in GDP. the sluggishness of the activity has a negative impact on tax revenues from firms and households, which respectively show a decline in their investment and wage income (decrease in hours worked for example). The contraction in budget spending naturally reflects the decline the revenues but also the higher cost of financing. In other words, the increase in the policy rate puts pressure on the borrowing pushes the state to moderate its spending to maintain the sustainability of finances public. This strategy is able to preserve the viability of balances allow the government to have room for maneuver sufficient to practice a fiscal stimulus policy if the activity runs through a cycle of depression

4.2 Reaction to monetary policy following shock of fiscal policy :

Increased budget spending translates into instant growth TMP. This rising interest rate trend is reaching its peak towards the 3rd quarter before converging on the stationary path around the 8th quarter. The TMP is also rising following the increase in revenue this reaction is prolonged during the first three quarters following the shock before disappearing completely towards the 8th quarter like the shock on public expenditure.

Fig 2 : revenue and expenditure evaluation shocks Budget (Model DSGE)



The tightening of monetary policy thus reflects the pressures exerted budget spending on productive capacity and, ultimately, inflation. Indeed, the increase in public spending stimulates consumption and aggregated investment from the Keynesian multiplier mechanism this which follows naturally from higher prices. Since the Central Bank is careful to maintain the stability of inflation, its reaction remains in line with its commitments to economic agents and the efforts that it deploys to preserve the viability of macroeconomic balances. For reasons, in a relatively open economy, excessive growth of consumption could grow imports if the local productive fabric is unable to meet the needs of the economy.

Table 1: Results of DSGE Model Parameter Estimates

Table 1: Results of DSGE Model Parameter Estimates				
Parameters	priori value	value	statistical law	posteriori
Θ	0.5		beta	0.48
Ω	2.0		normal	1.89
σ	3.0		normal	2.85
ξ	0.7		beta	0.7
ρ	0.5		beta	0.93
r	1.5		gamma	1.37

aggregate prices H_t , π_t . The coefficient κ , influencing the slope of the Phillips curve, provides information on the sensitivity of domestic inflation to the dynamics marginal cost. Also, domestic inflation at the moment (t) is considerably influenced by past inflation, expressing the weight of rigidities, and inflation future, reflecting the importance of expectations. The structural form reduced parameters b , f , λ , λ and κ is defined through the values taken by three main parameters ζ , θ and β . As a result, when the degree of retrospectively ζ is close to 0, the Philips curve takes a prospective form, while the more coefficient moves away from 0 the Phillips curve converges to a hybrid form. By Moreover, if the discount coefficient β is equal to 1, the sum of $b\lambda$ and $f\lambda$ would be equivalent to likely to be 1. According to the work of, the value of taken by the discount coefficient which is generally close to 1 fact that $b\lambda$ and $f\lambda$ can be interpreted as very influential parameters on the path taken past inflation and its future evolution as well. In contrast, a significant weight of past inflation in price formation and price viscosity reduce from current inflation to the evolution of the real marginal cost.

Thus, ρ , g and $\rho\tau$ express the intensity of the budget smoothing, g and τ refer to the

Government's response to spending and tax pressure in the face of fluctuations in activity, g and $b\tau$ correspond to the relative adjustments to the stock of debt and g and τ denote the expenditure and taxation shocks corresponding to the unsystematic reaction of the government.

5. Conclusion :

From a theoretical point of view, the research that prevailed until the beginning of 1990 emphasized the need to analyze the interactions between monetary policy and fiscal policy in a dynamic way. Therefore, the effectiveness of economic policies would be based mainly on the commitment to follow a credible rule that implies goals to be achieved and interventions targeted in case of cyclical imbalances. If for the government this commitment is to be constantly concerned about the impact of deficit and the increase in the debt burden on the sustainability of public finances In the medium and long term, for central banks, the migration of quantities (money supply) to interventions cost of refinancing (rate of interest) contributed to the emergence of a new wave of literature entitled fiscal theory of the price

level ". The major concern of this new current is that monetary policies, acting through rates, do not provide a nominal anchor for the economy and usually lead to a trajectory explosive inflation (Gali , Gertler , 2009)¹⁴. The empirical component which certainly presents the most important dimension of investigations on the interactions between fiscal policy and politics monetary policy proposes a multitude of approaches capable of characterizing the economic policy in force. The objective pursued through statistical tests or simulations performed by SVAR models and DSGE(Amato and Laubach . 2003)¹⁵ models is to analyze the reaction of each entity following the policies adopted by the other. Three cases of figures are as follows: fiscal policy imposes its orientation on monetary policy, the Central Bank manages to discipline the government through a conservative politics or an emerging strategic balance between the two institutions. This balance expresses a degree of coordination between the Bank central government and ambition to minimize the volatility of production but also to aintain the anchoring of expectations and the purchasing power of agents economic. inally, it should be noted that the DSGE model can be improved on several levels(Muscatelli and Tirelli 2005)¹⁶. On the one hand, the central bank's response function should be more fixed exchange rate regime and the limited nature of capital movements. On the other hand, the government's reaction function (revenue and expenditure) would require adjustments to the deficit financing process. Indeed, Algeria does not uses external financing only if the situation of foreign exchange reserves deteriorates or if international conditions are more favorable. Financing by national savings remain almost systematic. Finally, the Bayesian estimates can cover more parameters in order to minimize weight and influence equations calibrated in the model

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A comparative study between Altman, Kida and Sherrod's model in predicting the financial failure of listed companies in Amman Stock Exchange

دراسة مقارنة بين نموذج ألتمان، كيدا وشيروود في التنبؤ بالفشل المالي لشركات المساهمة المدرجة في بورصة عمان

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Abstract:This paper aimed to conduct a comparative analytical study between Altman, Kida and Sherrod model in predicting the financial failure three years before it occurs a sample of 30 joint stock companies listed on the ASE. The study found that there is a difference in the results of applying the three financial failure prediction models. However, the KEDA model is considered the best in predicting the failure of joint stock companies listed on the ASE during the three years preceding the Failure with a rating accuracy of 66.67%.

keyword:predict financial failure;Altman model; Kida model; Sherrod model;listed companies in ASE.

JEL classification code : G33 ،C25

ملخص:هدفت هذه الورقة البحثية إلى عمل دراسة تحليلية مقارنة بين نموذج ألتمان، كيدا، شيروود في التنبؤ بالفشل المالي قبل ثلاث سنوات متوقوعه على عينة من شركات المساهمة المدرجة في بورصة عمان بلغ عددها 30 شركة، نصفها فاشلة والنصف الآخر سليمة، وقد توصلت الدراسة إلى أن هناك اختلاف في نتائج تطبيق النماذج الثلاث، إلا أن نموذج كيدا يعتبر هو الأفضل في التنبؤ بفشل شركات المساهمة المدرجة في بورصة عمان خلال الثلاث سنوات السابقة قبل الفشل بنسبة دقة تصنيف بلغت 66.67%.

الكلمات المفتاحية : التنبؤ بالفشل المالي؛ نموذج ألتمان؛نموذج كيدا؛نموذج شيروود؛شركات المساهمة المدرجة في بورصة عمان.

تصنيف JEL : G33 ،C25

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1. Introduction :

Financial failure is one of the most important financial risks that threaten the institution, and has occupied a large area of researchers' concerns because of its negative effects on the level of institutions and investors and the level of the economy as a whole, it is one of the most

important financial problems facing the institution, and prevent continuity, if not detected. The importance of predicting the failure of institutions is due to the interest of many parties involved with the institution, whether internal or external, including banks, investors, management, auditors, and government agencies. By trying to find ways to detect early, it gives them the opportunity to take the necessary measures to avoid what can be avoided.

Many researches and studies have come up with models and tools for predicting financial failure before it occurs, with the aim of taking the necessary corrective actions, based on the financial statements through which the financial ratios that form them can be extracted to help in the early detection and prediction of the probability of failure. These models and financial ratios help us to identify the current state of the organization and predict its future status and then assist in the decision-making process within the institution, the most prominent of these models: Sherrod, Kida, Altman.

The phenomenon of financial failure occurs as a result of a number of reasons and factors, some of which are internal, such as weak management and inefficient operational policies, and some external ones, mainly in the economic conditions surrounding the institution, while a series of research is underway to adopt qualitative models in predicting enterprise failure, quantitative models in this field have proved to be effective in many countries and economic sectors, hence the problem of this research, which is to test the effectiveness of the most used prediction models (Sherrod, Kida, Altman) with the failure of a sample of shareholding companies listed on the ASE in a sufficient period of time to allow the Procedures to correct its current situation to avoid the risk of bankruptcy and liquidation.

Study questions can be formulated as follows:

1- How effective is the Altman model in predicting corporate failure?

- 2- How effective is the Kida model in predicting institutional failure?
- 3- How effective is the Sherrod model in predicting institutional failure?
- 4- What is the best model to predict the failure of joint stock companies listed on the ASE?

The study started from the following hypotheses:

- 1- Altman's model can predict the failure of failed institutions during the three years preceding liquidation;
- 2- The Kida model can predict the failure of failed institutions during the three years preceding the liquidation;
- 3- The Sherrod model can predict the failure of failed institutions during the three years preceding the liquidation;
- 4- The Altman model is the best and most predictable failure of the Amman Stock Exchange listed companies among the other two models.

The study derives its importance from the importance of financial failure and its prediction by identifying the most effective model in predicting the failure of joint stock companies listed on the ASE, which helps the management of these companies and their stakeholders to predict their future performance and the ability to continue, and avoid the losses that can occur in the event of bankruptcy and liquidation And allowing them to take the necessary measures to avoid what can be avoided.

This study aimed to :

- Familiarity with the concept of financial failure;
- Identify the predictive power of the Altman model, the Kida model and the Sherrod model in the early diagnosis of the failure of liquidated joint stock companies listed for the three years preceding bankruptcy and liquidation;

- Comparison of the three previous models to determine which is better able to predict the failure of joint stock companies listed on the Amman Stock Exchange.

The researcher relied on the use of the experimental and descriptive analytical method in conducting the study because it is one of the most used methods in social and human studies, in order to study the ability to predict the failure of companies using quantitative models to predict (Altman, Kida, Sherrod) on the companies listed on the ASE market, and to collect the study data. The researcher relied on the annual financial reports of the companies published on the ASE website for the period from 2011 to 2018.

We will present some of the previous foreign studies related to financial failure, namely:

Meyer and Pifer (1970): "prediction of Bank failures"

The researchers conducted a study on the banking sector where the study aimed to use the financial ratios to predict the failure of banks, and the study was conducted on a sample of 30 successful banks and 30 banks failed during the period 1948-1965 using the method of gradual discriminatory analysis.

To test this model, data were collected for 6 years before failure and 32 financial ratios were analyzed. A model was formed that could predict the failure of banks with an accuracy of 80% two years before the failure occurred, but the model could not predict failure before that period. (Meyer & Pifer, 1970, pp. 853-868)

Deakin (1972): "A Discriminant Analysis of Predictors of Business Failure"

The researcher re-studied the research of Beaver and Altman, it was based on only 14 ratios used in the Beaver study, and on the method of discriminatory analysis to reach the best set of financial ratios that can predict the failure of companies five years before the

failure occurred, the study was conducted on a sample of 22 successful companies and 22 failed companies, in which Deakin reached Similar to Beaver's findings.

He developed different models in each of the five years before failure, with a prediction error ranging between 3% and 4.5% in the first three years before failure, while in the fourth and fifth years the error rate was 21% and 17%, respectively. Also the model tested on another sample of companies included 44 failed companies and 23 successful companies, the prediction error in the first year was 22%, in the second year 6%, in the third year 12%, in the fourth year 23% and in the fifth year 15%, the researcher could not justify a large percentage of error in the first year before the failure.

Finally, the researcher concluded that the application of statistical techniques, especially discriminatory analysis, can be used to predict the failure of companies through accounting data for up to three years in advance with fairly high accuracy, which is sufficient time to manage potentially failing companies to take steps to avoid this happening.(Deakin, 1972, pp. 167-179)

Sinkey (1975): "A Multivariate Statistical analysis of the Characteristics of Problem Banks"

This paper presents a multiple discriminatory analysis of the characteristics of distressed banks, the main purpose of which is to identify and describe the characteristics that distinguish distressed banks from non-defaulted banks. For this, 110 troubled banks were analyzed and 110 non-troubled banks, the data used are the financial ratios derived from the balance sheet and income data during the period 1969-1972, and the researcher analyzed 10 financial ratios for the use of multivariate discriminatory analysis, including these ratios: efficiency ratios, liquidity and capital adequacy.

The study reached a model capable of predicting the default of banks with an accuracy of 73.18% in 1969 and 82.4% in 1972. (Sinkey, 1975, pp. 21-36)

Zmjewsk (1984): "Methodological Issues Related to the Estimation of Financial Distress Prediction Models"

The study aimed to predict the financial failure of companies two years before it occurred through the construction of a standard model, where it was conducted on several different industries in which the researcher selected a sample consisting of 40 bankrupt companies, and 800 non-bankrupt companies in the period between 1972-1978, and applied a number of The financial ratios that he analyzed from previous studies and based on his study on the analysis of Probit Analysis in the financial statements.

The study concluded that the formulation of the model consists of three financial ratios that can be used to predict the failure of companies.

The study also came up with a new idea: relying on three ratios proved in previous studies that have the ability to predict financial failure, and also distinguished the researcher using a new method is the method of Probet, but the researcher relied on a heterogeneous sample in terms of the number of companies, the researcher neglected a group of ratios That can have good predictability.(Zmijewski, 1984, pp. 59-82)

Zavgren (1985): "Assessing the Vulnerability to Failure of American Industrial Firms: A Logistic Analysis"

The study aimed to build a model to predict failure, where the researcher conducted this study in the United States during the period from 1972-1978 on a sample consisting of 45 failed companies and 45 successful companies, and these companies are equal in size and in total assets, the researcher used logistic regression method Regression

In analyzing the financial statements extracted from the financial statements of these companies, seven financial ratios were used for this purpose.

The accuracy of the model in predicting the failure of the companies reached by this study was 99%, however, it is not possible to generalize the accuracy of this model to the rest of the American companies or others because the researcher in choosing the sample of the study on a group of companies of equal size and total assets.(Zavgren, 1985, pp. 19-45)

2. The theoretical aspect of the study:

1.2. The concept of financial failure:

Many financial and accounting researchers disagreed about the definition of financial failure, and became there are many concepts and terminology associated with this concept, which made the views of those interested in determining the stages and types of failure, some of them believe that financial failure means the failure of the institution to pay its obligations at maturity, and others believe that it means the institution to stop paying its debts due to insufficient Liquid assets to cover their financial obligations.

The concept of failure has been associated with the economic researcher Beaver, who is the first to use this term to indicate the beginning of the institution to reach bankruptcy, where it is defined as "the inability of a firm to pay its financial obligations as they mature. Operationally a firm is said to have failed when any of the following events have occurred: bankruptcy, bond default, an overdrawn bank account or non-payment of a preferred stock dividend ".(Castagna & Matolcsy, 1981, p. 31)

However The researcher Deakin sees the failed companies "only included those firms which experienced bankruptcy, insolvency, or

which were otherwise liquidated for the benefit of creditors in his default analysis".(Weiying, 2008, p. 6)

Altman also briefly defined corporate failure as "a company that is legally bankrupt and placed in liquidation".(Coelho, 2014, p. 23)

Blum defines it as "events signifying an inability to pay debts as they come due, entrance into a bankruptcy proceeding, or an explicit agreement with creditors to reduce debts".(Blum, 1974, p. 3)

Also it can be defined as "the condition of a firm when it is unable to meet its financial obligations to its creditors in full. it is deemed to be legally bankrupt and is usually forced into insolvency liquidate".(Berryman, 1983, p. 49)

Based on previous definitions of financial failure, a comprehensive definition consistent with the requirements of the study can be formulated as follows: Financial failure is a financial situation that does not occur suddenly but is the result of a set of accumulations and complications that start from a certain situation, and a certain degree of liquidity shortage, which develops in the absence of attention from a bad situation to a worse situation, to the point where available financial resources are unable to meet obligations owed to creditors, and usually the institution is forced to liquidate.

2.2. Quantitative models used to predict financial failure:

The issue of financial failure is of great importance to all parties involved in the company, and since financial failure takes a long way, as the company must pass before it reaches that state, in turbulent positions that set it apart from other successful companies in the market, and since the 1960s, researchers have conducted studies aimed at developing quantitative models to predict the probability of financial failure. The most prominent and most capable of predicting financial

failures based on financial statements to assess the company's future financial position are: Altman 1968, Kida 1980, and Sherrod 1987.

a- Altman Model (1968)

Altman study is one of the important studies he conducted in the field of predicting the failure of companies in 1968, where it relied on many studies, and aimed at determining the predictability of financial failure of companies, and this through studying and analyzing of financial ratios and indicators for a group of companies under study, he Conducted a study on 33 non-bankrupt companies and 33 bankrupt companies during the period 1946-1965, and he used 22 financial ratios extracted from the financial statements of these companies and relied on a statistical model known as Multiple Discriminant Analysis (MDA) to analyze these ratios and construct a Z-score model, which distinguishes this study from its predecessor which used a single-variable model. .

The researcher concluded that the following ratios are among the most important rates that can be predicted for bankruptcy of companies:

- retained earnings to total assets;
- working capital to total assets;
- Sales to total assets;
- EBITDA to total assets;
- Market value of shares to book value of total debt.

Finally, a multivariate model (Z-score) was developed:

$$Z = 0.012X1 + 0.014X2 + 0.033X3 + 0.006X4 + 0.999X5$$

Where:

X1: Working capital to total assets.

X2: Retained earnings to total assets.

X3: EBITDA to total assets.

X4: the market value of shares to total debt.

X5: Sales to total assets.

Z: represents the financial default index where:

$Z > 2.99$: No bankruptcy is expected.

$Z < 1.88$: Bankruptcy is expected.

$1.88 < Z < 2.99$: The position of the company cannot be judged.

The model was able to predict the failure of companies before it happened and for five years accurately reached 95% in the first year before the failure, 72% in the second year, 48% in the third year, 29% in the fourth year, 36% in the fifth year before bankruptcy. (Altman, 1968, pp. 589-609)

b- Kida Model (1980)

The study aimed to determine the predictability of financial failure of companies through the construction of a prediction model, based on the method of discriminatory analysis step-by-step based on 20 financial ratios and a sample of 40 institutions, half of which are distressed and the other half non-defaulted. A short period of time spanned from 1974 to 1975, while the results of this study coincided with the results of the Altman study in ratios that have the ability to predict financial failure.

The study reached the formulation of the model consists of five financial ratios with great predictability, reaching 90%:

$$Z = -1.042X1 - 0.427X2 - 0.461X3 - 0.463X4 + 0.271X5$$

Where:

X1: net profit to total assets.

X2: Equity to total debt.

X3: liquid assets to current liabilities.

X4: Sales to total assets.

X5: Cash to total assets.

Z: financial default index as the higher the index indicates the integrity of the financial position of the company and the lower it indicates the possibility of falling into the company.

The error rate in forecasting non-performing companies was 15%, which is greater than the non-performing non-performing companies' error rate of 9%. This means that the model has more effectiveness in predicting non-performing companies. (Kida, 1980, pp. 506-523)

c- Sherrod Model (1987)

which is one of the most modern models in predicting financial failure, this model depends on the six independent financial indicators, in addition to the relative weights of the discrimination function coefficients given for these variables, according to the following formula: (Arkan, 2015, pp. 240-241)

$$Z = 17X1 + 9X2 + 3.5X3 + 20X4 + 1.2X5 + 0.1X6$$

where:

- X1:** net operation capital/total assets,
 - X2:** current liquid assets/total assets,
 - X3:** total equity/total assets,
 - X4:** net income before income tax/total assets,
 - X5:** total assets/total liabilities,
 - X6:** total equity/total fixed assets.
- Z:** bankruptcy index (financial failure) where:

Category	Riskdegree	Z
First	Company is not exposed to the risk of bankruptcy	$Z > 25$
Second	Little likelihood of exposure to the risk of bankruptcy	$25 \geq Z > 20$
Thrid	Difficult to predict the risk of bankruptcy	$20 \geq Z > 5$
Fourth	The Company is exposed significantly to the risk of bankruptcy	$5 \geq Z > -5$
Fifth	The Company is exposed to the risk of bankruptcy	$Z \leq 5 -$

3. Study Methodology :

1.3. Sample study :

The study population consists of all the public shareholding companies listed on the ASE. The number of companies in the study community reached 195 companies according to the ASE website in 2018 (www.exchange.jo/en)

The study sample was selected from the study population, where we divided the study sample into two groups, the first group was the failed companies and the second group was the non- failed companies, whose financial data are available during the study period (2011, 2018). Failure companies were selected from a total of ninety-five (195) companies present in the study population, this selection was in accordance with the criteria of failure in our study, which was represented in the companies that stopped practicing the activity, which were liquidated, and were taken according to the location of the Securities Depository Center.

While fifteen non- failed companies were selected to meet the number of failed companies, this choice was according to companies that have not stopped their activities and have not been liquidated, which have achieved profits during the last three years, and was taken at random while trying to diversify sectors excluding the financial sector.

2.3. Apply the Altman form to the joint stock companies listed on the Amman Stock Exchange:

The main variables of the study are the financial ratios of the Altman model (independent variables), while financial failure is the dependent variable.

The results of applying the Z-score to the failed and non- failed companies. What can be seen from the failed companies is that all of them have deteriorated in the three years that preceded the liquidation

based on the average Z values obtained, UNIF($Z=-1.01$) was the most degraded company, with results showing the failure of the organization over the three years preceding the liquidation, followed by JOCF($Z=-0.01$) and AMAN($Z=0.02$).

The results also show that the model was able to predict the failure of all companies over the three years prior to the liquidation, except for the palaces of the real estate projects, which predicted the model safety during the years of study

As for the non- failed companies, it is clear that Altman model predicted failure in all years of study except APOT($Z=56.04$), which considered the model sound throughout the years of study, as well as NAST($Z=2.17$) and MANE($Z=2.11$), which show the difficulty of determining their position during the three years before liquidation, and through these results we conclude Two things:

- There are signs of financial failure in sound companies that are not referred to liquidation and do not disclose them;
- the model does not achieve the desired results when the company is sound and not threatened by financial failure.

3.3. Application of Kida model to the joint stock companies listed on the Amman Stock Exchange:

The main variables of the study are the financial ratios of the Kida model (independent variables), while financial failure is the dependent variable.

We note that the number of companies that have achieved the Kida Model in terms of predicting financial failure and referral to liquidation has reached (09) companies out of (15) companies, which were included in the sample of the study and were referred to liquidation[JOWL($Z=-0.11$), AJFM($Z=-0.22$), AREN($Z=-0.33$), GLCI($Z=-0.09$), FNVO($Z=-0.54$), JOCF($Z=-0.06$), UNIF($Z=-1.76$), DKHS($Z=-0.51$), AMDI($Z=-0.28$)], while the results of the Kida Model

were not achieved at (06) companies referred to liquidation, namely [JOTN($Z=1.21$), ICER($Z=0.82$)], The number of companies that have achieved the Kida Model in terms of showing that there are no threats of financial failure and no referral for liquidation has reached (11) companies out of (15) companies included in the study sample, It was inevitably liquidated, and Represented in the companies [GENI($Z=2.75$), JODA($Z=0.04$), APOT($Z=0.13$), ICAG($Z=0.24$), UMIC($Z=0.54$), AIFF($Z=56.54$), NATA($Z=0.55$), JOWM($Z=9.45$), JTEL($Z=0.90$), TAJM($Z=0.37$), JOHT($Z=3.00$)], while the results of the Kida Model were not achieved at (04) companies out of (15) companies.

The number of companies that have achieved the model (20) out of (30) companies referred and not referred to liquidation, and the total number of companies Which did not achieve the form (10) companies out of (30) companies referred and ineligible for liquidation.

3.4. Apply the Sherrod model to the joint stock companies listed on the Amman Stock Exchange

The main variables of the study are the financial ratios that make up the Sherwood model (independent variables), while financial failure is the dependent variable.

The results of applying the Sherrod model to the failed and non-failed companies. What can be seen from the failed companies is that the majority of them are either exposed to bankruptcy risk or highly exposed to bankruptcy risk during the three years preceding the fact of liquidation according to the average values of Z obtained, where UNIF($Z=-495.43$) was the most deteriorated, where the results show that it is highly exposed to bankruptcy and failure risk over the three years preceding the liquidation, followed by AMDI($Z=-9.67$) and then JOCF($Z=-8.02$), also appeared difficult to determine the status of the

company during the years of study of the failed companies through companies [JOTN(Z=10.95), ICER(Z=14.87), UNIC(Z=18.42)].

As for the non-failed companies, it is clear that the Sherrod model in all years of study predicted the difficulty of predicting the risks of bankruptcy and failure through companies [JODA(Z=14.83), RMCC(Z=7.26), ICAG(Z=11.76), NATA(Z=17.95), JTEL(Z=12.47), TAJM(Z=12.10), JOEP(Z=5.66)], or that the company is exposed to the risks of bankruptcy and failure from During the companies [GENI(Z=20.42), APOT(Z=24.08), JOHT(Z=22.14)], except NAST(Z=3.39) and MANE(Z=1.38) which considered the model exposed to bankruptcy risk throughout the years of study, and the rest of the companies represented in the companies [UMIC(Z=36.26), AIFF(Z=165.88), JOWM(Z=39.59)] were considered by the model companies are really sound and non Exposed to bankruptcy risk throughout the years of study.

4. Study Results :

According to the above analysis, if we go back to the Altman, Kida, Sherrod model, we find a difference between the coefficients of the components of these models, this difference had an impact on the results of their application if we tried to classify the companies studied according to the strength of their financial position, as the company that was considered the best according to the Altman model was not so according to the model of Kida or Sherrod, despite the agreement of these latter two in determining the best company, as it shows us that the company The worst is the same according to the three models throughout the study period.

In order to evaluate the effectiveness of the three models, a good rating of the models must be calculated, which reflects the percentage of healthy companies, which are correctly classified within the healthy group of companies, and also the percentage of failed companies,

which are correctly classified within the failed group of companies, this can be illustrated in the following table:

Table 1 : Accuracy Ratio

Co	Sort by Altman model				Sort by Kida model				Sort by sherrod model				
	F	%	N-f	%	F	%	N-f	%	F	%	N-f	%	
<i>F</i>	14	93.33	1	6.67	09	60	06	40	12	80	1	6.67	
<i>N-f</i>	12	80	1	6.67	04	26.67	11	73.33	2	13.33	6	40	
Number of companies that achieved the model and its percentage: 15 by 50%					Number of companies that achieved the model and its percentage: 20 by 66.67%					Number of companies that achieved the model and its percentage: 18 by 60%			
Number of companies that did not achieve the model and its percentage: 15 by 50%					Number of companies that did not achieve the model and its percentage: 10 by 33.33%					Number of companies that did not achieve the model and its percentage: 3 by 10%			

Source: Prepared by the researchers based on the results of the application of Altman model, Kida, Sherrod.

We can see from Table (5) that the percentage of sound companies that were classified according to the model Altman, Kida, Sherrod is: 6.67%, 73.33%, 40%, respectively. And the percentage of non-failed companies that have been classified as failing by the Altman, Kida and Sherrod models is 80%, 26.67%, and 13.33% respectively, indicating that the Altman model does not achieve the desired results when the company is healthy and is not threatened by financial failure compared to other models, also it Show that the Kida model is best placed to classify these companies within three years before liquidation.

We see also the percentage of failed companies classified as failed according to the model of Altman, Kida and Sherrod is 93.33%, 60% and 80% respectively. And the percentage of failed companies that are classified as non-failed according to the model of the Altman model, Kida and Sherrod is: 6.67%, 40%, 6.67%, respectively.

It can be said from these ratios that Altman and Sherrod model have a low ability to classify failed companies during the three years before liquidation compared to the Kida model which achieved an acceptable accuracy rate, they are considered acceptable ratios for the classification of public shareholding companies listed on the Amman Stock Exchange.

In general, we conclude that the KEDA model was the best and most predictable failure of the joint stock companies listed on the ASE, among the other two models, where he managed to predict financial failure somewhat more accurately, this is an indication that the model reflects the financial difficulties or changes experienced by the company as threatening financial failure with acceptable confidence.

5. Conclusion :

1.5. Results

After applying the models on a sample study, we reached the following results:

- The results obtained by applying the three financial failure prediction models to the studied joint stock companies vary, although these models were applied to the same data and the same period.
- The study showed the weakness of the ability of Altman model to predict the failure of joint stock companies listed on the Amman Stock Exchange during the years preceding the reality of liquidation, where the accuracy of the rating reached only 50%.
- The study showed the ability of the Kida model to predict the failure of joint stock companies listed on the Amman Stock Exchange during

the years preceding the reality of liquidation with an acceptable degree of confidence, with an accuracy rating of 66.67%.

- The study showed the ability of the Sherrod model to predict the failure of the joint stock companies listed on the ASE during the years preceding the liquidation with an acceptable degree of confidence but also less than the Kida model, where the accuracy rating of 60%.
- The study found that the Kida model is the best able to predict the failure of companies and during the three years preceding the reality of liquidation and failure, this is an indication that the model reflects any financial difficulties or changes experienced by the company as a threat to financial failure, and that it can be relied upon to judge the financial position of companies with a degree of acceptable confidence.

2.5. Recommendations

Based on our findings, we recommend:

- Encouraging the listed companies in the ASE to use and apply the KEDA model because it has an acceptable ability to predict failure and for a sufficient period before liquidation and failure.
- Paying attention to the subject of predicting financial failure and giving it its share of studies and research in order to protect companies that are exposed to financial failure.
- Conducting further studies and researches in this field and trying to build a model for predicting the failure of companies listed on the ASE.
- Preparation of new studies including other independent variables that have proved effective in predicting financial failure.

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7. Appendices :

Appendice1 :The companiesSample study

<i>numbe r</i>	<i>Compan y code</i>	<i>CompanyStatu s</i>	<i>numbe r</i>	<i>Compan y code</i>	<i>CompanyStatu s</i>
01	JOWL	Failed	16	GENI	Non-Failed
02	AJFM	Failed	17	JODA	Non-Failed
03	JOTN	Failed	18	RMCC	Non-Failed
04	ICER	Failed	19	APOT	Non-Failed
05	AREN	Failed	20	ICAG	Non-Failed
06	UNIC	Failed	21	UMIC	Non-Failed
07	GLCI	Failed	22	AIFF	Non-Failed
08	FNVO	Failed	23	NATA	Non-Failed
09	AMAN	Failed	24	NAST	Non-Failed
10	IENG	Failed	25	JOWM	Non-Failed
11	JOCF	Failed	26	MANE	Non-Failed
12	PRED	Failed	27	JTEL	Non-Failed
13	UNIF	Failed	28	TAJM	Non-Failed
14	DKHS	Failed	29	JOHT	Non-Failed
15	AMDI	Failed	30	JOEP	Non-Failed

*Source: Prepared by researchers depending on the location of the Securities
Depository Center*

http://www.sdc.com.jo/arabic/index.php?option=com_members_info
 (consulted on 24/8/2019).

The impact of the knowledge economy on the success of strategic planning for small and medium enterprises in Algeria

أثر اقتصاد المعرفة على نجاح التخطيط الاستراتيجي للمؤسسات الصغيرة والمتوسطة في

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Abstract:

the acquisition of knowledge in the right direction must be a real addition to the strategic plans and a starting point for better competitiveness.

This research aims to build the intellectual framework of the knowledge economy and strategic planning in small and medium enterprises(SMEs) by the use of statistical system (SPSS) to reach the results, and determine the correlation of the knowledge economy in the success of strategic planning.

keyword: knowledge economy, strategic planning, SMEs

JEL classification code : XN1, XN2

ملخص:

إن اكتساب وسائل المعرفة في الاتجاه الصحيح يعتبر إضافة حقيقية إلى الخطط الإستراتيجية ونقطة انطلاق لتحسين القدرة التنافسية.

يهدف هذا البحث إلى فهم العلاقة بين اقتصاد المعرفة والتخطيط الاستراتيجي في المؤسسات الصغيرة والمتوسطة؛ وهذا من خلال استقراء آراء عينة من بعض المشاريع في بسكرة / الجزائر. - بما في ذلك استخدام النظام الإحصائي (SPSS) للوصول إلى النتائج، وتحديد ارتباط اقتصاد المعرفة في نجاح التخطيط الاستراتيجي.

الكلمات المفتاحية : اقتصاد المعرفة ، التخطيط الاستراتيجي للمؤسسات الصغيرة و المتوسطة.

تصنيف JEL : XN1 ، XN2

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Introduction :

As the progress and development of SMEs cannot be achieved beyond strategic plans, strategic concepts are key criteria for evaluating the success of SMEs.

It has many responsibilities, which it needs to improve the level of its strategic plans and create clear-cut, clearly defined strategic plans. Relying on this reality to effectively engage within this ever-growing economy of knowledge..

Here we can ask: How does the knowledge economy affect the construction of successful strategic plans that enable SMEs to achieve their goals?

The research consists of one basic hypothesis, There is a significant correlation between knowledge economy and strategic planning .with four sub-hypotheses

- There is a significant impact relationship between education and training and the dimensions of strategic planning in small and medium enterprises.

- There is a significant impact relationship between research and development and the dimensions of strategic planning in small and medium enterprises.

- There is a significant impact relationship between information technology and the dimensions of strategic planning in small and medium enterprises.

- There is a significant impact relationship between innovation and the dimensions of strategic planning in small and medium enterprises.

The dimensions of the knowledge economy (education and training, research and development, information technology and innovation) represent the independent variables X_i , while the

dimensions of strategic planning (vision, mission, goals, environmental analysis, strategic alternatives and strategic choice) Yi variables.

The field investigation leads us to achieve a set of objectives, which are as follows:

- Try to deepen the understanding of the knowledge that the achievement of strategic plans to serve the growth and sustainability of small and medium enterprises.
- Search for any real link between the idea of the knowledge economy and the success of strategic plans at the level of small and medium enterprises researched in Algeria.

As for the importance the applied study results, is based on the fact that it establishes a new knowledge that SMEs can use to build and develop their strategic plans and support appropriate decision-making based on knowledge.

1. Definition of a Knowledge Economy

The interest of business organizations is intensified, in studying how to make the transition from traditional forms to societies in which knowledge forms the basis for economic progress and achievement.

Knowledge Economy is a system of consumption and production that is based on technology and the knowledge acquired by the workers or intellectual capital.

Traditional economic factors such as monetary capital, physical labor, and raw material, are becoming less important in comparison to the capability of adding value through knowledge development, improvement, and innovation". (Hadad, 2017,p208)

Refers to how society and economies are changing their reliance from the labour and manufacturing of products or goods to an economy that is more reliant on the production and reengineering of information into knowledge. Hence, society and the economy are being transformed from a "physical-based" labour force to a "knowledge-based" one.

The knowledge economy can be defined as: a knowledge-based economy as a strategic and important factor to improve the data and indicators of success of countries and organizations, based on science and technology, and on human resources regarded as real capital.

1.1. first subtitle: The pillars of The knowledge economy.The following pillars are four critical requisites for a country to be able to fully participate in the knowledge economy: (Dincă, 2010,p217.)

Economic incentive and institutional regime: The country's economic and institutional regime must provide incentives for the efficient use of existing knowledge, the acquisition of new knowledge, and the application of both to economic activity in order to improve production, to raise quality, to innovate, and to launch new enterprises.

Education and skills of human resources: Knowledge is an intellectual capital represented by an elite group of workers who have knowledge and organizational abilities to produce new ideas and develop old ideas and learn, it can be assessed by the following indicators:

- Continuous education and training commensurate with the needs of the organization.
- Adult skills, which are skills obtained outside the official circle.
- Worker mobility allows a general picture of the flow of knowledge and skills.

Information and communication infrastructure: In this regard, the United Nations Conference on Trade and Development proposes four measures of ICT infrastructure (United Nations Conference On Trade And Development, 2017,p06):

- Connectivity indicator: number of Internet users, number of computers, main phone and mobile phones.

- Access Index: digital literacy, cost of local calls, personal income
- Policy index: the extent to which policies contribute to R&D funding.
- Usage indicator: communication flow level

Innovation system: Among the most important means that enable institutions to grow and continue and face changes at various levels, and indicators of innovation in institutions:

- Number of new ideas for development in a way that allows them to provide outstanding services to customers.
- Number of new services that differ from previous services in terms of features and usage.
- Cases of change and development of existing business lines in number and form aimed at improving quality.
- The evolution of the market share of the institution, which is expressed by competitive strength.

The following figure summarizes the above.

2. Second title : Strategic Planning for Small and Medium Enterprises.

SMEs are defined as non-subsiary, independent firms which employ fewer than a given number of employees. This number varies across national statistical systems. The most frequent upper limit is 250 employees, as in the European Union. However, some countries set the limit at 200 employees, while the United States considers SMEs to include firms with fewer than 500 employees. Small firms are generally those with fewer than 50 employees, while micro- enterprises have at most ten, or in some cases five, workers. Financial assets are also used to define SMEs. (The OECD , 2000.)

Algeria faced the problem of defining a clear definition of SMEs through the promulgation of Law 1-18 of December 12, 2001 containing the Directive Law for the Promotion of SMEs. It is every enterprise that produces goods or services that: - employs from 01 to

250 workers - Its annual turnover is less than 2 billion Dhs. or its annual revenues is less than 500 million Dhs. - It meets the criteria of independence. (Bouri, 2019,p26.)

2.1. First subtitle : Definition of Strategic Planning

Strategic planning provides a blueprint for achieving organization's goals. There are certain objectives that the organization is trying to satisfy during the execution of the strategic plan. Understanding the organizational objectives of a strategic corporate plan will help to create efficient plans to guide organization's growth. A strategic plan is a document used to communicate with the organizations goals, the actions needed to achieve those goals and all of the other critical elements developed during the planning exercise. (Maleka, 2015,P12.)

Strategic planning is an organizational management activity that is used to set priorities, focus energy and resources, strengthen operations, ensure that employees and other stakeholders are working toward common goals, establish agreement around intended outcomes/results, and assess and adjust the organization's direction in response to a changing environment.

2.2. Second subtitle : Strategic Planning in Small and Medium Enterprises

Strategic planning helps to coordinate and link decisions to achieve goals, anticipate future events, and improve the performance and management skills of small and medium-sized organizations. (Sultani, 2014. In Arabic,p 54)

The most prominent results obtained from the pilot studies related to strategic planning in small and medium enterprises: (Hathway Management Consulting, April 2013,p 11)

- **Immediate benefits** The introduction of strategic planning will immediately spark focus on organizational goals by careful analysis of

the internal and external environment. This awareness often drives better decision making and creates a more realistic set of things to measure against.

- **Near-term benefits (within 6 -18 months)** Strategic planning guides effective strategy-making through coordination and shared purpose. Implementing strategies will have a number of effects. Resource efficiency should improve, and internal communication will become more frequent and more spontaneous. The strategies will require greater problem solving skills, but this will be addressed by a greater sense of togetherness and clarity amongst your team. Your customers will begin to value your renewed vision and focus. All of your strategies will ultimately deliver superior customer value through better need awareness and innovative thinking.

- **Long-term benefits (after 18 months)** The holy grail of strategy is achieving long-term competitive advantage. This takes time because it demands superiority at supply-side and demand-side. The journey to gaining competitive advantage will be noticed by the wider market and you will be more attractive to larger companies who value strategic insight and capability in their partners. The culture of the company will change and be more cohesive and able to shape the future.

- **Evidence of benefits** the SME sector have shown better performance outcomes for those who plan strategically.

2. 3. Third subtitle : Stages and dimensions of strategic planning for small and medium enterprises

Once the ground work has been done, a strategic framework will be put in place. There are several models to choose from, but most share similar characteristics.

One of the first things to determine will be the extent to which your existing strategic thought can be integrated into the planning model. The main objective in strategic planning is to create and articulate the

strategy, and make resource allocation decisions to guide the whole company during the strategy cycle. Secondary objectives include setting goals, managing learning and feedback, and measuring and rewarding results. The length of the cycle will depend on your business, but you will want to measure progress weekly or monthly. In terms of the strategy making itself, there are many routes to take and methods to consider. The objective is always the same: to improve the performance of your organization. (Hathway Management Consulting, April 2013,p15)

3. Applied Study Methodology

3.1 the sample and the used tools of the Study:

The study population included (55) leaders in a sample of nine (09) small and medium enterprises in Biskra, as shown in the following table:

Table 1 : Study population and distribution of questionnaires

Company name	Specialty	Sector	Number of leaders	Distributed questionnaires	Recovered questionnaires	Accepted questionnaires
Ziban Garden	Dates manufacturing and conservesion	Industrial	12	12	10	10
AGRODAT	Dates manufacturin g and conversion	Industrial	13	13	10	10
Biopharm	Distribution of medicines	Commercial	12	12	08	06
MBS	Semi-medical pharmaceutical industry	Industrial	6	6	06	06
Biscofruit	Biscuit industry	Industrial	6	6	06	06
DAKHEEL BUILDING MATERIALS	Distribution of building materials	Commercial	2	2	02	02

Rahmoun RH	Distribution of plumbing tools	Commercial	2	2	02	02
Maestro net	Cleaning and contracting services	Service	1	1	01	01
Ben salah	plastic industry	Industrial	1	1	01	01
total			55	55	46	44

Source: Researchers

The questionnaire was divided into three sections: Part I: contains personal data, Part II: includes the variables of knowledge economy and the number (4x4) The third part: contains the strategic planning variable and the number (6 x3). In order to determine the degree of approval of the respondents, the "Likert Five" scale was used, and SPSS 20 was used to analyze the accepted forms.

3.2 The validity of the study tool: Table (2) shows the results of the study tool's stability test (internal consistency of the questionnaire statements):

Table 2 : Study Tool Stability Test Results (Internal Consistency of Questionnaire List Statements).

Variables	Number of phrases	coefficient alpha de Cronbach
Information and Communication Technology	4	.81
research and development	4	.82
Education and training	4	.82
innovation	4	.82
The dependent variable	18	.80
Total	28	.84

Source: Prepared by researchers based on the output of spss20

The above table shows that the values of internal consistency are high (0.84) The consistency of the Cronbach coefficient more than (60%) indicates the consistency and reliability of the data.

3.3 Characteristics of the study sample:

The following table shows the sample characteristics

Table 3: Descriptive Analysis of Demographic Variables Using Frequency and Relative Frequency

	Category	Repetition	Relative repetition
Gender	Males	35	79.54
	females	9	20.46
	Total	44	100%
Age	Less than 30	4	9.09
	30-40	17	38.63
	40-50	20	45.45
	50 and more	3	6.83
	Total	44	100%
Qualification	Senior technician	12	27.27
	University degree	19	43.18
	Master	8	18.18
	else	5	11.36
	Total	44	100%
Function	Director general	12	27.27
	administrator	2	2.54
	manager vis	8	18.18
	Head of department	22	50
	Total	44	100%

Number of years Experience	Less than 10	23	52.27
	10-15	12	27.27
	15-20	8	18.18
	20 and more	1	2.27
Total		44	100%

Source: Prepared by researchers based on the output of spss20

The table indicates that the gender was in favor of males where they reached 79.54%, while the age group was the largest percentage for the category (50-40) years, where they reached 45.45% .The table also indicates that the largest percentage of educational level University degree 43.18%, and finally the table indicates The largest percentage of the years of experience (less than 10) was 52.27%, and the lowest rate was for the category of (20 years and above) and reached 2.27%.

3.4 Testing the strength of the model

The results of the independent variables test: The pearson correlation coefficient matrix was calculated to determine the relationship between the independent variables.

Table 4: Correlation Matrix

		Information and Communication Technology	research and development	Education and training	innovation
Information and Communication Technology	correlation	1			
	Significance	0.001	1		
research and development	correlation	0.569			
	Significance	0.000	0.424	1	

Education and training	correlation	0.490	0.001		1
	Significance	0.001	0.610	0.372	
innovation	correlation	0.529	0.001	0.001	
	Significance	0.001	1	1	

Source: Prepared by researchers based on the output of spss20

Table 5: Test Results of the Coefficient of variance, the Coefficient of skewness, the Variance Inflation Factor

	VIF	Coefficient of variance	Coefficient of skewness
Information and Communication	1.77	0.56	0.13
research and development	1.88	0.53	0.09
Education and training	1.38	0.72	0.05
innovation	1.73	0.57	0.06

Source: Prepared by researchers based on the output of spss20

Table (5) shows the values of variance inflation test for all variables less than (10), and the value of the variance test allowed for all variables is greater than (0.05), this indicates that there is no statistically significant correlation between independent variables, which enhances the possibility of use in In order to verify the normal distribution of data, the value of the skewness coefficient for independent variables was calculated. Table 7 shows that the skewness

coefficient value is less than (1), which indicates that the study data is distributed naturally.

3.5 The results of the correlation coefficients for the multiple regression model:

The results are as in the table below

Table6 : Linear Correlation (Model Summary).

Std. Error of the Estimate	Adjusted R Square	R Square	R	Model
0.2726	0.720	0.724	0.851	1

Source: Prepared by researchers based on the output of spss20

The table shows the result of calculation of the correlation coefficient (R) which is the value of the relationship between the areas of strategic planning using knowledge economy which has reached (0.851).

The result of the coefficient of determination (R^2) was (0.724). Therefore, the independent variables explained (72.4%) of the changes in the dependent variable and the rest due to other factors.

3.6 The overall significance test for the multiple regression model:

Table (7) presents the results of ANOVA variance analysis for the regression sample significance test:

Table7 : Regression Line Variance Results.

Model	Sum of Squares	Df	Mean Squares	F	Sig
Regression	49.741	4	12.435	167.252	0.001
Residual	18.959	255	0.074		
Total	68.7	259			

Source: Prepared by researchers based on the output of spss20

There is a significant (167.252) and a significance level (0.001), thus the regression model is suitable for measuring the causal relationship between the independent variable (strategic planning) and the dependent variable (knowledge economy). As shown in Table (8).

Table 8: Testing the Significance of Multiple Regression Equation Coefficients.

Independent parameter variables	Unstandardized Coefficients		standardized coefficients Beta (B)	t	Sig
	β	St. Error			
Fixed limit					
Information and Communication Technology	0.381	0.121		3.154	0.002
research and development	0.186	0.37	0.222	5.084	0.001
Education and training	0.031	0.31	0.045	0.987	0.324
innovation	0.559	0.35	0.621	16.069	0.001
	0.106	0.35	0.132	3.045	0.003

Source: Prepared by researchers based on the output of spss20

Where Table (8) data indicate that there is a significant effect at $\alpha \leq 0.05$ level on media and communication technology,

This is supported by the calculated t values as well as the statistical significance values below the level of significance ($\alpha \leq 0.05$), while research and development did not have a statistical role on the success of strategic planning.

4. Study Results :

4.1 General results:

The study showed that the knowledge domain contributes a medium degree (3.44), which indicates the validity of the main hypothesis: The knowledge economy contributes to the success of strategic planning, where the institutions under study must provide indicators of the knowledge economy to succeed in activating their innovation.

The study showed that there is a statistically significant impact at the level of significance (0.05) for the fields of knowledge economy (information and communication technology, research and development, education, training and innovation) in the success of strategic planning, the study believes that this process ensures that organizations have the knowledge to enable them to Achieve its objectives efficiently and effectively.

The study showed that there is no statistically significant effect at the level of ($\alpha \leq 0.05$) for the field of knowledge economy in research and development at the level of (0.324) on the success of strategic planning. If this dimension is taken care of further, a good competitive position and success will be achieved.

There are no statistically significant differences in adopting the concept of knowledge economy as an input to the success of strategic planning due to the gender variable.

4.2 Testing hypotheses results: the result of The test of sub-hypothesizes are respectly:

The first sub-hypothesis: There is a significant effect between media and communication and the success of strategic planning in terms of its dimensions. Therefore, the first sub-hypothesis is rejected and the alternative hypothesis is accepted.

The second sub-hypothesis: there is a statistically significant impact of research and development on the success of strategic planning in terms

of dimensions, Table (8) shows that the value of (t) calculated (0.987) with a level of significance (0.324) and when comparing the value of the significance level with the value (0.05) It is found that the calculated significance level was greater than (0.05) and therefore the second sub-hypothesis is accepted.

The third sub-hypothesis: There is a statistically significant effect of education and training on the success of strategic planning in terms of its dimensions, Table (8) that the value of (t) calculated (16.069) with a level of significance (0.001) and when comparing the value of the level of significance with the value (0.05), It is found that the calculated significance level was less than (0.05) and therefore reject the third sub-hypothesis of the study and accept the alternative hypothesis, as the table shows that the value of the coefficient (β) has reached (0.559), a value that shows the amount of increase in the field of education and training when it increases The value of strategic planning in one unit.

The fourth Sub-hypothesis: There is a statistically significant effect of innovation on the success of strategic planning in terms of its dimensions. Table (8) shows that the calculated value of (t) was (3.045) with a level of (0.003). The calculated significance level was less than (0.05). Therefore, the fourth sub-hypothesis of the study is rejected and the alternative hypothesis is accepted.

The table also shows that the value of the coefficient (β) was (0.106), a value indicating the amount of increase in the field of innovation when the value of strategic planning increases in one unit.

5. Conclusion :

The study showed that most sources of knowledge economy still need to strengthen management from the point of view of administrators. In light of this study result, the recommendations are summarized as follows:

- Knowledge economy is a must to address the problems faced by organizations in creative ways that allow them to excel and provide everything new in their field through the exploitation of resources, knowledge and skills.
- The need to develop management awareness of the importance of strategic planning for managers to be more prepared to face unexpected scenarios and have the ability to adapt quickly to sudden changes, to achieve everything new and to develop internal resources that enable them to address problems in the future.
- Enable workers to more powers and powers so that they can solve problems and make decisions with the appropriate speed and accuracy.

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Algeria's Future Energy Mix: The Challenges to Transit to Renewable Energy

مزيج الطاقة المستقبلي في الجزائر: تحديات التحول نحو الطاقات المتجددة

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Abstract:

This study aims to show the importance of Algeria transformation to renewable energies, taking into account the economic reality of the country, where fossil energies, especially gas, are still of the utmost importance. In our study, we will focus on the optimal and potential energy combination of the Algerian economy.

The results of study show the important place of the "gas" and "renewable energies" elements in a successful energy transformation process in Algeria.

Keyword: Energy; Algeria; Energy transformation; Renewable energies; Gas.

JEL classification code : Q4 , Q3

ملخص:

تهدف هذه الدراسة إلى إظهار أهمية لجوء الجزائر بشكل أكبر إلى الطاقات المتجددة، مع مراعاة الواقع الاقتصادي للبلاد، حيث لا تزال الطاقات الأحفورية، ولاسيما الغاز، ذات أهمية قصوى. سنركز في دراستنا على التوليفة الطاقوية المثلى والممكنة للاقتصاد الجزائري.

توصلت نتائج الدراسة إلى أهمية مكانة عنصري "الغاز" و"الطاقات المتجددة" في إطار أي عملية تحول طاقي ناجحة في الجزائر.

الكلمات المفتاحية : الكلمات المفتاحية : الطاقة ؛ التحول الطاقوي ؛ الجزائر، الطاقات المتجددة ؛ الغاز

تصنيف JEL : Q4 , Q3

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1. Introduction :

Energy is an important factor for every economy. Fossil resources and primary energy (coal, natural gas, oil, and uranium) in Algeria, as elsewhere in the world, are limited and not renewable. The fluctuations in the prices of these energies are an additional element of fragility, which further complicates the economic choices of countries in which the hydrocarbon sector is an important part of the structure of GDP and the formation of export earnings.

The energy transformation in Algeria imposes itself as a necessity for economic reasons linked to the scarcity of fossil energy resources and the problems associated with their exploitation, and environmental reasons mainly related to the international commitments of Algeria. On the other hand, the domestic model of energy consumption and the position of the energy sector in the balance of payments (97% of exports) and within the country's revenues (about 60%) and in the structure of GDP (about 35%) are factors that cannot be overlooked in any economic policy in Algeria.

With regard to traditional fossil energies, Algeria, which is one of the most important producers at the continental level, remains in the face of a dual challenge represented in the difficulty of raising production from gas and oil for several reasons that led to a decrease in investments in the hydrocarbon sector more than fifteen years ago, this is on the one hand and On the other hand, an accelerating rise in domestic energy consumption.

In addition to the aforementioned, the repercussions of Algeria's international commitments in the field of the environment. Here, energy transformation becomes an inevitable option in the long and possibly medium term. This energy transition should be based, inter alia, on the rationalization of energy consumption at the internal level, the rationalization of the exploitation of fossil energy sources

And the gradual use of renewable energies (hydro, wind, solar, biomass and geothermal).

This study will attempt to address the following problematic:

- What place can renewable energies occupy as part of the energy mix in Algeria in the framework of a successful energy transformation?

Through this paper we will try to answer the following sub-questions:

What are the limits of options based on fossil energies in Algeria?

- What are the obstacles that prevent a real start in the field of renewable energies in Algeria?

- Will the decline in traditional hydrocarbon production in Algeria be compensated for by investing in renewable energies?

To answer these questions, the paper was divided into two main sections:

The first section discusses the energy situation in Algeria with all its components, fossil and renewable, in the context of the general directions of energy policies in Algeria, as well as in the context of the challenges of global energy markets.

While the second section will be devoted to analyzing the potential and limits of renewable energies in Algeria. The analysis will be conducted on the basis of the national renewable energy development program, as a national reference in this area, but also in light of alternative opportunities that have not been sufficiently taken into account in this program.

2. The general principles and orientations of energy policies in Algeria:

The energy and oil sector in Algeria plays an important and major role in economic development, and it is considered the driving tool for the rest of the branches of the national economy, And considering the important resources of hydrocarbons and natural resources found in Algeria. Where the fuel represents, on average, about:

- 35% of GDP.
- 97% of export revenues.
- More than 60% of the state's budget revenues.

The sector also contributes to meeting the full national energy needs, as consumption for the year 2017 amounted to 52 million oil equivalent tons (OAPEC, 2018, p. 64)

The various development programs adopted by Algeria led to the preparation of an energy policy framework that defines the role assigned For the energy sector in achieving economic and social development in the country, especially determining the basic options regarding the internal and external use of energy at all levels of the energy chain.

The increasing demand from the national energy needs has led to the necessity of setting a policy that guarantees the national energy supply in the medium and long term on the one hand, and the continuous guarantee of financing needs in order to perpetuate the concept of sustainable development. Within this framework, a national energy strategy for 2040 prospects has been developed, based on (Ministry of Energy, 2014, p. 3):

- Using gas by stimulating the use of LPG and CNG in the transportation sector.
- Appraising the use of energy resources through developing the manufacturing industry, such as petrochemistry, refining, etc.
- Developing the use of renewable energies on a large scale by raising the percentage of electricity generation from renewable sources to 30 %.
- Begin studying the possibility of developing the exploitation of non-conventional fuel resources.
- Relying on the principles of prudence, prevention and environmental protection in the context of sustainable development.
-

1.2 Energy capabilities and options in Algeria

The energy sector in Algeria has experienced several fluctuations in recent years in an attempt to adapt to the global energy scene, whether in terms of investment, production, export and domestic consumption. It can be said that the hydrocarbon sector remains the dominant option

among other energy options that Algeria has and can be developed such as renewable energies or nuclear energy.

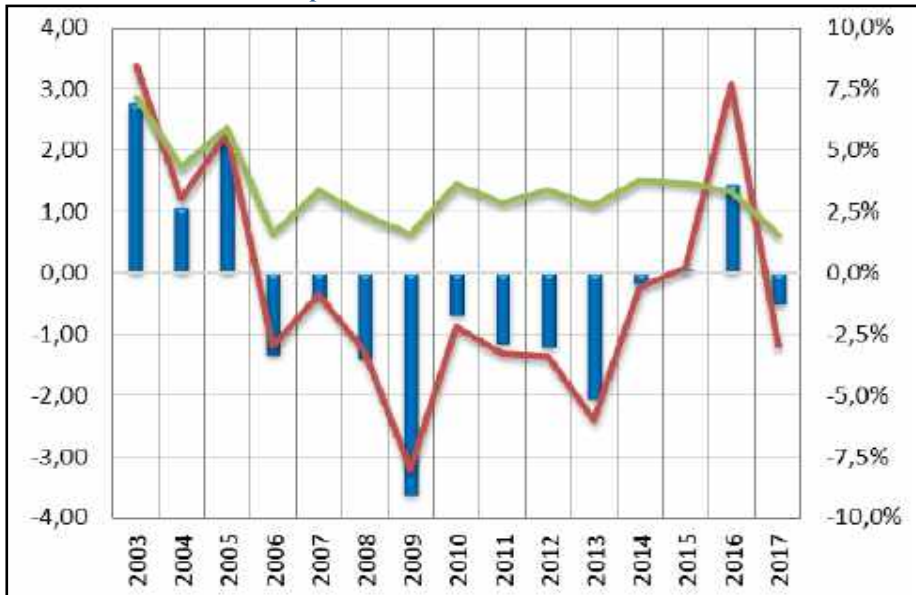
a. The hydrocarbon sector in Algeria between dominance and volatility

Algeria has modest proven reserves of crude oil, which by the end of 2017 amounted to 12.2 billion barrels, which is almost constant and has not changed throughout the period 2013-2018, which represents 0.95 % of the world total. On the other hand, proven reserves of natural gas from traditional sources are of greater importance, although they have not changed also during the period 2013-2018, reaching 4504 billion cubic meters, which represents 2.3 % of the world total (OAPEC, 2018, p. 67)

While the production of commercial primary energy from hydrocarbons in Algeria increased by 2 % in the period between 2000-2013, as it moved from 152 million oil equivalent tons from the year 2000 to reach 156 million oil equivalent tons from the year 2013 and both oil and condensate represented a percentage 43 % of total production, while natural gas recorded 52 % in 2012. However, the situation tended to change during the period 2014-2018, as it was characterized mostly by the trend towards fluctuation and decline; it is an average oil production of 1.2 million barrels per day in 2012. Production decreased to 1.01 million per day in 2018. The Gas production declined in 2017 to 92.3 billion cubic meters, compared of 96.6 billion cubic meters in 2014, to decrease again by -4.5 % in 2018, to 83.3 billion cubic meters, which is a level less than 11 billion cubic meters before 5 years (OAPEC, 2018, p. 68)

The following figure summarizes the developments witnessed in the hydrocarbon sector during the period 2003-2017, which show negative real growth rates during the period 2006-2015, except for the year 2016, which witnessed an increase in production, to decline again in 2017, with a negative growth in added value reached -3% on average during the period 2006-2014. Combined with a negative contribution to the overall growth of -32.4%.

Fig. 1: The growth of the hydrocarbon sector in Algeria during the period 2003-2017



Source: (Bank of Algeria, 2017, p. 20)

And in terms of production capacities, the capacities of refineries in Algeria increased from 583 thousand barrels per day in 2013 to 657 thousand barrels per day in 2016, with these capabilities being stable on 2017.

As for the production of energy derivatives, they are distributed as follows (OAEPEC, 2017, p. 61):

- Petroleum products (which include various fuels, such as fuel for cars and airplanes): Production increased in 2016 to about 612.1 million barrels, an increase of 8 % compared to 2013, when 488.5 million barrels were registered. However, production decreased in 2017 to 597.9 million barrels.
- liquefied natural gas (liquefied): production decreased from 26.5 million tons in 2000 to 14.3 million oil equivalent tons in 2012 due to the failure of Skikda unit and the decrease in demand due to the economic crisis, especially in the Europe region.

- liquefied petroleum gas (LPG): Refineries' production of LPG decreased from 1.5 million oil equivalent tons in 2000 to 0.9 million oil equivalent tons in 2012, an average of 4 % / year. However, production increased during the period 2013-2016 from 16.4 million barrels to 24.4 million oil equivalent tons, and decreased again to the level of 23.7 million oil equivalent tons in 2017.

b. Energy production potential outside the hydrocarbon sector in Algeria

The other energy sources include, coal production, hydroelectric power, nuclear energy, wind power, solar energy, and thermal energy, remains very marginal in the case of Algeria, it opens up broad prospects for the development of many sources, especially solar and wind energy. As the total production of electric energy from various renewable sources in 2016 reached about 536 MW, which represents 4.18% of the total energy production in Algeria.

Energy production is distributed outside of hydrocarbons in Algeria as follows (Ministry of Energy, 2014, pp. 7-8):

- The production of Electricity from solar and wind energy increased by 21 % / year to 157,000 oil equivalent tons from 2012, with the receipt of the hybrid terminal of Hassi EL-Rm 1.
- The total electric power generated by solar and wind sources in Algeria in 2017 was 344 and 10 MW, respectively.
- Hydroelectric Energy: The production of electrical energy from hydraulic sources remains marginal in Algeria, as it did not exceed 100 barrels of oil equivalent per day in 2017, and it represents an electric generating capacity of 228 megawatts during the same year. It is lower than the production recorded in 2013, which amounts to 400 barrels of oil equivalent per day. It should be noted that the production of hydroelectric energy is directly related to rainfall, and reflects the effects of the drought that characterized Algeria in recent years, as this type of electricity in 1985 represented about 6%, but today it represents only less than 1%.

- With regard to the use of nuclear energy, which will contribute to strengthening the provision of electricity at the national level, it remains very limited to the challenges and difficulties it faces, especially the technological dependency with regard to reprocessing radioactive materials, as well as providing enriched fuel. Where the capabilities of generating electricity from nuclear energy have not exceeded 150 MW in 2017.

1.2. The energy consumption mix in Algeria

In terms of consumption, the national consumption of energy in 2012 was about 36.4 million oil equivalent tons, after the year 2000 was estimated at 18.3 million oil equivalent tons. The final energy consumption increased by 8.6 % / year during the period 2013-2017, meaning that it increased from 37 million tons in 2013 to more than 41.87 million oil equivalent tons in 2017 (OAPEC, 2019, p. 94)

The consumption of electricity, petroleum derivatives and natural gas also witnessed a continuous acceleration in consumption due to the improvement in the living conditions of the citizen through (Ministry of Energy, 2014, p. 11):

- Electrification of most of the country's regions, which necessitated the development of electricity production methods by accomplishing more than 7,000 MW from 2000 to 2017.

- Increase the number of cars.

The development of national consumption is distributed for the various major sectors as follows (Ministry of Energy, 2014, p. 15):

- The consumption of the sectors of industry, construction and public works increased by 5 percent / year, as it moved from 4.5 million oil equivalent tons in 2000 to 7.9 million oil equivalent tons in 2017.

The consumption of the domestic and services sectors increased by 4 %/ year, as it increased from 9.2 million oil equivalent tons in 2000 to 15.0 million oil equivalent tons in 2017.

- A significant increase in the consumption of the transport sector, where it recorded a growth rate of 9.2 %/ year to reach 13.4 million oil equivalent tons in 2012, after it was not more than 4.7 million oil equivalent tons in 2000.

This development was reflected in the rise in the final national consumption per capita, as it was estimated at 1.35 oil equivalent tons in 2017 compared to 1.0 oil equivalent tons in 2000.

The national energy consumption structure is composed of the following three components:

- Energy consumption of industrial units.
- Non-energy consumption (petrochemicals, fertilizers, asphalt, and oils).
- Final consumption, which covers the final needs of the industry, transportation and home consumption sectors.
- Lost quantities.

The rise in national energy consumption is due to the development of energy industries on the one hand (especially LNG and power stations), and the rapid development of final consumption on the other hand.

National consumption is distributed in parallel with the national energy policy options used, which are based on the most abundant materials in the balance of fossil resources, especially gaseous ones. The share of natural gas increased to 35 % compared to petroleum products that did not exceed 30 % followed by electricity by 28 % in 2017.

In this framework, according to energy sources, the mix of national energy consumption is distributed as follows (OAPEC, 2019, p. 30):

-Oil consumption decreased from 416.2 thousand bpd (barel per day) in 2013 to 412.2 thousand bpd in 2017, which constitutes a decrease of -0.96 %.

-Natural gas consumption increased by 23.3 %, from 595.2 thousand bpd d in 2013 to 734 thousand bpd in 2017.

- The consumption of oil derivatives decreased during the period 2013-2017 by -1.4 %, to reach 381.1 thousand bpd in 2017, compared to 386.7 thousand bpd in 2013.

3. The potential role of renewable energies in the future energy mix of Algeria

Recent years have witnessed the growing interest in Algeria in the importance of heading towards diversification of energy sources, as studies issued in this regard have proven that Algeria has abundant sources of renewable energy, especially solar and wind energy, and therefore the trends towards the necessity of the option to work on exploiting the available renewable energy sources.

3.1 Renewable energy sources in Algeria

The renewable energy resources in Algeria consist mainly of hydro, solar, wind and ground energy.

Due to its distinguished geographical location, Algeria possesses one of the most important solar capabilities in the world, as the duration of solar sunshine exceeds 2000 hours annually on the entire national territory, and reaches 3900 hours in the high plateaux and the desert. The average daily energy obtained on a horizontal area is 5 kWh per 1 sq.m equivalent to 1700 kWh / sq.m per year in the north, and 2263 kWh / sq.m per year in the south (Ministry of Energy, 2014, pp. 16-18).

Regarding the potential of wind power generation, Algeria is divided into two distinct large geographic regions, North and South.

The north, which is bordered by the Mediterranean Sea, is characterized by a coast that extends over 1200 km, and mountainous terrain such as the hill atlas and desert atlases, where the plains and high plateaux with a continental climate are distinguished between them, characterized by a rate of wind speeds not very high, but we find quarterly climates on the coastal sites of Oran and Annaba And the high plateaux of Tiaret, as well as the areas bordered by Bejaia in the north and Biskra in the south.

As for the south, it is characterized by a faster wind speed than the north, especially the southwest, as it exceeds 4 m / s and reaches 6 m / s in Adrar.

With regard to hydropower, the share of electricity production from hydropower in the national park is 1%, about 286 megawatts, and this weak capacity is due to the insufficient number of dams on the one hand, and the lack of utilization of available resources.

These facilities are concentrated in the northern regions, and are distributed over: Derghina, Igil Amda, Mansouria, Irgan, Souk Eljamaa, Tizi Madan, Ghrib, gouraya, Bouhnifia, Oued elfadha, Bani BaHddal, Tasala.

Algeria also has important potentials for thermal power generation, as the bell-shaped limestone in the north constitutes an important reserve of groundwater heat, resulting in more than 200 hot springs of mineral water distributed mainly in the northeast and northwest of the country. Mostly, these sources have a temperature of 40 degrees Celsius, and a maximum of a source of disgusted bath, with a temperature of 90 degrees Celsius.

These natural springs are leaks of hot internal tanks with a natural self-flow of 2 cubic meters per second, and they represent only a small part of the production capabilities of these tanks. Most of these reservoirs extend to the south, as the continent-forming formation comprises a vast reservoir of geothermal heat, extending to thousands of square kilometers. This reservoir, called the alpine, is exploited by drilling to produce a flow of up to 4 cubic meters per second. The temperature of this layer reaches 57 degrees Celsius. Exploiting the alpine and natural source flow represents a capacity of 700 MW.

With regard to bioenergy generation, Algeria's important resources are divided into two sources (Ministry of Energy, 2014, p. 26).

-Forest capabilities: Algeria is divided into two regions:

The forested forest area occupies an area of about 25 million hectares, just over 10% of the total area of the country. The desert region, which covers more than 90% of the country.

In the north, which represents 10% of the country's area, forests cover 1.8 million hectares, while forest gradient formations in the mountains represent 1.9 million hectares. Both marine pine and chaletos are important plants for energy use, but currently consists only 5% From the Algerian forests.

-Animal waste: The valuation of organic waste, especially animal waste, to produce biogas, which can be considered an economic and ecological solution that will achieve sustainable development in rural areas in the medium term.

3.2 The National Renewable Energy Development Program

Algeria developed an ambitious program to develop renewable energies and energy efficiency. The Algerian government's vision is based on a strategy that revolves around the valuation of endless natural resources such as solar and wind resources in order to use them to diversify energy sources.

The National Renewable Energy Development Program aims to produce 22,000 megawatts by 2030, of which 10,000 megawatts are destined for export, if the appropriate conditions are met.

This program will be accomplished through three phases, (Ministry of Energy, 2014, p. 27):

- The first stage: between 2011 and 2013, and is devoted to the implementation of pilot projects to test the various technologies available.

- The second stage: between 2014 and 2015, the start of the program.

- The third stage: between 2016 and 2030, will be specific to the achievement of the large-scale solar stations.

From now until 2030, the program includes the completion of sixty (60) projects, including photovoltaic and solar thermal stations, wind farms and mixed stations. This program allows the creation of thousands of direct and indirect jobs.

With regard to solar energy projects, installed capacity is distributed according to the technology used, as follows (Ministry of Energy, 2014, p. 28):

- Solar PV systems, with a total installed capacity of 2,800 MW.

- Concentrated solar systems: a total electrical capacity of 7200 MW will be installed.

As for the wind energy, a total electrical capacity of 2000 MW will be installed.

Regarding the investment projects listed in the first phase of the National Renewable Energy Program 2011-2013, several important projects were initiated, including (Ministry of Energy, 2014, p. 28):

- Factory for the production of solar panels, with a production capacity of 140 megawatts annually.

- 1.1 MW solar PV station in Ghardaia.

- Providing 16 villages with 2554 homes in the south and the high plateaux, with solar PV.
- 5 solar photovoltaic stations with a total capacity of 19 MW in Elizi, Tindouf and Tamanrasset,
- 2 wind farms, 10 MW in Adrar and 20 MW in Khenchela and Elbeyad.
- Underground thermal station with a production capacity of 5 megawatts.
- The completion of a group of solar PV projects with a capacity of 343 MW, which fall within the framework of the 2014 emergency plan to meet the growing demand for electricity, bringing the total installed capacity of 3,200 MW of solar PV systems.

4. Study Methodology :

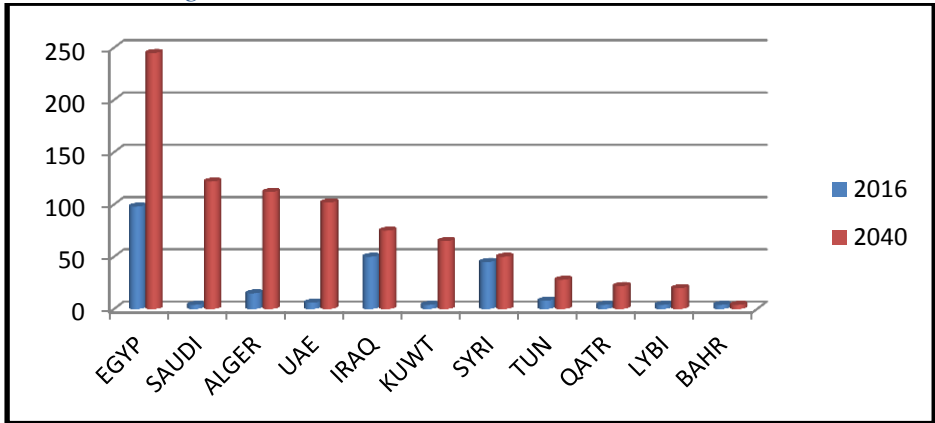
The research is based on the descriptive analytical approach, with the application of various statistical methods that allow describing, analyzing and process data.

With regard to data sources, the study relied on periodic statistical reports issued by the Organization of Arab Petroleum Exporting Countries (OAPEC) as well as various reports of the Algerian Ministry of Energy.

5. Study Results : The outlook of Algeria's renewable energy consumption 2040

In the most recent outlook studies on the development of the energy consumption in the Arab Petroleum Exporting Countries (OAPEC), it is expected that Algeria's total consumption of renewable energies will reach 114 thousand barrels of oil equivalent per day, compared to the level recorded in 2016 which recorded 11.7 thousand barrels of oil equivalent per day. This represents an increase estimated at 102 thousand barrels of oil equivalent per day, at an average annual growth rate of 9.9 % during the period 2016-2040.

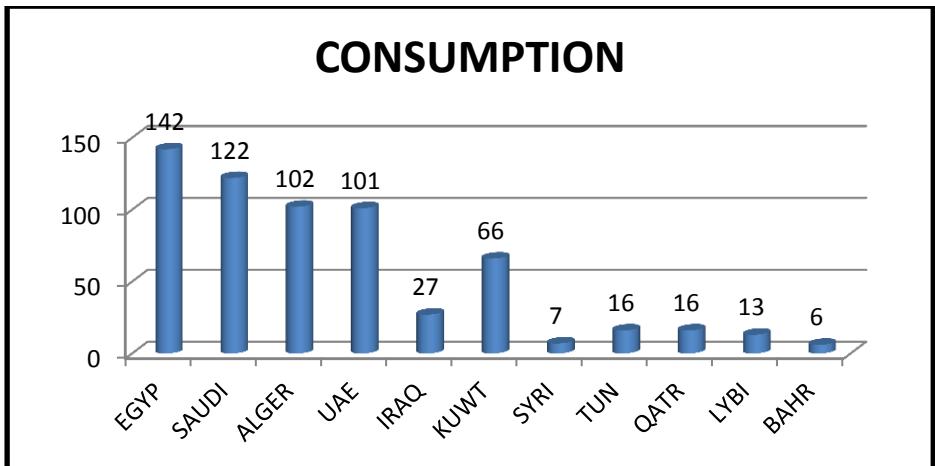
Fig.2: Future projections for the consumption of renewable energy in Algeria and some Arab countries 2016-2040



Source: (OAPEC, 2018, p. 102).

Algeria is expected to contribute 16.5 percent of the total renewable energy consumption in the group of Arab countries.

Fig.3: Consumption of renewable energy consumption in Algeria and some Arab countries 2016-2040



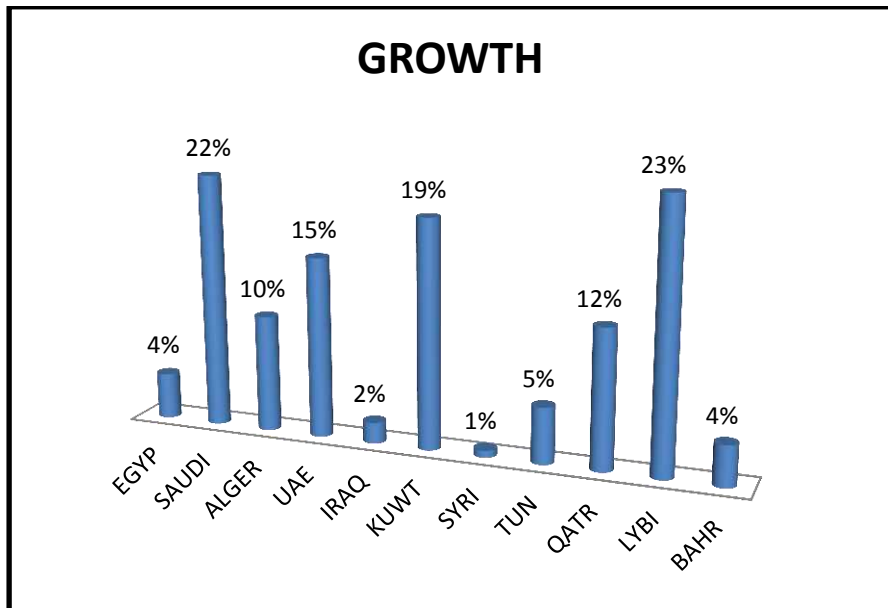
Source: (OAPEC, 2018, p. 102)

In Spite of the ambitious future directions of raising the contribution of renewable energies to the national energy mix, but the target percentage remains modest (10 % of the total electricity produced in 2030).

This keeps Algeria's consumption of primary energy significant in the short and medium term. However, in view of the international environmental commitments, the energy sector in Algeria should attach great importance to environmental issues, which led to the adoption of a strategy to promote sustainable development through the following programs:

- Promotion and development of clean fuels such as natural gas, liquefied petroleum gas and unleaded gasoline.
- Upgrade energy control and energy efficiency.
- Clearing and rehabilitating polluted areas.

Fig.4: Change in renewable energy consumption in Algeria and some Arab countries 2016-2040



Source: (OEAPEC, 2018, p. 102)

It also shows clearly the importance attached to the promotion of the use of natural gas through the energy policy adopted and is based mainly on the following options:

- Maximum use of natural gas, for primary use and final consumption.
- Production of electric energy with 95 percent of natural gas and directing it to specialized uses.
- Gradually reducing the share of petroleum products in the energy balance that is directed to export.
- Limited use of firewood to preserve the forest wealth.

6. Conclusion :

Hydrocarbons (oil and natural gas) are considered to be the basics and pillars of the national economy, as they are the main financiers of development plans for the various sectoral activities of the country, in addition to providing the economy with the energy necessary to achieve growth in Algeria.

These two resources have contributed to unprecedented economic and social transformations during the past four decades, as its revenues were used to modernize infrastructure, public investment, and improve human development indicators.

On the other hand, and despite the challenges facing the energy sector in Algeria and the international oil market at the present time, from the fluctuation in oil prices, environmental challenges, Algeria seeks to keep pace with these changes, as well as expanding its economies away from oil, as well as legalizing domestic consumption of petroleum products. As Algeria is one of the countries that depend on its economy for oil, it must realize the extent of concern for the environment and the need to find effective solutions to reduce the effects of climate change.

The life of Algeria's fossil energy reserves is relatively short. The issue is related to several factors, especially the size of the reserves discovered, the profitability from the point of view of changes in the costs of exploitation and international prices, as well as the volume of exports and domestic consumption. However, renewables energies will be an unavoidable alternative in the medium and long term. Algeria has many advantages and ingredients that encourage the establishment of

an industrial base for the development of renewable energies, the most important of which is the availability of primary resources such as the sun and wind. Therefore, Algeria must make extensive efforts to develop integrated infrastructure in order to form a solid base for the development of these energies.

The energy transformation is a very important process for the Algerian economy because it is related to energy options, and it also has cross-border significance, given the interrelations and challenges in energy relations and international environmental issues. The subject of energy transformation is an issue in which it has not yet been decided on the national and even international levels. It comes in light of the prevailing ambiguity with regard to moving forward in the national program underlined for renewable energies. On the other hand, it noted that investment in fossil energies is proceeding rapidly despite doubts about the environmental risks of exploiting it.

Among the most important recommendations that can be presented in this framework:

- Continue to supply and finance the national economy with clean energy products and financial resources.
- Adopting an ambitious program for renewable energies and raising the target percentage of the contribution of renewable energies in the future energy mix to 40 %.
- Continue efforts to protect environment.

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Accrual accounting as an innovation in the Algerian public sphere

المحاسبة على أساس الاستحقاق كإبتكار في القطاع العام الجزائري

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Abstract:

After the adoption of the organic law relating to the laws of finance, the general directorate of accounting meter sets up a project of the implementation of the accrual accounting in the public entities. In this article we present the steps to be followed by the Directorate General of Accounting for the application of accrual accounting by comparing these steps and the steps of adopting a new innovation. We note in this study that the adoption of accrual accounting requires more effort in terms of information system and training.

keyword: accrual accounting; innovation adoption; public establishment of an administrative nature; public accounting.

JEL classification code : H11, H24, H83.

ملخص:

بعد اعتماد القانون العضوي المتعلق بقوانين المالية، وضعت المديرية العامة للمحاسبة مشروعاً لتطبيق المحاسبة على أساس الاستحقاق في الكيانات العامة. في هذا المقال قدمنا المراحل المتبعة من طرف المديرية العامة للمحاسبة لتطبيق المحاسبة على أساس الاستحقاق مقارنة بالمرحلة التي يمر عليها تبني إبتكار جديد. ومن خلال هذه الدراسة توصلنا إلى أن تطبيق المحاسبة على أساس الإستهقاق يحتاج مزيداً من الجهود على صعيد نظام المعلومات المحاسبية والتكوين.

الكلمات المفتاحية : المحاسبة على أساس الإستهقاق؛ تبني نظام جديد؛ الهيئات العمومية ذات الطابع الإداري؛ المحاسبة العمومية.

تصنيف JEL : H11, H24, H83.

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1. Introduction :

Faced with major changes in the environment and new approaches to public management, public action must prioritize the conditions for success in terms of effectiveness and efficiency, which constitute the two vectors of performance. The search for performance is also linked to the idea of seeking consistency and enhanced delegation, based on the premise that centralization does not lead to better results. All this requires relevant, comparable and useful information for the decision-making process. This includes financial and accounting information. And to improve the quality of financial information and the mechanisms necessary for good governance. Budgetary reforms have been initiated in Algeria since 2002, through the project to modernize the budgetary system.

This project led to the issuance of the Organic Law Relating to the Finance Laws published in September 02, 2018. This text fixes the principles and rules concerning the general budget of the State, the accounts of the State and the execution of the laws of finance. This text introduces a new budgetary system, the primary ambition of which is to direct the management of State expenditure according to the results to be achieved, that is to say to move from a logic of means to a logic of results.

From an accounting point of view, this text introduces accrual accounting, alongside budgetary (cash) accounting, the accounts of which must be regular, sincere and faithfully reflect its assets and its financial situation (Loi organique n° 18-15 relative aux lois & Finances., 2018).

The adoption of a new accounting system is an approach aimed at adapting the information system strategy to the public establishment. The aim of this approach is to reinforce the use value of the system and to make it an asset for the public organism. From there, any public organization needs to be reframed in its strategic approaches and its organizational dimensions; priorities should be redefined and analyzed in order to improve its performance.

Several researchers have attempted to demonstrate, through empirical studies, the contributions and advantages of an accounting system based on the heritage approach. Other works have been interested in its implementation and its dissemination. This research was carried out in particular in North America and Europe. Through surveys, they tried to assess the degree to which a new accounting system was adopted and implemented(Gosselin & Quellet, 1999, p. 45).

In addition, some studies have shown that organizations can abandon an information system innovation that is being implemented, and others may use it for a while and then abandon it. These observations have given rise to what is called the paradox of a new accounting system: even if it turns out that accrual accounting is more effective than budgetary accounting (cash accounting), we note that the adoption of this accounting system is far from reaching the expected levels.

For this, we will try through this intervention to examine this problem and to see: *Does the process of adopting accrual accounting in Algeria respect the rules for disseminating innovations?*

To answer this question, two hypotheses will be proposed: first, the procedures envisaged by the Algerian authority for the application of accrual accounting respect the rules for the dissemination of innovations and second, the accrual accounting risks not adoption follows non-compliance with the rules for disseminating innovations.

The objective of this work is therefore, firstly to see the definitions and typology of an innovation and to analyze the principles of diffusion of the innovations. Second, outline the steps to take for the adoption of accrual accounting in Algeria and measure compliance with the rules for disseminating innovations.

2. "Diffusion of innovations" definition and typology:

The diffusion theory of innovations aims to understand the process of diffusion of innovations in order to identify a number of factors that influence their diffusion. It thus constituted a reference for the development of the current of research on the dissemination of innovations in information systems. The latter also aims to study the rate of dissemination of information systems and to identify the factors that influence the adoption and implementation of innovations in this area.

2.1. Definition of basic concepts:

The word diffusion means the special process of "communication by which, an innovation in the form of new ideas, practices or products is propagated, via certain channels, over a period of time, through the members of a social system"(Rogers & Scott, 1997). This definition is made up of four key concepts, the meaning of which must be revealed in order to understand the general theory of diffusion of innovations. These are the words "innovation", "communication channel", "time" and "social system".

2.1.1. Innovation

Innovation is considered to be the engine of economic growth(Hantem, 2019a, p. 82), after a major innovation often described as breakthrough innovation, the economy is entering a growth phase. In management science, this concept has aroused the interest of researchers since the early 1960s, marked by the publication of an interesting work by Burns and Stalker on the management of the innovation (Stalker, 1961). However, the innovations are not all identical; they differ according to a set of criteria that we will see in the next paragraph.

2.1.2. The characteristics of an innovation

The characteristics of innovation that determine its rate of adoption by the social system. There are five of these characteristics (Backer T. E. et Rogers E. M., 1998, pp. 17-18):

- The relative advantage: it is the degree by which a new idea is perceived as better (more advantageous) to the replaced idea. Thus, the greater the relative advantage, the faster the adoption of innovation.

- Compatibility: this is the degree by which an innovation is perceived as consistent with existing values, past experiences and the needs of potential adopters. The more coherent the innovation with the social system in question, the faster the adoption will be because individuals will not need in the first stage of implementation to adopt a new value system.

- Complexity: this is the degree by which an innovation is perceived as difficult to understand and use. A simple innovation will be adopted more quickly than a complicated innovation, because the latter requires before it is adopted to acquire new knowledge and new skills.

- The possibility of testing: this is the degree by which an innovation can be tested and validated in a small area before a full and wide adoption. An innovation with proven validity has less uncertainty and anxiety and will be quickly adopted.

- The "observable" character: it is the degree by which the results of an innovation are visible to its potential adopters. The more easily these results are observed, the faster the adoption of innovation.

2.2. The communication channel

The second main element in the diffusion of new ideas is the communication channel. Communication is the process by which participants create and share information with one another in order to reach a mutual understanding. A communication channel is the means by which messages get from one individual to another. Mass media channels are more effective in creating knowledge of innovations,

whereas interpersonal channels are more effective in forming and changing attitudes toward a new idea, and thus in influencing the decision to adopt or reject a new idea. Most individuals evaluate an innovation, not on the basis of scientific research by experts, but through the subjective evaluations of near-peers who have adopted the innovation(Rogers & Scott, 1997).

2.3. Time

The diffusion of innovations is considered to be a temporal process, and the variation due to the time dimension must be explicitly considered(Bigoiness & Perreault Jr, 1981, p. 68). According to Rogers and Scott (1997), the “time” dimension is integrated into broadcasting in three ways:

First, time is involved in the innovation-decision process. The innovation-decision process is the mental process through which an individual (or other decision-making unit) passes from first knowledge of an innovation to forming an attitude toward the innovation, to a decision to adopt or reject, to implementation of the new idea, and to confirmation of this decision. An individual seeks information at various stages in the innovation-decision process in order to decrease uncertainty about an innovation's expected consequences.

The second way in which time is involved in diffusion is in the innovativeness of an individual or other unit of adoption. Innovativeness is the degree to which an individual or other unit of adoption is relatively earlier in adopting new ideas than other members of a social system. There are five adopter categories, or classifications of the members of a social system on the basis on their innovativeness: (1) innovators, (2) early adopters, (3) early majority, (4) late majority, and (5) laggards.

The third way in which time is involved in diffusion is in rate of adoption. The rate of adoption is the relative speed with which an innovation is adopted by members of a social system. The rate of adoption is usually measured as the number of members of the system that adopt the innovation in a given time period. As shown previously,

an innovation's rate of adoption is influenced by the five perceived attributes of an innovation.

2.4. The social system

It is a set of interacting units engaged in solving a common problem and achieving a shared goal(Rogers & Scott, 1997), it constitutes a field in which an innovation is disseminated. Members of the social system can be individuals, informal groups, businesses and / or subsets. They are considered as potential adopters of innovation(Bigoness & Perreault Jr, 1981, p. 70).

One of Rogers' most significant contributions is the relativity of the diffusion of innovation and business innovativeness. For example, a rapid rate of diffusion of an innovation in a given social system can be considered as long for another (Robertson, 1967, quoted by Bigoness and Perreault, 1981), or an innovator in a given social system can be seen as a late adopter or a laggard in another system. In conclusion, the innovativeness of a company depends on innovation, time, the social system and communication.

3. Accrual accounting as an innovation(Hantem, 2019b, pp. 92–93):

After having presented the key principles of the diffusion theory of innovations, we will be interested in this paragraph to discuss on the innovative character of accrual accounting, that is to say in what way accrual accounting can be considered an innovation?

The introduction of accrual accounting in public establishments is a new method of accounting management designed to overcome the limitations of traditional budget accounting tools, which have become unsuited to the current context of public establishments. The novelty in this management tool lies not only in its relevance in accounting recording and improving the reliability and transparency of accounting information, but also in the way of presenting the summary statements and describing the asset situation of the establishment. Its introduction influences the vision of the operation and the accounting management

of the public establishment; we go from traditional cash accounting to an accounting of commitment, established rights, an asset approach and an approach by the results. Based on the accounting principle of independence of financial years by attaching to them their own income and expenses. It is an innovation which influences at the same time the technical and administrative functioning of the establishment:

The Accrual accounting, an innovation with two attributes: accrual accounting is a managerial innovation that greatly influences the way in which the organization's accounting processes are managed and organized. It is a method which at the same time has the technical and managerial characteristics of innovations. According to the classification of Swanson (1994) on innovations in information systems, it belongs to the second category of innovations.

Accounting accounts for a new way of accounting recording and production of summary statements: this novelty lies in the respect of fundamental accounting principles and standards like what is applied in the sector private. Unlike the traditional accounting approach (budget accounting), the aim of which is quite simply to monitor the execution of budgets while respecting budgetary appropriations by chapter. However, the administrative or management accounts only provide information on this aspect. Accrual accounting aims to improve the quality and reliability of accounting information, keep traceability and continuity in the recording of financial transactions carried out by public establishments and above all to put in place the mechanisms necessary for good governance.

4. The emerging accrual accounting in Algeria :

As part of the Barcelona Process and the Euro-Mediterranean partnership launched in November 1995, Algeria and the European Union signed an Association Agreement (AA) which Took effect on September 1, 2005. This agreement defines the legal framework by which the relations between the parties in the economic, commercial, political, social and cultural fields are established. This twinning project is an expression of the European Union's desire to provide

Algeria with significant support for its economic and financial reform efforts.

In addition, for all public entities, the Algerian government has also included in its program through the General Directorate of Accounting (GDA), the transition from public cash accounting to accrual accounting based on the same principles as corporate accounting and aimed at developing more efficient and transparent management of public finances.

From an accounting standpoint, the transition from cash to accrual accounting provides an overview of the assets and the financial situation in accordance with international standards. It allows a dynamic and enriched presentation of public action via an income statement, a balance sheet and its annex.

The objective of strengthening the capacities of the General Directorate of Accounting (GDA) in the preparation of the implementation of accrual accounting is enshrined in Article 1 of the Association Agreement between Algeria and the EU: "promoting cooperation in the economic, social, cultural and financial fields"(GDA, 2019, p. 19).

In early 2018, an essential component of this strategic plan was finalized. The organic draft law on finance laws which founds the budget and the accounting reform has been adopted by the Parliament. The DGC is responsible for preparing the texts implementing its competence, which will ultimately provide the legal framework accompanying the implementation of accrual accounting. In addition, accounting standardization work has been carried out for the State and has been initiated for the EPAs and local authorities.

5. The accrual accounting information channel in Algeria:

The different reforms have opted for the introduction of an information system: SIGBUD for the preparation of budget documents produced by the Canadian design office CRC SOGEMA and SIGB for the restructuring of the expenditure circuit carried out by the office French study GIP- ADTETEF(2018 , قمو, p. 262).

Among the main functionalities of the future SIGB, we can mention in particular (Ministry of Finance, 2009):

- Management of credit availability checks;
- Validation of operations (electronic signatures);
- Manual or automated management of the payment method (which can be configurable);
- Commitment accounting;
- Automated monitoring of expenses by program, by financial year, by objectives;
- Automatic obtaining of summaries upon validation of the last operation;
- The establishment of SIGB interrogation tools (level of expenditure, results achieved in relation to objectives, etc.);
- The implementation of interface procedures:
 - Between budget preparation and execution;
 - Between the SIGB and the computerized debt management tool or that of staff or that of pensions;
 - Between the SIGB and the banks (Issue of payment vouchers, confirmation of payment);
 - Between the SIGB and the Accounting System (automatic generation of accounting entries);

With regard to the implementation of this new accrual accounting, once it has been adopted, the current accounting circuits, which are partially automatized, will have to be adapted. And it is of course to minimize these adaptations because it is not recommended to carry out major work on the current system when a new management system must be installed in the coming years.

Let us now examine the scenarios that we could consider in order to develop these current accounting circuits by integrating the use of the new accounting nomenclature (Ministry of Finance, 2009, pp. 31–35).

1. A first scenario would be to take into account the information processed by the accountants and recorded in current IT applications, but by allocating the general accounts to the expenditure operations in the new accounting nomenclature.

2. Regarding the accounting of receipts, the periodic receipts situations are currently transmitted by the receivers of the financial authorities and the municipal treasurers to the treasurers of the WILAYA of attachment, the latter taking charge of entering the documents received before their transmission. To the Central Accounting Agency of the Treasury (ACCT) for centralization purposes. The upcoming production of the new tax application should make it easier to set up interface procedures between these subsystems.

Another scenario, undoubtedly more easily achievable, would consist in keeping the entire current system as it is, from entering information at the level of the managing entities to feeding the central system. A new accounting environment would be created and populated using a specific interface procedure.

6. The social components of the adoption of accrual accounting in Algeria:

On the basis of the achievements made possible by the investments already carried out by the GDA, in particular for the State, it is essential that the increase in skills of its teams guarantees a relevant definition of the accounting standards. Currently these benchmarks are still the preserve of specialists whose number is limited while public accounting in established rights is called to irrigate all of the activity of public bodies.

The GDA must therefore exercise a role of project owner, by sharing its reform objectives with the various stakeholders while taking into account their expectations. To this end, the GDA must benefit from a strengthening of its capacities, both in terms of skills and in terms of human resources (which are detailed in Table 1) to be mobilized in order to master all of the design, definition and the preparation for the implementation of a public accounting system in accruals.

Table 1: Situation of the staff of the DGC concerned by the project of implementation of the accounting in rights recorded at the level of the central administration, the CL and the EPA adopted on 15/07/2017.

<i>Titel</i>	<i>Central administration</i>	<i>Total deconcenter services</i>	<i>Total</i>
<i>SUPERIOR DUTIES appointed by decree</i>	55	12	67
<i>Senior positions assimilated to a superior function</i>	01	50	51
<i>Framing</i>	226	6179	5405
<i>Application</i>	51	2179	2230
<i>Mastery</i>	58	3356	3414
<i>Exécution</i>	68	895	963
<i>Total holders</i>	459	12664	13123
<i>Contractual</i>	32	2647	2679
TOTAL	491	15311	15802

Source: (GDA, 2019, p. 16)

Following the size of the population affected by the new public accounting system at the level of the general accounting department (15802 agents), we add the number of public entities of an administrative nature which amounts to 9036 establishments including 7041 for the education. So we see that accrual accounting is for a large population, which means that adopting accrual accounting will be difficult. Despite this At least 80% of DGC managers involved in so-called "priority" training have been trained; At least 20% of them are trained as trainers.

7. The sustainability of the project:

According to article 89 of the organic law concerning finance laws, the first year of application of accrual accounting is 2023. But the general directorate of accounting has started the operations of implementation within the framework of the project twinning between Algeria and the European Union, which will start in April 2019 for a period of 27 months (24 months of implementation and 3 months of testing).

At the end of the twinning, the following 3 results must have been achieved(GDA, 2019, pp. 10–12):

- Result 1 (R1): The institutional, functional and organizational capacities of the General Directorate of Accounting are strengthened: on the basis of an analysis of the existing situation, together with a diagnosis and recommendations, the DGC will be able to take the necessary measures, with the support of the Member State, with a view to increasing the competence of its teams called to design and lead the accounting reform. This increase in skills will be defined in a training plan for the benefit of the key players in the reform and future trainers as the reform progresses. The application of this training plan should be designed in a progressive manner in order to usefully support the completion of the planned activities.

- Result 2 (R2): the project for an accruals accounting system is defined for public establishments of an administrative nature (PEA) and local authorities (LA): Result 2 in fact participates in the development of the basis of accounting doctrine for the Algerian public sector.

Several points of attention linked to the context must be taken into account:

- The articulation of general accounts with budget accounts for each type of public body.
- Regular verification of the consistency and convergence of accounting standards, between State, PEA and local authorities.
- The response provided for the information system that will accompany the implementation of the new accounting system.

- The conditions of application by the GDA of internal accounting control for PEA and LA.

- Result 3 (R3). The accounting system is tested on pilot sites:

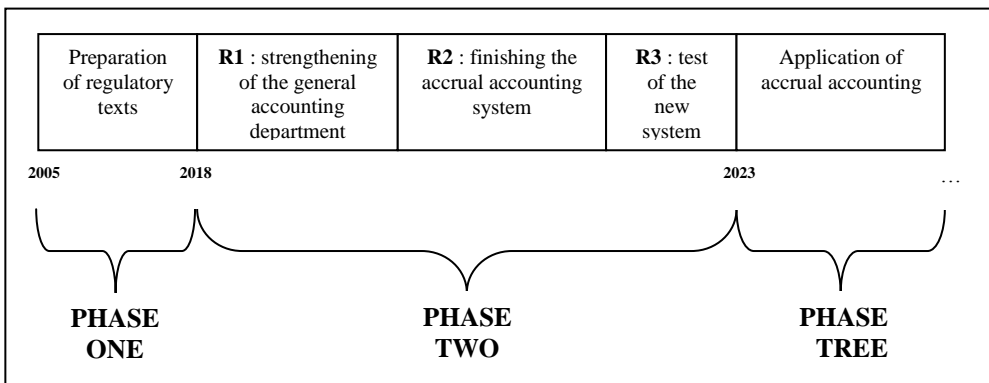
In addition to the deliverables from result 2, the conditions are defined under which an experiment on a limited number of pilot sites can be carried out.

This experiment, lasting a few months, will be the subject of an evaluation making it possible to formulate recommendations for:

- If necessary, improve the deliverables of result 2.
- Specify the rest to be done and the conditions for the deployment of the new accounting system.
- Outline the post-twinning GDA action plan.

We note that the adoption of accrual accounting in Algeria goes through three phases. Firstly, this is the stage of preparation of the project which takes place between the signing of the partnership agreement between Algeria and the European Union in 2005 until the adoption of the organic law relating to finance laws. This is followed by the implementation and testing phase which consists of three stages as shown in Figure 1, this critical phase is a phase of acceptance of accrual accounting in public entities by the parties stakeholders. And finally we find the phase of application of the new system their duration and unpredictable according to the users of the system, the proof the financial accounting system after 10 years of application the user does not manage to master it.

Fig.1 : Steps in applying accrual accounting



8. Conclusion:

After this study we note of the approach provided by the Algerian authorities for the adoption of accrual accounting respects the rule of the adoption of an innovation which confirms our first hypothesis, but these procedure does not mean the success of the project. The most difficult phase is the training phase because the majority of public accountants do not have bases on private accrual accounting. And according to the experience of other paid employees who apply accrual accounting before Algeria, it is proposed that the application is not done in all sectors, but it is preferable to apply accrual accounting in a sector for example education or the health sector. And finally, the university must include the modules of public accounting in law found in higher education programs, to facilitate the integration of new graduates in public entities of an administrative nature and local communities

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*Adaptation of Innovation and Entrepreneurship Policies to
Achieve Sustainable Development Goals in Algeria
(Japan and China Experience as a Model)*

تكييف سياسات الابتكار وريادة الأعمال لتحقيق أهداف التنمية المستدامة في الجزائر
(تجربة اليابان والصين نموذجا)

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Abstract: This study examines the policies that make innovation and entrepreneurship an introduction to transformational and sustainable development goals. Where there must be policies to support innovative projects that are central to development rather than encouraging projects for nothing but for itself and policies to promote entrepreneurship must be an integral part of a broader set of strategies and policies aimed at achieving sustainable development. The role of the state in this framework is to make efforts to address obstacles faced by entrepreneurs.

Key words: innovation; entrepreneurship; sustainable development.

JEL classification: O32, O38, L26, Q56

ملخص: تبحث هذه الدراسة في السياسات التي تجعل من الابتكار وريادة الأعمال مدخلا لإحداث التحول وتحقيق أهداف التنمية المستدامة. حيث لابد من وجود سياسات لدعم المشاريع الابتكارية التي تكتسي أهمية مركزية للتنمية بدل التشجيع على إقامة مشاريع لا لشيء إلا لذاتها، كما يجب أن تكون سياسات النهوض بريادة الأعمال جزءاً لا يتجزأ من مجموعة أوسع من الاستراتيجيات والسياسات الرامية إلى تحقيق التنمية المستدامة. ويمثل دور الدولة في هذا الإطار في بذل الجهود لمعالجة العراقيل التي يواجهها رواد المشاريع.

الكلمات المفتاحية : الابتكار؛ ريادة الأعمال؛ التنمية المستدامة.

تصنيف JEL : O32 ، O38 ، L26 ، Q56.

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1. Introduction:

Entrepreneurship is a fertile field for creativity and innovation and achieving levels of economic growth through discovering business opportunities and successfully seeking to seize and implement them on the ground. As it establishes the concept of self-confidence, self-reliance and responsibility, it also contributes to increasing the demand for manpower and creating new markets for products, in addition to transferring modern technology from developed countries to developing countries.

In Algeria, the attractiveness of including entrepreneurship within the mechanisms for job creation has grown, while it suffers from a limited ability to create jobs and absorb new entrants into the labor market. However, entrepreneurial projects cannot succeed and stand up to the competition and obstacles they face and contribute to achieving sustainable development if they are not accompanied by the existence of mechanisms to support, accompany and direct them towards sustainability. Where the promotion of entrepreneurship policies should be an integral part of a broader set of strategies and policies aimed at achieving sustainable development whose goals include eradicating poverty, ensuring good education, good health, sustainable cities and communities, reducing inequalities, and preserving the environment

The Problematic:

Through the abovementioned, how can policies of innovation and entrepreneurship be adapted to achieve goals of sustainable development in Algeria?

To address this issue, we will address the following sub-questions:

1. What is the concept of innovation and entrepreneurship?
2. What is the relationship of entrepreneurship with the national innovation system?
3. What is the reality of entrepreneurship in Algeria?
4. What are the most important policies to be taken in order to promote entrepreneurial projects in Algeria and to use them to serve the purposes of sustainable development?
5. Why did Japan and China rely on in their promotion of innovation and entrepreneurship projects?

To answer the questions asked, we relied on the following hypotheses:

1. The success of entrepreneurial projects cannot be guaranteed if it is not accompanied by strong political will and the existence of mechanisms to support and accompany these projects.
2. The lack of success of entrepreneurial projects in Algeria is due to the absence of a clear strategy that integrates the goals of these projects with the overall development goals of the country.

Objectives of the study:

This study seeks to achieve a set of objectives:

1. Learn about the concept of both innovation and entrepreneurship.
2. Learn about the most important difficulties faced by entrepreneurs, and search for ways to make entrepreneurial projects successful.
3. Searching for ways to adapt innovation and entrepreneurship policies to serve sustainable development goals.

Research topics:

We divided the study into five topics:

First topic: the concept of innovation and entrepreneurship.

Second topic: the relationship of entrepreneurship with the national system of innovation.

Third topic: the reality of entrepreneurship in Algeria.

Fourth topic: Policies for guiding innovation and entrepreneurship projects in the service of sustainable development.

Fifth topic: Presenting the experiences of Japan and China in encouraging innovation and entrepreneurship.

2. concept of innovation and entrepreneurship.

If we come to the definition of entrepreneurship, we find that this concept is not a new one linked to the latest technological developments, then the follower of this topic believes that the roots of this term "leadership" dates back to the beginnings of the industrial revolution in the countries of Western Europe. In 1776, Adam Smith wrote in his famous book, "The Wealth of Nations": "It is not the generosity of the baker and the goodness of the baker that drives him to provide bread, but his self-motivation and interest that drives him to provide bread." In his view, entrepreneurs are the economic

ambassadors who turned demand into a profitable return. (Raslan, Nasr, 2011, p53)

For Fayoll, entrepreneurship is the creation of a specific activity through the availability of a set of functions and procedures, and he defined it as a special case in which economic and social wealth is created with characteristics which is characterized by risk and uncertainty by individuals with distinct behaviors. (Zidan, 2007, p100)

Joseph Schumpeter is considered as a father of the field of entrepreneurship, which gave the entrepreneur a central picture in economic development through his book "The theory of economic development" in the dispatch of the organized, creator and innovative entrepreneur of entrepreneurial activities that came up with the concept of entrepreneurship inherent in the concept of innovation and he describes this process with the concept of "Creative Destruction" where the innovative business breaks constraints and state of stagnation and balance in the economy by continuous renewal and a qualitative shift in the economic system.

As for Drucker, he sees that innovation is the systematic abandonment of the old, confirming what Schumpeter said that "innovation is creative destruction". At the same time, he sees that entrepreneurship is risk-based creativity, which includes giving resources currently available the ability on creating new value.

In 1986, Gilder asserted in his book "The Spirit of Adventure" that entrepreneurs are the innovators who work to stimulate demand: they create markets, create capital, create opportunities, offer new technological methods, and who are looking for premium products and reformulate desires common to consumers, they are the ones who create wealth and job opportunities, they are exceptions to the well-known rule that determines the necessity for companies to lead markets, they are market leaders (Zidan, 2007, p100)

From the above-mentioned, it can be said that innovation and entrepreneurship are two sides of the same coin; innovation is the adherence to creative ideas reached and transformed into a useful good or service, or a useful way of working. Entrepreneurship is: discovering, exploiting and embodying market opportunities or projects in a project based on knowledge, physical, moral and intellectual

capabilities in order to create value with new and future products and services.

The strategic factor in the advancement of economy is the encouragement of private business and the creation of distinguished institutions that have an innovative dynamic that enables them to adapt to the changes and developments in the economic environment. Entrepreneurship can contribute to a range of benefits by creating wealth, providing superior products, goods and services, and new business opportunities and new markets for goods. As well as through improving national income and export volume, and activating production factors by investing entrepreneurial ability in society and maintaining business competitiveness locally and abroad (Kazem, 2017, p58).

3. relationship of entrepreneurship with the national system of innovation.

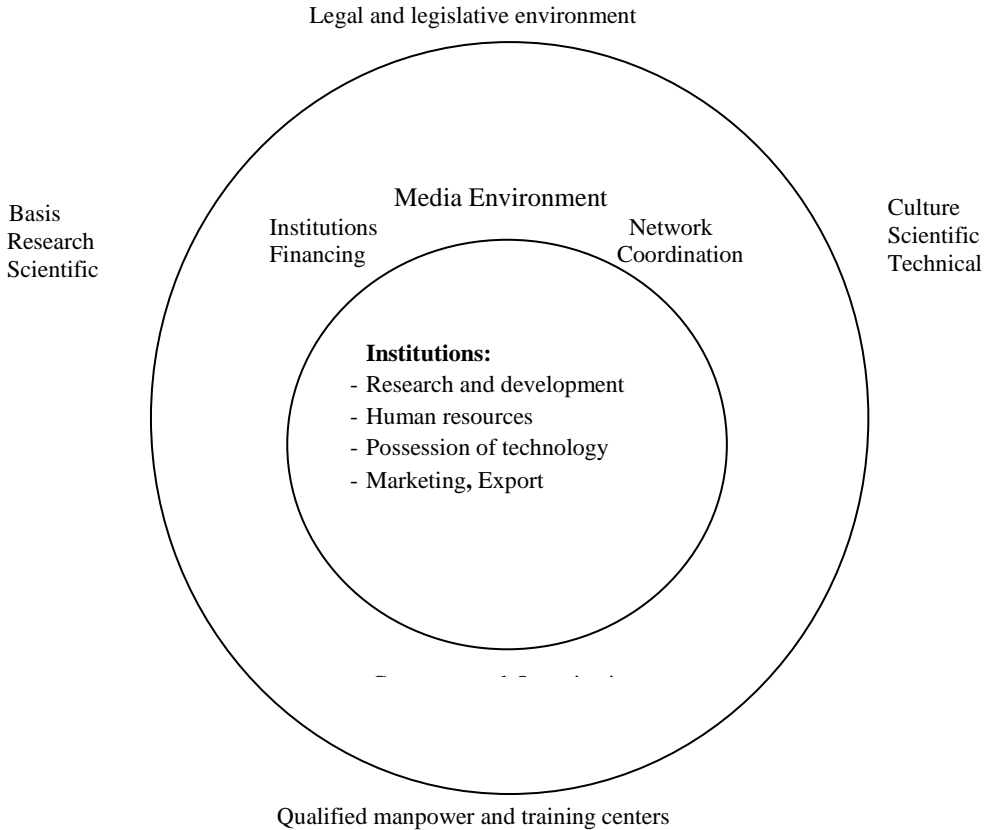
The National Innovation System is called the set of policies, regulations, arrangements, and institutional and structural activities for generating, possessing, disseminating and using scientific and technological knowledge (United Nations, 2003, p13).

The term "System" is generally used to describe a heterogeneous group of entities concerned with a particular mechanism, and national science and innovation system is seen as capable of producing, disseminating, adapting and implementing scientific and technological knowledge, based on elements of inputs and outputs such as human resources, financing, and the accumulated stock of knowledge, in a way both explicit and implicit, as the underlying method is embodied in the technical expertise of the group of employed persons and their networks.

Syndromic social structure, national system of innovation, cannot be subjected to a very careful analysis that is applied more successfully in physical and engineering sciences. However, adopting the idea of system in assessing the state of the national scientific, technological and creative activity will help explain the aspects concerned with the characteristics of the components of the system, its functions, reciprocal interaction and finally its impact on national development. The national innovation system can also be represented as an open system to the environment, technology (science and technology),

social, cultural, economic, political, to feed from its various resources and transform it - resources and information - into innovations in the form of improved or new products or methods (Bin Nadhir, 2001, p54).

Figure 1: National System of Creativity



Source: Cristian, 2005.

Through the figure, it is clear that the national system of innovation is divided into three levels (Cristian, 2005):

- **The institution is at the first level**, with its various functions: research and development, technology acquisition, human resource management, marketing, export, where the contractor (l'entrepreneur) will have the main role in the innovation

process, through his experience in identifying opportunities, mobilizing talent and motivating innovators.

- **The second level** of national innovation system is the media and communication environment, coordination networks (les réseaux de collaboration), funding institutions, and government organizations that support innovation processes.
- **The third level** of this system includes the base of scientific research, scientific and technical culture, plus a qualified and trained workforce that works in a legislative environment and a tax that stimulates innovation.

It is not possible to talk about the existence of a national system of innovation unless there is a framework that works on relationships and ties and coordinates between the three levels.

4. reality of entrepreneurship in Algeria.

Entrepreneurship in Algeria and in various developing countries suffers from major problems and constraints in several areas, whether on the economic, commercial or services levels, particularly in the inability to keep pace with technological developments and standards and requirements for comprehensive quality management aimed at improving and developing the performance of entrepreneurial projects on an ongoing basis and raising from its productivity at the lowest costs, and adapting to the conditions imposed by market mechanisms and mechanisms. In addition to what is characterized by fragility and weakness in the face of very unfair and fierce competition by foreign contracting due to the absence of adequate mechanisms to protect national contracting and the absence of control over imported goods, merchandise and products, especially from some countries, so that the national market is dumped with different types of goods that are often cheaper than national goods and products.

On the other hand, some foreign companies are adopting crooked methods to win deals and public projects by adopting price-breach methods and entering into unfair competition in tenders to obtain projects at the lowest prices and in any way they are interested in achieving profits at a lower cost with specifications, lower quality, and with at least possible cheap labor.

Also, an important percentage of these fortunate foreign companies that receive significant support and benefit from generous concessions,

facilities, loans and incentives from political, administrative and banking entities, some of which could not continue to complete and implement projects and fulfill their obligations towards public sectors and departments and abruptly and in half way abandon the completion of the project, which results from this is problems and loss of national interests (Al-Sharq Al-Maghribia, 2013).

In addition to other obstacles that limit the capabilities of entrepreneurs as result of adhering to the routine and concern for bureaucratic systems and consolidation of centralization, and other obstacles that limit innovation and creativity, and cause frustration to entrepreneurs, the most important of which are (Al-yajouri, 2017, p15):

4.1. Administrative constraints: such as the complexity of and contradictory legislation, consequent disruption in business due to the large and lengthy procedures required by small establishments during the establishment period, with weak incentives and concessions, especially customs exemptions, interest rates supported on loans, or the lack of subsidized energy prices.

4.2. Weakness of financing and difficulty in obtaining it: There are difficulties facing entrepreneurs in obtaining various loans to finance their projects as a result of the various requirements and routine procedures. The weak financing appears in the exaggeration of banks and financial institutions in the guarantees required for financing small projects, and the relative small of loans provided to emerging projects and the rise loan interest rates. Complicating these loans is the regulatory barriers, high levels of corruption in government and absence of transparency in rules and laws that regulate the conduct of business, which makes entrepreneurs vulnerable to harassment of government officials who seek bribery.

4.3. Reduced demand for products and small projects as a result of economic recession: As the economic recession leads to a decrease in demand for products in general, with limited purchasing power for individuals, and it results in a surplus in production capacity, which limits the ability of owners of small and medium enterprises to continue.

4.4. Lack of information: This limits the role of entrepreneurs, so we find there is a lack of information about resource and commodity markets and production requirements, as well as a lack of information

on government regulations and decisions, such as project registration systems, incentives, taxes, social security and labor laws, in addition to the repetition of one activity in the same region because of lack of a map showing the small projects.

4.5. Marketing problems: Lack of marketing expertise in dealing with the problems of the emergence of new alternative products at a lower cost, or a decrease or fluctuation of demand for some products, lack of marketing research, and lack of information on market and consumer (Al-Momani, 2017, p6).

4.6. Lack of entrepreneurs in the next two projects to (entrepreneurial spirit): which is the ability of individual to deviate from the ordinary in thinking and behaving with a lot of openness and flexibility; it requires identifying opportunities and collecting the necessary and different resources in order to transfer them to an institution. And change occurs when the individual becomes sensitive to the problems he faces and to the changes that occur in the surrounding environment, and when he directs creative thinking towards the requirements of working life, especially the field of business (Ghazal, 2018, p29).

4.7. Socio-cultural change: Ambitious entrepreneurs face socio-cultural obstacles. Ovais Naqvi, general manager of Abraaj Performance Acceleration Group, explained it appropriately when he said that the socio-cultural changes that might help entrepreneurs include: family structures and societal, the role of age and respect for it, freedom of opinion and expression, respect for independent and even seemingly inappropriate and extremist views, cultural openness, capacity and depth of this openness, a culture of continuous innovation in the product by launching the product and giving it the opportunity to live and obtain effective support to improve it (Al-Momani, 2017, p5).

5. Policies for guiding innovation and entrepreneurial projects to serve the purposes of sustainable development.

The challenges of sustainable development goals lie in their holistic nature, as they include economic, social and environmental goals, and innovation policies and adapted entrepreneurship do not need to include new elements to meet the sustainable development goals but rather to expand their scope to exceed purely economic goals and include those social and environmental goals, and take into account a variety of key actors.

5.1. Providing informed leadership for science, technology and innovation as a central part of sustainable development strategies:

The success of innovation and leadership policies requires a commitment on the part of the government that accompanies an approach that includes the entire government, and this becomes more important when integrating the sustainable development goals into the policy goals. For example, the Republic of Korea's science and technology plan stresses the role of the so-called creative economy in achieving sustainable economic growth and community welfare with a focus on stimulating innovation, especially at the level of small and medium enterprises, in order to reduce inequality and unemployment and help the country meet environmental challenges and the implications of aging the pyramid population.

Good governance is a prerequisite for the success of harnessing innovation and entrepreneurship policies for sustainable development purposes. So that it is necessary to find policies to support and sustain vital and innovative projects that are central to structural transformation rather than encouraging projects for nothing but for themselves, and this requires effective strategies to develop projects and incentive institutions and structures in order to influence the path of companies and support their sustainability. Where policies for promoting innovation and entrepreneurship must be an integral part of a broader set of strategies and policies aimed at achieving structural transformation and sustainable development, with the necessity of coordination and harmony between public and private sectors. Development plans must also be effectively designed in an appropriate manner to national circumstances and stages of transformation, and continuity must be guaranteed against local political changes and flexibility in dealing with any flaws in program design, and to ensure independence, transparency and accountability in order to avoid them being held hostage to private interests (United Nations, 2018, p115).

5.2. Reform of the regulatory and legislative environment:

regulatory and legislative environment is of the utmost importance in encouraging and developing the growth of economic activities, and it has a significant impact on the performance and efficiency of those activities, which are reflected in the growth and operation of economy in general (Abdullah, Al-Natsheh, 2014, p26).

For the purpose of facilitating entrepreneurship, the government must liberalize the regulatory environment, ease procedures for new entrants into the business world, and make improvements to regulations, including review and analysis impact. It is necessary, for example, that the costs of registering and licensing new companies be low and the time required to do so is short. In addition, governments can set up full-service centers to obtain information and public services.

The role of the State extends at the level of reforming the regulatory environment to include efforts to address the obstacles faced by the Entrepreneurs, through public investment in infrastructure, especially in sectors of transport, trade facilitation, information and communications technology, energy supply, sponsorship of project groups, and enabling companies to take advantage of opportunities of digitization (United Nations, 2018, p24).

5.3. Providing financing for social and environmental projects related to development goals: Financing is one of the main tools for innovation and entrepreneurship policies, especially in Algeria, where public sector undertakes most of research and development activities. National development banks can play an important role in financing structural transformation; they can support the state by financing joint projects between public and private sectors and state-owned projects, financing infrastructure development work, and providing preferential loans and credit guarantees to small and medium enterprises operating in priority sectors.

Support to entrepreneurial projects should also be maintained long enough to enable the project to grow and withstand market cycles and fluctuations, while setting clear performance criteria in preparation for or support to provide support (United Nations, 2018, p22).

Useful policy tools include pre-market purchases that can be used to increase demand for products and services in order to achieve social or environmental benefits. The UK uses this approach in public bidding to provide products tailored to the environmental needs of developing countries, and government procurement also stimulates the private sector to address environmental and social issues by setting specific standards for procurement frameworks. For example, Singapore recently announced certification of specific purchased products, such as high energy efficiency of electrical products and paper produced

through the use of sustainable forest management bearing the Singapore green sign (United Nations, 2017, p116).

In 2015, the Malaysian government launched the Malaysian Social Enterprise Business Plan for the period 2015-2018, which is a road map for developing a social ecosystem for business projects that seeks to create entrepreneurs driven by influencing social, environmental and economic aspects. The aim of the plan is to establish the Malaysian Global Center for Innovation and Creativity as the main institutional component of the ecosystem, and this center focuses on encouraging social enterprise sector by providing financial and non-financial support to it.

The UK government also launched a small-business research initiative to test pre-launch purchases. The initiative uses a process to link the challenges facing the public sector, including social and environmental challenges, with innovative industrial ideas. This provides companies with business opportunities and guides them towards economic growth as well as addressing challenges.

In the same context, the Ministry of International Development launched a competition to establish an affordable solar powered irrigation pump that can be transported to developing regions, especially sub-Saharan Africa. The Ministry used the approach of the Small Business Research Initiative instead of conducting a traditional tender for products in the market, which increased the level of innovation among companies competing to provide the product (United Nations, 2017, p117).

5.4. Adopting an inclusive innovation policy: The concept of comprehensive innovation provides an opportunity to develop innovation based on the needs of poor and marginalized groups of the population, especially in low-income developing countries. Where the World Bank defines inclusive innovation as any innovation that helps expand affordable access to quality products and services that provide livelihood opportunities for excluded populations, and the bank identifies five features that characterize inclusive innovation, namely: access to it at a reasonable price, and producing it in a sustainable manner, and finding goods and services that help provide opportunities to earn a livelihood, and direct it towards the excluded population, primarily those at the base of the pyramid, and its important spread.

There are a set of factors that must be taken into account when formulating policies related to promoting inclusive innovation. For example, the institutional framework requires changes to be made so that pro-poor innovations can be triggered. For example, laws and regulations that regulate intellectual property rights may be biased against the poor. Moreover, it may be difficult to ensure that the poor have access to assets such as land or credit, social norms may prevent women from exercising certain roles required for innovation, and social stratification may prevent the formation of social networks required for innovation, and manipulation of product markets. It may eliminate economic incentives that drive innovation (United Nations, 2014, p4).

Among the other factors that should be taken into account when promoting inclusive innovation are the skills of the targeted population and their competence. There are two main reasons for this, **First:** improving their skills related to innovation and entrepreneurship enables them to achieve innovations appropriate to their socio-economic context.

Second: Nurturing the capabilities of people who form the base of the pyramid enables them to make the most of the available innovations through inclusive policies related to science, technology and innovation.

It limits people's innovative capabilities to a number of factors, including a lack of skills, insufficient provision of public services; an inability to access markets and assets on fair terms and to address related risks. It is also appropriate to consider the educational level of entrepreneurs when studying capacity development policies for low-income markets. If policies and initiatives are not adapted to the capabilities of the poor and if these policies and initiatives do not target skill gaps, then interventions may inadvertently lead to increased social exclusion and erode the social and political legitimacy of inclusive innovation policies (United Nations, 2014, p16).

5.5. Motivating to address social and environmental issues: Public policy can play a crucial role in stimulating and developing talent in schools, universities, institutions and governments and enabling them to address social and environmental issues. As these talents affected positively on the status of the national innovation system and achievement of sustainable development goals. A university model motivated by stimulation, for instance, places students at the center of

difficult problems and challenges for which there are no fixed solutions, so they are forced to delve into different disciplines and work in teams and cooperate with non-academic organizations in order to find appropriate solutions. This model is not considered a substitute for traditional education, but rather a supplement that prepares students for the needs of real life. It is able to build students' capabilities and skills to contribute to achieve the sustainable development goals (United Nations, 2017, p117).

5.6. Establishment of technical business incubators: Business incubators are seen as an integrated framework of place, equipment, services, facilities and mechanisms for support, advice and organization dedicated to assist entrepreneurs in managing and developing new, small and medium productive or service enterprises or specialized in research and development, care and support for these institutions for a limited period (less from mostly two years), in a way that relieves these pioneers from the usual risks and provides these institutions with greater opportunities for success, through a legal entity established for this purpose.

T.MIYAKE has clarified that the idea of incubators has originated in the United States of America since 1959, and, according to the Association of Technical Business Incubators, it is a method that helps small and medium enterprises to survive and grow during the START-UP takeoff period, where they lend a helping hand in the field of administration and finance, in addition to substantive and technical support (Tartar, Halimi, 2010).

Accordingly, business incubators are economic and development institutions that aim to support and nurture entrepreneurs, creators and innovators who have ideas for ambitious projects. Technical incubators are held in universities or specialized institutes to take advantage of the equipment, expertise and research provided by professors and students. Some government institutions also provide for the creation of incubators in the context of developing a specific emerging industry, or in the context of the creation of new jobs, benefiting from the great support that the central government gives to such purposes and interests. Municipalities at various levels also provide great support for the establishment of technical incubators, with the potentials for economic development and expansion of infrastructure for different

production structures. Whereas, major industrial corporations like the global giant "Panasonic" and others adopt to attract young talents and creative ideas, by offering venture capital to help these young people in establishing their own small and medium enterprises so that the incubator owns shares in these institutions.

With the spread of the Internet, virtual incubators can be established anywhere as they do not need a workspace that has a limited space to link the connection between its employees and the parties that need them.

For instance: King Abdulaziz City for Science and Technology launched the National Business Incubator for Information and Communication Technology (BADIR), with the participation of the Saudi Telecom Company and Saudi Credit and Saving Bank. (BADIR) is interested in contributing to the transformation of research-based ideas into commercial products, by lending a helping hand for inventors and innovators to establish companies that produce and market new products. The incubator also provides technical support to the beneficiaries by making use of scientific research services and expertise of researchers at King Abdulaziz City for Science and Technology and the main universities, and the use of government laboratories to develop products (Tartar, Halimi, 2010).

5.7. Entrepreneurship education: Entrepreneurship education seeks to build a mindset that embraces initiative and innovation and has the skill to solve problems. It also creates active citizenship among individuals, and helps young people to become innovative and participate in the labor market. Entrepreneurship is taught through a set of different experiences that provide students with a future vision to take advantage of different opportunities. It also aims to raise the ability of individuals to anticipate and respond to economic and social changes, and encourage them to develop themselves, initiate and take responsibility and risk (Abdul-Fattah, 2016, p 636).

As the educational system can take charge of spreading the culture of entrepreneurship by training faculty members in entrepreneurship decisions, finding mechanisms to link educational institutions with the industrial sector, setting indicators to measure the extent to which youth entrepreneurship values and principles are embedded in educational institutions, supporting student initiatives and encouraging them to set up their own projects, with a mechanism to assess the extent to which

education and training institutions and programs contain the concept of leadership (Al-Rubaie, 2008, p113).

Entrepreneurial education courses aim to:

- Understand the role that small and emerging companies play in the economic system.
- Learn about the general characteristics of innovation process.
- Learn about alternative methods used in identifying and evaluating investment opportunities, and factors that support and hinder innovation.
- Developing capabilities for training, organizing and working in multi-skilled and multidisciplinary teams.
- Identify the general causes for success or failure to innovate and establish new projects.
- Identify the administrative requirements related to running new projects (Zidan, 2007, p296).

6. Presenting the experiences of Japan and China in encouraging innovation and entrepreneurship.

Success of countries in harnessing entrepreneurial projects to serve the purposes of sustainable development depends on the ability of these countries to promote entrepreneurial behavior at an early stage in children and youth, and to encourage entrepreneurial initiatives and incentives to continue creativity, innovation and continuous improvement, and we will present the following success factors in each of the countries of Japan, China and South Korea.

6.1. Japan Experience:

Japan has focused on reforming educational system and universities' process of linking and alliance with each other, as well as with the business sector. We find that universities in Japan have independence from government agencies in developing their educational programs, developing their human resources, and linking university graduates to the labor market. Universities have tended to sign agreements with business sector, in which entrepreneurial organizations were established for younger generation, as well as to set standards for achieving educational quality that enhance creativity, innovation and leadership, which contributes greatly to create an innovative and entrepreneurial generation.

There is also integration between large and small industries, government support to develop small and medium industries, and giving them the appropriate financing to achieve high competitive capabilities.

The Japanese government has supported small projects through direct financing by international financial institutions, insurance against bad debts by ensuring the state covers the losses that financial institutions are exposed to when SMEs do not pay back the loans they receive, and the Japanese government provides technical and professional support. The legislative, and institutional institutions of the small and medium enterprise, in addition to marketing support, as the Japanese government determines its purchases of small and medium industries annually, while requiring governmental organizations to provide an opportunity for this industry as a condition for obtaining contracts and tenders announced by the Japanese government (Al-yajouri, 2017, p18).

6.2. China Experience:

China is interested in small enterprises for several reasons, including the impact of their production on the quantitative economic situation, and as an influencing factor in the stability of society. Among the most important measures to activate small projects in China (Al-yajouri, 2017, p21):

- Reforming small and medium enterprises and factories first by selling them and transferring their ownership from public sector to private sector that is able to manage its price.
- China also decided to establish industrial and technological development zones by providing cheap workforce, raw materials and financial resources to promote the construction of the basic environment in new areas.
- Create an environment conducive to investments in all its forms, as governments exempt new projects from taxes in first and second years, and the calculation of exemption does not start from the date of commencement of work or experimental production, but rather from the first distribution of profits, after which the company pays about 20% of the profits as taxes, and holds the rest to finance research and development, expansions, replacement and renewal. Imports of raw materials and machinery are also exempted from customs.

- China is concerned with enacting legislation and laws and adjusting economic and investment policies with the aim of continuously developing efforts to attract foreign investment.
- Despite the success of Chinese experiment, it always re-arranges itself every period if it is proved to it that there is any form of defect that must be absorbed or addressed.

7. Conclusion:

In view of the importance of technological innovation and scientific research in accelerating development, we find that countries give most of their attention to create all conditions for owning the corner of modern technology, by pledging and motivating institutions working in this field. This study has shown that entrepreneurial projects can contribute effectively to achieving sustainable development in Algeria, but these projects suffer from fundamental difficulties in obtaining capital to finance their investment ambitions, in addition to administrative and social obstacles. For the success of adapting innovation and entrepreneurship policies for sustainable development, a strong political will is required to challenge existing political and economic interests, and the presence of rational leadership, insightful about the importance of science and innovation, that works to support and accompany entrepreneurial projects and simplify procedures before those applying to these projects, and works to harness public policy as a tool to integrate the objectives of these projects with the overall development goals of the country. Finally, we suggest the following recommendations:

- ✓ The need for a national innovation system.
- ✓ Strengthening research and development base and investing the results of national research and technology with the highest possible efficiency.
- ✓ Focusing research efforts in trying to find vital solutions to problems and challenges facing development.
- ✓ Activate the budgets of ministries and government and private institutions, as well as industrial establishments, by allocating a percentage of them to scientific research and development activities.

- ✓ Raising level and quality of the educational system and developing its infrastructure to enable schools, universities, and training centers to fulfill their role in producing highly qualified people capable of innovation in the workplace.
- ✓ Carry out awareness about the importance of innovation activity at all institutions level.
- ✓ Establishing close links between scientific research sector and the industrial sector.
- ✓ Spreading entrepreneurship culture among the community, with the educational system assuming teaching of entrepreneurship courses from the primary to the university stages.
- ✓ Establishing specialized incubators to support entrepreneurial ideas and emerging projects that do not have the necessary ingredients for actual start-up and production.
- ✓ It is necessary to focus on the integration of policies so that they do not operate in isolation from each other, so that there must be integration between the policies of scientific research, innovation, technological transfer, investment and the state's general policy.
- ✓ Create venture capital institutions that finance pilot projects and share risk with project owners.

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Adaptation to Climate Change and Food Security: Case Study of India

التكيف مع تغير المناخ والأمن الغذائي: دراسة حالة الهند

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Abstract:

This study aimed at determining how certain farming adaptations to climate change can help ensure food security. The analytical and explanatory methods have been used to meet the main objective of this research work. Accordingly, the case of India has been studied and several insights have been obtained. The final conclusions demonstrated that food security could be maintained and improved through specific adjustments adopted by farmers in light of the new climatic patterns.

keyword: Climate change; Food security; Adaptation; India.

JEL classification code : XN1, XN2

ملخص:

تهدف هذه الدراسة إلى تحديد كيفية إسهام التكيف مع ظاهرة تغير المناخ في تحقيق الأمن الغذائي؛ وقد تمت الاستعانة بمناهج وصفية تحليلية لتحقيق الغرض الرئيسي من البحث؛ ودراسة حالة الهند تمّ التوصل إلى العديد من الرؤى؛ وقد أظهرت الاستنتاجات النهائية أن الرّهان على تعديلات وتكيفات محدّدة اعتمدها المزارعون في ضوء أنماط مناخية مستجّدة من شأنه أن يساهم في الحفاظ على الأمن الغذائي ومن ثمّ تحسينه.

الكلمات المفتاحية : تغير المناخ؛ الأمن الغذائي ؛ التكيف ؛ الهند.

الكلمات المفتاحية : تغير المناخ؛ الأمن الغذائي ؛ التكيف ؛ الهند.

تصنيف JEL : XN2 , XN1

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1. Introduction :

Climate change is increasingly becoming the concern of scores of governments, specialized institutions, relevant organizations, and civil societies around the globe due to its profound impact on people's well being and prosperity. Food security is doubtless one of the main sectors that are directly influenced by drastic changes in climate patterns. Accordingly, numerous research works have been conducted to examine the potential effects of such transformations on food security, and offered long-term solutions for current climate-related impediments. The present analytical study, which takes India as a case, is also inscribed within this realm. In effect, the main question of this study is : How can appropriate adaptation to climate change ensure food security ? This question generated more queries : What are the requirements of successful climate change adaptation for ensuring food security ? To what extent were the adaptation strategies adopted by the Indian government efficient ? To address such questions, this research work adopted both the analytical and explanatory methods along with a few statistical procedures. The obtained results confirmed the aforementioned suppositions.

2. Understanding Adaptation and Food Security

This section presents a detailed description of the notions : *adaptation* and *food security* in light of the existing literature.

1.2. Adaptation Defined

The Intergovernmental panel on Climate Change (IPCC) describes adaptation as the process of adjusting the ecological, social or economic systems to become better suited to current or expected climatic stimuli and their potential effects (Leary & others, 2008, p6). In the same vein, the IPCC defines autonomous adaptation measures as "those that do not constitute a conscious response to climate stimuli, but result from changes to meet altered demands, objectives and expectations which, whilst not deliberately designed to cope with climate change, may lessen the consequences of that change." (Pittock, 2009, p194). In simpler terms, certain adjustments, which are made to

attain various objectives, could indirectly decrease the negative impact of climate change on people's welfare.

Adaptation, in the context of climate change, entails a series of steps that people or institutions may make as a reaction to actual changes in climate or in anticipation of probable ones to minimize adverse impacts or exploit the conveniences that climate change may yield. More precisely, adaptation to climate change can be either reactive or anticipatory. The latter refers to the measures implemented before impacts are observed, whereas reactive adaptation is simply a reaction to certain effects produced by current changes in climate. According to a number of scholars (e.g. Parry & others, 2005), planned adaptation that is often attained through intended and calculated policy decisions can support both reactive and anticipatory adaptation.

The IPCC distinguishes several types of adaptation (Levina & Tirpak, 2005, p18) :

- Anticipatory adaptation : an adjustment which occurs before any climate change impacts are noticed/determined (also known as : *proactive adaptation*).
- Autonomous adaptation : a set of actions that are not intended to be a deliberate response to climatic stimuli but are prompted by ecological changes in natural systems and by market or welfare changes in human systems. This type is also called *spontaneous adaptation*.
- Planned adaptation : a package of measures that are the outcome of a pre-emptive policy decision. Such a decision is typically informed by an awareness that conditions have changed or are going to change, and that specific procedures are required to maintain, reach or return to a desired state.
- Private adaptation : refers to any adaptation that is initiated and implemented by individuals, households or private companies. This type of adaptation is generally motivated by the doer's conscious reasoning and/or self-interest.

- Public adaptation : unlike the private adaption, this one is initiated and implemented by governments at all levels. Public adaptation is often intended to meet collective needs and expectations.

- Reactive adaptation : denotes the adjustments made after observing the impacts caused by climate change.

Adaptation is thought to have three different dimensions: (a) the subject of adaptation (who or what adapts), (b) the object of adaption (what they adapt to), (c) the manner of adaptation (how they adapt).

The subject of adaptation: in this dimension, adaptation occurs through alternations in ecological, social and or/ economic systems.

The object of adaptation: in the context of climate change, adaptive measures can be implemented either through changes in average conditions or alternations in variability of severe circumstances.

Modes, resources and results: experts suggested a number of criteria with which the various adaptation processes could be identified. (Bosello & others, 2012, p, p 10, 11).

A report issued by the Committee on Climate Change Approaches proposed a basic five-step plan for the implementation of adaptation procedures:

Step 1: share the knowledge and approaches that are relevant to adaptation, and consider the actual measures.

Step 2: determine the risks associated with climate change effects.

Step 3: encourage communication, and draw up adaptation schemes, initiatives, and measures.

Step 4: begin with the most attainable initiatives.

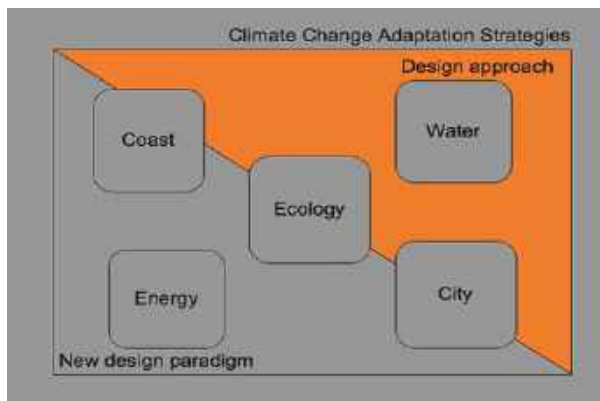
Step 5: strengthen risk analysis and adaptation proceedings by monitoring the different processes and changes in light of the latest

inputs available. (Committee on Approaches to climate change adaptation, 2010, p iv).

As explained above, the procedures aiming at implementing adaptation should not hinder any efforts made to maintain the balance of climate systems and other environmental aspects. Adaptation-related initiatives can be observed in wide range of sectors such as: “good water management –total support for prevention of catastrophic damage to agriculture – development of crops that have the ability to flourish in the new environment – reduced and climate smart inputs – providing ongoing accurate information – reducing deforestation – Control on urbanization – Enhancing the overall environment state by promoting biodiversity.” (Sarkar & others, 2019, p, p 13, 14).

Although adaptation to climate change is clearly present in various governmental strategies and policies as well as in the international media, the necessary integrated designs for adapted spatial plans are hardly available; this could be because individuals, experts and decision makers, deem this kind of adaptation measures to be costly and complicated. (Roggema, 2009, p59). This might also explain that spatial-related adaptation plans are not a priority for the time being.

Fig.1: Climate change adaptation strategies.



Source : Roggema, 2009, p59.

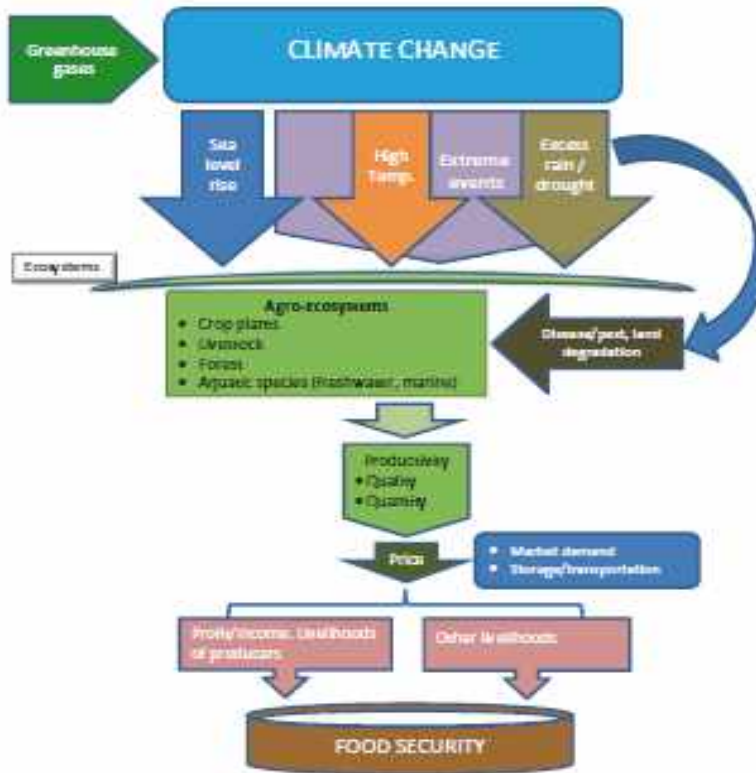
Overall, people may not adapt at all or partially adapt due to a wide range of reasons. First, climate may be perceived, accurately or inaccurately depending on the context, to pose little or no risk in comparison to other factors; therefore it may not receive enough attention. Second, there might be a lack of knowledge about the available options to reduce risks associated with climate change. Third, the means that would make implementation possible could be lacking. Fourth, at times even the action or inaction of others can create an obstacle. That is, some people or even governments may assume that minimizing their own risk is the responsibility of others. (Leary & others, 2008, p,p 10, 11). Hence, for adaptation to be successful, many factors should be taken into consideration including people's (and governments') awareness and readiness to act responsibly and effectively.

2.2. Food Security and Climate change

The Food and Agriculture Organization of the United Nations (FAO) describes the notion food security as “ a situation that exists when all people at all times have physical, social, and economic access to sufficient, safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life” (Maxwell & Smith, 1992). According to this definition, food security entails that every individual in a community has got enough food and nutrition that fits his health and life style. Furthermore, the aforesaid definition implies that food security consists of three main components : food availability, food access, and food utilization. While *availability* refers to the physical presence of food, *access* denotes having the necessary means to acquire food through both production and purchase. *Utilization*, on the other hand, refers to the quality and usefulness of the provided food. (Lobell & Burke, 2010, p14).

Undoubtedly, the world population will not cease to grow and experts suggested that it is expected to reach 9,1 billion by 2050. For this reason, the total food production will have to be increased by 70-100% to make sure that all those people will be provided with sufficient and appropriate nutrition (Yadav & others, 2019, p3). And that is not an easy task to accomplish; It needs careful planning and great efforts from all concerned parties. For instance, over the last few years, the world has been witnessing heavy rainfalls and devastating floods, forest fires, huge occurrences, and a spread of new diseases. These unfortunate events have certainly jeopardized food security around the globe. In fact, indications of drastic environmental change have been detected repeatedly, and valid concerns have been raised accordingly. Agriculture came on top of the concerns as it is a vital sector. In nearly every developing country in Africa, Asia and Asia Pacific regions, about 70% of the population depends directly, or at least indirectly, on the agricultural sector for its livelihood. And the biggest portion of those populations live in arid or semiarid regions, which are known for their highly volatile climate conditions. (Yadav & others, 2019, p1).

In addition to the issue of uncontrolled population growth, which is a major challenge that hinders the effort devoted to achieving global food security, the world is now facing another tough challenge widely known as *Climate Change* or *Global Warming*. The latter has begun to pose a enormous threat to our surrounding agro-ecosystems. As proposed by the IPCC 2014 report, the following figure explains how climate change could severely affect food security. (Sarkar & others, 2019, p4).

Fig.2 : Climate change and Food Security

Source : Sarkar & others, 2019, p4.

The diagram illustrates how climate change (e.g. high temperature and sea level rise) could have a significant impact on “the availability of good quality water, habitats and species distribution, timing and length of growing season, distribution of agro-ecological zones, and ecosystem stresses” (FAO, 2012, p2). This means that all these areas and scopes are somehow associated when it comes to climatic threat, thus they could well influence each other. In light of this association, Downing (1996, p 125) explained that differences among countries, in terms of adaptation, are linked to crop production. He concluded that global warming has a direct impact on the current growing conditions. More precisely, high temperatures caused the

growing period to shorten at all locations that have been tested as a part of his experiment. Likewise, global warming is affecting agricultural productivity in higher latitude areas, raising yields of some crops (e.g. maize, wheat, cotton) ; whereas the production of other crops (sugar beets, barley) seems to decrease in lower-latitude regions. Based on aboriginal and local expertise, climate change is affecting food security in drylands, particularly those in Africa, and high mountain regions of Asia and South America. (IPCC, 2019, p5 –5).

Climate change is by no means confronting a fixed world which doesn't react to new significant circumstances. That is, human beings are adaptive of nature and would most probably find ways to adapt agriculture to the new climatic patterns (Lobell & Burke, 2010, p133). Building greenhouses is among those adaptation techniques. The greenhouse effect, also known as glass-houses, is a structure covered by either glass or plastic which permits regulated climatic conditions to happen inside. Gases with the capacity to absorb the radiant energy are called the greenhouse gases (GHG). Greenhouses are often exploited in the growing of flowers, vegetables, fruits, and tobacco throughout the year in the warm, agreeable climate. On this planet, there is a phenomenon called the 'natural greenhouse effect', or the Milankovich cycles. (Chen & others, 2017, p5). This universal phenomenon causes temperatures to rise, as if in a greenhouse, because thick layers of gases cover the planet and prevent the heat from escaping. This situation in turn result in a range of problems including a dangerous rise in global sea level.

3. Ensuring Food Security through Adaptation : A Case Study.

This section discusses the requirements for achieving food security by means of successful adaptation to changes in climate.

1.3. Farmer adaptation to climate change

Changes in climate conditions is thought to have a major influence on agricultural decision-making, thereby affecting what crops farmers grow, when and where they grow them. The ongoing changes in the planet's climate patterns exert a significant impact on global and regional food systems and on food security outcomes. (Lobell & Burke,

2010, p134). In this sense, the rate of food production in a given year is directly linked to the analysis and then attainment of specific meteorological variables (e.g. air pressure and temperature) that year.

Many scholars have conducted various research works in an attempt to assess the farmers' awareness about current and future changes in climate, alongside the available and possible options for adaptation to these changes. In addition, numerous studies investigated the potential factors influencing adaptation methods choice. A variety of evidences have been presented with regard to farmers' awareness about climate change in their areas ; for example, Ishaya reported a lack of awareness and knowledge among farmers in Jema'a, Nigeria. (Komba & Muchapondwa, 2015, p3). Observed farmer adaptations to changes in climate fit into two main categories : ex ante measures, for which action is taken in anticipation of a certain climate realization, and ex post procedures, which are performed after the event is realized. (Lobell & Burke, 2010, p135). According to various studies, there is often a gap, which could sometimes be a large one, between ex ante and ex post estimates of the environmental regulation costs, including both private and public-administrative costs. (Albanese and Ruiz, 2016, p343).

Ex ante adaptations to climate changes often centre around strategies of diversification, which aim to take advantage of the many effects which a given climate condition might have on different crops and activities in a given year. For instance, farmers growing rainfed crops in a drought – prone environment might want to change the setting of their farm plots to benefit from the high spatial variability of rainfall, grow a range of crops or crop varieties with distinct sensitivities to climate, or to diversify income sources into non-farm enterprises that are less sensitive to climate. Farmers also adopt various ex post strategies or decisions to reduce crop or welfare losses once climate events have been observed. Such strategies include drawing down cash reserves, storing grain, borrowing from banks or family members, selling assets such as livestock, or moving to other non-affected places to seek work and opportunities. Ex post adaptations can also take the form of changes to management after the start of the growing season,

such as replanting of faster-maturing varieties if early-season planting fails, or use irrigation where possible, if rainfall is not sufficient. (Lobell & Burke, 2010, p135).

Regrettably, not all strategies are accessible for all farmers, nor are the available strategies always efficient when it comes to buffering food security against changes in climate. In rich countries, farmers are protected against hunger when there is drought or other negative climate events. Unfortunately, in poor countries things are different and farmers risk to go hungry after climate-linked setbacks. Although both ex post and ex ante strategies can minimize climate-associated losses to a certain extent, the poorest households in particular are usually weak at shielding consumption from the effects of unfavorable climate conditions. In view of the existing literature, the voluntary food rationing, by reducing the number of meals and quantities eaten, is a common practice for many families. Individuals in rural areas tend to undertake a number of ex ante reactions to foreseen climatic and other shocks. These include income diversification, asset accumulation, and participation in social arrangements that provide assistance in hard times. The main goal of these strategies is to ensure rational consumption when production, or income, is not guaranteed. Conversely, in ex post some consumption will be ceased if the food security (sufficient production) of households is at risk (Downing, 1996, p617).

Farmers' awareness and understanding of climate risk are largely influenced by biophysical, socio-economic, political and psychological factors. (Luu and others, 2019, p2) :

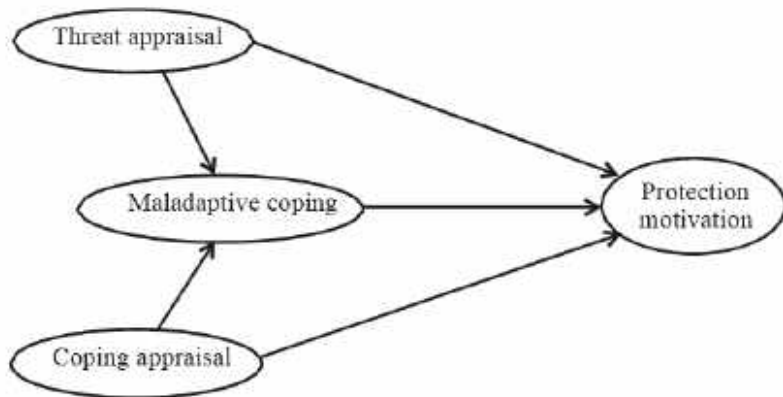
“Agricultural extension ; access to the national rural employment guarantee scheme, crop loss compensation, and access to informal credit are determinantsof climate change adptation of farms.

Psychological mechanisms ; are important to understand farmer's adaptation behaviour toward climate change, efficacy beliefs were the strongest predictor of behavioral intentions, which provide reliable informationfor local agricultural development.

Agricultural experience ; farm income, training, social capital, and communication to climate adaptation are listed as the most influential factors of climate change adaptation.”

Over the last few years, ‘The Protection Motivation Theory (PMT)’ has begun to appear in research work that investigated environmental risks, natural setbacks, and climate change, PMT focuses on four main aspects of the cognitive mediating processes : threat appraisal, coping appraisal, maladaptive coping, and protecting motivation. (Luu and others, 2019, p3).

Fig.3 : Path diagram of core elements in the cognitive mediating of PMT



Source : Luu and others, 2019, p4.

2.3. Climate change adaptation and food security in India

Agriculture in India is characterized by a variety of crops, most especially rice, wheat and millet. In India, most crops are grown in rather hot surroundings. Spring and summer temperatures usually go above 40⁰ C even in the current climate. Therefore, crops are likely to be more sensitive to heat. In fact, a survey on rice crop modeling studies suggested that even with CO₂ fertilization, warming above 2⁰C

is expected to reduce rice yields in India. (Lobell & Burke, 2010, p184). In addition to the fact that India has the highest population of undernourished individuals worldwide, food security in India seemed particularly vulnerable to climate change. That's why, India has quickly made major decisions in an attempt to boost food production. As a result, India has achieved self-sufficiency in food production, and began to export food to several countries. "However, climate change has emerged as a major threat to India's hard-earned success." The majority of Indians rely on climate-sensitive sectors such as agriculture, forestry, and fishing, and therefore the lives of a huge number of people are jeopardized. In fact, India has already suffered from the adverse effects of climate change on food production, transportation, storage and distribution. (Sarkar & others, 2019, p497).

India adopted the National Agroforestry Policy in 2014 to promote and expand tree plantation in an integrated manner with crops and livestock to boost productivity. The policy seeks also to improve employment, incomes, and livelihoods, and thus protect and maintain the stability of ecosystems to encourage resilient cropping and farming systems. The latter is likely to reduce risks during extreme climatic events. The National action Plan on climate change highlighted the following points : - Adaptation for dryland agriculture – Managing risks due to extreme climatic events – Knowledge dissemination and translation – The development and utilization of climate – smart Biotechnology. (Sarkar & others, 2019, p505).

India's National Action Plan on Climate Change (NAPCC) decided to implement an action plan through a set of eight national missions covering the sectors of water, energy, habitats and agriculture. More missions are on the anvil-focusing on coastal zones, health and waste management. A major issue within the action plans and missions highlighted by critical studies is the negligence of institutional problems, namely the need for accurate institutional design, and the imperative to ensure cross-scale and cross - agency institutional collaborations (Venkataraman & others, 2019, p260).

'Climate-smart agriculture (CSA)' is deemed a pragmatic approach that helps to guide actions required for the transformation and

reorientation of agricultural systems to boost development and ensure food security in unusual climate conditions. According to FAO, the CSA has three major goals : (a) sustainably achieving agricultural productivity and income ; (b) adapting an building resilience to climate change ; (c) reducing or removing greenhouse gas emmissions ; where feasible. (Sarkar & others, 2019, p,p 497, 505).

The Indian government has started to notice the advantages of watershed management for a more long-term perspective of confronting problems posed by the climate. Successful implementation of the ‘Integrated Watershed Management Program (IWMP)’ can assist with the restoration of ecological balance, increase in the productivity levels in rain –fed areas, and enhance living conditions in rural areas. The government of India’s Ministry of Rural Development implemented three watershed programs : - Integrated Wastelands Development Programme (IWDP) – Drought Prone Areas Programme (DPAP) – Desert Development Programme (DDP). (Barua and Others, 2019, p153).

Although there is a surplus in food-grains stocks, a considerable number of people around the world are struggling to ensure their daily meals. In India, for instance, around 30 million individuals have been identified with hunger problems since the mid 1990s and 40% of the children suffered from underweight issues. Statistics show that in india, roughly 320 people sleep hungry every night. (Jaswal, 2014, p, p, 95, 99). In an attempt to eliminate the supply-side constraints in food security, the following plan have been proposed : (Singh, 2016, p, p, 10, 11)

- Cost-effective supply of food to the consumers is also significant and should be considered ; food producers tend to focus more on the productions costs. Therefore, existing delivery techniques and procedures needs to be revised and improved.

- Agriculture innovation systems need to be supported by promoting investments in technology transfer and farm extension services, rural infrastructure, post harvesting R&D to decrease waste, etc.

- Food security is tightly related to water availability and usage. In fact, the demand on water is likely to increase beyond the agricultural exploitation, including household, industry and environmental flows. Reducing water consumption is, hence, a necessity in agriculture. This could be achieved through better technologies, management plans and change in cropping procedures.

- New technologies such as laser land levelling, Zero tillage and sprinkler and drip irrigation, etc, could be encouraged to enhance the irrigation efficiency.

- Motivate corporate sector to direct a part of its Corporate Social responsibility (CSR) funds toward training farmers and developing their skills to push them to adopt water efficient, cost-effective and sustainable farming system, including organic farming.

- Food absorption could be improved through generous investments in drinking water, sanitation, and similar public services.

4. Study Methodology :

This study relied heavily on the analytical and explanatory methods which entails collecting, organizing, analysing, and describing data in an attempt to explain or highlight a state of affairs. In the analytical method, the researcher starts from the facts available and use them to arrive at significant evaluations and understanding of a certain phenomenon or study cases. Furthermore, the study employed a few statistical procedures to look deep into the issue of guaranteeing food security in light of the current climate change patterns. The choice of the aforementioned methods is motivated by the nature of the topic (i.e., climate change and food security) and the existing literature as well as the feasibility of research in general.

5. Study Results :

The results yielded from this study could be summarized in five main points. First, important measures, such as farming adaptations, should be taken to ensure food security. In simpler terms, the farmers are advised to adjust their methods and techniques to the new climatic

circumstances to increase food production. Second, initiative and plans should be monitored and supported. The actions and adaptation plans are more effective when they are used on a large scale and in an organized manner (e.g. mass tree-planting plans). Third, the world should give more attention to agriculture which is a vital sector. For instance, agricultural technology could provide the humanity with solutions to meet today's challenges. It has become evident that traditional farming techniques, which are used in scores of countries, are unable to cope with the actual circumstances and needs. Forth, there should be a continuous awareness and promoting of climate-friendly ways of life. People should be made aware of the danger that climate change pose as well as the fact that they can help by changing some of their habits and preferences such as using recycled products and environment-supportive materials.

6. Conclusion :

Climate change is a serious challenge that should not be neglected as it poses grave threat to the welfare of human beings. Thus, effective adaptation to both the current and anticipated changes in climate patterns is a pressing necessity. Likewise, food security is a sensitive issue which should be well maintained in both the short- and long-terms. There are, as the existing literature shows, many ways in which this could be done. And all the concerned parties are urged to join efforts to keep this world healthy, safe, and balanced.

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The role of global leadership in risk management of international business

دور القيادة الدولية في إدارة مخاطر الأعمال الدولية

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Abstract:

The research is to study the impact of the necessary skills for global leadership in managing the risks of the international business So that in order to test the hypotheses of the study, a questionnaire was conducted on 60 global leaders in a group of international business institutions in Algeria, and for the analysis of data, we used spss (25), The study concluded that there is a significant impact of the skills needed for global leadership in international business risk management, which draws its strength from the skills of international laders(strategic thinking, cultural intelligence and knowledge transfer) in managing the risks of environmental complexity diversity .

keyword: Global Leadership; Strategic Thinking; Cultural Intelligence;
JEL classification code : : F23, F64, M31

ملخص

يهدف البحث إلى دراسة تأثير المهارات اللازمة للقيادة الدولية (العالمية) في إدارة مخاطر الأعمال الدولية. ولاختبار فرضيات الدراسة تم الاعتماد على جمع المعلومات من 60 قائد دوليا في مجموعة من مؤسسات الدولية بالجزائر، و باستخدام برنامج spss 25 في تحليل النتائج خلصت الدراسة إلى أن هناك تأثيرًا كبيرًا للمهارات اللازمة للقيادة الدولية في إدارة مخاطر الأعمال الدولية ، والتي تستمد قوتها من مهارات القادة الدوليين (التفكير الاستراتيجي ، الذكاء الثقافي ونقل المعرفة) في إدارة مخاطر التعقيد البيئي والتنوع الجغرافي عبر الحدود،

الكلمات المفتاحية : القيادة الدولية ؛ التفكير الاستراتيجي ؛ الذكاء الثقافي ؛

تصنيف JEL : F23 ، F64 ، M31

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1. Introduction :

Risk management is the practice of effective selection of several alternatives and methods, in order to minimize the impact of threats to international business . Dealing with these risks depends on the ability of the global leadership to manage the risks facing international business activities, from attempting to predict, to containing them. Reducing its effects and ending with the processing of its results and benefit from it, relying on dynamic strategic skills in determining the future of the institution and the direction of business in it. Today, international institutions operate in a complex and rapidly changing business environment, which makes achieving excellence, requires good preparation, and considering the changes of the environment is a difficult and big challenge to challenge and try to minimize its impact. These challenges require the presence of global leaders who are able to manage cross-border risks, demonstrate presence and spread across global markets, and adapt to new environments through strategic practices and skills that allow them to learn about the nature and culture of a foreign country, based on reading, research and development of friendships. Building relationships as well as mastering the quality of communication with others also attaches great importance to the study and knowledge of the potential risks and problems resulting from operations outside the borders.

Risk management processes are influenced by many external and internal factors, including political, legal and cultural, and many international institutions and international companies have been exposed to a lot of risks, due to the failure of its leadership in the process of analysis and study of the most important risks to the objectives of their institutions.

Through the above, the following main forms can be presented: **Is there a role for global leadership skills and the impact of risk management in international business?** The following questions arise from him:

- What is the concept of global leadership?
- How prepared is the global leader to face the risks facing international business?
- What are the main risks faced by international business?

Study hypothesis:

There is a significant effect between global leadership having the necessary skills and risk management in international business.

The importance of studying :

- 1 - Interest in global leadership is a new and important topics in the field of international governance.
2. Given the rapid development of the international business environment, it has become necessary to pay attention to the risk management of international institutions.
3. The research is one of the first researches concerned with the study of the skills of the global leader and the management of risks through biodiversity and multiculturalism.

2.Global Leadership:

2.1.The concept of Global Leadership:

Before clarifying the concept of global leadership, it is necessary to consider the concept of leadership in general or what is sometimes called traditional Leadership.

"Leadership is that a leader chooses individuals carefully and then guides them" (Crosby, 1997,p2).

Prentice argues that "leadership is the achievement of the goal by guiding individuals" (Prentice, 2005,p151) .

He described(Rost, 2005,p102) "Leadership as a strong and valuable relationship between leaders and followers who make changes that highlight their common goals and objectives".

Like leadership, there are several concepts and definitions of global leadership:

It is defined as a social process that transcends cultural boundaries and influences individuals, strategies, tasks, groups and organizational culture by assimilating diverse cultural norms and values (Teresa.Witt, 2012,p43) .

They are effective collaboration and building relationships, alliances and partnerships within a new, complex and changing environment (Erik Magner, 2012,p47).

It is also defined as the process of influencing individuals, groups and organizations (within and outside the boundaries of the International Foundation) that represent cultural and political systems

in achieving the goals of international institutions (Teresa.Witt, 2012,p44).

defined global leadership as part of a constant search for performance improvements, at all levels of the organization (integration and auditing). Administrative procedures by function are imposed on all those with the same responsibilities. , Regardless of the country where the company operates, as long as it has proven to be competitive (croué, 2015,p38).

"Who can guide organizations that span diverse countries ,culture and customers" (Gregersen, Morrison, & Black, 1998 ,p23).

Global leaders are managers with global integration responsibilities in global organisation (Suutari, 2002,p229).

2.2. *Global leadership dimensions :*

There are three dimensions to global leadership :

Fig.1 : Global leadership dimensions .



Source: <https://www.et.byu.edu/Weidman-center/global-leadership-dimensions>

- ***The first dimension: personnel characteristics***

It is the personality and characteristics of a global leader such as adherence to standards of integrity, dealing with ethical issues and wise decision-making, self-awareness and the pursuit of continuous improvement and face risks through sound thinking.

- ***The second dimension :organisation skills***

These are the key skills that a global leader must understand and execute in the organization, develops and exercises effective skills, understands group dynamics and teamwork, expresses vision and formulates strategy and plans to achieve common goals.

- ***The third dimension:global and cultural perspective***

It is the extent of the integration of the leader in international business and his ability to understand and accept cultures across the world. And population growth, water, etc.....

2.3. global Leadership Models:

We distinguish two types of models at the level of international management vary according to administrative design, performance evaluation and control and management methods : (الدوري، ص187) (صالح).

- ***Western model :***

-The Western model relies on a few bureaucracies with a high delegation of authority.

- It uses complex information system and planning technology, more modern and scientific management methods.

- Collective decision-making, advanced control systems to evaluate performance.

- Relates to individuals in a closed and general manner.

- ***Middle East model :***

- Depends on a high bureaucracy with greater centralization and power influence at the top.

- Individual decision-making at the top level of management, weak performance evaluation systems.

- Communication system depends on social status, influence and high impact.

3. Risk Management in International Business:

3.1. Risk Management:

It is the process by which it is ascertained that undesirable events related to matters that result in losses. It is an ongoing process of making and implementing decisions that would minimize the acceptable impact or uncertainty related to exposure to risks that have

an impact on the organization, in other words, the natural tendency of the organization to balance opportunities and threats. (Tanim, 2019)

It is also an independent function responsible for planning, directing and organizing a scale to reduce, mitigate and control potential impacts on an organization from the risks arising from its operations.

Risk management processes are characterized by their strategic and tactical approaches. In terms of strategic direction in risk management, it means how risk management can add value to businesses. From a tactical point of view, it means how risk management works in real performance of its tasks.

3.2. Risks in international business:

Business risk implies the possibility of some unfavourable happening. It is the possibility of loss due to same uncertain future occurrence. International business risk may be defined as the possibility of loss caused by some unfavourable or undesirable event in international business operations. Changes in international environment and difference in the economic systems, objectives and cultures of different countries are the main causes of international business risks. The degree of such risk differs from one company to another company and from one country to another country (SakshiJindal, 2011).

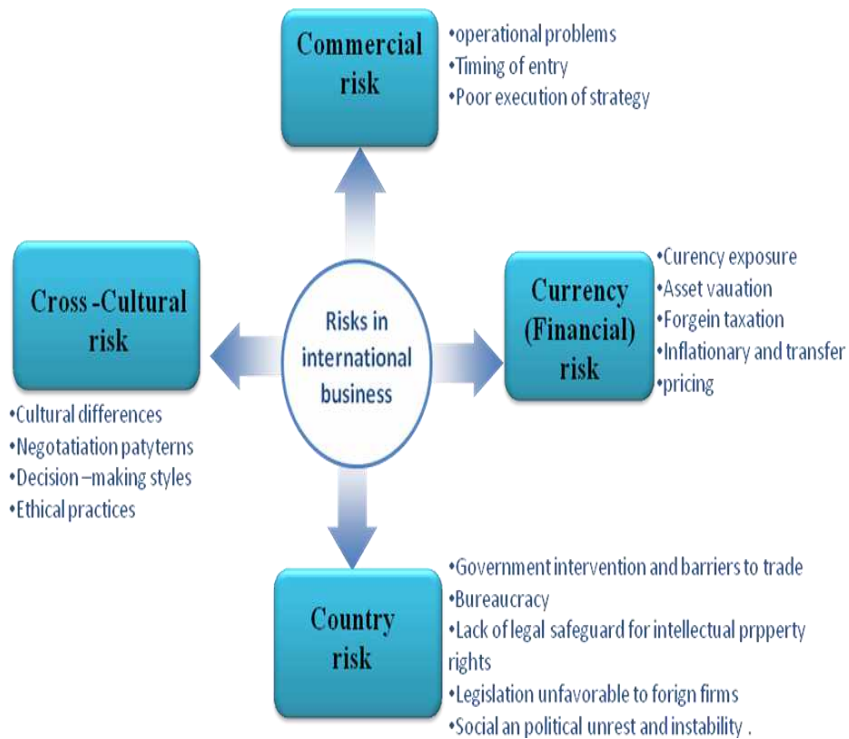
3.3 Classifications Risks in international business:

A range of risks can be identified at the international business level (ibc-business-strategy, 2011):

- **country Risk:** Potentially adverse effects on company operation and profitability arise by developments in the political, legal and economic environment in foreign country.
- **currency Risk:** Every country has its own currency of one country is not in circulation in the other country, describes the variable investment values due to the change of two different currencies and also known as foreign currency risk (SakshiJindal, 2011).
- **Commercial Risk:** Firms potential loss or failure from poorly developed or executed business strategies, tactics, or procedures, failures in international markets are far more costly than domestic business blunders.

- **Gross -Cultural Risk** : When the institution suffers from the encounter of languages, customs, traditions and consumer preferences, it leads to potential cultural risks within its external environment and in the management of human materials within the institution.

Fig.2 : The four risks of international business .



<https://www.slideshare.net/ibc-business-strategy/dealing-with-risks-in-international-business>.

4.Global Leadership Skills in Risk Management:

We have drawn from the contributions of writers and researchers in identifying the most important skills necessary for international leadership in the management of risks of international business and were:

4.1. Strategic Thinking:

Strategic thinking is defined as the innovative way of thinking about how future visions of anticipated issues and predicting the opportunities and threats that can face the organization (هلال & عبد الغاني، 2008، ص31) .

Given the dynamism and difficulty of working at the international level, which is a major challenge for all institutions, which requires leaders to excellence in strategic thinking, which requires the following (الكرخي، 2015، ص22) :

1. Change management in business areas.
2. Stay away from stereotyped work methods and bureaucratic management, and modernize new methods.
3. Innovation management.
4. Prospecting the future through reflection and reflection on the future conditions of the institution.
5. Analyze the environmental situation, monitor opportunities and avoid threats.

4.2.Cultural Intelligence:

Cultural intelligence is essential for individuals in leadership positions in international work environments. Leaders are not only effective in professional experience but also know how to work effectively with people from different cultures and backgrounds, and Niberson identifies four dimensions of cultural intelligence (BIJEDIC, 2015,p13):

1. Linguistic Intelligence: Language skills necessary to interact with other cultures people.
2. Spatial Intelligence: Ability to adapt behaviors in different environments.
3. Intelligence towards individuals: the ability to understand the individual's cultural pattern.
4. Personal Intelligence: Respond appropriately with other individuals.

4.3.knowledge transfer :

Peter Drucker commented, "We know that the source of value is something that is particularly human knowledge. If we use knowledge in tasks that we know how to accomplish clearly, we call them

productivity. If we use knowledge in tasks that are new and different, we call innovation (14 ص، 2019، شتاتحة)."

It is defined as individual beliefs that increase an individual's ability to take effective action. Effective actions are the sum of the skills and mental activities that are needed.

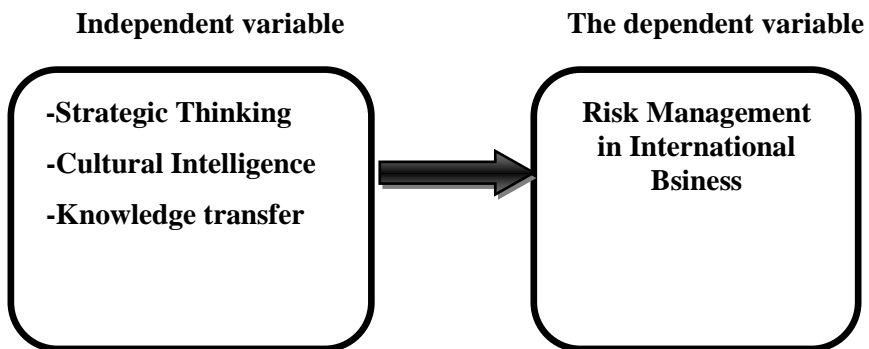
The transfer of knowledge across cultures will effectively contribute to providing the institution with new and innovative knowledge and is easy to acquire and produce. Knowledge transfer requires an extraordinary pattern of leadership in order to lead others to support innovation and change processes (53ص، 2015، مسلم). The following:

1. Ability to explain the vision of others and work to link them in more than one content within the institution.
2. Support innovation and ensure continuous learning opportunities.
3. Attention to the flow of knowledge rather than storage.
4. Continuous research on new ideas and transfer between members of the institution.

5.Study Methodology :

We prepared the study model based on previous literature and research.

Fig.2 : Rechearch model



source: Prepared by researchers.

5.1.Sample and data collection:

In order to test the hypothese of this study , a survey conducted with globals managers from various organizations in Algeria , The questionnaire contained 60 statements. To analyze the data, we performed the following statistics :

- The statistical program of the spss 25 was adopted, and the Likert 5-point scale (Strongly Agree, Agree, Neutral, Disagree, Strongly Disagree) .

-Alpha Cronbach to determine the stability factor of the study tool.

- Multicollinearity between the independent variables.

- Regression model and ANOVA parameter to determine the effect of independent variable elements on the dependent variable.

5.2 Reability test :

Table1 : Reability test

<i>Structure</i>	<i>N of items</i>	<i>Crounbach's Alpha coefficients</i>
<i>Independent variable</i>	16	0.90
<i>dependent variable</i>	18	0.81
<i>Total</i>	34	0.90

source: statistical package for social sciences(spss25).

Crounbach's Alpha test yielded 0.90 for independent variables , 0.81 for dependent variable ,and total 0.90, any Crounbach's Alpha that is greater than 0.80 is excellent , wich would mean the reability measure of this study is excellent.

5.3 Test hypothesis study

To test the hypothesis of the study we used multiple linear regression, and before the test should be verified that there is no multicullinearity between independent variables (global leader skills), by factor (VIF and Tolerance test).

Table2 : multicollinearity between the independent variables.

<i>Independent variable</i>	<i>Collinearity statistics</i>	
	<i>Variance Inflation Factor (VIF)</i>	<i>Tolerance</i>
<i>Strategic Thinking</i>	1.313	0.762
<i>Cultural Intelligence</i>	1.970	0.508
<i>Knowledge transfer</i>	1.298	0.770

source: statistical package for social sciences(spss25).

Tolerance and the Variance Inflation Factor (VIF) are two collinearity diagnostic factors that can help to identify multicollinearity among the variables in a regression model , From Table (2), we conclude that the value of VIF is less than 3 and the Tolerance value for all variables is greater than **0.1**,This means that there is no problem with high correlation between independent variables.

6.Study Results :

6.1 Study hypothesis:

There is a significant impact between the necessary skills for the global leader and the risk management in the international business.

Before studying the hypothesis, we first test the validity of the model by analyzing the variance test and F-Fisher.

Table3 : Analysis Of Variances (ANOVA)

<i>Sources of variation</i>	<i>Degree of freedom</i>	<i>Sum of square</i>	<i>Mean of square</i>	<i>F</i>	<i>Signification</i>
Regression	5	1.926	0.385	15.276	0.000
Residual	54	1.362	0.025		
Total	59	3.288	0.385		

Statistically significant at the significance level $\alpha \leq 0.05$

source: statistical package for social sciences(spss25).

It is clear from the results of table (3) that the value of F was **15.276** and is statistically significant sig = **0.000**, which is less than the level of significance $\alpha = 0.05$ and therefore will prove validity of the multiple linear regression model and therefore accept the hypothesis In international business.

Based on the above, it is possible to use the regression method to measure the impact of each independent variable on the dependent variable. Table (4) shows the results of multiple linear regression coefficients.

Table4 : Table showing regression coefficients

<i>Variables</i>	<i>coefficients</i>	<i>T</i>	<i>Signification</i>
Constant	1.654	6.672	0.000
Strategic Thinking	0.422	5.005	0.000
Cultural Intelligence	0.147	1.365	0.014
Knowledge transfer	0.334	4.355	0.000
R	0.765	R²	0.586

Statistically significant at the significance level ($\alpha \leq 0.05$).

source: statistical package for social sciences(spss25).

We note that all variables (the necessary skills for the international leader) have a moral impact with a statistical significant on international business risks; where we note that the variable (strategic thinking) has the first importance in terms of the strength of the impact on international business risks, where the **T** value of a regression parameter recorded= **5.005** and the value of the regression parameter recorded= **0.422** which was significant and direct, that is, the more strategic thinking skills the stronger the monitoring and analysis of international business risks, followed by the third variable (Transfer knowledge) whose value of **T** for the regression parameter = **4.355** and the value of the regression parameter = **0.147** which was moral and direct, in the last place cultural intelligence, whose value of **T** for the

regression parameter = **1.365** and the value of the regression parameter = **0.334** and it was also significant and direct.

The results of the study of the hypothesis test showed that there was a positive effect of statistical significance at $\alpha = 0.05$ for all dimensions of independent variables (transfer knowledge, cultural intelligence, strategic thinking).

Based on the results of the regression coefficients analysis, which were all statistically significant, the estimated model appeared:

$$\hat{y} = 1.654 + 0.422x_1 + 0.147x_2 + 0.334x_3. \text{ in which :}$$

\hat{y} : Risk Management in International Business .

x_1 : Strategic Thinking.

x_2 : Cultural Intelligence.

x_3 : Knowledge transfer.

The R^2 value of 0.586 indicates that the independent variables account for 58.60% of the estimated regression model, while the remainder is attributed to other variables not included in this model.

7. Conclusion :

Risk management is a critical aspect of international business activities, as different countries present varying degrees of political, economic and social risks. Political risks revolve around security and government stability, while economic risks include inflation and the competitiveness profile of foreign governments. Health and educational standards and cultural diversity present social risks.

The aim of this study was to investigate the impact of global leadership skills in the management of international business risks.

The global leadership has significant challenges at the level of its activities beyond borders, in choosing appropriate methods to deal with any threats to its objectives.

Global leadership must develop and adapt its skills to the risks it faces in a competitive or international environment.

Global leadership isn't just about overcoming the risks. There are lots of those of course. More importantly it's about the opportunities.

The global environment creates more opportunities than a domestic one opportunities for growth, innovation, learning. My motivation for becoming a better global leader is to be able to find and take advantage of those opportunities.

The study found that there is a statistically significant impact = 0.05 for the skills needed for global leadership in risk management of international business.

It concluded that there is an impact of cultural intelligence and strategic thinking , Knowledge transfer on risk management in international business.

Attention to global leadership at the Arab level in general and Algeria in particular.

Attention to the development and training of leaders to be more effective at the level of international activity.

The need to extend this study to future studies dealing with global leadership and other variables and a broader sample and more to allow to reach more accurate results, so it is recommended for future researchers to do study in other sectors, and consider other factors which researchers did not deal with them in this study.

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Agility in organizations' analysis, Case study: Sarl Total Comfort Company

الرشاقة في التحليل التنظيمي، دراسة حالة: شركة سارل توتال كومفور

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Abstract: The objective of this research is to measure agility in Algerian company, and to show that Agility is developed across dimensions; strategic approach, postural principles, behavioral practices, organizational practices and managerial to maintain the competitiveness of a company while the confusion of its environment exceeds its speed of adaptation. As part of a diagnosis of agility, to the members of the company Sarl Total Comfort through the exploration of the organizational model of 'PATRICE FORMALIK'. Moreover, this study is conducted to evaluate the maturity of the concept of agility in the company and measure the four dimensions of agile in order to increase the company's performance.

keywords: Agility; Algerian Company; Dimensions; Mindset; Innovation.

ملخص: الهدف من هذا البحث هو قياس الرشاقة في الشركة الجزائرية، وإظهار أن نهج الرشاقة (أجيلي) تم تطويره من خلال الأبعاد؛ النهج الاستراتيجي، المبادئ الوضعية، الممارسات السلوكية، والممارسات التنظيمية والإدارية للحفاظ على القدرة التنافسية للشركة في حين أن الارتباك في بيئتها يتجاوز سرعة التكيف. كجزء من تشخيص الرشاقة، تم إجراء تقييم لشركة سارل توتال كومفور من خلال النموذج التنظيمي لـ "باتريس فورناليك" لتقييم مدى نضج مفهوم الرشاقة في الشركة وقياس أبعاد الرشاقة الأربعة من أجل زيادة أداء الشركة.

الكلمات المفتاحية: الرشاقة؛ الشركة الجزائرية؛ الأبعاد؛ لعقلية؛ الابتكار.

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1. Introduction :

Companies are currently operating in an unstable economic circumstances, where trade in merchandise and services has increased significantly, intensifying the competitive phenomenon. In this so-called disruptive, turbulent and complex environment, companies have no choice than to adapt or else disappear. (Barzi, 2011). Generally they adopt a long-term strategy while having the ability to anticipate and react quickly in the short term. We see that they have a better ability to adapt to turbulence and spend the crises with more serenity. These characteristics are been typically found in family businesses for which sustainability is the primary issue. Although their instantaneous performances are sometimes less important than those of larger scale groups, they are more time-resistant because they have a natural ability to organize themselves into autonomous networks collaborating to ensure their equilibrium.

The most competitive and long-lasting companies are unanimous; innovation is essential today for the survival of an organization.

The vast majority of them believe that the main driver of their growth for the next five years will be innovation (organic growth). Very few, on the other hand, believe that this growth will come from mergers and acquisitions (external growth). Some innovation experts such as Tony Davila1whostated, "This is a matter of life and death for companies around the world", and with the emergence of agility in organizations, many notions have been changed. Organizational agility is in every way and we are been familiar more and more of the agile or liberated business. After a first reflex of rejection and mistrust, vis-a-vis this movement against the background of the settling of scores between detractors and dogmatic partisans, the time of lucidity and maturity has arrived. (Fornalik, 2018). Whatever their name, agile, liberated, socially responsible company (SARA), organic enterprise, neural company, holistic, democratized company, every day by many companies, of all sizes and from all sectors, embark on approach. The willingness of these companies to find ways to embrace the complexity of our world and to respond to the many challenges of the beginning of the century pushes them to reinvent the organization and management in the company.

2. Agile background

2.1. The method timeline

The seeds or nuclei of agile techniques have existed for a long time. In fact, agile values, principles and practices are simply a codification of common sense. The history of agile project management, dating back to the 1930s, with Walter Sherwart's Plan-Do-Study-Act (PDSA) approach to project quality.

Toyota's lean production system developed in 1943 (Abrahamsson, Conboy, & Wang, 2009); (Edmunds et al., 2012)), NASA's incremental and iterative deliveries since 1950 (Sliger and Broderick, 2008; Williams and Cockburn, 2003),

"Conway's Law" or "La loi de Conway" (Conway, 1968) is invented and summarized as follows: "Any organization that designs a system (defined more broadly as information systems) will inevitably produce a design whose structure is a copy of the organization's communication structure, the design that occurs first is almost never the best possible, the current system concept may need to be changed. Therefore, organizational flexibility is important for effective design, (B. W. Boehm, 1970) proposes "Wideband Delphi" the precursor of Planning Poker.

In the 1970s, Dr. Royce published "managing the development of large software systems" and suggests that the cascade method itself is ineffective, doing everything in one sequence is not realistic and would need to be repeated at least twice to succeed, (Mills, 1980) Background discussion on the progressive development of IBM's Federal Systems Division is found in a volume published "Principles of Software Engineering", The notion of origin in 1980 "Visual Control" in the Toyota production system is an anticipation of "information radiators".

(B. W. Boehm, 1984): A first empirical study of projects using prototyping, in essence an iterative strategy, suggests that iterative approaches began to receive serious attention at that time, most likely due to factors such as the increase in personal computers and graphical user interfaces, 1984: The notion of "factoring", an anticipation of refactoring, is described in "Thinking Forth". Where it is presented as the "organization of the code into useful fragments" that "occurs during detailed design and implementation". In 1985, Perhaps the first one explicitly named, incremental alternative to the "waterfall" approach is Tom Gilb Evolutionary delivery model, nicknamed "Evo". (B. Boehm,

1986) presents "A Spiral Model of Software Development and Enhancement", an iterative model focused on identifying and reducing risks through appropriate approaches.

In 1986, Hirotaka Takeuchi and Ikujiro Nonaka published an article entitled "New New Product Développement Game" in the Harvard Business Review. The article by Takeuchi and Nonaka described a rapid and flexible development strategy to meet the demand for ever-changing products and to manage the development process differently. To achieve speed and flexibility, companies must manage the product development process differently, (Ehlmann et al., 1988) The "timebox" is described as one of the cornerstones of the "rapid iterative Prototyping production" approach in use at a spin-off Du Pont, Engineering Associates information.

(Griswold & Opdyke, n.d.) coined the term "refactoring" in an ACM SIGPLAN document with Ralph Johnson, "Refactoring: An aid in designing application frameworks and evolving object-oriented systems"; In 1991 RAD, perhaps the first approach in which time-boxing and "iterations" in the more flexible sense of "a repetition of the complete software development process" are closely associated, is described by James Martin in his "Rapid Application Development". This book also describes the details of the time-box in one of its chapters. The term "agility" was first observed in the manufacturing sector (Nagel & Dove, 1991) under the name of "agile manufacturing" or "agile manufacturing", even before the term became popular in the field of agile project management. In 1992: A complete description of "refactoring" is presented in Opdyke's thesis, "Refactoring object-oriented frameworks" (Janoff, 1998) writes the original StandUp Meeting pattern template. Turner and Cochrane (1993) noted that "Frozen objectives become an integral part of defining project quality, and project managers are said to succeed if they deliver them on time and within budget, regardless of whether the product is useful or beneficial to owners and users. "(p. 94) This highlights the advantages of the methods that formalize the re-planning of a project during the execution phase, Schwaber K. (1995)'SCRUM Development Process' among the first to introduce the notion of'sprint' as an iteration, although its duration is variable.

The term "agility" was first observed in the manufacturing sector (Nagel & Dove, 1991) where it was disseminated in the form of a concept called "agile manufacturing", even before the term was popularized in the field of agile project.

The term "agile manufacturing" has been treated as a new paradigm, characterized as "an ability to change the configuration of a system in response to unexpected and unexpected changes in market conditions" (Goldman, Nagel, & Preiss, 1995); (Yusuf, Sarhadi, & Gunasekaran, 1999); (Vokurka & Fliedner, 1998); (Zhang & Sharifi, 2000).

(Fowler & Scott, 1999) The practice of "refactoring", integrated a few years earlier in Extreme Programming, is popularized by the book *Refactoring: Improving the Design of Existing Code*. (Beck et al., 2001): first described the burndown chart while working at Fidelity Investments to provide Scrum teams with a simple toolkit.

These different methods, without being called "agile", have all inspired the methodology, state of mind and agile philosophy currently used in the field of software development. In 2001, a group of software and project experts met to discuss the commonalities of their successful projects. This group created the Agile Manifesto, a statement of values for successful software development, 2001: Mary Poppendieck's article, "Lean Programming", draws attention to the structural parallels between Agile and the ideas known as Lean or "Toyota Production System". 2001 (Norm Kerth) the term "Retrospective Project" is introduced in the book of (Project Retrospectives: A Handbook for Team Reviews); 2002 : the Scrum community adopts the practice of measuring "speed, velocity" or "velocity", this new approach has appeared under different names. The name most often used is the agile approach (Aguanno, 2004; Highsmith, 2004; Williams, 2005), while the same principle and approach are found under the names lean (Williams, 2005), extreme (DeCarlo, 2004; Wysocki, 2007) and adaptive (Shenhar & Dvir, 2007); (Virine, 2008)((Poppendieck & Poppendieck, 2003) describes the Agile task table as a "kanban software system" in the book of "Lean Software Development ; (Cohn, 2005) Poker Planning technique and planning techniques are popularized in the Scrum community, in "Agile Estimating and Planning".

(Larsen & Derby, 2006) the publication of "Agile Retrospectives" ends the codification of heart rate retrospectives; 2011: The practice of

"backlog grooming" becomes an "official" element of Scrum through its inclusion in the Scrum Guide. On the other hand, opponents of the agile approach generally note that these approaches are only an excuse for not using the basic and necessary principles of software development and project management (Rakitin, 2001), and that there is still a lack of empirical evidence of successful application agile methods. But recently, empirical research shows that agility has proven its worth (Chow & Cao, 2008); (Dzamashvili Fogelström, Gorschek, Svahnberg, & Olsson, 2010). One of these studies (Chow and Cao, 2008) found that the appropriate use of agile methods, a highly skilled project team and an appropriate delivery strategy were key success factors for the agile approach, while management processes, organizational environment and customer participation were appropriate. 2017 Janet Gregory and Lisa Crispin) established a definition of the Agile test, marking the first brief definition of this topic.

According to (Putnik & Putnik, 2012)), "Lean" and "agile" are exclusive concepts. According to them, the lean software development should be used in a stable, predictable and Linear.

In contrast, the agile approach would benefit from being used in a dynamic, unpredictable, uncertain and non-linear environment. In short, the Lean approach has greater potential in a repetitive environment, for example, for an organization's operations (Putnik & Putnik, 2012).

2.2. Method explanation

According to (Rota, 2008) An agile method is an iterative and incremental approach, generates a high quality product while taking into account the evolution of customer needs, it is conducted in a collaborative spirit, (Agile 101, 2019) The agile is a way of managing in an uncertain environment adaptable to change (Layton & Ostermiller, 2017) According to the Agile Project Management is a project management style that emphasizes the rapid delivery of business value, continuous improvement of the product and project processes, scope flexibility, team contribution and the provision of well-tested products that meet customer needs .

According to Dingsyr (2012), some definitions have emerged in recent years after a lack of definition of agility. (Abrahamsson et al., 2009) definition presents the relationship of agility with related disciplines, and also its different aspects. (Abrahamsson et al., 2009) distinguishes agility from "Lean" approaches. Lee and Xia (2010) define agility in software development"[...] as the software team's capability to efficiently and effectively respond to and incorporate user requirement changes during the project life cycle" (p. 4). (Kruchten, 2013), he defines agility as"[...] the ability of an organization to react to changes in its environment faster than the rate of these changes" (p. 1). According to (Kruchten, 2013) this definition presents agility as proposed in the Agile Manifesto as a company-specific capability rather than a set of practices to be applied(Kruchten, 2013) argues that it is possible to adopt several agile practices as mentioned in the Agile Manifesto without becoming agile. On the other hand, Erickson, (Erickson, Lyytinen, & Siau, 2005) define agility as a way"[...] to strip away as much of the heaviness, commonly associated with the traditional software-development methodologies, as possible to promote quick response to changing environments, changes in user requirements, accelerated project deadlines and the like" (p. 89). As for (Lyytinen & Rose, 2006)they express the definition of the agile approach from a system perspective" (...) as an ISD organization's ability to sense and respond swiftly to technical changes and new business opportunities" (p. 183). Harrison (2006) "agility is a means to an end, not the end in itself" (p. 15). (ideematic, 2015) An Agile method is an approach that takes into account the initial needs of customers and their evolution in an iterative and collaborative way, (Williams & Cockburn, 2003) who state that"(...) agile development is about feedback and change (...). Practitioners developed methodologies and practices to embrace, rather than reject, higher rates of change" (p.39). (MOPERTO, 2018) Defines agile as a generic term for several iterative and incremental software development methodologies. According to (MOPERTO, 2018) the most important

thing in agile methodologies is collaboration and decision-making together quickly and efficiently .

The definition that will be adopted for this study, which is based on the previous definitions: agility is an iterative and incremental method that aims to deliver value, taking into account the customer's needs from the initial phase until the product is delivered in order to ensure better customer satisfaction.

2.3. *The agile manifesto: Values and principles*

The agile manifesto is a text composed of different agile practices. It has become a reference in the world of agility, In 2001, 17 software development experts gathered to write this manifesto.

During this meeting, 4 values and 12 principles were defined that would find solutions to meet the needs of companies in their current context and also guide future thinking on project planning and management. For its authors, the agile manifesto included best practices, Manifesto for Agile Software Development (Beck et al., 2001) that articulate the following values and principles for a better way to develop solutions and different practices:

- People and their interactions, rather than processes and tools,
- Operational solutions, rather than exhaustive documentation,
- Collaboration with customers, rather than contractual negotiations,
- The **response** to change, rather than following a plan.

The Principles underlying the Agile Manifesto:

Our main priority is to satisfy the customer by delivering solutions that deliver value quickly and consistently. Warmly welcome changes in needs, even if they are late in the development process.

Agile processes leverage change to strengthen the customer's competitive advantage.

Deliver operational solutions often, with a frequency ranging from a few weeks to a few months, with a preference for the shortest time scales.

The people in charge of the business or business and the people in charge of implementation must work together every day, throughout the project.

Build projects from motivated people. Give them the environment and support they need and trust them to do the work.

Face-to-face conversation is the most effective and economical method to give information to an implementation team, and to exchange information within the team.

The availability of operational solutions is the main measure of progress.

Agile processes encourage to respect a sustainable rhythm during the realization. Sponsors, directors and users should be able to maintain a constant pace indefinitely.

Continuous attention to technical excellence and design quality enhances agility.

Simplicity - the art of maximizing the amount of work you don't do - is essential.

The best architectures, requirements specifications, and designs emerge from self-organized teams.

At regular intervals, the team thinks about ways to become more effective, then changes its behaviour and adjusts it accordingly.

The agile manifesto and agile principles are not enough to launch an agile project because the principles and practices are different.

2.4. Agility in companies

Agility in its original sense is synonymous with skill and liveliness. These are characteristics that companies, often considered as giants unable to innovate, want to integrate into their daily operations. The

concepts of agility first found their nobility in software development. They are now adapted for the entire company (CIGREF, 2015).

3. Research methodology

The choice of qualitative data collection for this paper is supported by many authors. First, (Marshall & Rossman, 1989) in Poupart, 1993) mention several situations that would encourage the using of a qualitative methodology." The research focuses on the goals actual organizational, as opposed to alleged organizational(Marshall & Rossman, 1989)

Establish relevance: The literature review shows the relevance of using the case study as a research strategy to study the issue. One of the reasons why we choose data from empirical study is the lack of data on this issue was also a factor influencing the choice of research method.

Preparation: The preparation was first carried out through the development of the research question. Subsequently, the company's case study was selected as a method to operationalize this research.

Data collection: Data collection was conducted through semi-structured interviews, team meeting observation sessions.

Sampling: With regard to sampling, organizations that have attempted to implement an agile methodology or mindset in an organizational context.

That being said, the selection of the organization studied was made on the basis of a sample of convenience. According to Bailey (1994), convenience sampling consists of selecting the most easily accessible respondents, thus saving time and money.

In total, three organizations were identified as using an agile methodology at the organizational level. Two of them had to be rejected because they didn't meet the case selection criteria which focus mainly on the possibility of adopting agility as a mindset, the ability to change.

It should be noted that the company selected (Sarl Total Comfort) for this research was the only agile company , so the choice was self-evident.

4. Case Study: Sarl Total Comfort Company

4.1. Company presentation

In the Algerian context, the concept of agility remains ambiguous because most Algerian companies adopt a classical mindset, that's why we try to evaluate the concept of agility which remains a response to an environment characterized by instability, uncertainty and complexity. After the evolution of small and medium companies by the carrier of graduate projects, agility becomes a requirement more than a need as a way to make the company live and enhance the collaborative spirit and also to meet the needs of the current market

The company of Sarl Total Comfort is an Algerian company Established in Constantine, specialized in the field of technical installations of the building, founded in 2017,

It is part of the small companies of an estimated workforce of 49 employees, which aims to achieve quality services in a constant search for customer satisfaction and meeting the needs of comfort, security, functionality and control in the infrastructure of the different sectors, it has several departments: sales, project management, study and realization, research and development.

4.2. Organization Analysis for Agile Project Management

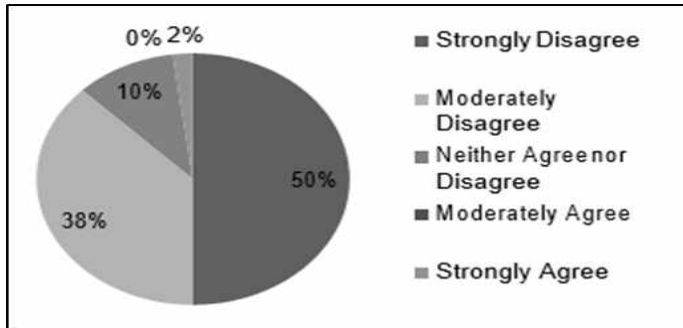
The chosen methodology is based on a mixed approach (quantitative and qualitative), through the use of a questionnaire as a diagnostic tool. This survey is based on four parts: the personal agility, the operational agility, the managerial agility and the organizational agility to evaluate the implementation of agile practices in companies.

Based on the analysis of the organization of 'Patrice Fornalik' Trainer, professional coach graduated and coach agile. Engineer training. Accompaniment to the cultural and managerial transformation of the company via agility "we developed a survey which is the result of a collaboration of several people of the company Sarl Total Comfort of all functions and all hierarchical levels of the organization (administrative staff, engineers, technicians). This questionnaire presents an average of the results to be carried out at the level of the company (figure 01) in the appendices.

5. Study results

5.1. Overall analysis of the results

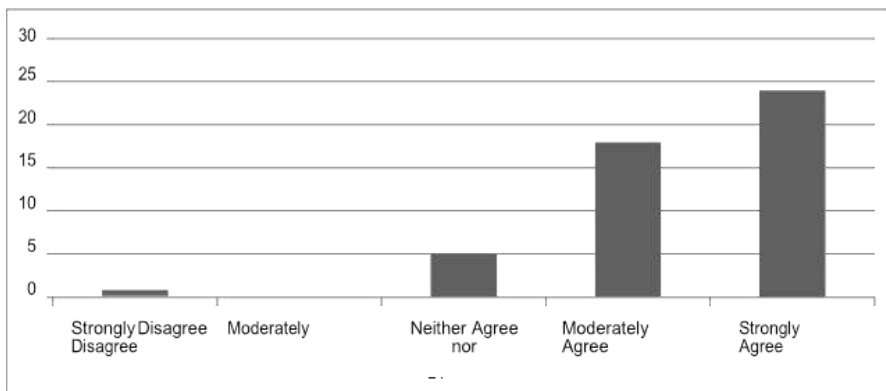
Figure 1: Descriptive analysis of agility in the company Sarl total comfort



Source: author’s, 2019

According to the results of the questionnaire with the senior managers of the company, questions were asked about the different agile practices in their work without telling them that their practices are part of the agility mindset.

Figure 1 :% of the mean scores analysis of agility in the company Sarl total comfort



Source: author’s, 2019

- 24 answers were strongly agreed which presented 50%
- 18 moderately agree which presented 38%
- 5 neither Agree nor disagree which presented 10%
- 0 Moderate disagree which presented 0%
- 1 Strongly disagree which presented 2%

5.2. The evaluation of the four dimensions of the agility of the company

The agility assessment in organizations evaluates 4 dimensions of agility, in the case of this business, the results is as follows:

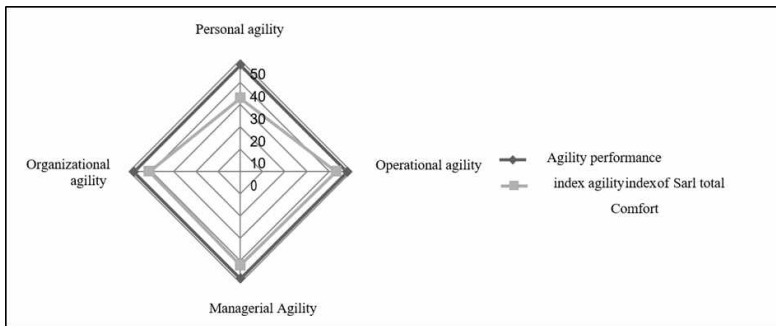


Figure 3: Descriptive analysis of agility in the company Sarl total comfort

Source: author's, 2019

• **Personal agility**

the obtained results are primary measures of progress, according to the investigation the agility of personal presented 33/48, this result remains acceptable but compared to the other results of the other dimension is insufficient, to increase the results of the personal aspect, the agility fundamentally requires an individual change by the accentuation on individual levers of quality of life at work as Initiation, favoring moments of conviviality generating confidence

Develop the ability to learn continuously; share the vision of the future

- **Operational agility**

the results obtained at the operational level was important and higher compared to the other dimensions 43/48 .the company had these results because they adopt an agile organizational system: avoid putting too much hierarchical levels, remove positions that have no real value added in the Company .

- **Managerial agility**

Perceived in the company Sarl Total Comfort is: 42/48, According to the results of the questionnaire the company was generally satisfactory especially at the level of support of the self-organized teams, of confidence with the collaborators, continuous improvement. The company's leaders must work on the Talent Development aspect to achieve maximum performance.

- **Organizational agility**

The company has achieved near-agility index results at the organizational agility level because senior executives are working on how quickly to respond to strategic opportunities. A reduction in cycle time between decision making, execution and evaluation of results. Integration of the "customer voice" in business processes, Multidisciplinary project teams. The use of iterative approaches to project management, increased use of technology to achieve maximum business performance must work on change management and risk management, however for the iterative approaches is not applicable in the business sector of the company except in the design phase.

6. Conclusion

Agility in the company is based on methods, an organization, but also and mainly on values, a culture, and men that make up this company. All these individuals cannot have a single vision of agility, but it is precisely their own ownership of the concepts and their adaptation to the processes they know that will make the business flexible and responsive as a whole.

To successfully implement the agility in the company Total Sarl Comfort, it is necessary to take into account the different speeds of creation of services, and internal operating speeds, and facilitate their

cohabitation, work on autonomy, accountability, transparency, trust, value creation and specify areas for improvement, this transformation of the company is itself a long-term project that should not be rushed.

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8. Appendices:

	Strongly Disagree	Moderately Disagree	Neither Agree nor Disagree	Moderately Agree	Strongly Agree
1. Being in difficulties or new situations, I feel a form of curiosity that Pushes me forward.					
2.I readily accept Differences or differences of opinion.					
3. I readily accept the unexpected and inconvenient events.					
4. I can accept a reality that does not suit me without resigning or submitting to it					
5. Due to difficulties or new situations, I know how to be nuanced.					
6. I will say that I can easily perceive the advantages under the disadvantages, the positive In the negative.					
7. I realize that we all have a different perspective on things					
8. I understand that my vision is limited and relative.					
9. In case of difficulties, I like to look for possible mechanisms hidden or under tension.					
10. In situations of high stakes, I try to understand what is being played out unconsciously or in a manner that is not visible a Priori.					
11. I am aware that the Other is another myself with its differences and its own needs.					
12. I am not afraid to deceive myself or to assert myself					
13. We strive to deliver short and regular value to our customers.					

14. We prefer a functional product or operational service to comprehensive documentation					
15. Internally, we are more collaborative than contract or procedure.					
16. With regard to customers, we are more collaborative than contract or procedure.					
17. In our customer relationship, we welcome changes positively because we believe that it is an advantage in the end to stand out from others.					
18. We measure our efficiency directly by the value created by our customers.					
19. We strive to excel in our daily tasks.					
20. We regularly think about improving our practices and our effectiveness.					
21. Users and customers are at the heart of the value creation process.					
22. I really feel that individuals and their interactions are more important than processes and tools.					
23. I enjoy doing my job					
24. My activities are motivating and correspond to my aspirations					
25. I have all the decision latitude necessary to achieve my goals.					
26. I can freely position myself on activities that make sense to me.					
27. I feel confident about the people with whom I work with .					
28. I have the right to make mistakes					
29. I have the opportunity to develop my professional skills and my human qualities.					
30. I have a level of autonomy in line with my responsibilities.					
31. I have a level of responsibility in line with my skills.					
32. I know how to evaluate the added value of my work or contribution.					
33. Between us we regularly exchange constructive feedback.					

34. In the face of difficulties or adversity, we remain united and we Help one another.					
35. I have the feeling that one can be oneself.					
36. I feel fully responsible for my actions.					
37. I know and share the Vision of my company.					
38. I recognize myself in the values that the company really lives					
39. I helped in defining the vision of my company.					
40. I know and understand the internal and external issues of my company.					
41. I feel myself a full-Fledged actor in building my business.					
42. I am consulted on the Life and future of the company.					
43. I would say that my Company knows how to adapt to its environment.					
44. I will say that facing new challenges, the company would be able to self- organize to cope .					
45. I will say that my Business operates iteratively and learns from mistakes.					
46. My company provides employees with all its information in a Transparent manner.					
47. The company knows How to involve its employees collectively in the subject of performance.					
48. I can take any actions that seem beneficial to the company.					

Food Security in Algeria: Concept Review and Measurement Indicators

الأمن الغذائي في الجزائر: استعراض المفهوم ومؤشرات القياس

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Abstract:

This study aims to present the food security situation in Algeria through the World Food Security Index and identify the challenges that prevent the achievement of the goal of food security in Algeria.

This study found concluded that the state of food security in Algeria is still below the good level, and in order to strengthen and support food security, a framework for appropriate policies with an integrated long-term vision must be developed.

keyword: Food Security; Food insecurity; World Food Security Index; Algeria.

JEL classification code : Q18, Q180

ملخص:

تهدف هذه الدراسة إلى عرض حالة الأمن الغذائي في الجزائر من خلال مؤشر الأمن الغذائي العالمي، وتحديد أهم التحديات التي تحول دون تحقيق هدف الأمن الغذائي في الجزائر. تم التوصل في هذه الدراسة إلى أن حالة الأمن الغذائي في الجزائر تبقى في مستوى دون الجيد، ومن أجل تعزيز ودعم الأمن الغذائي لا بد من وضع إطار لسياسات ملائمة ذات رؤية متكاملة طويلة الأجل.

الكلمات المفتاحية: الأمن الغذائي؛ انعدام الأمن الغذائي؛ مؤشر الأمن الغذائي العالمي؛ الجزائر.

تصنيف JEL: Q180, Q18

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1. Introduction :

Achieving food security is the overarching goal of countries and governments, which have considered providing food needs for the population is a priority to be worked on, especially since the emergence of food security as a concept in the mid-1970s, where it was emphasized that ensuring food security and nutrition is a right for every man, woman and child to live an active and healthy life that preserves their human dignity. It is fixed in many international conventions and treaties.

Food security is a complex subject, and although it is being taken care of by various actors, hunger and food insecurity continue to affect the lives of many people, as it is affected by a different factors, social, economic and environmental, especially political ones.

If we go back to Algeria, it is considered one of the countries that depend on imports to cover its food needs, especially the basic ones, despite the natural resources available to it, so we will try in this paper to answer the following problem:

What is the food security situation in Algeria?

Objectives of the study:

This study aims to:

Present the reality of food security in Algeria through the World Food Security Index.

The importance of studying:

The importance of the study is that it addresses one of the important and sensitive topics, which is the issue of food security, which concerns the countries of the world because it is necessary for communities and individuals and affects their lives. It also deals with the reality of food security in Algeria.

2. Theoretical Framework for Food Security:

This section is devoted to defining what is food security, the legal framework for food security, its dimensions, and food insecurity.

1.2. Definition of food security:

The concept of food security emerged in the mid-1970s in discussions on international food problems. (Clay, 2002) the concept of

food security was officially affirmed in 1974, following the world food crisis of 1973/74.(Sposito, 2009 / 2010, p. 7)Where the term food security was used in the 1974 World Food Conference, which witnessed the first item of the International Declaration on the Elimination of Hunger and Malnutrition that was adopted by governments, "Every man, woman and child has the inalienable right to be free from hunger and malnutrition in order to fully develop and preserve their physical capabilities And mental "(Macer, 2015)The primary focus was primarily on food supply problems to ensure the availability and to some extent the stability of basic food prices at the international and national levels.

The concept of food security has developed since the 1974 World Food Conference, and the following are the most important definitions of food security:

- Defining food security in the work of the World Food Summit 1974: It is defined as follows: "The availability at all times of adequate global food supplies from basic foodstuffs to maintain a steady expansion in food consumption and to compensate for fluctuations in production and prices."(Macer, 2015)
- The definition of FAO in 1983: Food security means: "Ensuring that all people at all times have material and economic opportunities to obtain the basic foods they need."(Napoli, 2010/2011, p. 8)
- The definition of the World Bank in its report on poverty and hunger in 1986: Food security was defined as: "All people at all times have enough food to lead an active healthy life."(Clay, 2002)
- The definition of the World Food Summit 1996: "Food security is achieved at the level of the individual and the family and the national, regional and global levels when all people at all times enjoy physical and economic access to adequate, safe and nutritious food that meets their nutritional needs and suits their food tastes for an active and healthy life."(FAO, An Introduction to the Basic Concepts of Food Security, 2008)
- The definition of FAO in 2001:The definition of the World Food Summit 1996 has been repeated:"Food security is a situation where all people at all times have access to material, social and economic access to adequate, safe and nutritious food

that meets their nutritional needs and suits their nutritional preferences in order to lead an active and healthy life."(Clay, 2002)

From the above definitions, we note that the concept of food security has evolved over time, as in the beginning the focus was on the element of availability and although it is a necessary element it is not sufficient to achieve food security, food may be available but it cannot be reached, while the current concept Food security is a multi-dimensional concept based on access to and access to food, food safety, and that food is appropriate for the tastes of individuals, and ensures an active healthy life, that meaning the concept has evolved from quantitative to qualitative issues, The concept has also evolved from a holistic level (international and national) to a partial level (family and individual level).

2.2. The legal framework for food security :

The right to adequate food as a basic human right was first recognized in the Universal Declaration of Human Rights in 1948, as part of the right to a decent standard of living (Art . 25):

‘Everyone has the right to a standard of living adequate for the health and well being of himself and his family, including food...’(Nations, 2011, p. 3)

The human right to food is established in many international treaties and other instruments, including the Universal Declaration of Human Rights (1948), the International Covenant on Economic, Social and Cultural Rights (ICESCR, 1966) and the Convention on the Rights of the Child (1989). Thus the rights-based approach to food security has a further legal dimension in that governments have a legal obligation progressively to enable all individuals within their borders not merely to be free from hunger but to produce or procure, in ways that are fully consistent with their human dignity, food that is adequate for an active and healthy life. Realizing the right requires “the availability of food in a quantity and quality sufficient to satisfy the dietary needs of individuals, free from adverse substances, and acceptable within a given culture; the accessibility of such food in ways that are sustainable and that do not interfere with the enjoyment of other human rights”(NATIONS, 2006, p. 4)

Adequate food is a human right, a right of every individual in every country. This has been formally recognized by the great majority of states. But there is a large difference between a state’s formal recognition of food as a human right and its putting this recognition fully into practice. If a state is genuinely to treat adequate food as a human right – if it is determined to make that right a reality for everyone.(NATIONS, 2006, p. 1)

2.3. The dimensions of food security:

From the definition of food security, four main dimensions of food security can be identified, for food security objectives to be realized, all four dimensions must be fulfilled simultaneously.

Table1: The four dimensions of food security

Physical AVAILABILITY of food	Food availability addresses the "supply side" of food security and is determined by the level of food production, stock levels and net trade.
Economic and physical ACCESS to food	An adequate supply of food at the national or international level does not in itself guarantee household level food security. Concerns about insufficient food access have resulted in a greater policy focus on incomes, expenditure, markets and prices in achieving food security objectives.
Food UTILIZATION	Utilization is commonly understood as the way the body makes the most of various nutrients in the food. Sufficient energy and nutrient intake by individuals is the result of good care and feeding practices, food preparation, diversity of the diet and intra-household distribution of food. Combined with good biological utilization of food consumed, this determines the nutritional status of individuals.
STABILITY of the other three dimensions over time	Even if your food intake is adequate today, you are still considered to be food insecure if you have inadequate access to food on a periodic basis, risking a deterioration of your nutritional status. Adverse weather conditions, political instability, or economic factors (unemployment, rising food prices) may have an impact on your food security status.



Source: FAO, An Introduction to the Basic Concepts of Food Security, <http://www.fao.org/3/a1936e/a1936e00.pdf>, consulté le 12/12/ 2019

2.4. Food insecurity:

Food insecurity is defined as the situation in which people lack access to adequate quantities of safe and nutritious food to ensure normal growth and development and an active and healthy life, which may be the result of a lack of food, insufficient purchasing power, inappropriate distribution, or inappropriate use of food At the household level. Food insecurity, along with poor health conditions and

inadequate care and food practices, are the primary causes of poor nutritional conditions. Food insecurity may be chronic or temporary.(FAO, The State of Food Insecurity in the World, 2009, p. 8)

Table 2: The Duration of Food Insecurity

	CHRONIC FOOD INSECURITY	TRANSITORY FOOD INSECURITY
		
is...	long-term or persistent.	short-term and temporary.
occurs when...	people are unable to meet their minimum food requirements over a sustained period of time.	there is a sudden drop in the ability to produce or access enough food to maintain a good nutritional status.
results from...	extended periods of poverty, lack of assets and inadequate access to productive or financial resources.	short-term shocks and fluctuations in food availability and food access, including year-to-year variations in domestic food production, food prices and household incomes.
can be overcome with...	typical long term development measures also used to address poverty, such as education or access to productive resources, such as credit. They may also need more direct access to food to enable them to raise their productive capacity.	transitory food insecurity is relatively unpredictable and can emerge suddenly. This makes planning and programming more difficult and requires different capacities and types of intervention, including early warning capacity and safety net programmes (see Box 1).

Source:FAO, An Introduction to the Basic Concepts of Food Security, <http://www.fao.org/3/al936e/al936e00.pdf>, consulté le 12/12/ 2019

The above table shows that the main causes of food insecurity are poverty. The Rome Declaration of 1996 confirmed that poverty is a major cause of food insecurity and hunger, and that progressing steadily towards eradicating poverty is critical to improving access to food. The vast majority of people with hunger and food insecurity They cannot produce or purchase sufficient quantities of food, and they do not have sufficient opportunities to obtain production such as land and water and on production requirements (seeds, appropriate technology and agricultural loans ...).

In addition to these, there are millions of other people affected by war, civil strife, natural disasters, climate-related ecological changes and environmental degradation. Even if all of them were provided with food aid to alleviate their suffering, that assistance would not be a long-term solution to the underlying causes of food insecurity. (FAO, 1996)

According to the FAO report on the state of food security in the world issued in 2018, the number of people who suffer from hunger and food insecurity in the world has increased during the past 3 years and levels have returned to what they were a decade ago, and it is estimated that the absolute number of people affected by a shortage Nutrition or chronic food deprivation in the world increased from about 804 million people in 2016 to nearly 821 million people in 2017.(FAO, The State of Food Security and Nutrition in the World, 2018, pp. xiii - xv)

3. Food Security in Algeria:

This section will be devoted to determining the reality of food security in Algeria by first touching on the Global Food Security Index, second the application of the World Food Security Index to Algeria.

3.1.The Global Food Security Index:

The Global Food Security Index was designed and established by the Economist Intelligence Unit, the research and analysis division of The Economist Group and a global leader in global business intelligence. Created in 1946, it has 70 years of experience helping companies, financial institutions and governments understand how the world is changing and how this creates opportunities to seize it and the risks that must be managed. It Provides business information, forecasting and advice for more than 1.5 million decision makers from the world's leading companies, financial institutions, governments and universities. This index was created through the policy exercise of the Economist Intelligence Unit.

The Global Food Security Index is consist of the three pillars of food security - affordability, availability, quality and safety - in 113 countries. This indicator is a quantitative and qualitative standard measure of performance measurement, created from 28 indicators, which provides an objective framework for assessing food security across a wide range of countries around the world. By creating a standard measure on food security, to enable users to explore issues surrounding food security - including ranking and results and to draw conclusions for policies, business processes and future research.

In addition to assessing food affordability, availability and quality, the model includes a category on natural resources and resilience. The category Natural Resources and Adaptability measures the country's vulnerability to climate change impacts; its vulnerability to natural

resource risks; and how a country adapts to these risks. When applied, they act as a modification of degrees of food security in countries.(Economist, 2018)

The following is an explanation of the dimensions of the indicator:

Affordability: measures the ability of consumers to purchase food and their exposure to price shocks and the existence of programs and policies to support customers when shocks occur.

Availability: measures the adequacy of the national food supply, the risk of interruption of supply, and the national capacity to deploy food and research efforts to expand agricultural production.

Quality and Safety: It measures the diversity and nutritional quality of average meals, as well as food safety.

Natural resources and resilience: measures a country's vulnerability to climate change impacts; its susceptibility to natural resource risks; and how a country adapts to these risks.(Economist, 2018)

3.2.Applicationof the World Food Security Index to Algeria:

According to the evaluation of the World Food Security Index for the year 2018, Algeria is ranked 69 out of 113 countries, and the value of the index is estimated: 52.1%. (The natural resources and resilience category do not contribute to the overall result.)

As for the sub indicators, the results for Algeria are as follows:

Affordability: Rank 69, Index 51.4%.

Availability: Rank 75, index 52.7%.

Quality and Safety: Rank 74, index 52.4%.

Natural resources and resilience: Rank 71, index 57.8%.

Table 3 summarizes Algeria's performance based on the degree of food security for 2018:

Table 3: Performance of Algeria based on their 2019 food security score

Global ranking	Overall score	affordability	availability	Quality and safety
69	52,1%	51,4%	52,7%	52,4%

Source:<https://foodsecurityindex.eiu.com/index>(Consulté le : 20/04/2019)

According to the index, we find in the first 9 places: Singapore (85,9), Ireland (85,5), United Kingdom (85), USA (85), Netherlands (84,7), Australia (83,7), Finland (83,3), Canada (83,2).

The index also provides an assessment of the performance of countries from 2012-2018, and Table 4 shows Algeria's performance during the 7 years:

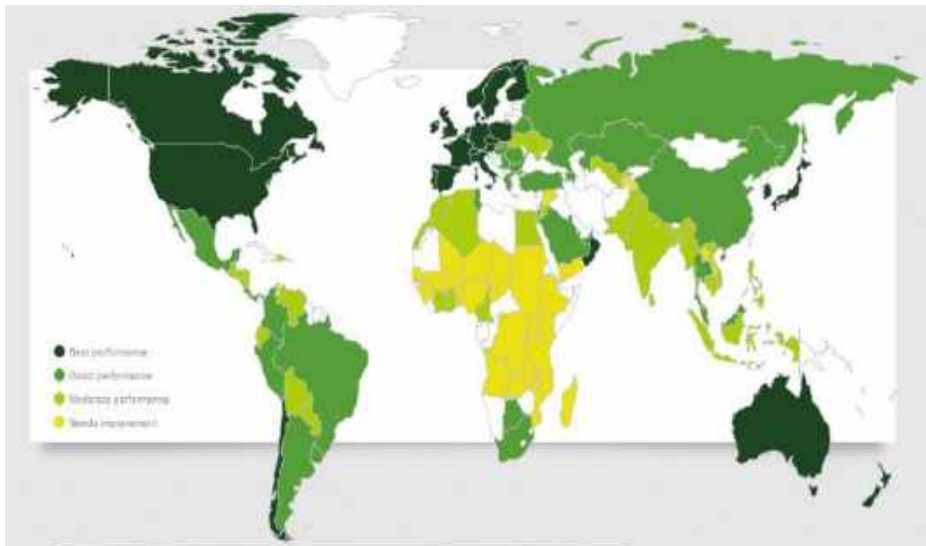
Table 4: Algeria's performance during the period 2012-2018

ranking	2012	2013	2014	2015	2016	2017	2018	7 years changed
69	49,6	49,7	52,6	54	55,1	52	52,1	+2,5
Change		0,1+	2,9+	1,4+	1,1+	3,1-	0,1+	+2,5

Source: <https://foodsecurityindex.eiu.com/index> (Consulté le : 20/04/2019)

Map 1 also shows the classification of countries according to the level of achieving food security:

Map 1: World Food Security Levels



Source : <https://foodsecurityindex.eiu.com/index> (Consulté le : 20/04/2019)

According to the World Food Security Index, countries are divided into 4 groups:

- 1- **Countries with the best performance**, which are shown on the map in dark green color.
- 2- **Countries with good performance**, which appear on the map in medium green color.
- 3- **Countries with moderate performance**, which appear on the map in light green.
- 4- **Low-performance countries**, which appear on the map in yellow.

We note from the map that Algeria appears in light green, that is, at the third level, and this means that the level of achieving food security in Algeria is not good, and it is far from the required levels.

3.3. Food security challenges in Algeria:

The main challenge facing the agricultural sector in Algeria is to achieve a significant increase in agricultural production in order to meet the growing demand for food and to ensure a higher level of food security for the population, Among the reasons that prevent this are the following:

- The weakness of Algerian agriculture and its structural inability to meet domestic demand;
- Resorting to imports to fill production shortages and ensure food security for the population, which caused the trade balance to fail, and the continued growth of foreign currency devoted to processing food bills;(Chabane, 2011, p. 200)
- fluctuations in the prices of the main food products and their negative effects on the importing countries and Algeria are among the countries that are highly dependent on covering the basic needs of the population for importing;(المتوسط، 2014، صفحة 10)
- Unfavorable agro-climatic conditions and the degradation of available agro-ecological resources;(Chabane, 2011)

- The scarcity, misuse and depletion of water resources due to the inefficiency of irrigation methods, which negatively affects agricultural production and food security;(للتخطيط، 2015، صفحة 13)
- Insufficient investment, especially in agricultural research, which does not exceed on average 0.6% of agricultural GDP. /جبارة، 2014 (صفحة 331، 2015)
- The absence of adequate governance structures to ensure institutional stability, transparency, accountability and the rule of law, which leads to ineffective decisions being made;
- Lack of coherence in policy development and prioritization of policies, plans, programs and financing.(العالمي، 2017)

4. Study Methodology :

In order to present the food security situation in Algeria, this study relied on a descriptive approach to explain the phenomenon and describe its characteristics in terms of theoretic (By describing food security, the legal framework for food security, its dimensions, food insecurity) and quantity (through the digital description of food security in Algeria using the World Food Security Index)

The global food security index was chosen because it considers the core issues of affordability, availability, and quality across a set of 113 countries. The index is a dynamic quantitative and qualitative benchmarking model, constructed from 34 indicators, that measures these drivers of food security across both developing and developed countries.

5. Study Results :

Through this study, a set of results was reached:

- Food security is a human right and is a constant in many international treaties ;

- The number of hungry and food insecure people in the world is increasing, In 2017, it reached nearly 821 million people;
- Algeria is one of the net food importers ;
- According to the assessment of the 2018 World Food Security Index, Algeria ranks 69 out of 113 countries ;
- Although the performance of food security in Algeria is constantly improving, it remains below the required level;
- Algerian agriculture is characterized by weakness and its structural inability to meet local demand;
- Lack of coherence in policy development and prioritization of policies, plans, programs and financing.

6. Conclusion:

The concept of food security emphasizes the necessity of all human beings at all times to have physical and economic access to adequate, safe and nutritious foods that meet their nutritional needs and suit their nutritional tastes for an active and healthy life. Many people in the world lack access to adequate quantities of safe and nutritious food due to wars, civil conflicts, natural disasters and climate change.

According to the Global Food Security Index, which provides a framework for assessing food security for countries around the world, levels of food security vary between a low level of performance and a better level of performance.

As for Algeria, it is considered one of the countries with an average level of food security, due to several reasons, including:

- the structural weakness of Algerian agriculture;
- Weak agricultural investment, especially in agricultural research;
- The absence of adequate governance structures, which leads to ineffective decisions being made;

- Lack of coherence in policy development and prioritization of policies, plans, programs and financing.

In order to ensure food security for individuals in Algeria, an appropriate policy framework with an integrated long-term vision must be developed, based on the available capabilities and restrictions imposed, and the policies established must be characterized by inclusiveness, differentiation, sustainability, and applicability, in addition to the need to have preconditions of consistency. Social, management system efficiency, and macroeconomic fundamentals integrity.

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Determinants of money supply in Algeria during the period 1987-2017

محددات عرض النقود في الجزائر خلال الفترة 1987-2017

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Abstract:

The Purpose of this study is to identify the determinants of money supply in Algeria during the period (1987-2017), and to reach this goal we used economic measurement through the model (ARDL) through which we were able to determine the relationship between the independent variables of the study (inflation rate, interest rate and exchange rate) We found that all the independent variables affect the money supply in Algeria during the period (1987-2017), that is, the monetary authority in Algeria must control these variables and benefit from their relationship with the money supply .

keyword: money supply ; inflation rate ; interest rate ; exchange rate ; Gross domestic product

JEL classification code : E51, C50

ملخص:

جاءت هذه الدراسة للتعرف على محددات عرض النقود في الجزائر خلال الفترة (1987-2017)، وللوصول إلى هذا الهدف استخدمنا القياس الاقتصادي من خلال نموذج (ARDL) استطعنا من خلاله التوصل إلى العلاقة بين المتغيرات المستقلة للدراسة (معدل التضخم وسعر الفائدة وسعر الصرف والنتاج المحلي الإجمالي) والمتغير التابع (العرض النقدي) ، فوجدنا أن كل المتغيرات المستقلة تؤثر في عرض النقود في الجزائر خلال الفترة (1987-2017)، أي أن على السلطة النقدية في الجزائر للتحكم في العرض النقدي مراقبة هذه المتغيرات والاستفادة من علاقتها مع العرض النقدي.

الكلمات المفتاحية : العرض النقدي ؛ معدل التضخم؛ سعر الفائدة ؛ سعر الصرف؛ الناتج المحلي الإجمالي

تصنيف JEL : E51 ، C50

1. Introduction :

The money supply is momentous thing for countries to achieve their goals, therefore Algeria has laid down its objectives that achieve monetary stability and attached great importance to regulating the issuance of money supply in line with its macroeconomic objectives such as economic growth, which results in several positive results such as realizing the welfare of the population of the community and get rid of the problem of Unemployment. It also helps in bringing the value of the dinar to its real level and many other positives that any country dreams of owning, which made us go into this study so as to deepen further and try to identify the most important macro economic variables that affect the money supply in the world.

Through the above we can ask the following question:

• **What are the determinants of money supply in Algeria during the period (1987 - 2017)?**

Hypotheses: To answer the main question, we formulated the following hypothesis:

The determinants of money supply in Algeria during the study period are; Inflation, Gross domestic product, Interest rate, Exchange rate,

Research Objectives: This study aims to achieve several objectives, including:

1. Analysis of the evolution of money supply in Algeria
2. Analysis of the relationship between macroeconomic variables and money supply and knowledge of the variables that affect money supply in Algeria during the study period.

Previous studies:

(He, 2017), In this study, the researcher spell out the importance of money supply for macroeconomic variables, namely real gross domestic product, inflation rate and interest rate, during the period 2000-2016 using the variant self-regression (var) in China, and concluded that increasing real gross domestic product will increase the money supply and the same is true for the inflation rate. As for the interest rate, its increase will lead to a decrease in the money supply, so by adjusting these variables, the money supply can be better controlled.

(Ebiringa, 2012) In this study, the researcher explains the effect of the interest index on money supply during the period (1990-2007) .It aims to ensure stability in money supply through the sustainable management of interest rate. The results showed that the minimum discount rate and the savings rate had a very positive effect on money supply. On the other hand, the interest rate had little negative impact on money supply

(Augustine, Suleiman, & Philips, 2018)The study showed the determinants of money supply in Nigeria during the period 1981-2015, and used five independent variables, CPI, GDP, interest rate, exchange rate and foreign direct investment, using the ARDL approach; the result showed a long-term relationship between the variables under study, the money supply is determined internally

(Naveed & D.K, 2016).This study aimed to examine the determinants of money supply in India. The paper assesses in detail the main determinants of the cash supply and how the nature of the determinants has changed during the time period of the study, the paper found the two major determinants one is proximate and the other is policy oriented, however latter one has upper hand in determining the money supply. The most important point out here comes that the nature and composition of both the determinants have changed, and these must have implication from policy perspective

2. Study Methodology And data:

1.2. Methodology:

We used the auto regressive distributed lag approach (ARDL) in this study so as to answer the problem presented about the determinants of the money supply during the period (1987-2017).

2.1.1An ARDL Approach:

It is used in determining the long run relationship between series with different order of integration (Pesaran and Shin, 1999, and Pesaran et al. 2001). The reparameterized result gives the short-run dynamics and long run relationship of the considered variables (Nkoro & Uko, 2016, p. 68). This method has definite advantages in contrast to other cointegration procedures since it can be used regardless of whether the underlying variables are I(0), I(1) or fractionally integrated. Therefore, the bounds test excludes the uncertainty associated with pre-testing the order of integration. Secondly, it can be used in small sample sizes, whereas the Engle–Granger and the Johansen procedures are not

reliable for relatively small samples. Taking into account that our sample size is limited with a total of 38 observations only, conducting bounds test will be appropriate. (Ali, 2017, p. 10)

2.1.2. Variables of Study:

Dependence in the proposed model on macroeconomic variables that have an impact on money supply in Algeria during the period between (1987-2017). As well as it branched between dependent variable and independent variables:

2.1.2.1. The dependent variable (internal variable):

money supply, represented by the expanded mass of money as a percentage of GDP, symbolized by M2, a measure of the volume of money circulating in society and the banking system.

2.1.2.2. Independent variables (external variables):

In this model, we used four independent variables:

- **Inflation:** symbolized by (Inf), inflation is a persistent and appreciable rise in the general level of prices (Bayo, 2011, p.262), and which is one of the most important variables that affect monetary policy, which in turn determines the money supply. It is linked to a direct relationship with money supply.

- **Exchange rate against the US dollar:** symbolized by (Ex) The exchange rate is very important in determining the money supply, because it belongs to monetary policy of the Central Bank, it depends on foreign currencies in exchange for the issuance of money, so an increase or decrease in the price of a currency greatly affects the size of the money supply, especially that money supply is directly correlated with the exchange rate.

- **Interest rate on loans:** symbolized by (r), The interest rate is one of the determinants of money and financial asset flows among actors in the market (Timini., 2014, p49), it is considered an important variable and major because it affects the money supply as a result of monetary policy, used by the monetary authority as a means of controlling the amount of money offered, and has an inverse relationship to money supply.

- **Gross domestic product:** symbolized by (gdp) as an important indicator in the impact on the economic level, (Onuoha, Ibe, Njoku, & Onuoha, 2015) because it affects and is affected by money supply through monetary policy and is associated with it a

direct relationship so that any increase gdp would lead to an increase in money supply.

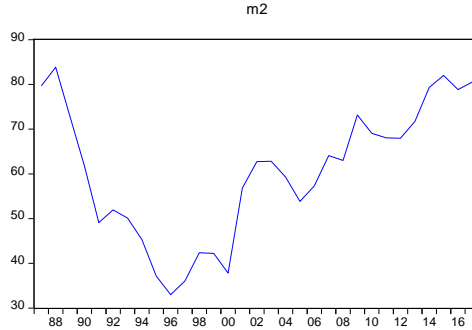
2.2 Data:

This study use annual time series covering the period from 1980 to 2017. The data and statistics were obtained from the World Bank statistics and data, the evolution of these variables during the study period as follows:

2.2.1 The evolution of money supply as a percentage of GDP during the period 1987-2017:

We note through the figure the continuous decline of money supply from 1987 to 1997, and this is due to the low liquidity of the economy as a result of the credit agreement signed with the International Monetary Fund, where the liquidity of the economy has been significantly reduced as a result of Algeria's austerity policy by locking up the wages of workers, reducing the value of the dinar and reducing the budget deficit. In addition, the strict policy through banking reforms and raising the interest rate on deposits allowed the adjustment of the structure of the monetary mass and slowing the growth of the money supply (M2). Therefore, this led to a decrease in the money supply ratio in relation to the GDP, from more than 80% to less than 40%, and this indicates a contraction in the Algerian economy. The money supply M2 returned to growth again in 1998 and thereafter due to the improvement in oil prices, which led to an increase in exchange reserves in addition to the launch of development programs known to Algeria at the turn of the millennium, as well as the increase in the value of net foreign assets and deposits of the National Hydrocarbons Company which benefited at the end of 2017 from paying part of its dues by the Treasury, which led to an increase in the money supply ratio of GDP from less than 40% to more than 70%, indicating the recovery of the Algerian economy and its gradual tendency to balance.

Fig.1 :Evolution of Money Supply M2 as a percentage of GDP 1987-2017.

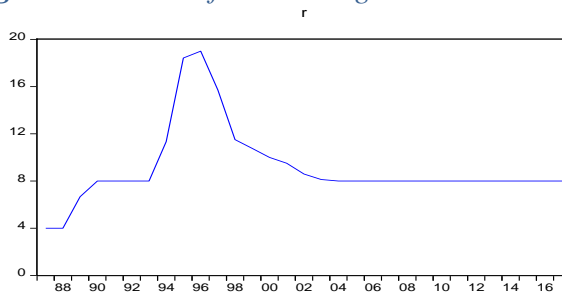


Source: Software Outputs 10 Eviews.

2.2.2. The evolution of the interest rate on lending 1987-2017:

The figure below shows the evolution of the interest rate during the period 1987-2017, where from 1987 to 1989 was characterized by a slight rise, and then increased significantly from 1990 to reach the highest rate in 1996 estimated 19 %, and this increase is due to several reasons, one of these reasons is giving the savings the best compensation for the purpose of moving and directing it towards the financing of investments, and from 1998 to 2003 we note the gradual decline where the interest rate on lending moved from 10% to 8%, which embodies the law of private investment development in 2001. From 2004 to the present, interest rates on loans have been stable, and they were 8% during this period, this is due to the stabilization of the monetary situation of Algeria as a prerequisite for the growth of private investment.

Fig.2 : Evolution of the lending rate 1987-2017



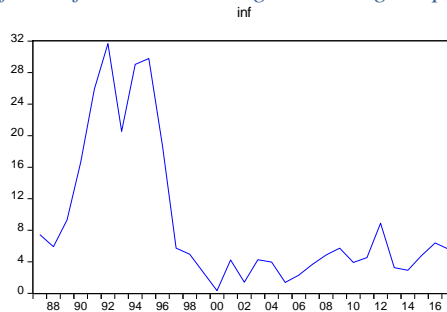
Source: Software Outputs 10 Eviews.

2.2.3. The evolution of the inflation rate in Algeria during the period 1987-2017:

The inflation rate in 1986 recorded a remarkable rise of 12.30% due to the oil crisis that led to the collapse of oil prices, and then returned to decline in the following years, reaching 7.4% in 1987 and Inflation rate reached 5.9% in 1988. The rate of inflation increased during the nineties, reaching its maximum at the end of 1992 by 31.6%. This is due, among other things, to the measures taken by the monetary authorities under the first and second credit readiness program. At the beginning of this period the national currency devaluation led to the growth of the inflation, in addition to the high cost of imports and the cost of servicing foreign debts, resulted in an increase in the budget deficit. This deficit was financed through cash issuance, which led to high inflation, as it is the case during 1994 and 1995, but it is less high. During the period (1996-2000), inflation rates have decreased significantly compared to previous years. This is due to several reasons, including the management of the government in the face of inflation based on the structural adjustment program, in addition to the decline in the level of aggregate demand due to the increase in unemployment rates, which reached 25.4% in 1997, in addition to the adoption of market mechanisms and price liberalization. Furthermore, the authorities resorted to indirect instruments that explain the increase in interest rates starting in 1993, in addition to the imposition of a mandatory reserve applied to the total deposits in the national currency of any nature. After 2001 and until 2007, we note the stabilization of inflation rates in Algeria due to the tight application. The inflation rate rose to the highest rate since 2000 to reach 4.8% and 5.7% in 2008 and 2009 compared to the target inflation rate of 3%. This is due to the increase in imported inflation, especially in the emerging countries due to the high prices of basic materials, and energy products in various places over the world. However, this rate declined in the following years thanks to the intervention of the State in regulating and strengthening prices to reach 3.9% in 2010 and 4.5% in 2011, and then the inflation rate peaked in 2012 to reach 8.8%, a rate not previously recorded, This historical peak is mainly due to the increase in the prices of some fresh products in the first quarter of 2012. In order to reduce the inflationary pressures that have emerged since 2011, especially related to the world prices of basic products, the public authorities have taken

appropriate support measures that have had a total impact on 2011 and 2012 at approximately 10 %. However, in the years that followed, the inflation rate declined as the government managed to contain inflation. The budget deficit and the depreciation of the national currency led to an increase in the inflation rate in 2015, which reached 4.8%, and with the entry into force of the Finance Act 2016, it included significant increases in some Consumer goods. Most importantly, the fuel that reflected on the prices of goods and services to the inflation rate in 2016 reached 6.4%, then the average annual pace of growth of the CPI in 2017 slowed down to 5.6% for the Greater Algeria Index and 5.9% for the National Index which is considered high and the reason for its rise is the rise in food prices.

Fig.3 : Evolution of the inflation rate in Algeria during the period 1987-2017.



Source: Software Outputs 10 Eveiws.

2.2.4. Development of the exchange rate against the US dollar in Algeria during the period (1987-2017).

The period (1987-1992) made minor adjustments in the method of calculating the exchange rate of the dinar based on the measurements taken by the monetary authorities in order to devalue the national currency, where the rate of exchange of dinar from 4.84 dinars to the dollar in 1987 to 8.95 in 1990 to become this reduction Officially, starting in 1991, this is in parallel with the issuance of the structural adjustment program supported by the International Monetary Fund, which carried strict procedures to manage the levels of deterioration in the value of the dinar.

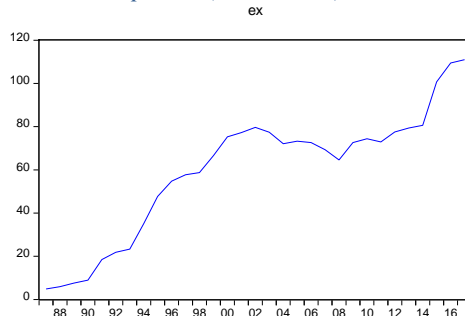
During the period (1992-1994), the government introduced a new economic program and retreated significantly from previous reforms and gave another direction to economic policy. This approach is concerned with the establishment of a double exchange market, one

part of which operates at a fixed exchange rate and the other part operates under a floated and controlled exchange system. The exchange rate was stable at the level of 22.5 dinars against the dollar until the month of April 1994, where an agreement was concluded with the International Monetary Fund, which reduced the value of the dinar by 40.17% to reach the level of 36 dinars per dollar, a decision approved by the Monetary and Loan Law on 10 April 1994 Exchange at this point that was considered transitional to achieve the convertibility of the dinar for current transactions gradually and based on the availability of the terms of the balance of the foreign exchange market.

During the period (1995-2004), the exchange rate of the Algerian dinar witnessed a significant decline from 1\$, equivalent to 40 Algerian dinars, to 1\$, equivalent to 75.25 Algerian dinars in 2000, due to a series of reductions made during the 1990s. In 2003, the Central Bank has reduced the value of the dinar by between 2% and 5%, with the aim of limiting the development of the money supply circulating in the parallel market. During the period (2005-2014), the exchange rate continued to fluctuate and the value of the Algerian dinar collapsed by more than 10%.

During the period (2011-2017) the value of the dinar decline against the US dollar, and this decline intensified during 2015 and this in the wake of the shock of the collapse of oil prices that characterized in 2014, where the value of the dinar fell by 20% against the dollar, and during the first six-month 2016 fell by 3.2, and beginning with the third triple of 2016, the exchange rate of the dinar against the dollar was known to be stable around 110 dinar per dollar, and there were decreases in the exchange rate against the dollar in the second half of 2017 by 6.02%.

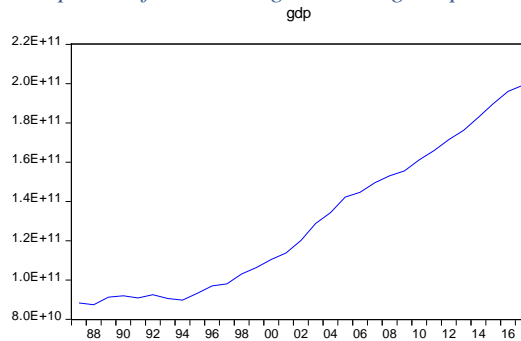
Fig.4 : The evolution of the exchange rate against the US dollar in Algeria during the period (1987-2017).



2.2.5. Development of Gross Domestic Product in Algeria during the Period 1987-2017.

We note from the figure that the evolution of gross domestic product GDP is fluctuating, especially in the mid-eighties, a significant decline due to the gradual decline in oil prices in the world market and followed by the collapse of oil prices in 1986, which actually revealed the fragility of the Algerian economy as a rentier economy linked performance significantly with the fluctuations in oil prices, GDP also recorded low levels during the period 1993-1997, accompanied by a large rise in unemployment rates, the reason for this decline is due to the adoption of Algeria's economic reforms with the international monetary and financial institutions in order to prepare the ground for the process of changing the trend as a result of the structural adjustment program, starting from 2001, the (GDP) improved significantly due to the state intervention as a result of previous conditions to stimulate economic growth through the adoption of economic recovery programs based on strengthening the basic structures and means of communication. In addition to the high oil prices, all these factors helped in the rise of GDP.

Fig.5 : The Development of GDP in Algeria during the period 1987-2017.



Source: Software Outputs 10 Eviews.

3. Study Results:

3.1. Assessment and Analysis of the Study Model

3.1.1. Time series stability test:

This test aims to avoid the problem of false correlation between independent and dependent variables caused by time series instability in the estimation of the standard model. It is used the extended Dickey-Fuller test to study the stability of these series and determine their

degree of integration, and with (Eviews 10), we performed ADF tests on all series (results are shown in Table 1), and note in Table 1 that the exchange rate (Ex), money supply (M2) and interest rate (R) are stable chains in level I (0) which contains the root of the unit, where the differences and probability values are less than 0.01 in the formula (The existing of the constant and the general trend), when the first difference is taken I (1), the rest of the series, inflation (inf) and GDP (gdp) are type I (1), it contains the root of the unit and become stable when the first difference is taken, the probability value Less than 0.01 in all cases, which means rejecting the null hypothesis and accepting the alternative hypothesis (the static time series).

Since chains contain a combination of I (0) and I (1), the appropriate way to study long-term equilibrium relationships is the ARDL approach.

Table 1 : Unit root tests for stability

UNIT ROOT TEST RESULTS TABLE (ADF)						
At Level						
		EX	GDP	INF	M2	R
With Constant	t-Statistic	-1.1185	3.4530	-1.5448	-1.1997	-1.7325
	Prob.	0.6947	1.0000	0.4967	0.6613	0.4047
		n0	n0	n0	n0	n0
With Constant & Trend	t-Statistic	-4.4652	-2.3187	-2.0600	-3.7496	-5.8296
	Prob.	0.0086	0.4118	0.5461	0.0347	0.0004
		***	n0	n0	**	***
Without Constant & Trend	t-Statistic	1.2514	9.3965	-1.1437	-0.2600	-0.3916
	Prob.	0.9425	1.0000	0.2239	0.5840	0.5337
		n0	n0	n0	n0	n0
At First Difference						
		d(EX)	d(GDP)	d(INF)	d(M2)	d(R)
With Constant	t-Statistic	-3.8382	-3.3001	-4.6214	-4.1665	-4.7578
	Prob.	0.0068	0.0242	0.0009	0.0030	0.0007
		***	**	***	***	***
With Constant & Trend	t-Statistic	-3.7809	-4.0976	-3.7241	-4.8195	-4.7130
	Prob.	0.0324	0.0162	0.0372	0.0030	0.0041
		**	**	**	***	***
Without Constant & Trend	t-Statistic	-3.0224	-0.7107	-4.7062	-4.2420	-2.1278
	Prob.	0.0038	0.3998	0.0000	0.0001	0.0345
		***	n0	***	***	**

Source: Software Outputs 10 Eviews.

3.1.2 Testing the appropriate gaps of the model:

One of the most commonly used methods for testing the appropriate gap is to use information functions, of which SIC and AIC are used. According to this case and through Figure 06, the appropriate model is ARDL (2,3,0,4,4), based on the AIC standard, this means that the dependent variable has four degrees of delay, similar to inflation and money supply M2, while economic growth has had a different estimate of 3 degrees.

The model takes the following formula (1):

$$\Delta M2_t = c + \sum_{i=1}^2 \beta_{1i} \Delta M2_{t-1} + \sum_{i=1}^3 \beta_{2i} \Delta r_{t-1} + \sum_{i=1}^0 \beta_{2i} \Delta INF_{t-1} + \sum_{i=1}^4 \beta_{3i} \Delta EX_{t-1} + \sum_{i=1}^4 \beta_{4i} \Delta GDP_{t-1} + \alpha_1 M2_{t-1} + \alpha_2 r_{t-1} + \alpha_3 INF_{t-1} + \alpha_4 EX_{t-1} + \alpha_5 GDP_{t-1} + \varepsilon_t$$

Where:

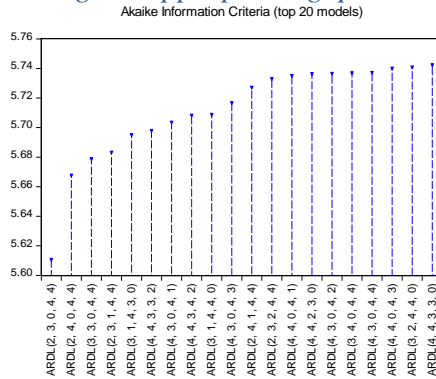
Δ : shows first order differences, c: fixed term, t:direction of time, ε_t : random error limit, ($\beta_1, \beta_2, \beta_3, \beta_4, \beta_5$) : short-term relationship coefficients (Error correction), ($\alpha_1, \alpha_2, \alpha_3, \alpha_4, \alpha_5$):long-term relationship coefficients.

The zero and alternative hypothesis in the ARDL approach in equation (1) is:

$$H0: \alpha_1 = \alpha_2 = \alpha_3 = \alpha_4 = \alpha_5 = 0$$

$$H1: \alpha_1 \neq \alpha_2 \neq \alpha_3 \neq \alpha_4 \neq \alpha_5 \neq 0$$

Fig.6 : The Testing the appropriate gaps in the study model



Source: Software Outputs 10 Eviews.

3.1.3.Simultaneous Integration Test:

Simultaneous Integration Testing is done by Fisher's test on the variables representing the long-term equilibrium relationship at the level, but the critical values do not follow the standard distributions and therefore are compared with the critical values of “Pesaran *at al.* (2001)”, and this methodology does not require that the variables be stable in the same degree but can be applied to variables of different degrees. Critical values in the F test do not follow standard critical values and are compared with upper and lower limits, and if the calculated value exceeds the upper limit, the variables have a long-term

equilibrium relationship, and if the calculated value is less than the minimum, the variables do not have a long-term equilibrium relationship. Table 2 shows that the calculated value $F = 7.61$ exceed the highest value of 4.37, which indicates a long-term integral relationship between the independent and dependent variables. The table shows that the interest rate, the inflation rate, the exchange rate and the GDP have a significant effect in the long term on the money supply in Algeria, where the significance ratios respectively are 0.0008, 0.0657, 0.0778, 0.0193, and with order.

Table 2: Simultaneous integration test in accordance with ARDL methodology.

Levels Equation				
Case 2: Restricted Constant and No Trend				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
R	-2.649984	0.540370	-4.904017	0.0008
INF	0.655753	0.313088	2.094467	0.0657
EX	0.375312	0.188583	1.990175	0.0778
GDP	1.70E-10	5.97E-11	2.844362	0.0193
C	35.67954	10.76027	3.315858	0.0090
EC = M2 - (-2.6500*R + 0.6558*INF + 0.3753*EX + 0.0000*GDP+ 35.6795)				
F-Bounds Test		Null Hypothesis: No levels relationship		
Test Statistic	Value	Signif.	I(0)	I(1)
F-statistic	7.610481	10%	Asymptotic: n=1000	
			2.2	3.09
K	4	5%	2.56	3.49
			2.88	3.87
			3.29	4.37
Actual Sample Size	27	1%	Finite Sample: n=35	
			2.46	3.46
			2.947	4.088
			4.093	5.532
			Finite Sample: n=30	
			2.525	3.56
3.058	4.223			
		1%	4.28	5.84

Source: Software Outputs 10 Eveiws.

The ARDL test indicates that there is a significant long-term relationship and the expression of this relationship along with the short-term relationship is shown in Table (9), where it shows that the speed

of adjustment towards equilibrium in the presence of imbalances from this level in the short term is estimated at 131.59% (this As shown by the error correction coefficient with a negative signal), a higher-than-average ratio shows that about 131% of the imbalances occurring at the equilibrium level are corrected during the previous period and are not present in all variables except inflation. This indicates that inflation does not affect money supply in the short term; the remaining variables affect the money supply in the short term.

This corresponds to reality. Many phenomena do not respond immediately to their determinants but are the result of historical accumulations, which made the coefficient of determination very sufficient to explain the model by more than 89%.

Table 3: ARDL error correction model.

ARDL Error Correction Regression Dependent Variable: D(M2)
 Selected Model: ARDL(2, 3, 0, 4, 4) Case 2: Restricted Constant and No Trend
 Date: 05/22/19 Time: 13:44 Sample: 1987 2017
 Included observations: 27

ECM Regression Case 2: Restricted Constant and No Trend				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(M2(-1))	0.410642	0.117564	3.492918	0.0068
D(R)	-2.716507	0.516721	-5.257204	0.0005
D(R(-1))	-0.821620	0.634438	-1.295037	0.2275
D(R(-2))	2.765393	0.566663	4.880138	0.0009
D(EX)	0.481861	0.129394	3.723985	0.0047
D(EX(-1))	-0.390818	0.122530	-3.189577	0.0110
D(EX(-2))	0.003641	0.122068	0.029824	0.9769
D(EX(-3))	-0.695424	0.185128	-3.756451	0.0045
D(GDP_1)	9.34E-10	3.61E-10	2.590704	0.0292
D(GDP_1(-1))	-1.28E-10	3.11E-10	-0.412954	0.6893
D(GDP_1(-2))	-1.23E-09	3.18E-10	-3.850764	0.0039
D(GDP_1(-3))	-8.42E-10	3.92E-10	-2.151352	0.0599
CointEq(-1)*	-1.315965	0.156142	-8.427998	0.0000
R-squared	0.890977	Mean dependent var		0.694851
Adjusted R-squared	0.797530	S.D. dependent var		6.339028
S.E. of regression	2.852354	Akaike info criterion		5.240350
Sum squared resid	113.9029	Schwarz criterion		5.864271
Log likelihood	-57.74472	Hannan-Quinn criter.		5.425874
Durbin-Watson stat	1.978343			

Source: Software Outputs 10 Eviews.

In terms of economic analysis, the results showed that the money supply in Algeria is inversely affected by the interest rate and directly with the exchange rate, GDP and inflation. This corresponds to the economic theories that state that:

- If the inflation rate is high, this indicates that there is an increase in the money supply in the Algerian economy, and when the increase of money supply because of the increasing of exchange rate, consequently the money supply is going up. Moreover, the increase of economic growth rates (there is prosperity) it will lead to increase the lending, and the result is the money supply is going up. On the contrary, the increase of the interest rates will lead to the absorption of liquidity in the economy in search of the return of the interest rate and thus decrease money supply.

3.2. Diagnosis of residues

3.2.1. Sequential correlation of residues and variance of variance: The problem of correlation of residues across time gaps and variance of errors varies on the efficiency of the parameters, ie, they do not have less variance than all estimated parameters available, which affects the testing of the hypotheses of this model. The most important tests to find out the problem are respectively (Breusch-Godfrey and ARCH), which can be summarized in Tables 4 and 5. These tables show that the model is free of the problem of sequential correlation of residues and also of the problem of difference of variance, which is confirmed by the probability values of the Fisher test respectively (0.2304 and 0.1510), which exceeds the level of significance 5%, which leads to the rejection of the null hypothesis (with Sequence correlation and variance instability), and therefore the estimated parameters are efficient which

gives reliable results in relation to hypothesis testing.

Table 4: Sequential correlation test for residues Table 5: Contrast variation test

Breusch-Godfrey Serial Correlation LM Test:			
F-statistic	1.823742	Prob. F(2,7)	0.2304
Obs*R-squared	9.249328	Prob. Chi-Square(2)	0.0098

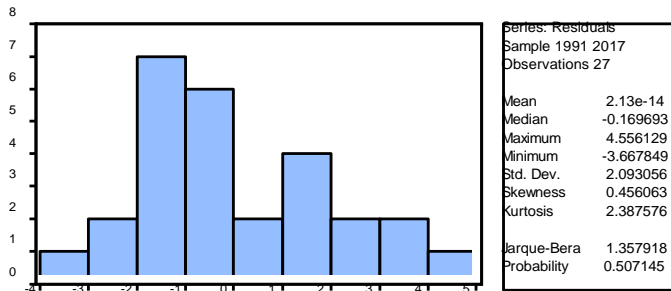
Heteroskedasticity Test: ARCH			
F-statistic	2.200367	Prob. F(1,24)	0.1510
Obs*R-squared	2.183539	Prob. Chi-Square(1)	0.1395

Source: Software Outputs 10 Eviews

3.2.1. Residual distribution test:

To clarify that residues are distributed naturally, the probability value of Jarque-bera test is (0,0507145) which is greater than (0.05) and therefore it is distributed naturally as shown in the following figure:

Fig7: Residual distribution test



Source: Software

Outputs 10 Eveiws

3.2.2. Model Stability Test:

In order to ascertain that there are no structural imbalances in the data used, especially the long-term and short-term relationship parameters during the duration used in the ARDL estimation we use the residual cumulative sum test and the residual cumulative sum test for residual squares.

We can see from Figures 8 and 9 that the repeated cumulative residual sum CUSUM for this model is a median line located within the critical limits indicating the stability of the model at the 5% significant limits, and the cumulative total return to the residual squares is also a median line located within the boundaries of the region Critical, and what can be deduced is that there is stability and harmony in the model between the long and short term results.

Through our analysis of the model we conclude that it is economically and statistically acceptable, and that the macroeconomic determinants of performance in the Amman Stock Exchange during the study period are primarily inflation and less money supply (M2).

Fig 8: Cumulative residual cumulative test

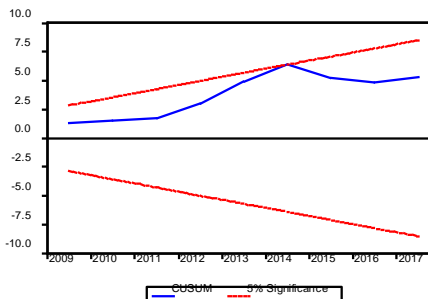
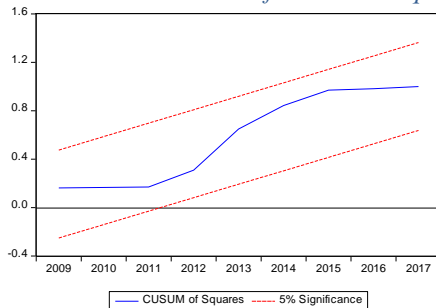


Fig 9: Recurring cumulative sum test for residual squares



Source: Software Outputs 10 Eviews

4. Conclusion :

The Study has reached the following results:

- The development of money supply in Algeria has gone through several stages as a result of the economic conditions experienced by it. 2008 as a result of the international financial crisis and after 2010 was characterized by fluctuation and this is due to a change in oil prices or policy pursued by the monetary authority.
- It was also found that the influential study variables have a statistical significance in their past and present times.
- The main determinant of money supply in Algeria during the study period is interest rates.
- From the coefficient of determination, it was found that the independent variables accounted for more than 89% of the changes in money supply in the study period.
- Through the ARDL methodology, the rate of inflation, interest rate, exchange rate and GDP have a significant effect in the long term on the money supply in Algeria, and therefore it is one of its determinants.

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strategic flexibility and competitive advantage (Case Study of (Al Baskaria Cement company

المرونة الاستراتيجية والميزة التنافسية (دراسة حالة مؤسسة البسكرة للأسمنت)

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Abstract:

In this study, it has been studied to determine the relationship between strategic flexibility in its dimensions (production flexibility, competitive flexibility, and resources flexibility) and competitive advantage of the company , In this context a field study has been conducted in al baskaria cement company using a questionnaire distributed to a convenience sample of 40 employees.

As a result of the study it has been determined that; there is statistically significant relationship between strategic flexibility in its dimensions and competitive advantage for the company under study.

keyword: strategic flexibility; product flexibility; competitive flexibility; resources flexibility; competitive advantage.

JEL classification code : M1 ,M2 ,L1.

ملخص:

هدفت الدراسة الى تحديد العلاقة بين المرونة الاستراتيجية بأبعادها (المرونة السوقية، المرونة التنافسية، ومرونة الموارد) والميزة التنافسية للمؤسسة، وفي هذا السياق اجريت دراسة ميدانية في مؤسسة البسكرة للأسمنت، باستخدام استبيان تم توزيعه على عينة ميسرة مكونة من 40 اطارا بالمؤسسة.

وتوصلت النتائج لوجود علاقة ارتباط ذات دلالة احصائية للمرونة الاستراتيجية بأبعادها والميزة التنافسية للمؤسسة محل الدراسة.

الكلمات المفتاحية : المرونة الاستراتيجية ؛ المرونة الانتاجية ؛ المرونة التنافسية ؛ مرونة الموارد ؛ الميزة التنافسية.

تصنيف JEL : M1 , M2 , L1 .

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1. Introduction :

The business environment is currently characterized by high uncertainty and constant change, in addition to the intensification of competition and the diversity of its forms. In these circumstances, the continuity of the company survival depends on the acquisition of competitive advantages and their ability to respond to the trends of the environment and the movements of competitors. The presence of the company for a long time in the market does not mean that it will continue, Young companies cannot compete and gain market share. Some company may remain in control of certain sectors, while companies may easily fade despite their competitive weight in a particular sector.

The strategic management literature has shown that the survival and sustainability of companies depends on the extent of their adoption of modern administrative methods and the new scientific entrances that enable them to achieve this. Strategic flexibility is one of the strategic approaches to adapting to environmental developments and developments and responding quickly to competitors' movements. It may even be adopted as a dynamic organizational capacity and a tendency that can be used to build proactive strategies, depending on the resources of the companies and the availability of appropriate regulatory conditions.

The cement industry in Algeria is considered one of the most important industries which have known many transformations in its structure and variety of companies active in terms of size, strategies and enterprise, and Al Baskaria is considered one of the most active companies in this industry which is facing intense competition. However, it has been able to achieve a competitive advantage.

1.1 Main question

the paper tries to answer the following problem:

How does strategic flexibility contribute to achieve competitive advantage of Al Baskaria Cement company?

1.2 Sub-questions

- How does product flexibility contribute to achieve competitive advantage of Al Baskaria Cement company?
- How does competitive flexibility contribute to achieve competitive advantage of Al Baskaria Cement company?

- How does resources flexibility contribute to achieve competitive advantage of Al Baskaria Cement company?

1.3 Research hypotheses

- There is no statistically significant relationship between strategic flexibility and competitive advantage for al baskaria Cement Company.
- There is no statistically significant relationship between the productive flexibility and competitive advantage for al baskaria cement company.
- There is no statistically significant relationship between competitive flexibility and competitive advantage for al baskaria cement company.
- There is no statistically significant relationship between resource flexibility and competitive advantage for al baskaria Cement Company.

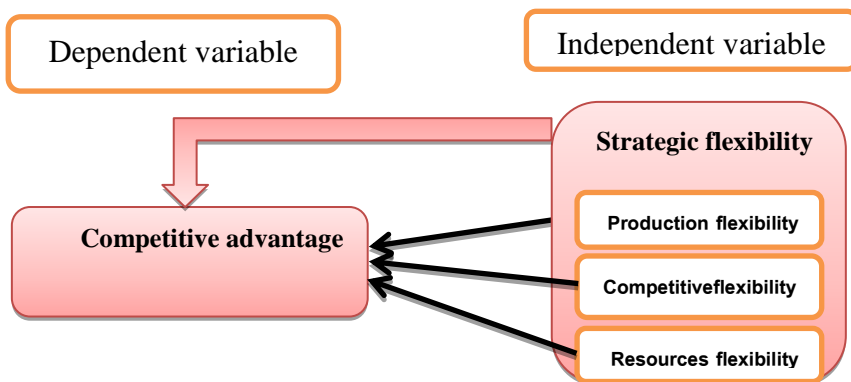
1.4 Research objectives

The aim of the study is to try to determine the role of strategic flexibility in achieving the competitive advantage of the company under study, and how to adopt it as an input to achieve this.

1.5 Research model

Based on the above, in the light of the issue of research and the questions of the study and its objectives, and after reviewing the literature of the study and related research, we developed the study model, which consisted of two variables as shown in the figure below:

Fig.1: research model



Source :Prepared by researchers

2. Conceptual framing of the study:

2.1 Strategic flexibility:

Strategic flexibility is one of the requirements of modern strategic thinking to confront uncertainty and change in the environment of the company's activity. It enables the company to shift from one strategy to another, especially in light of the intensification of the institution and the diversity of its forms. The concept of strategic flexibility was defined as other qualitative concepts after the 1970s across three time periods (abddaoui, 2017, p. 73):

' 1970s era:

Flexibility in this era was described as a method of strategic maneuvering, reflecting the degree to which the strategic behavior of company is manifested, and expressed as an adaptation characteristic that indicates the enterprise 's ability to respond to unexpected changes.

'1980s era:

In which the competitive element is the key assumption for achieving a competitive advantage. Hence, strategic flexibility is linked to the ability of companies to restructure themselves internally and to restructure their relationships with the external environment, including competition mechanisms.

'1990s era until now:

By this era, it was emphasized that strategic flexibility was similar to the concept of capacity and resources, therefore the strategic thinking seeks the best use of human resources and reconsider the relationship between the company and the environment, so that it works to influence its business environment through its innovative behavior, resources and capabilities. However, flexibility as a concept only refers to the enterprise 's ability to adapt, and rapid response to changes in the external environment and reflected in the methods adopted by companies in order to achieve strategic flexibility (Sullaimi & jribi, 2015, p. 85), Flexibility is defined as "the ability of an company to influence and be affected rapidly by changes in competition conditions and thus to develop and maintain a competitive advantage" (Hit.m ,et al, 1998, p. 23), and it was also defined as "the use by the company of the resources and capacities available to it effectively to respond to or adapt in a timely manner to environmental changes through the process of continuous learning (Lim,bensen T.H, et al, 2011, p. 49), Strategic

flexibility is also a feature that enables modern companies to prepare for unpredictable changes in their business environment, and defined as "the extent of adoption and consideration of alternatives in strategic decisions (Combe I.A & Greenley G.E, 2004, p. 14), and researchers consider it as "the strategic choice that enables the company to respond effectively to the changing situations in the environment in which it operates in order to achieve and maintain the competitive advantage" (Al yasiri ,et al, 2015, p. 38)), reflects the enterprise's ability to shift from one strategy to another (Al-najjar, et al, 2008, p. 64), Table 1 presents the views of a number of researchers on the definition of strategic flexibility :

Table 1: Highlights of strategic flexibility

<i>researcher</i>	<i>Definition</i>
<i>Hitm, et al (1998)</i>	The ability of the company to be affected and impact quickly for changes the conditions of competition and then develop and maintain a
<i>Combe I. A (2004)</i>	The extent of adoption and consideration of alternatives in strategic decisions.
<i>Faiz Al-Najar, Faleh Al-Houri (2008)</i>	The ability of the company to shift from strategy to another, especially in case of increasing uncertainty in changing environmental conditions.
<i>Lim,BensonT.H et al (2011)</i>	The enterprise's use of the resources and capacities available to it is an effective form of timely response or adaptation to environmental changes through the process of continuous learning.
<i>Joannaradomska (2011)</i>	A feature that enables modern companies to prepare for variables that are largely unpredictable in their business environment
<i>Akram Mohsin Al-Yasiri et al (2016)</i>	Is a strategic choice that enables the company to respond effectively to the changing situations in the environment in which it operates, thereby helping to achieve and maintain the advantage

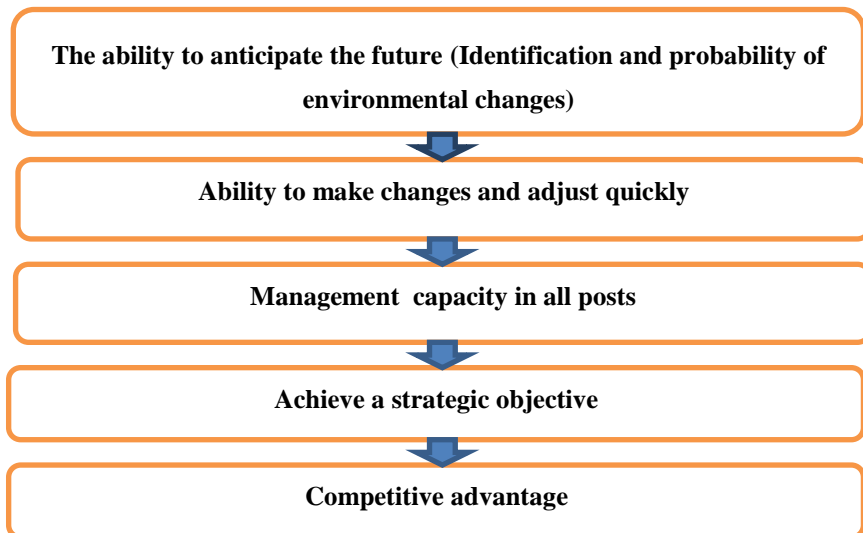
*Bock A. J
.opsahl et al
(2017)*

An advance ability of the enterprise's founders to quickly reallocate and restructure resources, processes and structures in response to external change.

Source: Prepared by researchers based on references approved in the study.

Note through the table and confirmation of the above, although the approaches adopted by the researchers differed in defining the definition of strategic flexibility, most of them considered it a concept that indicates the enterprise's ability to adapt to and respond rapidly to environment variables. From this, strategic flexibility can be defined as the company ownership of management capabilities that enable them to respond quickly to environmental changes and adapt to them and gain competitive advantage and maintain them in the business environment. The dimensions and components of the definition can be illustrated in the following figure:

Fig.2 : Components of the definition of strategic flexibility



Source: Prepared by researchers

In today's business world, businesses have realized that the importance of strategic flexibility stems from being an input that can deliver the right thing at the right time and in a good way. It helps to respond quickly to strategic moves by competitors, and we can

determine the importance of strategic flexibility based on what some scholars and writers have pointed out:

-Strategic flexibility is a condition for increasing the ability of companies to cope with important and rapid environmental changes that occur quickly in the markets efficiently and effectively and enable them to manage their activities under these circumstances and their adoption to manage the state of continuous change in the high-tech products market. Its customers turn their products into competitors' products when the business environment is very competitive.

-Strategic flexibility is linked to creative culture that reduces resistance to change and reduces structural complexity that facilitates attention to new opportunities (Bock.A, 2017, p. 06).

companies can gain competitive advantage by making them more proactive and thus have the ability to analyze the environment and identify opportunities and external threats better than other companies (Al-Shammari, 2017, p. 316).

-Strategic flexibility allows for more rapid response to ever changing technological and market opportunities by producing more new products, offering wider production lines and improving products more quickly (Al-Shammari, 2017, p. 316).

The dimensions and classifications used to express strategic flexibility have varied and varied. In our study, we will draw on the most important dimensions agreed by the researchers:

➤ **Production flexibility:**

Products play a key role in guiding the various activities of companies as they are the main focus in guiding all marketing decisions and maximizing the production required for customers' needs and thus ensuring the sustainability and growth of the company (choukal ,et al, 2010, p. 4).

Therefore, the companies must be flexible in offering its products and speed in converting its operations from the old line products to producing new products, in addition to adapting its production system to environmental changes and changing the demand by increasing or decreasing, which is called the productive flexibility (Al-Atwi, 2012, p. 04).

➤ **Competitive flexibility :**

Competitive flexibility is defined as the ability of an company to respond to customers' changing needs, and diagnose and adapt to business environment changes (abuzaid, 2014, p. 169), then it provides the company with the ability to compete in highly competitive markets, in addition to the ability to exploit opportunities and confront the threats of competitors, and is measured by several indicators, notably competitive moves in international markets, diagnosis of external environment changes, competitive price determination and reduction of production costs (abddaoui, 2017, p. 83).

➤ **Resource flexibility:**

As Hesterly and Berney point out, tangible and intangible assets controlled by the company that can be used to conceptualize and implement their own strategy (Al-yasiri, et al, 2014, p. 257), Thus resource flexibility refers to the ability to use and redeploy internal resources and is measured in three main dimensions (a combination of alternative resource uses, cost, difficulty of resource transfer, and time to shift from one resource to another) (Al-Shammari, 2017, p. 318).

2. Competitive Advantage:

The competitive advantage is an extension of Ricardo's comparative advantage, dating back to the late 1970s through McKinsey Investments, based on the success of the Japanese when they invaded world markets. However, despite the different environmental conditions, they were able to find out where to compete and they have succeeded in finding out the choice of fields of competition that enable them to enter their positions of strength. From the 1980s, the idea of competitive advantage began to spread widely among American companies (Djerbi, 2017, p. 281), and despite the definitions given to the competitive advantage, but all of them in one direction, which distinguish the company to the rest of the competitors who are with them in the market, and according to M.Porter, the competitive advantage arises once the company has discovered new and more effective methods than those used by competitors so that it can embody this discovery on the ground, in other words, create the process of innovation in its broad sense, He also stressed that competitive advantage arises from the value that an company can create for its customers, It can be said that the competitive advantage refers to the

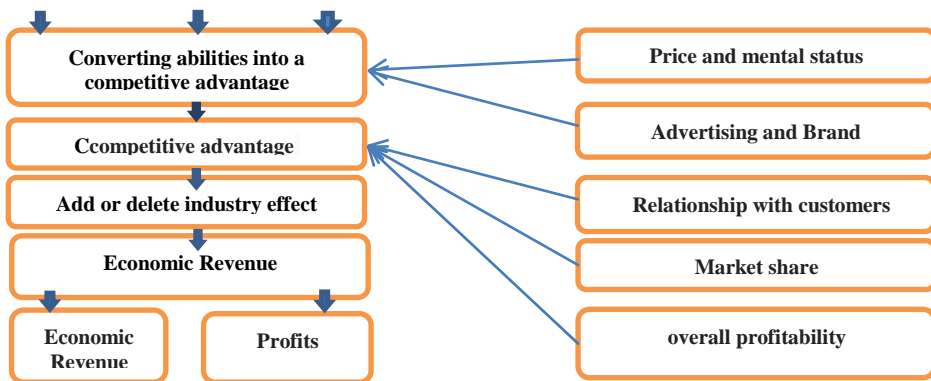
areas that the company can compete more effectively through its activities and operations and its ability to produce and deliver products to customers in a distinct manner as provided by customers and this gives them competitive advantage in the market. In 1985 Porter set competitive advantage with three basic concepts (Al-bakri & beni hamdan, 2013, p. 36):

-The first concept: Competitive advantage is achieved according to specific processes that will increase the time span, and this development is the model of the five forces: competitors in the industry, new entrants to the industry, alternative products, the bargaining power of customers and suppliers.

-The second concept: the competitive strategies adopted by the company, which is led by the total cost, leadership of differentiation, focus, is adopted on the basis of the target market, while the market was large or narrow.

- The third concept: Value chain analysis, which is based on two types of activities carried out by the company main activities, and supporting activities, and there are many areas and sources adopted in creating a competitive advantage for the company, but this requires steps which can be explained in the following form:

Fig. 3: Steps to build the competitive advantage of an company



Source: Thamer Bakri & Khalid Bani Hamdan, 2013, p. 7.

The researcher in the literature related to the subject, can find a difference about the classification of the dimensions of competitive advantage or indicators of measurement and sources and we will review the most important dimensions agreed by the researchers:

- Cost control: the ability of an enterprise to provide a commodity or service at a lower cost than its competitors (Al-Khuzami, 2008, p. 302), In other words, the company's ability to produce and market its products at a price lower than the average price of the competing companies, this does not mean that products are offered at less than their cost levels, and each of the chain's internal rings makes it possible to do so.
- Quality of the products: the concept of quality is presented in different definitions, based on the background of the writer or the researcher on the one hand and according to the concept seen by the producer or the customer on the other. Quality means the ability of the company to display products with distinct and unique characteristics (Dawood & jawad, 2016, p. 70), Quality from the point of view of the producer is the predefined specification, so the producer must pre-determine the quality of the product as accurately as possible and then seek to achieve it.
- Flexibility in responding to customer requirements: It is the foundation of the competitive advantage of the company through rapid response to the changes that may occur to products, and in line with the needs of customers, known as "the ability to produce a wide range of products, introduce new products and modify existing products quickly as well as respond to the customer's needs (Boubaker, 2017, p. 63), As for the sources of competitive advantage, it is the property, processes and organizational capabilities that all improve the efficiency of the company, and the study of (vogel) (Ben ahmed, 2017, p. 160), provides competitive advantage sources as follows:
 - Low cost: providing products at low costs.
 - Added cost: creating products that provide the desired and distinct aspects of customers.
 - Speed: the ability of the production system to provide products and services faster than competitors.
 - Flexibility: the ability to adapt products with innovations.
 - Creativity: the process of continuing to change the characteristics of the product and provide high value to the customer.
 - Customer service: a high response to the customer's wishes, and there is a range of other sources, notably the following:

- Internal resources: associated with tangible and intangible institutional resources such as the basic factors of production, energy, raw materials, distribution channels... and the competitive advantage can also come from the developed management systems used, the methods of management enterprise, the ways of motivation, the output of research and development, creativity and knowledge.
- External resources: they are many and multiple and are composed of external environment variables that enable the creation of opportunities and features that can be exploited by the enterprise and benefit from them, such as supply and demand conditions for raw materials, and qualified human resources.

3. strategic flexibility and competitive advantage of the company:

As the strategic flexibility mentioned above refers to adapting to the environment in case of uncertainty, and results from the accumulation of resources, which are exploited only in the case of accidents not monitored by the company, but can be in the service of offensive strategies, by presenting a wide range of products compared to competitors, rapidly renewing products, allowing them to change the industry's rules of the game and to achieve competitive advantage, highlighting the importance of strategic flexibility in achieving competitive advantage through:

- Strategic flexibility: A requirement to increase the capacity of enterprises to meet important and rapid environmental changes efficiently and effectively, and enable them to manage their activities under these circumstances and to adopt them to manage the state of continuous change in the high-tech product market.
- Enhance the susceptibility of companies and their abilities to respond to change customer's changing needs and desires, and to disclose any details to customers, and interest in the company marketing abilities through the process of interaction between them and their customers.

Contributing to increasing the enterprise's ability to offer its products and services in several markets, increasing its ability to generate real value for customers, and making it responsive to any change in changing customer demands, so it is important for it to grow and

survive, as well as generating opportunities to improve its competitive position.

4. Study Methodology :

4.1 model end Study Method :

In order to achieve the objectives of the research, the descriptive model was adopted, which is considered the dominant and most widely used in the science of the company, which is based on the development of a number of realistic hypotheses, relying on the method of (hypothetical-deductive approach) in the theoretical explanation of the variables of the study and the development of hypotheses based on previous studies in the subject and test. In the applied side, the quantitative approach and the questionnaire were adopted as a method of study and data collection.

The questionnaire was used to collect information about the relationship between strategic flexibility and competitive advantage of the company, which was designed based on previous studies. The questionnaire was divided into two parts: the first was devoted to the personal data of the sample (gender, age, academic qualification, functional specialization, and years of experience). The second part relates to the competitive advantage and includes 12 words. The second part relates to the strategic flexibility and contains 12 words. The "Lycarte" scale has been used to measure the interviewees' response to the paragraphs of the questionnaire.

4.2 Study community and its sample :

To learn about the relationship between strategic flexibility and competitive advantage of the company, we chose Al-Baskria Cement company as a study society, because the topic is related to the strategic aspects and in order to obtain more realistic and reliable results, it was based on a random sample of the company's estimated 129 employees (according to human resources), 40 questionnaires were distributed and 39 were retrieved, and after examining them, none of them ruled out the fulfillment of the conditions of the answer.

5. Study Results :

After collecting the questionnaire distributed to the sample of the interviewees, then they were coded and entered into the computer, in order to answer the research questions and test the validity of the hypotheses, and then the SPSS program was used to extract the different ratios, averages, frequencies and standard deviation, as well as the Alpha Cronbach's persistence coefficient, the validity coefficient of the test, Pearson correlation coefficient and finally the coefficient of determination.

➤ **reliability and consistency of the study instrument:**

Table 2: Reliability and consistency of the study instrument

<i>The questionnaire topics</i>	<i>Phrasing</i>	<i>Cronbach's Alpha</i>	<i>Reliability coefficient</i>
<i>Competitive advantage</i>	(1 12)	0.826	0.908
<i>Strategic flexibility</i>	(13 24)	0.783	0.884

Source: Prepared by researchers based on SPSS outputs.

To measure the validity and stability of the study instrument, the researchers adopted the Alpha Cronbach's scale to measure internal coherence, which is acceptable and appropriate if the scale is greater than or equal to 0.707, and through the results shown in the table above demonstrating that the value of the Cronbach coefficient was high for the dependent variable "competitive advantage" at 0.826, while the value of the Cronbach coefficient of the independent variable "strategic flexibility" was 0.783, and it is his an acceptable value. On this basis, it is possible to say that the axes of the questionnaire have a high degree of stability, which would give the same results if they were redistributed under similar conditions. The same is true for the honesty coefficient which reached (0.908) and (0.884) respectively, The same is true for the honesty coefficient which reached (0.908) and (0.884) respectively, which are high values indicating the validity of the study instrument.

➤ **Presentation and statistical analysis of a sample study response on the study axes:**

Table 3: Arithmetic average and standard deviation of study variables

<i>Dimensions</i>	<i>Arithmetic average</i>	<i>Standard deviation</i>	<i>Direction</i>
<i>Competitive advantage</i>	3,8056	0,2982	approved
<i>Productive flexibility</i>	3,8846	0,4546	approved
<i>Competitive flexibility</i>	3,7244	0,4926	approved
<i>Resource flexibility</i>	3,9295	0,3190	approved
<i>Strategic flexibility</i>	3,8462	0,2747	approved

Source: Prepared by researchers based on SPSS output.

The data of Table (3) indicate the approval of the target research sample to the terms indicating the competitive advantage with an arithmetic average (3,8056) with standard deviation (0,2982).

The results also showed that the phrases (the management uses the available resources economically and rationally to reduce the cost), (the price is a key factor in the management of the company in the process of competition with other companies) (the company is committed to the continuous delivery of products to its customers, (the company has the ability to deliver orders to multiple customers at the same time), (the company has the ability to adjust its products according to the requests of its customers) is the one that received high approval ratios with an arithmetic average respectively (4,08), (4, 00), (4,15), (4,05), (4,13), indicating that the company relies on cost lead and flexibility in responding to customers as a source of competitive advantage.

➤ **Testing the hypotheses of the study:**

-To validate the model the main hypothesis test: the variance regression analysis was used to confirm the validity of the proposed model to test the main hypothesis and adopt the simple linear

regression feature to test the main hypothesis as well as its sub-hypotheses, then we have adopted the following decision rule:

- Acceptance of the null hypothesis H 0: which provides that there is no statistically significant relationship if the value of the significance level is greater than ($\infty \geq 0.05$).
- Rejection of the null hypothesis H1: which provides for a statistically significant relationship if the value of the level of significance less than or equal to ($\infty \leq 0.05$).

Where the validity test of the model is linked to the availability of statistical conditions of:

- Overall intangible of the regression model: the intangible value of the model is represented by the value of F.
- Partial intangible of the model: the intangible value of the constant T.

Table 4: validate the model the main hypothesis testing

<i>Model</i>	<i>Total squares</i>	<i>Degree of liberty</i>	<i>Average squares</i>	<i>(F) Calculation</i>	<i>Significance level Sig</i>
Regression	0.693	1	0.693	9.540	0.004
Error	2.687	37	0.073		
Total	3.380	38			
<i>Correlation coefficient: (R = 0.682)</i>					
<i>Determination coefficient: (R² = 0.465)</i>					
<i>Dependent variable: competitive advantage</i>					

Significance level (0.05) ***F tabular = 6.314**

Source: Prepared by researchers based on SPSS output.

From the results of Table (4) it is clear that the calculated value of F is 9.540 which is greater than the value of F tabular value with a probability value of Sig (0.004), and it is less than the significance level (0.05), which proves the validity of the model the main hypothesis test as shown from the same table that the correlation coefficient between the two variables was (R = 0.682), and this indicates a positive correlation between them, as was the coefficient of determination (R²= 0.465), this means that approximately 46.5% of the changes in competitive advantage are due to changes taken place in strategic flexibility.

➤ **The main hypothesis testing:** that there is no statistically significant relationship between strategic flexibility and competitive advantage for the company at the level of significance ($\alpha \geq 0.05$), "The results are shown in the table below:

Table 5: Simple regression analysis results for the main hypothesis testing.

<i>Variable</i>	<i>Coefficient</i>	<i>Standard error</i>	<i>Beta</i>	<i>Calculation (t)</i>	<i>Significance level Sig</i>
<i>Constant</i>	1.915	0.613	0.453	3.122	0.003
<i>Strategic flexibility</i>	0.491	0.159		3.089	0.004

Correlation coefficient: (R = 0.682)
Determination coefficient: (R2 = 0.465)
Dependent variable: competitive advantage

Significance level (0.05)

***t tabular = 6.314**

Source: Prepared by researchers based on SPSS output

Through the results shown in the table above we conclude that there is a statistically significant role for strategic flexibility in achieving a competitive advantage for the enterprise, as the value of t calculated is (3.089), which is greater than the tabular value of t, with a level of significance (0.004), "and it is below the significance level ($\alpha \leq 0.05$), and therefore we reject the null hypothesis and accept the alternative hypothesis as follows: "There is a statistically significant relationship between strategic flexibility and competitive advantage for the company at the significance level (0.05)"

➤ **Testing and interpreting sub-hypotheses:**

The following table reviews the results of the simple regression analysis the sub-hypotheses testing at the significance level (0.05):

Table 6: The results of the simple regression analysis the sub-hypothesestesting.

Significance level (0.05) ***t tabular = 2.021 ***
Source: Prepared by researchers based on SPSS output.

<i>Variable</i>	<i>Coefficient</i>	<i>Standard Error</i>	<i>Beta</i>	<i>Calculated (T)</i>	<i>Correlation coefficient</i>	<i>The coefficient of determination</i>	<i>Sig Significant level</i>
<i>Productive flexibility</i>	0.504	0.127	0.379	3.418	0.739	0.447	0.010
<i>Competitive flexibility</i>	0.216	0.093	0.357	2.324	0.657	0.417	0.026
<i>Resource flexibility</i>	0.434	0.168	0.428	3.012	0.478	0.216	0.036

From the results shown in Table (6), it is clear that there is a statistically significant relationship between productive flexibility and competitive advantage for the company, where the calculated value of t (3.418) is greater than the tabular value of t, at a significant level (Sig0.010), which is a value less than the significance level (0.05), and the correlation coefficient R indicates that there is a positive correlation between the independent variable and the productive flexibility and the dependent variable the competitive advantage, where its value was (R = 0.739), and the determinant coefficient ($R^2 = 0.447$) was interpreted after the productive flexibility 44.7% of the variation in the competitive advantage, and therefore we reject the null hypothesis based on the absence of a statistically significant relationship between productive flexibility and competitive advantage for the company and accept the alternative hypothesis as follows:

There is a statistically significant relationship between productive flexibility and competitive advantage for the company at the significance level (0.05), and this can be explained by the fact that the

company has the speed in the transformation of its operations across the production lines and its ability to control the amount of production as the customers' requests.

It 's also clear from the same table that there is a statistically significant relationship between competitive flexibility and competitive advantage for the company as the calculated value of t (2.324) which is greater than the value of tabular t , at a significant level (Sig 0.026), and it is a value less than the significance level (0.05), and the correlation coefficient R indicates that there is a positive correlation between the independent variable competitive flexibility and the dependent variable the competitive advantage, where its value was ($R = 0.657$), and the determination coefficient ($R^2 = 0.417$) was interpreted after the competitive flexibility 41.7% of the variation in the competitive advantage, and therefore we reject the null hypothesis based on the absence of a statistically significant relationship between competitive flexibility and competitive advantage for the company and accept the alternative hypothesis as follows:

There is a statistically significant relationship between competitive flexibility and competitive advantage for the company at the significance level (0.05), this can be attributed to enabling the company to reduce production costs and competitive movements in international markets after moving to export its products.

As regards the resource flexibility, the results of Table (6) show that there is a statistically significant relationship between resource flexibility and competitive advantage for the company, where the calculated value of t (3.012) is greater than the value of tabular t , at a significant level (Sig 0.036) which is a value below the significance level (0.05), and the correlation coefficient R indicates that there is a positive correlation between the independent resource flexibility variable and the dependent variable the competitive advantage, where its value was ($R = 0.478$), and the determination coefficient ($R^2 = 0.216$) was interpreted after the productive flexibility of 21.6% of the variation in the competitive advantage, and therefore we reject the null hypothesis based on the absence of a statistically significant relationship between resource flexibility and competitive advantage for the company and accept the alternative hypothesis as follows:

There is a statistically significant relationship between the resource flexibility and competitive advantage for the company at the significance level (0.05), perhaps the main reason for this is the large resources owned by the company as an company within an industrial complex characterized by the ability to use alternative resources, and the ease of transition from one resource to another.

6. Conclusion :

The results of the study confirmed the existence of a statistically significant relationship between strategic flexibility in its three dimensions and competitive advantage for the company from the perspective of its employees. The same results also showed that the company relies on cost reduction and rapid response to the demands of its customers as a source of competitive advantage, confirming what has been mentioned in the theoretical aspect of the study, the rapid response of customers requires flexibility in all production activities of the company, depending on the resources of the company flexible, both tangible and intangible. The following suggestions can be made:

- The company may be in trouble when trying to reduce the different forms, types and features of the product in order to reduce costs, which may lead to the absence of elements on which the company can build the product differentiation in the industry, especially since the products of the competing companies are characterized by quality, the company should focus more on the quality of products with the provision of price reductions according to the volume of orders or in the form of advantages to its customers, in addition to the optimal exploitation of the various material and human resources owned by the company.

- In order to respond quickly to customers and embodying the foundations of strategic flexibility, the company must rely on handling in its various forms (production handling, competence handling, national and international handling), in addition to relying on handling in distribution and trying to achieve front integration by setting up points of sale across the national territory to facilitate access to the products of the company in the fastest time and the lowest cost for customers of the company.

- To achieve competitive flexibility, a specialized information system is required in all areas, especially strategic information systems that enable the achievement of strategic adjustment, improve production

efficiency, support innovation in the company, and build strategic information sources that allow following the movements of competitors.

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***Business process Reengineering and Total Quality Management
Better Together- Case study: The Toyota production system-***

اعادة هندسة الاعمال وادارة الجودة الشاملة معا أفضل دراسة حالة: نظام تويوتا الانتاجي

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Abstract The study aimed to examine the impact of both BPR and TQM in achieving a remarkable result in critical measures of performance such as cost, quality, time and customer satisfaction, in order to carry out the study we used the descriptive and analytical approach In addition to the case study approach with reference to the model of the Toyota company the study found out that the application of both BPR and in Toyota through the Toyota production system, which combined change and improvement, which was able to make Toyota one of the most successful companies globally and the best in performance

Keywords: Business Process Reengineering; Total Quality Management; Toyota production System

JEL classification code: M10, M19

ملخص: هدفت الدراسة الى التعرف على تأثير كل من اعادة هندسة الأعمال وادارة الجودة الشاملة في تحقيق نتائج حاسمة في مقاييس الاداء الحاسمة مثل : التكلفة، الجودة، الوقت ورضاء العملاء ، ومن اجل القيام بالدراسة تم استخدام المنهج الوصفي والتحليلي بالاضافة الى منهج دراسة الحالة بالاشارة الى نموذج شركة تويوتا، توصلت الدراسة الى ان هناك تطبيق لكل من اعادة هندسة الاعمال وادارة الجودة الشاملة في شركة تويوتا من خلال نظام تويوتا الانتاجي والذي يجمع بين التغيير والتحسين، مما جعلها واحدة من أنجح الشركات عالميا وافضلها أداء.

الكلمات المفتاحية: اعادة هندسة الأعمال؛ ادارة الجودة الشاملة؛ نظام تويوتا الانتاجي.

تصنيف JEL: M10, M19.

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1. Introduction :

There is no doubt that change has become a necessity for all companies around the world especially in the twenty-second century and the massive use of information technology, besides this the competitive pressure, have forced most companies to increase their focus on using the world's best improvement techniques also the customer has become more sophisticated. so the companies attempted to use new tools and methods like Total Quality Management and Business Process Reengineering to catch up with the changes in the environment and to adapt to the new circumstances in order to improve their performance and to satisfy the customer.

1.2 Research Problematic:

Total Quality Management and Reengineering have become a hot topic for academics and research, because of their crucial role in achieving competitive advantage, but some companies rely only on Total Quality management others think that Reengineering is the solution to fit with changes in the world of business and to achieve a competitive advantage. this study came to answer to the following question:

“Does the combination between the two approaches (TQM and BPR) is enough to reach a remarkable result in performance in Toyota?”

1.3 Research objectives: The current study aimed at testing BPR and TQM and their impact on enhancing performance in Toyota. Therefore, the researcher formulates the hypothesis of the study as follows:

H0: There is no impact on Business reengineering and Total Quality Management on Toyota's production system.

H1: There is a positive impact on Business reengineering and Total Quality Management on Toyota's production system

1.4 Previous studies: This section investigates the state of art from the literature, by presenting a number of previous studies that dealt with the subject of the research:

-Satrina Harvey & Bruce Millett(1999),” **OD, TQM and BPR: A comparative approach**”, Australian Journal of Management & Organisational Behaviour, The purpose of this article is to compare three approaches to the management of organisational change: Organisational Development (OD), Total Quality Management (TQM) and Business Process Re-engineering (BPR). The article concludes that although the approaches all aim to increase organisational efficiencies, they are quite different both conceptually and in the way, they are practised. This article does not attempt to argue that one of the approaches is better than the others — rather, its perspective is a contingent one. It argues that each of the approaches is suitable for different situations and that each approach can lead to increases in organisational efficiencies. However, the three approaches should be used as they were intended. They should not be utilised as off-the-shelf packages.

-Y.F.jarrar & E. M. aspinwall (1999). “**Integrating total quality management and business process re-engineering: is it enough?**”, Total quality management Journal, the article has presented an argument for integrating BPR and TQM. The individual strengths and weaknesses of each have been shown to complement each other. From the evidence presented, it was concluded that the way forward for organizational development is an

integrated model, one that builds on the best practices of BPR and TQM and adds strategic planning and a stronger focus on people.

-A Williams, J Davidson & al(2003),”**Total quality management versus business process re-engineering: A question of degree**”, The Journal of Engineering Manufacture,The paper presents a comparative analysis of continuous improvement (CI) versus BPR approaches to operational change. Change implies risk, and SMEs naturally require a means for establishing levels of uncertainty and net return. It also evaluates the level of a single ‘natural process’, as a means of costing BPR implementation. The paper concludes with the definition of ROI curves, which are intended to inform SMEs in the selection of appropriate improvement strategies.

2. Literature review:

2.1 Business Process Reengineering:

BPR is not an unknown word to the business world. It has been more than two decades since it was introduced for the first time as a tool for change in the American business sector. Hammer (1990) was the first person who introduced BPR and is considered as a father of BPR. Business process reengineering is a tool used for bringing radical change in the business process, it’s the new way of doing business. (Shah& Habib, 2013,p2), according to Hammer & Champy, Reengineering is the fundamental rethinking and radical redesign of business process to achieve dramatic improvements in critical, contemporary measures of performance such as cost, quality, service, and speed. (Hammer & Champy, 2001,p35) , Davenport and Short suggest a more modest approach to BPR. They consider reengineering as a combination of the radical change approach and the discipline of continuous process improvement. According to there business process

reengineering or "business process redesign" is the analysis and design of workflows and processes within and between organizations. (Tsalgatiidou, 2010,p4), In other word Reengineering means: a total transformation of a business, an unconstrained reshaping of all business processes, technologies, and management systems, as well as organizational structure and values, to achieve quantum leaps in performance throughout the business (Obiageli& al, 2015,p17)

There are four factors that should be considered in the description of reengineering. These are "fundamental, radical", "dramatic" and "process": (Özge Akbabaa, 2016,p321.322)

- Fundamental:** The style of doing business should be questioned for reengineering. It is necessary to achieve the answers to the question of "Works are done but why are they done?". It is necessary to ask "what" and "why" and to start all over again ignoring the answers received.

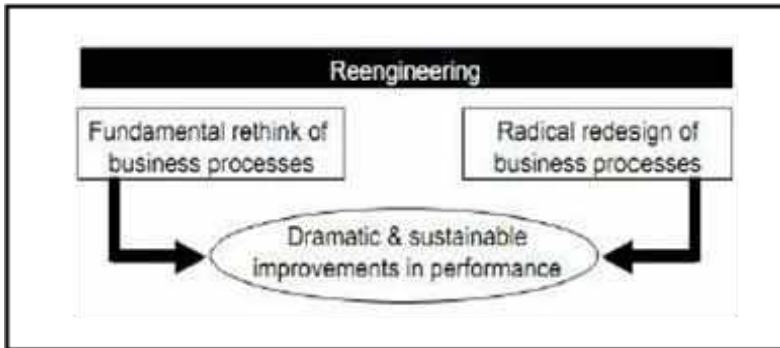
- Radical:** It is derived from the Latin word "radix". Radix means root. Radical means redesigning everything all over again by pushing all existing aside.

- Dramatic:** A success rate that is increasingly continuing from within the process is never aimed by reengineering. Rapid leaps are aimed at performance. It is a situation which should not be attempted by a company that is in need of 10% improvement regarding the issues of productivity, quality, cost, and service but which should be attempted by a company that is in a more desperate situation or that hits the top in more success and has no anxiety.

- Process:** Although it is the most important point of the description, it is the point that mainly forces companies. Since company managers fail to be process-oriented while getting stuck

in the mission, work, employee, and structure phenomena. However, the most important point in reengineering is to be process-oriented.

Fig. 1. Hammer and Champy (1993) business process reengineering model



Source: Arip Budiono & Romy Loice. 2012.p35.

2.2 Total Quality Management meaning and significance:

TQM has emerged as one of the most integrative mechanisms or organization development and improvement. It represents a complete way of managing an organization with a focus on quality and customer. The unrelenting increase in the intensity of commercial competition worldwide demands that organizations must continuously strive to improve the efficiency of their operations. Quality, therefore, has become a corporate strategy for doing business. It is no longer an option, it is a positive requirement (Reddy, 2009,p13), It may be defined as a continuously evolving management system consisting of values, methodologies, and tools, the aim of which is to increase external and internal customer satisfaction with a reduced amount of resources (Andersson, 2006,p284)

Among many other benefits. TQM results in: (Reddy, 2009,p15)

- Committed customers
- Increased productivity
- Reduced costs

- Better profits
- Improved company image
- Employee motivation
- Team spirit and increased participation
- Improvements in attitudes and value system
- Dedicated management
- Positive organizational culture.

2.3 Similarities between BPR and TQM: business process reengineering and Total Quality management have much in common we may describe it in the following point: (Tumwijekye, 2011,p2)

-Both concepts are **focused on the customer**. The primary goal of Reengineering like for TQM is to satisfy the customer in terms of quality services/products provided at a speed determined by the customer.

-**Teamwork**; in both approaches, teamwork, worker participation, and empowerment are central. Emphasis is put on empowering and involving all employees in quality decisions at all levels and making sure that everything is done in teams.

-All approaches share the aspect **of cross-functionality**. Achieving quality is not the responsibility of one single department within an organization but rather a responsibility of all functions.

-**Process analysis and measurement**; the focus is on the individual processes to make sure that each process is improved to produce quality.

-**Supplier involvement**; both approaches acknowledge the need to involve suppliers in the process of process and quality improvement.

2.4 Differences between BPR and TQM: The following table shows the main differences between business reengineering and total quality management.

**Table (01): Process Improvement (TQM) vs Process Innovation
(BPR)**

<i>Characteristic</i>	<i>Total Quality Management (TQM)</i>	<i>Business process Reengineering (BPR)</i>
<i>Level of Change</i>	Incremental.	Radical.
<i>Starting Point</i>	Ongoing process.	Start from zero with no biasness.
<i>Frequency of Change</i>	One time/Continuous	One time.
<i>Time Required</i>	Short.	Long.
<i>Participation</i>	Bottom – up.	Top – down.
<i>Typical Scope</i>	Narrow, within functions.	Broad, cross – functional.
<i>Risk</i>	Moderate	High.
<i>Primary Enabler</i>	Statistical tools.	Information system.
<i>Type of Culture</i>	Cultural	Cultural/Structural.
<i>Underlying Philosophy</i>	Maintain harmony	Disrupt the status quo.
<i>Pace of Change</i>	Slow.	Rapid.

Source: Sanjay Kr. Dubey .2013,p22

2.4 Strengths and weaknesses of business reengineering and total quality management:

Both business process reengineering - as an approach of radical change- and Total Quality Management- as an approach of continuous improvement- have strengths and weaknesses are shown in the table below:

Table (02): Major strengths and weaknesses of TQM and BPR approach

	<i>Strengths</i>	<i>Weaknesses</i>
BPR	<ul style="list-style-type: none"> -Dramatic improvements (innovation) -Relatively short time frame (quick results) - Exploits IT capability - Cross-functional nature ensures 'whole process optimization' - Measurable progress and results 	<ul style="list-style-type: none"> - Top-down approach which degenerates to command and control - Massive layoffs (usually) - Revolutionary nature of change can be very stressful and financially exhaustive. - Narrow scope focusing on business processes. Usually resulted in neglecting or undermining the people dimensions, e.g. reward, measurement, management, individual beliefs and organizational culture. - Operational process focus leads to reduced customer focus. -Focus on 'time and cost' savings leads to short/medium-term benefits and lack of strategic impact.
TQM	<ul style="list-style-type: none"> - Bottom-up participative approach. - Broad scope covers all organizational aspects -Results in stable culture of continuous improvement. -Evolutionary nature -makes change easy to capability implement and reduces resistance 	<ul style="list-style-type: none"> -Lack of strategic impact - Long time frame. - May lead to sub optimization improvement. - Lack of innovativeness and radical change. - Difficult to measure progress. -Continuous incremental improvement mentality inhibits learning - Lack of IT focus or utilization.

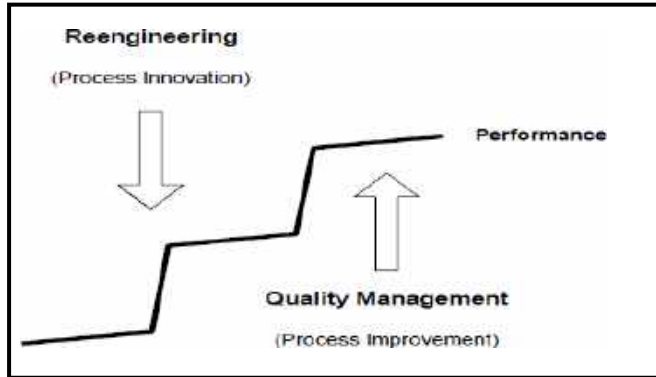
Source: Y. F. Jarrar & E. M. Aspinwall .1999. p586.

2.5 Distinctions Between Reengineering & Quality Management:

Reengineering and Quality Management are linked in two deceptively similar ways by two authorities on Reengineering: Michael Hammer and Thomas Davenport. Both rely on a "stair-step model" to

depict the relationship they see between Reengineering and that aspect of Quality Management generally known as continuous improvement. (Nickols, 1993,p4)

Fig.02: The "Stair Step" Model



Source: Nickols, f. 1993. P4

2.6 The integration between a process innovation and process improvement:

It is possible to integrate TQM and BPR (Fig 2), but it is necessary to ensure their mutual "separation". It is also necessary to differentiate what reengineering teams are and to separately set TQM teams. Each of these two strategic approaches has its advantages and disadvantages and they are fairly well supplementary under certain conditions. It must always be clear what we want to achieve with change. If gradual improvement is sufficient, it is appropriate to use TQM – moderate changes. If greater annual changes in business results are needed, radical reengineering changes must be implemented. Change is selected according to business needs. However, it is possible to start with TQM, continue with reengineering, then a certain time with TQM, etc. TQM can be used on the implementation of moderate changes after radical change through reengineering. TQM is a system that drives improvement is very analogous to a Kaizen approach. The elements and characteristics are considered supportive of each other, and the two

philosophies mandate, and the two philosophies mandate a similar organizational mindset. Consequently on the road of a company to TQM, a Kaizen approach and any of its tools under its umbrella in practice are a compatible valuable tool to TQM. The TQM tools are tools for the systematic improvement in the small steps. Allender (1994) concluded that nothing in the TQM philosophy dictates that continuous improvements must proceed in small steps and that improvements are welcomed in either small steps or gigantic leaps. Thus, the breakthroughs envisioned by BPR are indeed consistent with TQM. De Bruyn and Gelders (1997) think that TQM is an enabler of reengineering. According to Harrington (1995) and Kelada (1994) are these two approaches complementary and that reengineering has to have TQM aims at the forefront in order for it to be successful .it can often serve as the building block for subsequent reengineering efforts. (Martonova, 2013,p6)

3.Study Methodology :

The objective of this paper is to examine the integration between two approaches business reengineering and total quality management and their impact on the performance of a manufacturing industry like Toyota. Therefore, the current study uses the descriptive and analytically methodology, and the case study methodology by addressing the experience of Toyota.

4. Case Study in Toyota:

4.1 Company Overview:

Toyota is one of the leading Japanese automobile vehicle manufacturers around the world. Established on August 27, 1937, the company offers vehicle manufacturing as well as financing in other industries. The company sells its vehicles to a number of 190 countries, and the primary markets are in Japan, North America, Europe, as well as in Asia. Toyota's automotive division includes the design, manufacture, assembly, and sales of passenger vehicles and promotes

the integration of the automotive industry and technology. Toyota also manufactures automotive parts, components, as well as accessories for its vehicles. In the current market, and sells three kinds of cars: hybrid vehicles, conventional engine vehicles, as well as full cell vehicles. The product line of the company includes subcompact as well as compact cars, mini-vehicles, mid-size luxury vehicles, sports and specialty cars, recreational and sports utility vehicles, pickup trucks, as well as buses. (Jimenez, 2017,p4)

4.2 Why Toyota wanted to reengineer its business processes?

Toyota automobiles are termed as inefficient and cheap motors. To change the notion, the Toyota administration decided to re-engineer its business processes. Toyota used to send its representatives and employees to the US to learn about automobile manufacturing from Ford. But in reality, Toyota did not have space, resources, and many other factors as Ford have in the US and therefore not practical to implement the same process as in Ford. (Jallepalli, 2014)

4.3 How did the idea come up?

Toyota received their inspiration for the system, not from the American automotive industry (at that time the world's largest by far), but from visiting a supermarket. Taiichi Ohno visited the supermarket on his trip to the US and found it interesting to find all the goods in one place and the rack is filled once the product is bought or emptied from the rack. He thought this could be a very useful idea to implement the just in time technique. (Jallepalli, 2014)

4. How is BPR implemented?

- Minimum Inventory Sub-assemblies are produced on-demand or order from customers.
- Minimum setup cost.
- Machines are set up in U-shaped with minimum space occupied and a single person attending multiple machines.

-Have all your suppliers near-by and resources deliver to work point or workstation.

-Use the PULL method in manufacturing, contrary to the PUSH method used in Ford. (Jallepalli, 2014)

Advantages:

With minimum or no inventory, inventory storage expenses are reduced or removed.

-Lesser the setup time and cost, lesser the lot size.

-Less space occupied.

-A transportation cost is reduced with all your suppliers nearby and takes less time in transportation.

-PULL method, refers to making sub-assemble parts on need, instead of manufacturing them much before ordering. Thus decreasing WIP inventory.

-Any worker at a work station can stop the assembly lines if they find defects. (Jallepalli, 2014)

Dis-advantages: (Jallepalli, 2014)

-With minimum inventory, Toyota is very much dependent on suppliers, if they fail to deliver, then there is a loss.

-Need more accuracy, since there is no additional inventory

-Employees may require to work on multiple machines, there might be a chance of a mistake.

-Have to find suppliers near to work station and suppliers deliver at a workstation, therefore need trustworthy suppliers.

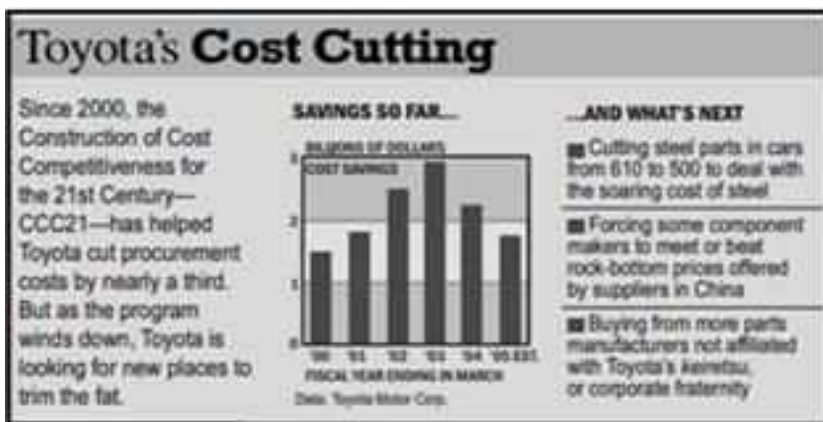
-With the PULL strategy, we need to adjust to the demand hack.

4.5 Innovation at Toyota:

When it comes to being innovative and making fundamental changes in the organization, Toyota has shown that size does not matter and even a giant can reinvent itself, In July 2000, Toyota launched the Construction of Cost Competitiveness in the 21st Century program, also known as CCC21. That initiative focused on cutting the purchasing costs of 170 major components. Katsuaki Watanabe, Toyota's president, and CEO spearheaded this effort because he was then a

purchasing specialist. This program brought together engineers from Toyota and the parts suppliers, eliminating unnecessary costs with methods such as standardizing parts across the entire Toyota range or reducing the number of components required to make a part. For example, reducing the parts in a horn from 28 to 22 led to a 40 percent savings in cost. In another example, Toyota helped to improve suppliers' economies of scale by approving 3 inside hand grips, down from 35. At the end of five years, the program led to a total savings of US\$9 billion. Never satisfied with its success, Toyota started the Value Innovation (VI) program in 2005 to follow up on the CCC21 program, which goes beyond lean manufacturing to lean product development practices. The VI program refocused Toyota on the production and design processes, continuing its quest for waste elimination and cost reduction. Toyota expects the VI program to show its main benefits by 2010, raising the operating profit margin from 9.3 percent to 10 percent. What happens when that goal is achieved as well? Toyota already is thinking of plans to use the benefits of the VI program to invest in technologies, researching new vehicle structures that will reduce weight and lower fuel consumption. (Iyer, 2009,p96)

Fig.03 . Toyota cost cutting



Source: Iyer, 2009,p97

Outcome of BPR for Toyota : From an image of non-productive and low quality automobile company to One of the best automobile with best processes and most number of automobiles manufactured in an year. Toyota displaced GM and became the world's largest automobile maker. Toyota Production System is implemented at many other manufacturing companies and a concept of Lean Operations is created with reference to TPS to implement similar process in other field. (Jallepalli, 2014)

4.6 TQM in Toyota: The company established The Toyota Way, a set of business principles, in 2001. It is based on kaizen — continuous improvement — and strives to eliminate waste and overproduction, as well as to create a bureaucratic system where any employee can suggest a change where they see fit. There is a high value on human participation. There is constant encouragement for further innovation, consensus and ideas for improvement. The Toyota Way also focuses on long-term improvements rather than short-term. The two main pillars of the Toyota Way are ‘Customer First’ and ‘Respect for people’. (Business Initiative Directions Blog, 2013)

Fig.04 The Toyota Production System House



Source: Jeffrey K. Liker & James M. Morgan.2006 .p7.

Challenges:

The primary problem in using the techniques mentioned above is how to implement TQM in the systemic problems which Toyota experiences. For instance, job training entails costs, while the time duration of the training can promote unproductivity in some areas of operation. Furthermore, the TPS has various expected outcomes that may not become the consequence of the effect of implementing TQM. Another important element to take note is how workers have been influenced by the American practice of waiting until the machine breaks down before calling in maintenance. These are the challenges in utilizing techniques that help integrate a more fluid and smooth transition of productivity through TQM. (Jimenez, 2017,p6)

Success:

It is identified that Toyota was able to become the highest quality producer of cars in the world and has dominated the 1980 import market. Toyota presently experiences success in the field of manufacturing basically because of the result of integrating TQM in its management of human resources and operations the use of TPS made it possible for the company to achieve the expected outcomes and the creation of kaizen, or continuous improvement. It enabled all Toyota employees to have a responsibility to follow closely the standardized guidelines which reflect the mission, vision, goals, and culture which the company strives to maintain in both employee relations and process development. TPS and kaizen proved to create a healthy relationship with the clients, which have become more satisfied with the service they received from the company through the year. . (Jimenez, 2017,p7)

The results of the application of BPR and TQM on Toyota production system : (McGraw-Hill, 2004)

-46% reduction in **lead-time** to produce the product (from 12 to 6.5 hours)

- 83% reduction in **work-in-process inventory** (from 9 to 1.5 hours)
- 91% **reduction in finished-goods inventory** (from 30,500 to 2,890 units)
- 50% reduction in **overtime** (from 10 hours to 5 hours/person-week
- 83% improvement in **productivity** (from 2.4 to 4.5 pieces/labor hour).

5. Conclusion :

This paper discusses two important approaches in business environment Business reengineering and total quality management and their impact on the Toyota production system, Business Reengineering focuses on radical, dramatic improvements in a short period of time. by using information technology as an enable while Quality Management, consists of kaizen or continuous improvement, is concerned with gradual, incremental improvement over long periods of time. Each of these two strategic approaches(BPR & TQM) focus on customer satisfaction and teamwork and each of them has its advantages and disadvantages, There is an integral relationship between re-engineering and total quality management. Quality management is one of the most important pillars of re-engineering and they both seek to improve performance and achieve competitive advantages The Toyota production system is a framework of concepts and methods based on the principles of Business reengineering and quality management in order to provide the best quality, the lowest cost and the shortest in lead time by focusing on the elimination of waste, applying the TPS made Toyota one the most successful companies around the world.

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Ease of Doing Business in Algeria

سهولة ممارسة الأعمال في الجزائر

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Abstract:

The study aims to evaluate Ease of doing business in Algeria by focusing on some indicators such as starting business, dealing with construction permit, getting electricity and registering property index. The descriptive analytical methodology was used based on some international reports to evaluate the performance of doing business index during the period 2014-2019 .The results of the study found that the business environment in Algeria is not motivating to doing business and it is not attractive to foreign direct investment.

keyword: doing business; starting business; dealing with construction permit; getting electricity; registering property

JEL classification code : M29, P14

ملخص:

تهدف هذه الدراسة إلى تقييم مؤشر سهولة ممارسة الأعمال في الجزائر، بالتركيز على بعض المؤشرات كمؤشر بدء النشاط التجاري، استخراج تراخيص البناء، الحصول على الكهرباء وتسجيل الملكية، حيث تم استخدام المنهج الوصفي التحليلي بالاعتماد على بعض تقارير مؤسسة البنك الدولي لتقييم أداء مؤشر سهولة ممارسة الأعمال خلال الفترة 2014-2019. وقد توصلت نتائج الدراسة إلى أن بيئة الأعمال في الجزائر غير محفزة لأداء الأعمال ولجذب الاستثمار الأجنبي المباشر إليها.

الكلمات المفتاحية: ممارسة الأعمال؛ بدء النشاط التجاري؛ استخراج تراخيص البناء؛ الحصول على الكهرباء؛ تسجيل الملكية

تصنيف JEL : M29 ، P14

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1. Introduction :

The issue of doing business is current and touches large spectrum of population. Businesses, goods, services are one of the essential parts of our lives. Due to this fact it is important to follow the situation on the business environment in Algeria. The main aim of this article is to present and evaluate the results of the surveys from the World Bank Group focused on the overall results of Doing business. Ease of doing business report can be a policy tool to governments. They can monitor the successful business regulation reforms. They can learn from one another about good practices and do necessary and beneficial reforms.

The importance of a well-functioning regulatory and legal system in maintaining an effective market economy is widely accepted. The legal and regulatory system can map in each country and compared with other countries. The evaluation of Doing Business started in 2004 by World Bank Group. The Doing Business project and the annual reports that it produces are a legitimate and useful part of the mission of the World Bank as a development organization. Nowadays are involved 190 countries into the overall evaluation. Over time of the evaluation of the results were done a lot of changes that reflect the evolution in the business environment.

Algeria recognizes the benefits of the Index, especially since the falling oil price in mid-2014. Algeria has felt the need of improving its Doing Business ranking in order to develop other sources of financing, other than that of oil.

In the presented article we have focused on Starting a Business, Dealing with construction permits, getting electricity and registering property as one of the most essential parts of Doing Business. For that, this study tries to analyse and discuss the main question :

« What is the result of evaluating the ease of doing business index in Algeria in terms of the initial procedures for starting business activities? »

We can divide that main question into these sub-questions:

- What is the Ease of Doing Business Index?
- What is the real situation of starting business and Dealing with construction permits index in Algeria?
- Could the getting electricity and registering property index have a positive performance in Algeria?

As pre-answers to these sub-questions, we can propose this hypothese:

- The performance of Algeria in starting business, Dealing with construction permits, getting electricity and registering property is not appropriate to doing business.

This study aims to achieve these goals:

- The identification of the concept of ease of doing business index.
- Studying the reality of Starting business, Dealing with construction permits, Getting electricity and Registering property in Algeria.
- Give an evaluation of Algeria's position in the Ease of Doing Business Index and the most important reforms introduced by the study indicators during the period 2014-2019

Previous Studies:

During our research, we found some studies having the same subject of research.

- **Study of Libuše Svobodová & Martina Hedvičáková, 2015:**

This study aims to describe the Ease of doing business in the Czech Republic and countries from the Visegrad Group. it focus on starting a business and paying taxes Main part and goal of this study is devoted to the results of the development in the evaluation in the

Czech Republic and countries from the Visegrad Group. Those two indexes have the impact on business entities in starting of the business and on the economic situation. This article is based on results the Doing business report, Czech Republic is in the compared states on the last place with sub indexes Starting a business and also Paying taxes. Differences in ratings of countries from the Visegrad Group are not considerable, only Starting a business is better in Hungary

- **Study of Ashutosh D. Gaur & Jasmin Padiya, 2017 :**

This Study is focused on Ease of doing business and identify the factors for it. This article is conceptual and review nature, the researcher has applied exploratory research design by using varied secondary data availed from the secondary data sources. Based on the secondary data and review, the researcher has reported on various emerging trends and issues and challenges in Ease of Doing Business. this study have analyze the India rank in Ease of Doing business index of world bank and highlight the various reforms initiated by Government of India to improve business environment in India.

- **Study of (Hossain, 2018):**

This study investigates the impact of Ease of Doing Business on Inward FDI over the period from 2011 to 2015 across the globe. This study measures ease of doing business using starting a business, getting credit, registering property, paying taxes and enforcing contracts. this study used a sample of 177 countries from 190 countries listed in World Bank. Least square regression model via Eviews software used to examine causal relationship. The study found that ease of doing business indicators ‘Enforcing Contracts’ was found to have a positive significant impact on Inward FDI. Nevertheless, ‘Getting Credit’ and ‘Registering Property’ were

found to have a negative significant impact on Inward FDI. However, 'Starting a Business' and 'Paying Taxes' have no significant impact on Inward FDI in the studied timeframe of this research

2. Theoretical basis :

The business environment in a broader sense reflects the quality of the economic conditions of the state. The gradual improvement is the best way to support small and medium-sized enterprises. It just creates one of the fundamental motivation for business.

Business environment consists of endogenous as well as exogenous aspects (political, economic, ethical, legal, technological, ecological, and many other conditions) .

The government should create the business environment (conditions) that will promote investment, job creation, increased productivity, and more. The fact is that good (healthy) functioning economy is the fundamental essence of quality business environment (Martin Buno, 2015, p. 424).

Entrepreneurial activity and business environment are two of the closely watched areas. In the current economic climate, growth remains a key government priority. Economic activity requires a streamlined regulatory environment and effectual policies that are transparent and accessible to all. To uphold private sector growth, many economies have aimed of simplifying the business registration process and day to day operations under self-regulation (Siddiqui, 2019).

The business environment in the narrower sense consists of the entities, the enterprise is in the direct contact with. The main pillars of competitiveness of countries can include infrastructure, macroeconomic and microeconomic environment, level of education, level of corruption, bureaucratic efficiency, size,

maturity and market efficiency, business sophistication, degree of innovation, etc (Martin Buno, 2015, p. 424)

Many institutions on yearly basis compare the quality of business environment by using ease of doing business index.

The ease of doing business ranking created by World Bank group compares economies with one another, while the distance to frontier score benchmarks the economy with respect to regulatory best practice which shows the absolute distance to the best performing economy on overall and each doing business indicator. The ease of doing business ranking shows how much the regulatory environment has changed relative to other economy, while the distance to frontier score indicates how much the regulatory environment for local entrepreneur in an economy has changed over a period (Ashutosh D. Gaur, 2017, p. 77).

Ease of doing business ranks economies from 1 to 190, with first place being the best. A high ranking (a low numerical rank) means that the regulatory environment is conducive to business operation. The index averages the country's percentile rankings on 10 topics covered in the World Bank's Doing Business. The ranking on each topic is the simple average of the percentile rankings on its component indicator (WorldBank, 2018).

This index started in 2004 with 5 indicators (Hiring and Firing Workers, Getting Credit, Starting a Business, Enforcing a Contract and Closing a Business). Economies from the world are ranked on their Ease of Doing Business. The original criteria for 2004 has been revised and expanded to 10 in accordance with the requirements that arose in connection with the development of the enterprise market.

The structure of evaluation indicators was also changed at time in selected points, e.g. Employing Workers in 2009 was included in the evaluation and in 2015 it has not.

Ease of Doing Business averages the country's percentile rankings on 10 topics from 2012, made up of a variety of indicators (Starting a Business, Dealing with Construction Permits, Getting Electricity, Registering Property, Getting Credit, Protecting Minority Investors, Paying Taxes, Trading Across Borders, Enforcing Contracts, Resolving Insolvency), giving equal weight to each topic. In 2010 was in the evaluation involved also Employing workers instead of Getting Electricity.

Report gets the feedback and can be a policy tool to governments. They can monitor the successful business regulation reforms. They can learn from one another about good practices and do necessary and beneficial reforms (Libuše Svobodová, 2015, p. 454).

For many investors, the form by means of which the process of being open to a new business is developed has already become a first picture concerning the attitude of the countries towards the business undertaken by the private sector. The number of documents required, of the procedures carried out as well as the time and the resources necessary for setting up a business have a major effect on the characteristics and performances of economies (Mihai, 2012, p. 389).

3. Evaluation of doing business in Algeria :

Doing Business measures aspects of business regulation for domestic firms through an objective lens. The focus of the project is on small and medium-size companies in the largest business city of an economy. Based on standardized case studies, Doing Business presents quantitative indicators on the regulations that apply to firms at different stages of their life cycle. The results for each economy can be

compared with those for 189 other economies and over time (WorldBank, 2018, p. 11).

Table 1 : Ease of doing business index in Algeria

	2014	2015	2016	2017	2018	2019
Rank	153/189	154/189	163/189	156/190	166/190	157/190

Source : world bank, doing business, <https://www.doingbusiness.org>

The ease of doing business index witnessed a fluctuation in its global ranking during the period 2014-2019, as the overall index recorded the lowest ranking in 2018 with 166 globally out of 190 countries. Algeria ranked 153 globally in 2014, and 157th in 2019. In DB 2016, Algeria fell in the ease of doing business index by a difference of 9 points from the year 2015, and this decline is due to the poor ranking of the cross-border trade index, which ranked 176/189 countries, where the time required for export through compliance with border laws was 118 hours at a cost of \$ 593. As for the import process, the time required for it to comply with the laws of borders is 327 hours at a cost of \$ 466. Algeria also recorded a delay in both the access to credit and minority investors' indexes in the same order, 174 out of 189 countries, where the index reached Minority investor protection value 3,3 Out of 10 points on the rating scale.

3.1 Evaluation of starting a business :

Economies around the world have taken steps making it easier to start a business streamlining procedures by setting up a one-stop shop, making procedures simpler or faster by introducing technology and reducing or eliminating minimum capital requirements. Many have undertaken business registration reforms in stages and they often are part of a larger regulatory reform program. Among the benefits have been greater firm satisfaction and savings and more registered

businesses, financial resources and job opportunities.(Worldbank, 2017, p. 21).

Starting a business in Algeria has some obstacles affecting the decision of foreign investors. And that delayed a process of starting business in Algeria. For that, Algeria was ranked 150th in this index in 2019.

Table 2 : Starting a business in Algeria

	Rank-	Score-	Procedures (number)	- Time - (days)	Cost (% of income per capita)	Minimum capital (% of income per capita)
DB2019	150/190	78.07	12	17.5	11.8	0.0
DB2018	145/190	77.54	12	20	11.1	0.0
DB2017	142 /190	77.54	12	20	11.1	0.0
DB2016	145/189	76.08	12	20	10.9	23.6
DB2015	141/189	74.07	13	22	11.0	24.1
DB2014	164/189	73.61	14	25	12.4	28.6

Source : world bank, doing business , <https://www.doingbusiness.org/en/custom-query>

Algeria got better in the comparison from 2016 until 2019 at the indicator Starting of business, However, Algeria's performance is bad, with one reform that reduced the number of measures from 13 in 2015 to 12 in 2016.

Starting a business is relatively complicated and expensive : 17,5 days and 11,8% of income per capita in 2019 to create a new firm The main change that concerns with the evaluation is occurring in minimum capital, which was reduced from 23,6% in 2016 to 0.0% in 2017. Also, Algeria made starting a business easier by eliminating the requirement to obtain managers' criminal records in 2016.

3.2 Evaluation of Dealing with construction permits :

Smart regulation ensures that standards are met while making compliance easy and accessible to all. Coherent and transparent rules, efficient processes and adequate allocation of resources are especially

important in sectors where safety is at stake. Construction is one of them. In an effort to ensure building safety while keeping compliance costs reasonable, governments around the world have worked on consolidating permitting requirements.(Worldbank, 2017, p. 30)

This topic tracks the procedures, time and cost to build a warehouse including obtaining necessary the licenses and permits, submitting all required notifications, requesting and receiving all necessary inspections and obtaining utility connections. In addition, the Dealing with Construction Permits indicator measures the building quality control index, evaluating the quality of building regulations, the strength of quality control and safety mechanisms, liability and insurance regimes, and professional certification requirements.

As regards dealing with construction permits in Algeria were some change in number and time of procedures. In 2019 Algeria ranked 129th in this index, with a performance score of 63,28 points.

Table 3 : Dealing with construction permits in Algeria

	Rank-	Score-	Procedures (number)	Time (days)	Cost (% of Warehouse value)	Building quality control index (0–15)
DB2019	129/190	63.28	19	136	7.8	12
DB2018	146/190	58.89	19	136	8.1	10
DB2017	77/190	71.02	17	130	0.9	10
DB2016	122/189	64.05	17	204	0.9	09
DB2015	127/189	65.72	17	204	0.7	/
DB2014	147/189	48.37	19	241	8.7	/

Source : World Bank, doing business, <https://www.doingbusiness.org/en/custom-query>

Dealing with construction permits in Algeria takes 136 days to build a warehouse with a cost 7,8% of warehouse value. In 2019, the building quality control Index recorded 12 out of 15 points.

In 2016, Algeria made dealing with construction permits easier by eliminating the legal requirement to provide a certified copy of a property title when applying for a building permit. Also, Algeria made dealing with construction permits indicator faster by reducing the time to obtain a construction permit in 2017.

3.3 Evaluation of Getting Electricity:

Access to reliable and affordable electricity is vital for businesses. To counter weak electricity supply, many firms in developing economies have to rely on self- supply, often at a prohibitively high cost. Whether electricity is reliably available or not, the first step for a customer is always to gain access by obtaining a connection(World bank, 2017, p. 38).

This topic measures the procedures, time and cost required for a business to obtain a permanent electricity connection for a newly constructed warehouse. Additionally, the reliability of supply and transparency of tariffs index measures reliability of supply, transparency of tariffs and the price of electricity.

As for Algeria, it ranked 106th in the world in 2019, having been ranked 148th out of 189 countries in 2014.

Table 4 : Getting Electricity in Algeria

Year	Rank	Score-Getting electricity	Getting Electricity - Procedures (number)	Getting Electricity - Time (days)	Getting Electricity - Cost (% of income per capita)
DB2019	106/190	69.58	5	93	1478.3
DB2018	120/190	60.56	5	180	1335.3
DB2017	118/190	60.58	5	180	1330.4
DB2016	130/189	57.56	5	180	1295.5
DB2015	147/189	59.98	5	180	1318.5
DB2014	148/189	59	5	180	1562.9

Source: World bank, Doing Business,

<https://www.doingbusiness.org/en/custom-query>

According to data collected by Doing Business, getting electricity there requires 5 procedures, takes 93 days and costs 1478,3 % of income per capita in 2019. During the period from 2014 to 2018 the number of procedures and time required to obtain electricity did not change. In DB2017, Algeria made getting electricity more transparent by publishing electricity tariffs on the websites of the utility and the energy regulator. Also in DB2019, Algeria made the process for getting an electricity connection easier by streamlining internal administrative processes and by granting new licenses to vendors selling pre-built substations.

Globally, Algeria stands at 106 in the ranking of 190 economies on the ease of getting electricity in DB2019.

3.4 Evaluation of Registering Property:

Ensuring formal property rights is fundamental. Effective administration of land is part of that. If formal property transfer is too costly or complicated, formal titles might go informal again. And where property is informal or poorly administered, it has little chance of being accepted as collateral for loans limiting access to finance (World bank, 2017, p. 47).

This topic examines the steps, time and cost involved in registering property, assuming a standardized case of an entrepreneur who wants to purchase land and a building that is already registered and free of title dispute. In addition, the topic also measures the quality of the land administration system in each economy. The quality of land administration index has five dimensions: reliability of infrastructure, transparency of information, geographic coverage, land dispute resolution, and equal access to property rights.

Algeria ranked 165th out of 190 countries in the Property Registration Index in 2019, with a performance score of 44.3 out of 100 points.

Table 5 : Registering property in Algeria

Year	Rank	Score	Procedures (number)	Time (days)	Cost (% of property value)	Quality of land administration index (0–30)
DB2019	165/190	44.3	10	55	7.1	7.5
DB2018	163/190	43.8	10	55	7.1	7
DB2017	162/190	43.8	10	55	7.1	7
DB2016	163/189	43.8	10	55	7.1	7
DB2015	157/189	50.7	10	55	7.1	/
DB2014	176/189	50.6	10	63	7.1	/

Source: World bank, Doing business,

<https://www.doingbusiness.org/en/custom-query>

Algeria has not registered any reforms in the registering property index during the period 2014-2018, where the number of procedures is 10 during an estimated period of 55 days with cost of 7.1% of property value.

In DB 2014, Algeria recorded a delay in the ranking of the registering property index at 176 out of 189 countries, with score of 50.6 out of 100 point. Because the time taken to register the property was estimated at 63 days, and it was reduced after 2014 to 55 days.

Algeria's performance in the Quality of land administration index is also poor at 7.1 out of 30 points on the evaluation scale.

4. Conclusion:

Ameliorate Business environment has economic benefits. Transparent rules create new jobs and generate income. Conversely, strengthening laws can deform resource allocation by strangling entrepreneurial endeavors.

Researchers suggest that reforms, which ameliorate business environment, can help poor countries to grow faster. They have suggested that reform programs should stimulate companies to change their behavior, to enhance investment and to encourage innovation. The economic governments should reduce business

costs and risk and increase competitive pressure by improving administration and fiscal policies, access to finance, legislation and labor administration, access to information on the market etc.

The business environment in Algeria faces many constraints that limit investment expansion. There are many regulatory restrictions on foreign investors, such as forcing a foreign investor to have a local partner at 51% of his investment.

Rigidity of administrative regulations remains one of the biggest obstacles to Algeria's investment environment. For example, mismanagement, inefficient government bureaucracy, slow registration and issuance of permits are among the most important obstacles for private investors and foreign investment.

Excessive demand for documents on the investment portfolio and the slow process are also shaking investors away from the idea of investing in Algeria.

so, the idea that the Business environment will be slow to get improved is certain. Algerian Doing Business is not satisfactory. As the process of starting a business in Algeria is still difficult, due to the large number of procedures and the high cost. Also, The process of Dealing with construction permits in Algeria takes 136 days. In addition, The process of Getting electricity takes 93 days with a cost of 1478.3 % of income per capita. As for the process of registering property in Algeria, it requires 10 procedures within a period of 55 days.

Certainly, the most problematic factor in Algeria is the one of "Registering property and starting a business". However, all other indicators, in view of their rankings, require an interest of the State in order to make business easy for domestic and foreign private industrial investors by simplifying regulation.

Un other kind of recommendations that can be noted is to review the composition of the Doing Business Committee, by including not only relevant representatives of the government and the private sector, but also Algerian researchers and consultants whose contributions will bring scientific rigor.

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Origin, theoretical basis and practice of New Public Management

الأصل و الأساس النظري وممارسات التسيير العمومي الجديد

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Abstract:

New public Management is the dominant paradigm in the discipline of public administration. it has become a catchword in most countries. it is a model with a minimal government debureaucratization, decentralization; market orientation of public service; privatization; performance management. NPM is to a large extent based on the assumption that public sector organizations need to learn from private sector and private companies The purpose of this article is to examine if the ideas of NPM should be adopted in developing countries.

Keywords :New Public Management - Public Administration - public sector- Management

JEL classification : H83

ملخص:

يعتبر التسيير العمومي الجديد (NPM) هو النموذج السائد في مجال الإدارة العامة. لقد أصبح شعارا في معظم دول العالم. يعتمد هذا النموذج على صور من إلغاء الرقابة الحكومية واللامركزية ؛ التوجه السوقي للخدمة العامة ؛ الخصخصة. إدارة الأداء و يستند التسيير العمومي الجديد إلى حد كبير على افتراض أن مؤسسات القطاع العام بحاجة إلى التعلم من القطاع الخاص والشركات الخاصة. الغرض من هذه المقالة هو دراسة ما إذا كان ينبغي اعتماد أفكار الإدارة العامة الجديدة في القطاع العام في البلدان النامية.

الكلمات المفتاحية: التسيير العمومي الجديد - الإدارة العامة - القطاع العام - المناجمنت

تصنيف JEL: H83

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1.Introduction:

The management of public administrations is a thorny issue because it involves the use of funds from citizens. The latter therefore seem entitled to expect a quality public service in return for their contribution. Public management methods must go in this direction. However, over the past decade, we have seen major changes in the management methods of the public sector in the developed world. While there was talk of citizen satisfaction, a new philosophy emerged. Indeed, minimizing costs has become one of the priorities of successive governments in many countries. This desire to reduce expenditures can be explained in particular by an excessive public debt and deficit. This new way of management is an application of a stream of thought that appeared in England in the early 1980s called the New Public Management (NPM). Formalized by *Erwan FERLIE* in his book *The New Public Management in Action*, he explains that the application of managerial methods of the private sector would allow public administrations to become more competitive while guaranteeing a quality public service. (Dreveton, 2010, p. 4)

The principles of this NPM School were therefore applied in the administrations of industrialized countries. If these principles were applied it was because they were considered beneficial and effective for both the Administration itself and the citizens. This is the idea that we will question in this writing, seeking to answer together the following problem:

Is the application of NPM adapted to Algerian public administrations?

In order to answer this question, we will first try to make a general presentation of this New Public Management by explaining in what context it appeared and its implementation in many countries. We will then discuss the advantages and limitations of this management

method. Finally, we will answer our problem in view of the elements studied in this document, following which we will give an opinion when applying the NPM in Algeria.

2. Présentation of the New Public Management :

Before studying the NPM more precisely, it is important to focus on the idea that encompasses the notion of public management. **Romain LAUFER**, in his article "Where is the public management? " indicates that it is very difficult to find a definition, For some, the latter represents a "method of administrative action", while for others it is an "administrative language". LAUFER, meanwhile, goes so far as to say that it is an "enigma to solve", (Lauffer, 2008, p. 39)

Many other authors show the difficulty that surrounds the notion of public management. Therefore, the study of NPM, considered as a "new" public management, is also difficult to conduct.

In our study, we will consider public management as a management method for all public institutions. We can now focus on the NPM. For this purpose, we will first see in what context it was born, following which we will try to give a definition of this type of public management. Finally, we will explain what measures have been taken to apply it concretely in the administrations.

2.1 Emergence and definition of New Public Management :

2.1.1 Emergence of the New Public Management :

Public management must be adapted to the economic situation and to the multiple social evolutions so that the State is effective and provides a public service adapted to the expectations of the citizens. The NPM is part of its adaptation of public management to the economic context. It was not, however, the first attempt to modernize public management. In fact, in the 1960s, a reform called Rationalization of Budgetary Choices

(RCB) was introduced in France (Bekhechi-Chouikhi & Benmansour, 2016, p. 17), in order to make better use of public funds. This reform, however, appears as a failure because it is too complex to implement and misunderstood by the actors. In the 1980s, various events made it imperative a new reform of public management, in various countries of the world such as, among others, the United Kingdom, New Zealand, Japan, Canada and France. However, the events leading to such a modernization remain multiple and specific to each country.

This is why the definition of the NPM can not be the same for each country in which it has been applied. In addition, the urgency and diversity of these events have had an impact on the speed of implementation of NPM in these different countries. In fact, its implementation in the United Kingdom and the USA has been very rapid, while in France it is spread over more than 20 years, with reforms still taking place.

Thus, the NPM calls into question not only the management of public administrations strictly speaking, but also pushes the state to question its role and its missions: it is the purpose of the state that is put to the test. And who says change of purpose says change of strategy. The NPM is therefore a redefinition of the state's strategy. Such a reorientation therefore implies a change in the means of achieving these objectives.

Besides, the purpose and besides the strategy, it is the organization Wébérienne of the State which is questioned. Now that we are better acquainted with the context in which the NPM is born and the global issue that surrounds it, we will try to define this notion more precisely.

The UK is considered the country where NPM evolved and became the launching point of NPM around the world due to its significant contribution to the development of NPM. After its emergence, NPM was rapidly embraced in several countries, especially in North America

and Australia because of the International Financial Institutions' and OECD countries' promotion of NPM reforms in developing countries.

2.1.2 The definition of New Public Management :

By applying the principles of the NPM, the state shows that its objectives have changed. But what are its goals? In his thesis entitled "Equity trajectories: equity management strategies of public organizations", **Olivier KERAMIDAS** explains that the state now considers effectiveness as an imperative, the ultimate goal being to restore balanced budget and ensure the quality of public services. (Keramidas, 2012, p. 102)

What is NPM? Many authors (Borins, 1995; Dunleavy, 1997; Flynn, 1995; Gore, 1993; Gruening, 1998; Hood, 1991; OECD, 1995; Osborne and Gaebler, 1992; Pollitt, 1995) have forwarded different arguments as to the make-up of NPM.

For example **Christopher Hood** (1991) in his article: A public management : for all seasons ? (hood, 1991, p. 5) Has forwarded seven interrelated points for the structure of NPM. These included: hands-on professional management; explicit standards and measure of performance; greater emphasis on output controls; a shift to disaggregation; a shift to greater competition; a stress on private sector styles of management practice; and discipline and parsimony in resource use. Hood proposed NPM as an administrative philosophy for governments that would be results-oriented and productive.

Borins (1995) argued that NPM is a " normative reconceptualization of public administration consisting of several inter-related components: providing high quality services that citizens value; increasing the autonomy of public managers, particularly from central agency controls; measuring and rewarding organization and individuals on the basis of whether they meet performance targets; making available the human and technological resources that managers need to perform well;

and, appreciation of the virtues of competition, maintaining an open-minded attitude about which public purposes should be performed by the private sector, rather than the public sector" (Nazmul, Kabir, & Ashaduzzaman, 2012, p. 8).

According to **Dunleavy** (1999)" new public management is the domesticated, de-politicalized version of 'new right' or 'market liberal' policy analysis, made somewhat technical, consensual and generic... NPM has become a generic label for a group of policy and administrative solutions emphasizing competition, disaggregation and incentivization". (Dunleavy, Margetts, Batsow, & Tinkler, 2005, p. 470)

The **OECD** (1995) claimed that a new paradigm has emerged in the field of public management and identified the following characteristics as a shift to new public management:

- A closer focus on results in terms of efficiency, effectiveness and quality of service;
- The replacement of highly centralized, hierarchical organizational structures by decentralized management environments where decisions on resource allocation and service delivery are made closer to the point of delivery, and which provide scope of feedback from clients and other interest groups;
- The flexibility to explore alternatives to direct public provisions and regulation that might yield more cost effective policy outcomes;
- A greater focus on efficiency in the services provided by the public sector, involving the establishment of productivity targets and the creation of competitive environments within and among public sector organizations; and

- Strengthening of strategic capacities at the center to guide the evolution of the state and allow it to respond to external changes and diverse interests automatically, flexible, and at least cost. (Atreya, 2002, p. 30)

In the same way, **Pollitt** (1995) noted the following make-up of NPM.

- Cost cutting, capping budgets and seeking greater transparency in resource allocation (including activity or formula-based funding and, most recently, a shift to accruals accounting).
- Disaggregating traditional bureaucratic organizations into separate agencies ('executive agencies'; 'government business enterprises'; 'responsibility centers'; 'state owned enterprise' etc.) often related to the parent by contract or quasi-contract ('performance agreement'; 'framework document', etc.).
- Decentralization of the management authority within public agencies (flatter hierarchies).
- Separating the function of providing public services from that of purchasing team. •
- Introducing market and quasi-market type mechanisms (MTMs). •
- Requiring staffs to work to performance targets, indicators and output objectives (performance management).
- Shifting the basis of public employment from permanency and standard national pay and conditions towards team contracts, management related pay (PRP) and local determination to pay and conditions.
- Increasing emphasis on service 'quality', standard setting and 'customer responsiveness'. (Atreya, 2002, p. 31)

Osborne and Gaebler (1992), in then- popular work *Reinventing Government* proposed ten strong principles for making government entrepreneurial. : They include many principles . (Atreya, 2002, p. 31)

Gruening (1998) summarized the elements discussed under the heading of NPM in the various literature and included the following as the unequivocal characteristics of the NPM. They are: budget cuts, privatization, separation of provision and production, contracting out, user charges, vouchers, customer concept, competition, flexibility separation of politics and administration, accountability for performance, decentralization, performance measurement, unproved accounting, unproved financial management, performance auditing, strategic management, changed management style ,personnel management (incentives), more use of information technology. (Gruening, 2001, p. 2)

New Public Management is a vision, an ideology or a bundle of particular management approaches and techniques.

In the late 1980s, **Garson & Overman** defined it as the study of multidisciplinary aspects of public administration and a combination of planning, organization and control over management functions with financial, human and material management, information and basic resources. (Ehsan & Naz, 2003, p. 31)

P. Haynes (2010) said that new public management is used in the world of management to describe the progress of private sector ideas and approaches in public administration. (Haynes, 2010, p. 27)

Al Gore offers the following concise summary of the most common characteristics of NPM:

- Cutting unnecessary spending
- Serving customers
- Empowering employees
- Helping communities solve their own problems
- Fostering excellence
- Creating a clear sense of mission
- Steering more and rowing less
- Delegating authority and responsibility
- Replacing regulations with incentives

Developing budgets based on outcomes • Exposing federal operations to competition • Searching for market rather than administrative solutions • Measuring success in terms of customer satisfaction.

The initial NPM thrust was to improve "the way government does business" (Rosenbloom & Piotrowski, 2007, pp. 1-2)

Despite divergent and contradictory views, opinions and definitions about the meaning and implications of this doctrine, there is however no doubt that it has become extremely influential in public administration theory and practice since the 1980s.

2.2 Principles of New Public Management (NPM) :

The 're-invention' of governments in the developed countries and 'invention' of governments in most of the developing countries in the last two decades appeared to be guided by a set of common principles. These common principles came from at least two main strands. One was the managerial practice of the private sector, popularly known as 'managerialism'. Another from the field of economics, notably public choice theory, agency theory and transactional costs theory, was more influential in shaping the new public management.

2.2.1 Public choice theory : Known by various names, social choice theory, rational choice theory, the economics of politics and public choice theory meant that "an human behavior is dominated by self-interest and would like to maximize benefits"

Public choice theory advocated that an individual acts as a 'rational actor' and should have more choices for individual satisfaction and efficiency reasons. Several conclusions were drawn from the public choice theory. The role of the government should be as minimal as possible and is assumed to be as a facilitator, enabler, promoter and regulator. The role of the bureaucratic organizations should be minimum so that market mechanisms can grow.

In the last decade, while the public choice theorists were opposing the ways governments were managed and resources were being used, western countries faced the problem of financial resource constraints in running their respective governments. This situation warranted these countries to change the way that government functioned and public choice theory seemed to become central to their "administration"

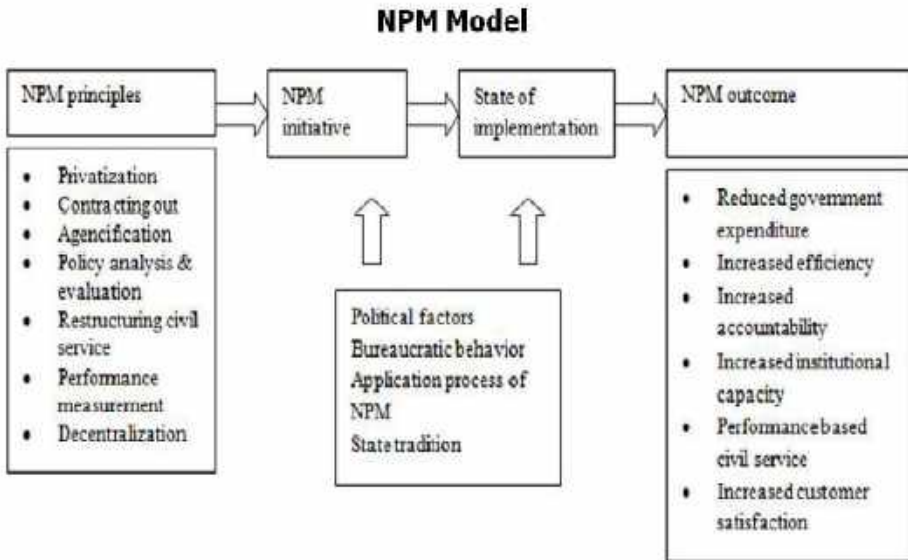
2.2.2 Agency Theory : The theory of the agency is classically applied in economics to analyze the relations in which the principal (the one who delegates a decision-making power) delegates his power of choice to a second,

The theory of the agency analyzes the relations of delegation and control established between the various actors, in particular between the owners and the directors of a company. Applied on the occasion of a capital increase, the theory of the agency highlights the fact that a financing by capital increase requires the directors of a company, which could prefer the self-financing or the credit, to make appear a series of financial information which is not always given in usual time. The theory of the agency is due in particular to Michael Jensen and William Meckling (1976) (Atreya, 2002, p. 35)

2.3 Model of NPM :

Here is given a NPM model to demonstrate the theoretical factors affecting the implementation of NPM

Figure N° 01 : model of NPM



Source : Tanzina Ferdous –Departement of public Administration university of Dhaka The Impact of NPM (New Public Management) On the Public Sector of Bangladesh”.article in Academia .org consulté le 27.11.2019 à 9h .am

2.4 Comparing perspectives: Old public administration, new public management : The following table summarizes the three approaches examined so far:

The prevailing approach to public administration drew on a model of bureaucracy based on hierarchy and meritocracy. McCourt (2013) lists the principal features of this model:

- A separation between politics and elected politicians and the administration, with appointed administrators
- Administration is continuous, predictable and rule-governed
- Administrators are trained professionals who are appointed on qualifications

- There is a functional division of labour, and a hierarchy of tasks and people
- Resources belong to the organization, not to the individuals who work in it
- Public servants serve public rather than private interest

Table 03 : Comparing perspectives: Old public administration, new public management, and the new public service

	Old Public Administration	New Public Management	New Public Service
Theoretical foundations	Political theory, naïve social science	Economic theory, positivist social science	Democratic theory
Rationality and models of human behaviour	Administrative rationality, public interest	Technical and economic rationality, self-interest	Strategic rationality, citizen interest
Conception of the public interest	Political, enshrined in law	Aggregation of individual interests	Dialogue about shared values
To whom are civil servants responsive?	Clients and constituents	Customers	Citizens
Role of government	“Rowing”, implementation focused on politically defined objectives	“Steering”, serving as catalyst to unleash market forces	“Serving”, negotiating and brokering interests among citizens
Mechanisms for achieving policy objectives	Administering programmes through government agencies	Creating mechanisms and incentives through private and non-profit agencies	Building coalitions of public, non-profit private agencies
Approach to accountability	Hierarchical - administrators responsible to elected leaders	Market-drive-outcomes result from accumulation of self-interests	Multifaceted-public servants guided by law, values, professional norms and citizen interests

Administrative discretion	Limited discretion granted to public officials	Wide latitude to meet entrepreneurial goals	Discretion needed but constrained and accountable
Assumed organizational structure	Bureaucratic organizations with top-down authority and control of clients	Decentralized public organisations with primary control within agency	Collaborative structures with shared leadership
Assumed motivational basis of public servants	Pay and benefits, civil-service protections	Entrepreneurial spirit, desire to reduce size and functions of government	Public service, desire to contribute to society

Source : Mark Robinson : UNDP Global Centre for Public Service Excellence 2015 sur le site www.undp.org/publicservice. – consulté le 25/11/2019 à 8h.am

3. limits and the benefits of applying NPM :

In this section, we will gather various opinions that we have collected in many articles. Some authors defend the principles of the NPM, while others are strongly opposed. Thus, we will first see what are the limits that are imputed to the NPM? following which we will develop the arguments in its favor. Finally, we will try to take sides on the subject.

3.1 NPM Limits:

Two of the seven principles of the NPM that we set out in our first explanatory part A given by Hood in 1991 are "the increased importance given to standards of performance measurement" as well as "the application of private sector managerial methods". A question therefore arises: what are the performance criteria of private companies? In fact, performance is often judged in terms of efficiency, efficiency or productivity. The criteria for measuring performance used by the private sector thus integrate this perspective. The NPM therefore considers that, like private companies, productivity and efficiency reflect the performance of public administration. The desire for

performance is so strong that, like companies, it is almost considered an objective in itself.

Here appears a first limit: what become the initial objectives that the State? through the administration, must seek to achieve, namely: to render a quality public service, promote social justice and promote equality and equity between citizens. The principles of the NPM therefore appear to be contrary to the essence of the state: notions of public service or justice are often seen as barriers to productivity.

Another notion that is at the center of the management of private companies is in contradiction with the prerogatives of the State: it seeks to satisfy the need of the client. By applying this principle to public administrations, the citizen is likened to a consumer. finding then poses a second limit: if it is easy to target the needs of a market segment, it is much less so when the market brings together all the citizens of a country: In fact, it is impossible to satisfy the needs of all citizens: it is therefore impossible for the state to be effective.

The principles of the NPM have a third deficiency. The latter is stated by **GOODSELL**, which indicates that the NPM gives too much importance to how performance is measured (private management tools) and not enough to the concept itself. Using management tools built specifically for the purpose of efficiency is therefore inappropriate for public administrations, in addition to creating more inequality between citizens.

Finally, the fourth limit related to the principles that define NPM is the quantifiable aspect of performance. State performance can not, however, be measured by quantity criteria (whether financial or not). In fact, even the qualitative criteria are quantifiable (satisfaction surveys, surveys). The performance objective promoted by the NPM is irrelevant in a public administration.

In addition to these limitations linked to the very principles of the NPM, some authors have pointed out the limits related to the concrete application of these principles:

- a. Structural limits
- b. Limitations in terms of human resources
- c. Limitations in communication

3.2 *The benefits of applying NPM :*

Like the limits, the benefits of implementing the NPM are multiple. We will only give here the significant advantages. Once again, we will refer to authors to support our ideas.

We will group our ideas into three categories, namely: the benefits in terms of public finances, in human terms and in terms of communication.

- a- **Benefits in terms of public finances:** Putting the principles of the NPM into practice has first of all made it possible to rationalize public spending thanks, in particular, to the introduction of management control in the administrations. This rationalization was at the origin of a new and better allocation of public revenues. Many wastes are avoided. While it is not convincing to say that the application of the NPM principles has reduced both the public debt and the public deficit, it is undeniable to say that the "least cost hunt" is paying off.
- b- **Benefits to the human aspect of the changes :** The human aspect of our study can be analyzed from the point of view of the public employees and from the point of view of the citizens as a whole.

The human aspect of our study can be analyzed from the point of view of the public employees and from the point of view of the citizens as a whole.

Anne AMAR and **Ludovic BERTHIER** (Ammar & Berthier, 2007, p. 7) specify in their article that the application of the principles of the NPM meets the expectations of civil servants. In fact, in France in 2005, "59% of employees in the public sector [considered] urgent reform of the functioning of the state and the public service", particularly in terms of labor interest, technological developments and, more generally as to the situation of the officials.

One of the positive points of the decentralization of the power of public administrations: that the state is closer to the citizens.

- c- **In terms of communication:** Communication with the citizens was improved following the establishment of the NPM in the developed countries.

4- Study Result :

Our problem was: "**Is the application of the NPM adapted to the Algerian public administrations of today?**" Given the definition we presented in the first part, of the advantages and limits presented by the theorists, we will try to answer this one as of now.

a) At the level of principles

We will first take up the remarks of **Olivier KERAMIDAS** who specifies that the private and the public do not have the same stakes. According to our conception of things, the state can not have a goal in terms of profit, its priority must be the satisfaction of the citizen by providing quality public services. The least-cost, though necessary, policy contradicts this goal. In fact, if the production of a public service involves more and more expenses, it is the quality of the first that must

be a priority, not the latter. Our conception of the public service implies here both the sovereign functions of the State and services that would not be profitable if they were provided by private companies. In fact, therefore, the search for the least cost calls into question the duties of the state, the dispensation of public services being considered as such. As private and public goals are different and management is a means of achieving a goal (via strategy), private management techniques can not be effectively applied to public administrations.

b) At the application level

From a more concrete point of view, the application of the NPM also pushes us to make some remarks. The first idea is that the public service has not been improved following the application of the principles of the NPM. In fact, the public debt that was to be reduced is still greater, as is the public deficit. The practices promoted by the NPM certainly reduce costs, but do not improve, overall, the quality of the public service.

The second questionable application of NPM principles is the over-reliance on financial criteria to measure public service performance. Indeed, we can not judge the quality of a service through purely financial criteria. Moreover, reading such criteria makes it possible to draw conclusions in monetary terms which does not help to take decisions aimed at improving the quality of the public service. Let's illustrate this with an example: an epidemic can increase the health costs of a public administration, but this does not mean that the public service at this level will be of better quality. As we stated in our section on limits, the performance of the public service is very difficult to measure, as the quality of public services can not simply be quantified. Using financial criteria (such as non-financial ones for that matter) is therefore, in our view, irrelevant and, secondly, an error factor in the implementation of the public strategy.

The answer is that the NPM principles challenge the very goals that a state must strive to achieve, namely to improve the welfare of its citizens. Indeed, the private management techniques that the NPM School recommends to apply to public management gives the State an objective in financial terms (reducing deficits) and in terms of communication, which does not contribute to the improvement of the quality of the public service.

Despite the fact that the application of the NPM principles as well as the principles themselves seems to us unsuited to the Algerian public administrations, we are FOR this application. Just as a drug used to cure a serious disease can cause many adverse effects on the body, the application of the NPM principles is a necessary evil for the "fiscal cure" of the state.

The creators of NPM seem to have created not a "new public management" but a "public management: in case of emergency"

5. Conclusion

Appeared in the 1980s in England the NPM is a movement of thought aimed at reforming management in public organizations. This involves applying the methods used in the private sector to the public sector.

Indeed, its birth is due to multiple events such as the financial crisis, the heaviness of the Weberian system and the demand for justification of the actions of the state by the citizens. Some authors consider this public management as limited while others consider it effective. In any case, from our point of view, the principles of the NPM as well as the way in which they have been applied in the French administrations seem to us inadequate. To this, several reasons. The first is that the notion of performance is placed as an objective of public management, which, in addition to reducing the quality of public services seems very limited as to how it is measured. In fact, measuring the quality of a

public service is very complex, which renders the possible performance of the state distorted, even useless.

NPM is much more than a management method; it puts into serious question the roles that the State must play, replacing a desire to improve the public service through a need to reduce costs.

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The crowdfunding as a new entrepreneurial finance model for Small and Medium-sized Enterprises in Algeria

التمويل الجماعي كنموذج جديد للتمويل المقولاتي للمؤسسات الصغيرة و المتوسطة بالجزائر

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Abstract: This paper aims to study the crowdfunding as an alternative entrepreneurial finance model and to analyze its impacts on project holders and entrepreneurs, by shedding light on current challenges and prospects of this mechanism on Algerian Small and Medium-Sized Enterprises. The results of this study revealed that entrepreneurship in Algeria is a fertile field and crowdfunding will be a reliable alternative approach for fundraising and economic development of SMEs by fulfilling certain conditions.

Keywords: Crowdfunding, entrepreneurship, enterprise, funders, the Crowdfunding platform, project, Small and Medium-Sized Enterprises

JEL Classification Code: F39,G29, L26, P45

المخلص: هذه الورقة البحثية هو دراسة التمويل الجماعي كنموذج للتمويل المقولاتي بديل وتحليل أثره على أصحاب المشاريع و المقاولين من خلال تسليط الضوء على التحديات الحالية وأفاق هذا النهج الجديد على المؤسسات الصغيرة والمتوسطة بالجزائر. نتائج الدراسة كشفت أن المقاولاتية في الجزائر مجال خصب وأن التمويل الجماعي سيكون مقاربة بديلة موثوقة وفعالة لجمع رؤوس الاموال والتنمية الاقتصادية للمؤسسات الصغيرة والمتوسطة من خلال استيفاء شروط معينة

الكلمات المفتاحية: التمويل الجماعي ، المقاولاتية ، المؤسسة ، الممولون ، منصة التمويل الجماعي ، المشروع ، المؤسسات الصغيرة والمتوسطة

تصنيف JEL: F39, G29, L26, P45

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1. Introduction :

Today, the first problem faced by entrepreneurs is their increased financing needs. For this purpose and because of the major constraints of conventional financing (Banks, financial institutions...etc.), the creators are oriented towards a new alternative financing method, which is the «Crowdfunding».

Crowdfunding is a fundraising operation that is carried out through a platform on the Internet and which connects the project initiator with a very wide audience, these potential funders can collect very many contributions (small amounts). According to this definition, three main actors can be distinguished: the project initiator (the entrepreneur); the contributors (the funders); and the platform (the intermediary).

To conduct our study on the viability of crowdfunding as a new model of entrepreneurial finance, we have chosen Algeria as a research field, in order to analyze the state of play and the possible challenges and prospects of this mechanism on Very Small Business (VSB) and Small and Medium-Sized Enterprises (SMEs) in need of capital, in the digital age.

– **The importance of the subject:**

This study will shed light on a new method of financing that is the result of the digital revolution, which is characterized by the rapid evolution of information and communication technologies (ICT), to total digitization of our world in the nearest future.

Algeria has been chosen as a field of investigation because of the importance it attaches to projects holders and innovators, through the creation of national organizations and schemes dedicated to aid, monitoring and support of entrepreneurs by allocating budget envelopes, to create and/or revive their activities.

– **The objective of the research:**

The objective sought through this paper, is to know the viability and effectiveness of Crowdfunding as a new entrepreneurial finance scheme in the world and Algeria.

– **The problematic of the study:**

Algeria is one of the countries with an ex-socialist orientation, which has not and cannot escape from the universal movement of changes and the rapid evolution of information and communication technologies. For this reason, we considered it relevant to ask the following problematic:

“Is crowdfunding a reliable alternative for the financing of Small and Medium-sized Enterprises in Algeria?”

Following this problematic, other questions arise:

- What is crowdfunding?
- What is the process for fundraising via Crowdfunding platforms?
- What are the stakes and perspectives of Crowdfunding for VSB and SMEs in Algeria?

– **The hypotheses of the study:**

The purpose of this paper is to answer the questions asked and to verify the following hypotheses:

H1) The reliability of Crowdfunding platforms consists of the proper application of a legal and regulatory framework,

H2) The State's commitment to adopt Crowdfunding is a fundamental guarantee for the success of this alternative financing method.

It is to these two hypotheses that perfectly summarize the main objectives of our research that we will try to answer.

– **The method of research:**

To test the validity of our hypotheses, we have adopted two approaches, the descriptive and deductive approaches. For this we have used different techniques of information collection such as: consultation and analysis of various documents (books, theses, articles,

reports and informational bulletins of the Algerian Ministry of Industry and Mines, reports of world organizations like the World Bank...etc.), survey of interviews and questionnaires with professionals and experts in entrepreneurship and crowdfunding.

– **The plan of study:**

The plan of our study is divided into two parts:

- The first part, articulated on the literature review of crowdfunding,
- The second part of this work is a logical deduction from the previous one. It is dedicated to the practical phase of our case study on the status report of Very Small Enterprises (VSEs) and Small and Medium-Sized Enterprises (SMEs) and the challenges and prospects of Crowdfunding in Algeria.

2. Literature review:

2.1) Crowdfunding definition:

- Crowdfunding is a new approach, a tool for raising funds through platforms and websites dedicated to this growing activity. To this end, these platforms are designed to establish to support the creators in their missions of seeking funds for a possible launch of their business plan on one side, and/or to fill budgetary deficiencies affecting the continuity of their activities on the market from another side. Thus, there are two major purposes of crowdfunding:

- The creation of a project, and/or enterprise,
- Ensuring the continuity of activity.

However, the principal pivot of this mode of financing, are the contributors, it is the crowd connected to the internet and/or investors aiming to contribute financially to the projects presented on crowdfunding platforms.

2.2) Origin and a brief history of crowdfunding:

In fact, crowdfunding is a practice that dates back several years and centuries of existence, even before the introduction of the Internet and information and communication technologies, since the principle of this method of financing is to solicit small sums of money from the local, national and/or international communities, in order to finance a project and/or an enterprise.

Mentioned for the first time in 2006 by Michael Sullivan on his blog Fundavlog, as follows: «*Many things are important factors, but funding from the 'crowd' is the base of which all else depends on and is built on. So, crowdfunding is an accurate term to help me explain this core element of Fundavlog*” (M Marie, 2014).

To this end, we distinguish two phases of evolution of this mode:

1st phase: Local community not connected:

History has marked several events in this context and different fields of societal cultural and commercial activities...etc. For example:

1789: The composer and musician Wolfgang Amadeus Mozart financed his concerts in Vienna with funds raised from the public in exchange for a note and an autograph. (Romet Quentin, 2018).

1875-1884: Journalist Joseph Pulitzer wrote an article in the New York World to finance the construction of the Statue of Liberty project.

2nd phase: The online community or Web 2.0 Crowd:

Two main factors have contributed to the transformation and transition of Crowdfunding from a simple fundraising action by the local community to a digitalized web activity affecting the connected community on the Internet on an international scale:

- The first factor, concerns the need and difficulties encountered by entrepreneurs and project initiators, in particular, VSEs and SMEs, in obtaining financial resources from banks and financial institutions;

- The second factor is the evolution of information and communication technologies, in particular, the launch of the Internet and the advent of web 2.0 (Cécile Palusinski, 2018) which boosted the activity of social networks in the early 2000s.

Below are some highlights and events of the beginnings of crowdfunding on the internet:

2001: The online encyclopedia Wikipedia was funded by donations.

2004: Entrepreneurs Guillaume Colboc and Benjamin Pommeraud financed their short film “Tomorrow’s Eve” by crowdfunding by offering as a non-monetary counterpart to their donors/producers to quote them in the film’s credits, and send them a DVD. (Caroline LAMAUD, 2013)

2010: The creation of the first crowdfunding platform in real estate in the United States (Romet Quentin, 2018)

Launch of the French crowdfunding web sites Kisskissbankbank (March 2010) and Ulule (September 2010), modeled on the US platform Kickstarter (April 2009), (The redaction, 2019).

2008-2012 US President Barack Obama used crowdfunding to finance his election campaign.

2.3) Actors and stakeholders in the crowdfunding process:

2.3.1 Actors: The crowdfunding mechanism is composed of three main actors:

- a) **Applicants for funds:** Individuals and/or entities, generally entrepreneurs, startups and/or organizations in need of financial flows,
- b) **Funders:** The contributor and/or investors who have funds to invest,
- c) **Financing platforms:** it is a web interface, an intermediary between fund applicants and funders. This platform will allow

contributors to know the different projects and then make a choice to invest.

2.3.2 Stakeholders: it is noted that to make the crowdfunding system work and ensure its effectiveness, several stakeholders are taking an essential role:

a) The State: the State must ensure the steering of this activity by creating a climate encouraging contributors, investors, companies (especially the Very Small Enterprise (VSEs) and small and medium-sized enterprise (SMEs)) and/or creators to engage without constraint and this mainly by assuming two roles:

✓ **Protector role**, through the adoption and application of a regulatory and legal framework defining the right conditions and obligations of each direct and indirect actor (contributors, applicants for funds.. etc.);

✓ **Support role**, through state agencies and organizations, by offering grants, credits and financial assistance and by setting up tangible and intangible means to facilitate the process of raising funds.

b) Banks and financial institutions: traditional finance actors can themselves become key partners in crowdfunding platforms, but they can also create their crowdfunding platforms as an ancillary activity to their main activities and vice versa. Several platforms are seeking to establish alliances with financial entities to have a legal and regulatory framework.

c) Business Angels and venture capital: these are individuals (entrepreneurs, experts, etc...) and/or investment companies experienced and knowledgeable in different fields of entrepreneurship. They intervene to finance innovators of startups as well as project initiators.

d) Associations and Non-governmental Organizations:

A significant number of non-governmental organizations and associations have used this method to involve online savers in their funding assistance programs. However, others have created a partnership to collaborate and ensure effective proximity between

creators who do not have access to the conventional financial system, and the funders.

However, several experts and practitioners are active mainly in these different non-profit organizations by conducting seminars and forums bringing together financial politicians economists and entrepreneurs, etc., interested in this new method of financing to make all actors and stakeholders aware of the importance of this market in exponential development.

e) Social networks:

One of the main communication channels of Crowdfunding is the social networks, to lead its partner of crowdfunding and fund-raising with family, friends and family members, the fund applicant must act on its social network (Facebook, Twitter, Instagram, etc.) to ensure better publicity and visibility of its project on one side and to succeed in its fundraising process on the other side.

2.4) Types and models of crowdfunding: As previously stated in the introduction, there are three basic types of crowdfunding:

- **Crowdfunding (or Donation/Reward-based crowdfunding):** is defined as the granting of a project holder via the platforms of a donation, with or without rewards; (Bessière & Stéphanie, 2017).

- **Crowdlending (or Debt-based crowdfunding):** is defined as lending with or without interest to finance a project, without having to go through a financial intermediary.

- **Crowdequity (or Equity-based crowdfunding):** Investment in the capital, bonds or royalties. The financiers invest capital in the company in exchange for shares. This type of financing makes it possible to become a shareholder of a start-up and/or an SME, and this type of contribution usually occurs at the earliest stages of the company's life (Bessière & Stéphanie, 2017).

2.5) The process and main phases of a crowdfunding companion:

A crowdfunding campaign is generally divided into three distinct phases:

Phase 1: The pre-campaign:

According to (Bessière & Stéphany, 2014) the pre-campaign consists of different stages. The first is the preparation, filing, and selection of the project by the platform. During this stage, the contractor will have to build a file that will showcase his project on the platform. It must meet certain criteria necessary to be attractive. The project initiator will develop a communication strategy to reach the crowd by using his social network.

Phase 2: The campaign:

According to (Meyskens & Bird, 2015), during the campaign, the project initiator must be active on the platform and on social networks to motivate potential contributors to fund the initiative (Majid Yassine, 2016-2017).

Phase 3: The post-campaign:

✓ First practice, according to the principle “All Or Nothing”: which consists in the terms of the raising of funds, the obligation to reach and/or exceed the amount desired to collect to make the transfer, if the financial objective set is not achieved, the funds will be reimbursed to contributors through the platform.

✓ Second practice, according to the principle “Keep All” it is a question of transferring the sums collected to the applicants of the funds (creators) regardless of the outcome of the campaign.

3. Case study: Crowdfunding in the prerogatives of entrepreneurial finance in the World and Algeria:

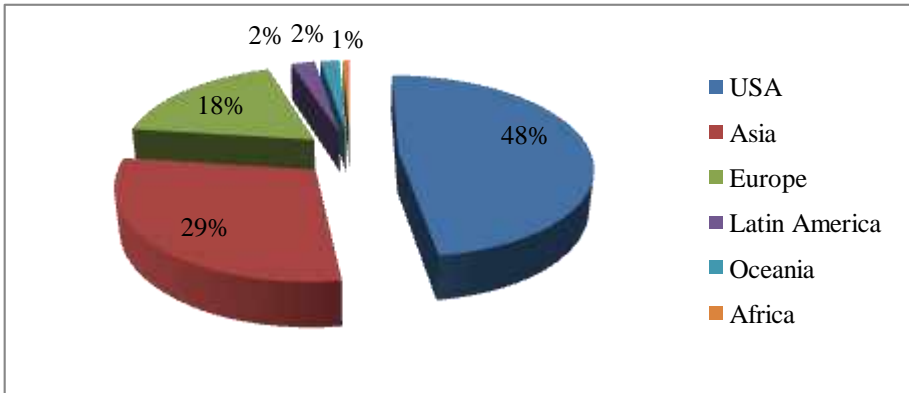
3.1) Crowdfunding in the World:

3.1.1 Global distribution of funds raised through the crowdfunding market:

According to several studies and reports (Fundly US web site of Crowdfunding, KPMG, and the World Bank), on the crowdfunding market which is growing exponentially, by raising around \$34 Billion in 2019, Of which \$17 Billion collected by the United States, ranked in

the top of the countries that have a significant share of this market, followed by Asia and Europe with \$10.54 Billion and \$6.48 Billion respectively.

Fig.01: Crowdfunding's Global Market in 2019



Source: by the authors based on (Fundly, 2019) report

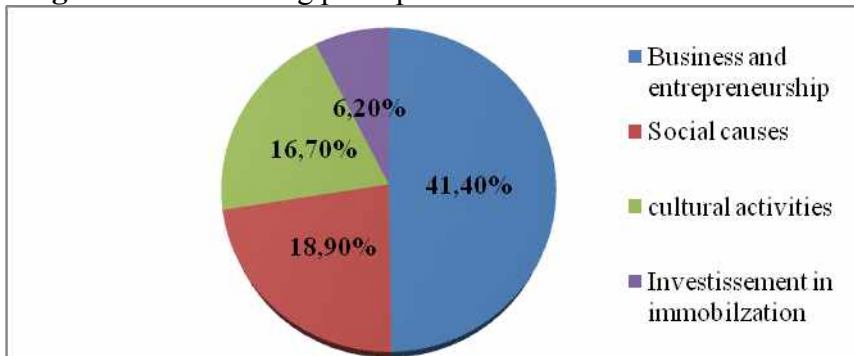
Africa shows a modest development of a rate of 1% (\$ 24.16 Million). However, the World Bank report estimates that this alternative mechanism could reach \$2.5 Billion in Africa by 2025 (Sijelmassi & Voutier, 2018).

3.1.2 Crowdfunding by economics sectors in 2019:

There are mainly four (04) economics sectors of crowdfunding in the world:

- Business and entrepreneurship,
- Cultural activity:
- Social causes,
- Invest and real estate

Fig.02: Crowdfunding principals’ economics sectors in 2019



Source: by the authors based on (Fundly, 2019) report

This graph shows that the business and entrepreneurship represent 41% of the total activity of fundraising by crowdfunding platforms in the world, followed by social causes and cultural activities by 19% and 17% respectively.

3.2) Crowdfunding in the prerogatives of entrepreneurial finance, case of Small and Medium-sized Enterprises in Algeria:

Our study consists of presenting a comparative analysis of the current situation (strengths and weaknesses) and the possible prospects (opportunities and risks) of crowdfunding in Algeria as a field of study and research target.

3.2.1 Challenges and prospects of crowdfunding in Small and Medium-sized Enterprises in Algeria:

The population chosen for our research concerns VSEs (with a workforce of fewer than 10 employees) and SMEs (with 10 to 200 employees) in Algeria, these small business are now positioning themselves as a real lever for the economies of emerging and developing countries, both for growth, export, investment, employment and innovation.

A) State of play and potential of Vses and SMEs in Algeria:

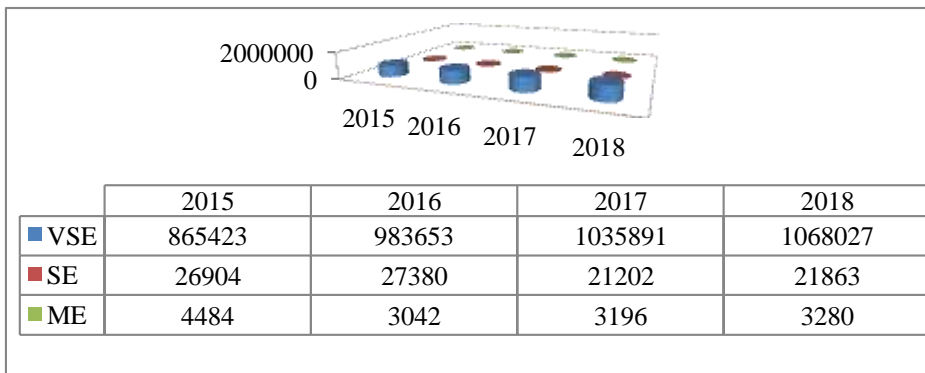
The information below provides a brief overview of SMEs and Vses in Algeria, a fact sheet in the last five years (Typology, number of

SMEs and Vses employed, etc.). According to the Algerian Ministry of Industry and Mines, the typology of SMEs is:

- Very small enterprise (VSE): Workforce of fewer than 10 employees,
- Small enterprise (SE): 10-49 employees,
- Medium-sized enterprise (ME): 50-249 employees.

a. Number and typology of VSEs and SMEs in Algeria:

Fig. 3: Typology and Number of SMEs in Algeria



Source: by the authors based on (Algerian Ministry of Industry and Mines, 2018) reports

It is noted that the creation of VSEs/SMEs is experiencing a positive progression from year to year of an overall rate that rises to 33% during the period 2015 to 2018.

During the last four years (2015-2018), it was noted that 97% of the entities are very small enterprises VSE (workforce of fewer than 10 employees), they remain very dominant in the economic fabric, whereas the SE and ME have very low rates of 2% and 0.5% respectively.

b. Evolution of the workforce in SMEs:

The table below shows the number of employees (overall workforce) working in SMEs, which marks a significant increase from 2 082 304 employees in the first half of 2014 to 2 690 246 employees in the first

half of 2018, and +23% in the fifth year of 2014-2018, this development corresponds to the creation of new SMEs during the same period.

Table 01: Trends in the total number of SMEs in Algeria

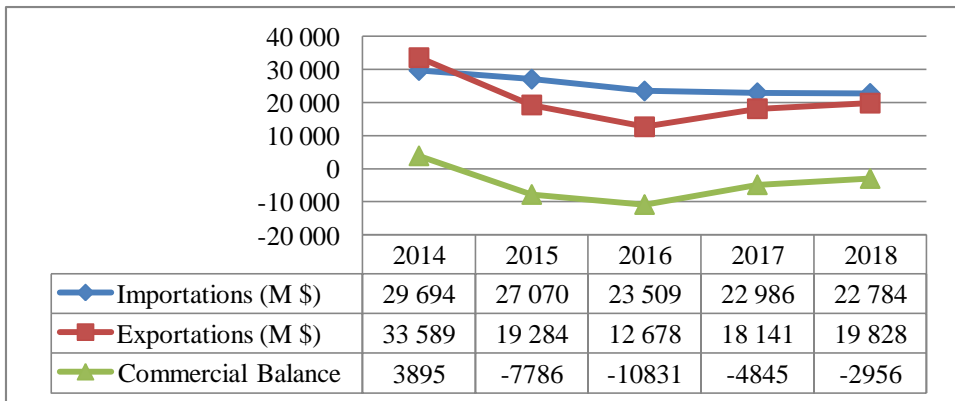
Designation	1 st S 2014	1 st S 2015	1 st S 2016	1 st S 2017	1 st S 2018
Employees	2 082 304	2 238 233	2 487 914	2 601 958	2 690 246

Source: by authors based on (Algerian Ministry of Industry and Mines, 2018) reports

c. Trade balance of SMEs :

The external trade balance is the difference between the amounts of export and import transactions. According to the statistical information bulletins of the Ministry of Industry and Mines, SMEs achieved a single trade surplus of +\$ 3.895 Million in 2014 during the last five years and a cover rate of more than 113%.

Fig. 4: Evolution of the trade balance of SMEs in Algeria



Source: by authors based on (Algerian Ministry of Industry and Mines, 2018) reports

During the period from 2014 to 2018, the trade balance of SMEs recorded several consequent deficits, despite the decrease in imports, but this remains insufficient given the decline in export operations. However, foreign trade coverage has improved significantly over the past three years (2016-2017-2018), as shown below:

Table 02: Foreign trade coverage last five years

Year	2014	2015	2016	2017	2018
Coverage %	113%	71%	54%	79%	87%

Source: by authors based on (Algerian Ministry of Industry and Mines, 2018) reports

d. Cessation of the activity of private SMEs:

According to the Ministry of Industry and Mines, the cessation of the activity of private SMEs in Algeria has a low but gradual rate from one year to the next, they are presented in the table as follows:

Table 03: Cessation of the SME activity in Algeria

Designation	2014	2015	2016	2017	2018
Number of SMEs	2 676	2 362	12 650	9 941	21 139

Source: by authors based on (Algerian Ministry of Industry and Mines, 2018) reports

e. Support mechanisms for business creation in Algeria:

Algeria has several programs to support and assist creators and entrepreneurs in need of capital. Among the most famous devices (non-exhaustive list) are:

- National Investment Development Agency "ANDI" scheme
- National Youth Employment Support Agency "ANSEJ" scheme
- National Microcredit Management Agency "ANGEM" scheme

Other organizations:

- CGCI-PME Guarantee Fund for Investment Credits for SMEs
- CNAC National Unemployment Insurance Fund
- FGAR SME Credit Guarantee Fund
- ECOFIE: Company of economic studies and financial analyses of the public market sector.

Since the launch of the NYESA (ANSEJ) system until the first half of 2018, it has been able to finance alone 374 325 projects, for a total

amount of 1 189 162 058 806 DZD, so this system has an average cost of 3 176 817 DZD per SME.

From the above, we can see that Algeria is a very fertile field for entrepreneurs, which explains the growth in the activities of VSEs and SMEs from one year to the next, which requires financial support and legal and regulatory framework by the State and to study all possible alternatives to encourage the creation of companies.

3.2.2 Crowdfunding in Algeria:

It was noted that crowdfunding exists in Algeria in two forms:

- Crowdfunding through international platforms by soliciting the Algerian diaspora living abroad.
- Crowdfunding from Algerian platforms

A. International Crowdfunding Platforms :

Several Algerians with projects ideas and initiative solicited international platforms of crowdfunding, wishing the participation of foreigners and mainly the contribution of the Algerian diaspora living abroad to raise the necessary funds. Among the 228 Algerian projects, listed on the crowdfunding platform KissKissbankbank, we have selected some projects that are presented in the following table:

Table 04: Projects of some Algerians at the Kisskissbankbank

Categories	Year	Entity	Project
Journalism	2014-2017	Maghreb Emergent	Financing Radio M
			Financing de 1 st et 2 nd Price of Ali BOUDOUKHA for the best investigation article
	2013-2014	Algérie Focus Magazine	2 operations of collecting funds for a traveling project
Theater, arts, and music	2018	Compagnie ISTIJMAM	The realization of a theatrical piece
	2013	Sidi Bémol,	New Album Tour Algiers Istambul and Bombay

Ecology and solidarity	2017	Association Atelier Solidaire	Bag for tour
	2018	AJOUAD	Honoring the memory of the victims of terrorism

Source: by authors based on (kisskissbankbank, 2019) platform

It should be noted that several Algerian entrepreneurs have also succeeded in being financed by other international crowdfunding platforms than Kisskissbankbank, and in the different fields of activity.

B. Algerian Crowdfunding platforms: Between the legal vacuum and the lack of a legal and regulatory framework, two Algerian platforms were created, Twiiza and Chriky, in 2013 and 2014 respectively.

b.1 TWIIZA: Created in September 2013, TWIIZA is an Algerian crowdfunding platform launched for the various applicants of funds (private individuals, association, company, producer, artist-entrepreneur, etc.). The Twiiza.com has 22 projects, of which 20 are currently being validated and 2 are being funded and implemented. They are divided by the following categories:

- Solidarity
- Art and Heritage
- Education
- Music
- Trade Show
- Entrepreneurship
- Sport and Adventure
- Technology
- Video Games

TWIIZA targets project holders in Algeria and contributors from around the world, the type of this crowdfunding is the donation with a symbolic counterpart, and the collection is done by bank transfer and/or postal mandate. However, the website ceased its activity since March 2016.

b.2. CHRIKY:

Created in August 2014, Chriky is the 2nd crowdfunding site and the first in its genre equity crowdfunding in Algeria, the founders did not hesitate to launch despite the various difficulties and constraints

encountered by the founders of Twiiza. Their methods of the collection are the same as that of Twiiza, based on bank transfer and payment by CCP Mandate (Postal Mandate).

Given the legislative framework in Algeria, Chriky is sited in France to benefit from a secure and clear legislative framework to carry out this activity. The web site has 120 projects pending validation, so no project received funding; its last activity was in April 2016.

4. General Findings and Results:

As part of our study of crowdfunding and its impact on the entrepreneurial finance of Small and Medium-sized Enterprises in Algeria, we noted the following:

- The state of play of small and medium-sized enterprises in Algeria has shown that entrepreneurship is a fertile and growing field, which explains the increased need of creators for financing from one year to the next.
- Entrepreneurs face administrative and financial difficulties and constraints in obtaining financing credits from banks and financial institutions,
- Crowdfunding has become a reliable alternative mechanism for entrepreneurs and creators, through its transparency speed and management,
- Crowdfunding is a growing global market, with several countries adopting their systems in this new model. Currently, Tunisia and Morocco are in the process of validating draft laws for the adoption of crowdfunding,
- International crowdfunding platforms have financed hundreds of Algerians, which has contributed to the creation of VSEs and SMEs on one side and the continuity of several liberal activities on the other side,
- Crowdfunding has a positive impact on job and wealth creation,
- The failure of the two first experiments of crowdfunding of TWIIZA and CHRIKY platforms in Algeria, comes back to several failures such as:
 - ✓ The absence of a legal and regulatory framework in Algeria governing this activity according to specifications respecting the standards of transparency and security, This explains why

Algerians use international crowdfunding platforms to seek funding for their projects;

- ✓ A delay in the initiation and establishment of a reliable E-payment system in Algeria;
- ✓ Very low internet penetration;
- ✓ No mobilization of the State and economic agents and actors to supervise and promote this new activity.

5. Conclusion:

Crowdfunding is a reliable alternative approach to raise funds for Vses and SMEs in need of financing. However, this reliability is not limited to the proper application of a legal and regulatory framework, and the State's commitment to adopt this model does not guarantee its success. However other criteria and factors must be put in place beforehand. Therefore, to integrate crowdfunding as a new aid and support for entrepreneurship in Algeria, we need:

- Promotion of information and communication technologies among users of organizations and potential users;
- Digitization and introduction of e-payment, and mobile payment;
- Raise awareness among individuals, economic actors, and agents of the benefits of this new market, and the importance of promoting and contributing to such a project.

From the above, we have found that the major problem for the success of Crowdfunding in Algeria lies in reality on the socio-cultural aspect of the actors of this model which takes precedence over other technologies and regulatory aspects.

Finally, we hope that this research work has contributed to a better knowledge of the Crowdfunding mechanism, and its impact on the development of entrepreneurship in Algeria and the world.

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The impact of marketing innovation on improving the quality of tourism service

Case Study of Sidi Yahia Boat

أثر الابتكار التسويقي على جودة الخدمة السياحية

دراسة ميدانية بالمركب السياحي سيدي يحي بسكرة

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Abstract:

This research aims to change the mentality and mechanisms by which the active agents in the Algerian tourism sector's work, with new mechanisms based on marketing innovation in its tourism programs, and most important of all is to improve the image of Algeria Tourist destination .To do theoretical and applied study, we used a set of secondary and primary tools to apply the field study to the tourist boat Sidi Yahia in Biskra.

keyword: Marketing innovation; Service Quality of Tourism; Tourism Sector. JEL classification code : XN1, XN2

ملخص:

يهدف هذا البحث الى تغيير الذهنية والآليات التي يعمل بها الأعوان الفاعلة بالقطاع السياحي الجزائري، بميكانيزمات جديدة مبنية على أساس تبني الابتكار التسويقي في برامجها السياحية، والاهم من كل هذا هو تحسين صورة الجزائر كمقصد سياحي. فللقيام بالدراسة النظرية والتطبيقية إستعنا بجملة من الادوات الثانوية والأولية لتطبيق الدراسة الميدانية على المركب السياحي سيدي يحي بمدينة بسكرة .

الكلمات المفتاحية : الابتكار التسويقي ؛ جودة الخدمة السياحية؛ القطاع السياحي.

تصنيف JEL : XN1 ، XN2

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1. Introduction :

Innovation in the business world has become a prerequisite for economic organizations to achieve, especially in an environment characterized by competition for survival and growth and the associated pressures and threats at the local and global levels. That forces organizations to search for areas of excellence, seeking leadership and a gain of the largest market shares as well as keeping up with organizations The competition.

We find that the tourism sector, like the rest of the other vital sectors, is witnessing fierce competition recently, especially in the provision of similar and diverse services of quality satisfying the need of tourists. This can be attributed to the increasing number of organizations active in this sector, which must adopt the concept of marketing innovation, which is one of the most important entry points Competitive advantage, through the development and renewal of the marketing mix and thus upgrading a higher level of tourism services provided to the tourist customer. Which we are trying to address in this study through the following problem:

What is the Impact of Marketing Innovation on Improving the Quality of Tourism Service?

To answer the main problem above, the following partial questions were formulated:

Are there statistically significant differences between the trends of service providers and customers on the innovation of the tourist boat Sidi Yahia?

- Are there statistically significant differences between the trends of service providers and customers on the quality of tourist services in the tourist boat Sidi Yahia?

- Is there a statistically significant effect of marketing innovation in improving the quality of tourist service in the tourist boat Sidi Yahia?

• **The First main hypothesis:** There is no statistically significant effect of marketing innovation in improving the quality of tourist service in the tourist boat Sidi Yahia at the level of 0.05".

- **The Second main hypothesis:** There are no statistically significant differences between the trends of service providers and customers on marketing innovation in the tourist boat Sidi Yahia at the level of 0.05."

- **The Third main hypothesis:** There are no statistically significant differences between the trends of service providers and customers on the quality of tourism services in the tourist boat Sidi Yahia at the level of 0.05".

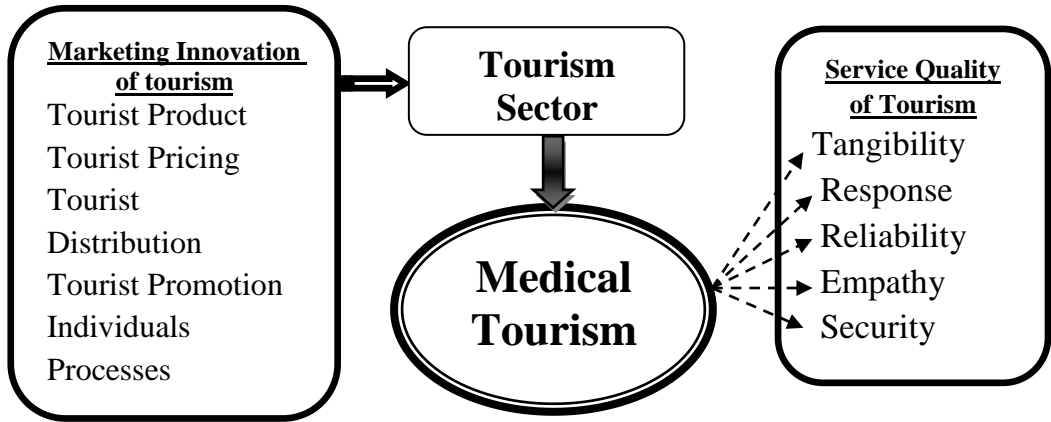
Research Objectives:

This project attempts to improve upon the mentality and mechanisms by which the active agents in the Algerian tourism sector deal with the customers (tourists), including private and public enterprises, operate with new mechanisms based on innovation, through which the following objectives can be achieved.

- To work to improve the efficiency of tourism institutions and improve their effectiveness through the adoption of marketing innovation in their tourism programs.
- Trying to qualify the active staff in the tourism sector, being the most important link in the way of providing service to the tourist customer. After training this staff on the way to adopt the concept of marketing innovation, and change the reality of tourism in Algeria and improve the quality of services provided by tourism institutions.
- Improve the image of Algeria as a touristic destination, and change the pessimistic view that accompanied the Algerian tourism for a long time ago.

Research Model:

Preliminary study model



Source: Organize by the researchers

Methodology:

In order to obtain efficient results of economic value and have a scientific addition through which we can improve the current situation of the tourism sector in Algeria, which we doubt its authenticity, but the validity of our results is relative as the rest of the results obtained in the rest of the studies. We believe that the **Descriptive approach** is the ideal by relying on the information from the related literature to marketing innovation and the quality of tourism service. In order to conduct the theoretical framework for research and to encompass all its aspects, understand its components and analyze all its dimensions. Here, the first part of the study, which is taught in a **qualitative approach**.

The second approach is the **analytical methods**, in which this approach is used to collect data from the sample vocabulary to express the phenomenon studied quantitatively and qualitatively, using a set of primary data collection tools, mainly in the form, **interview and observation**, which are studied by a **quantitative approach**.

2. Conceptualizing Marketing innovation

The needs and desires of consumers are the starting point of any marketing business, and since these needs or desires are constantly changing and evolving, it was paramount to find a way to detect these needs. Thus, it is marketing innovation that meets these needs and search for the discovery of new and even underlying needs that the consumer cannot disclose or express them by imagining and working on solutions that the consumer did not think about.

1.2. Concept of Marketing Innovation:

Marketing innovation can translate into "significant changes in design or packaging in form, appearance, design or even taste, as it can be demonstrated by creating new sales channels, new ways of display, or promotion (new types of packaging, new logo, Loyalty card ...) ". Which we know as as "implementing new or significantly modified methods or sales in order to facilitate market access for products. Design or packaging changes are marketing innovations.

It is also defined as "New or unconventional ideas put the site of actual application into practice, and may focus on the product element, whether reputation or service, either on the price element, on the promotion element, on the distribution element, or all of these elements at the same time. This kind of innovation is directed to the marketing mix elements together. "

Innovative marketing is defined as: the process of introducing something that is new, effective and important to the market.

Innovation in marketing is the implementation of a new marketing method that involves significant changes in product design, packaging, placement, promotion or pricing.

Thus, it can be said that marketing innovation is the process of generating ideas, developing and implementing them efficiently and effectively covering all marketing practices.

2.2. Service innovation

The service is the main element of the marketing mix, or the component of the rest of the mix, it is the link between the organization and the customer.

As for service innovation, it means: “the introduction of a new or improved service into the market compared to its basic characteristics and technical features, or all intangible components in addition to expected use or ease of consumption.” Accordingly, an innovative service or new service is anything that can be changed, added, improved or developed to satisfy the needs and desires of current or future customers in targeted market segments. Innovation in goods and services is done in the following ways:

1.2.2. Introducing new services for the first time: Is the new products to the institution and customers put on the market for the first time.

- **Add new product lines:** are not new products on the market but new to the enterprise.
- **Expansion of existing product lines:** The Corporation is introducing new products to its current product line where its characteristics and specifications are close to the current products.
- **Improve existing products:** make adjustments and improvements to their existing products.
- **Replacement of products:** In this case, the organization is re-positioning its products in certain market sectors for various reasons such as changing the behavior of consumers in these sectors, discovering new uses of its products.

2.2.2. Innovation in the development of new services:

It is intended to add new features to these services, which will increase the demand for these services.

New services that the Organization has not previously offered and provided in the market for a particular segment of clients for the first time are considered new.

Service innovation can be classified into four types:

- **Service Innovation:** Adding entirely new services to the service organization or market in which it operates.

- **Process Innovation:** Renew the traditional procedures for the production and delivery of the service, and is divided into two categories: innovation in procedural processes (backend) and innovation in the process of delivery (front end).
- **Market innovation:** such as entering a new industry and marketing it.
- **Innovation of the business model:** the creation of a new concept of work embodies the three types of creativity previous.

3. Service Quality of Tourism:

The tourist service represents a group of works that provide tourists with the convenience and when ordering and consuming services and tourism goods during their travel time, or during their stay in touristic facilities away from their place of origin. With the increasing awareness of consumers and changes in their requirements from time to time, and the unity of competition in the competitive environment, it became imperative for touristic organizations to opt for market quality services to ensure attracting tourists and stay in the market.

1.3. Quality Definition :

Quality defines a service as a criterion to the extent that the actual performance of the service matches the expectations of the customer for this service, or is the difference between the customer's expectations and its perception of the actual performance of the service.

It is also a concept that reflects the suitability of the tourist service already provided to the expectations of the beneficiary (tourist) of the service, which is to provide high quality and continuously and beyond the ability of other competitors.

It can also be defined from many points as follows:

- From the product point of view: quality conforming to the specifications and standards specified for the tourist service, which must be provided free of defects from the first time, the quality here is internal quality.

- From the point of view of the service provider: quality means the best performance, that is, the ability of the tourist service, to

achieve the end-use required, as well as the low customer complaints, and quality here external quality includes the term entity: product, service, activity, process, person or organization, including Product term: The output of activities and processes can be: raw materials, tools, services, software, etc.

- From the customer's point of view: Quality means the ability of tourism service to satisfy the needs, phenomenon or potential required, while respecting the safety requirements of the consumer, and respect for the environment for the community, and quality here is external quality.

The quality of the tourist service is represented by the degree of satisfaction provided by the tourist service provided to its student, and the expression of the extent of the commitment of tourism organizations to fulfill the wishes and needs of the tourist customers and achieve their expectations and aspirations and thus gain their satisfaction. It can be said that the quality of services is not fixed and varies from person to person and that the recipient of the service is judged on the level of quality by comparing what he got with the expectations of saturation of that service.

2.3. The Approach of Quality Service of Tourism :

One can determine the quality of tourism service by a number of dimensions that derive from the characteristics and concept of quality of service that the customer can base on their assessment of the quality of service they receive. Different perspectives in determining the dimensions of the quality of service, which have been agreed upon by most researchers are: reliability, response, warranty, empathy, and tangibility, which were adopted in this research. These dimensions are explained below : (*Parasuraman and others ,1994,p207; Anisah Herdiyanti and others ,2017,p602; Souca, Ma. L.,2011, 421; Asubonten and others 1996, P65; Leonard L and others, 1993, p13; Ehsan Akhlaghi and others, 2012, Pages 5286; N.M. Stefano et al, 2015, p434; Sheetal b. Sachedev, Harsh V.Verma, **Relative importance of service quality dimensions a multisectoral study**, journal of services reasearch, volume 4, number 1 (april- september 2004).*)

Reliability : refers to the ability of the service provider to perform the promised tourism service reliably and with a high degree of health and accuracy in terms of commitment to time, and performance exactly as promised, and to rely on the service provider in this regard.

Rresponse: the ability and willingness and willingness of tourism service providers to be permanently in the service of customers and their ability to perform service to them when they need it.

Security: it reflects the degree of security and confidence in the service provided and by the provider, as well as the extent of the risks of the results of receiving the service from this organization or the provider or both.

Tangibility: appearance of physical facilities available to the service organization and the appearance of personnel, tools and means of communication and all related to the physical equipment necessary to perform the service.

Empathy : it means that the tourist service provider is respectful and polite and friendly with the clients, and this aspect indicates the degree of customer care and privacy and attention to their problems.

4. Applied framework:

1.4. Study population and sampling: The study population consists of customers and service providers in the tourist boat Sidi Yahia Biskra, where a random sample of (78) samples were distributed. 74 of them were retrieved and considered to be testable, while the excluded forms were inconsistent with the validity of the questionnaire.

2.4. Methodology of the study: We adopted in the applied side of the study on the analytical and statistical method through the dump data in the program spss, and after extracting the results we started the analytical side of the field study.

3.4. Statistical Methods Depended on: We relied on the questionnaire as the main tool in this research, which was divided into three main parts, the first part is related to the personal information of the studied sample, the second is devoted to the axis of marketing innovation. For the research questions and testing the validity of its

hypotheses, the SPSS program was used, using a set of statistical tools, whether the central tendency or dispersion measures, the stability coefficient "Alpha Kronbach", the test "Klomagrov-Smirnov", the test (Levene's Test for Equality of Variances), Test-t and the correlation coefficient "R".

4.4. Stability of the study tool :

The following table represents the reliability and reliability coefficients to verify the validity of the research tool (questionnaire) as follows:

Table 1 : Stability and honesty coefficient.

variable	The number of statements	Stability coefficient Alpha	
		" Kronbach	Honesty coefficient
Marketing Innovation S Q of Tourism	18	0.872	0.939
	22	0.930	0.964
The questionnaire	40	0.993	0.996

Source: Authors construction based on SPSS outputs

The results of the table above shows that the total stability index of the study tool reached (0.993) which is a very high stability coefficient and suitable for research purposes, which through this rate can be adopted in other studies in the same field and this is our full confidence in its validity and validity to analyze the results.

5.4. Presenting and analyzing the results of the study :

a. Questionnaire Analysis:

To analyze the axes of the questionnaire, the central tendency measures were used by extracting the arithmetic mean and standard deviation to explain the level of acceptance of the sample of the research sample on each of the terms of the instrument, and also on each of its dimensions.

Table 2 : Arithmetic averages, standard deviations and the relative importance of the responses of the respondents to the search for phrases of the marketing innovation axis

Independent variable	Arithmetic mean Standard	Deviation	Acceptance level
Marketing Innovation	4,3338	,939810	High

Source: Authors construction based on SPSS outputs

Based on the above, we note that the level of marketing innovation in the compound of Sidi Yahya has a high and very good ratio: "(4.3338) and standard deviation of: (0.939810). It is a high arithmetic average according to the study scale. Which we identify as a large approval of the study sample on this variable marketing innovation. That shows that the sample of the study largely agree on the role of large marketing innovation and its remarkable impact in improving the quality of tourism service. It has become clear to us that the Sidi Yahya boat is very interested in the form and design of the boat, and shows great interest in innovation in the marketing mix of the product / Service, pricing, distribution, promotion, operations, physical environment, and individuals). However, the interest in the ideas of the announcement of the tourist services that offer offers is still nascent, but according to officials of the compound, this requirement of the future goals that the compound will work to achieve them.

After calculating the mean and standard deviation of the marketing innovation variable, which represents the independent variable of the study, we now turn to the general direction of the five dimensions of marketing innovation "**Tangible, Reliability, Responsiveness, Empathy and Safety**" (*Asubonteng, P and others, 1996, p 65;Souca, Ma. L., 2011, p422*), by calculating the averages of each dimension with the standard deviation in the following table.

Table 3: Arithmetic averages, standard deviations and the relative importance of the responses of the respondents to the search for the quality of tourism service

<i>Dimensions Number</i>	<i>Service Quality of Tourist DIMENSIONS</i>	<i>Median</i>	<i>Deviation</i>	<i>Acceptance level</i>
1	Tangibility	4,890	0,939	High
2	Reliability	4,447	0,830	High
3	Response	4,235	0,908	High
4	Safety	4,085	0,937	High
5	Empathy	4,012	0,866	High
-	Service Quality of Tourism in General	4,3338	0,742	High

Source: Authors construction based on SPSS outputs

After the "tangibility" came first in terms of the relative importance given to him by the research sample, where the arithmetic mean of the answers for this dimension ratio: (4,890) standard deviation estimated at: (0.939) according to the study scale, the dimension of tangibility indicates a very high acceptance ratio.

After the "reliability" came in second place in terms of the relative importance given to him by the research sample, where the arithmetic mean of the answers for this dimension ratio: (4,447) standard deviation estimated at: (0.830) According to the study scale, the reliability dimension indicates a high acceptance ratio very.

After the "response" came in the third order in terms of the relative importance given to him by the research sample, where the arithmetic average of the answers for this dimension ratio: (4,235) standard deviation estimated at: (0.908) According to the study scale, the response rate indicates a high acceptance rate very.

After the "safety" came in third place in terms of the relative importance given to him by the research sample, where the arithmetic mean of the answers for this dimension ratio: (4,085) standard

deviation estimated at: (0.937) According to the study scale, the safety dimension indicates a high acceptance rate very.

After "empathy" came in third place in terms of the relative importance given to him by the research sample, where the arithmetic mean of the answers for this dimension ratio: (4,012) standard deviation estimated at: (0.866). According to the study scale, the sympathy dimension indicates a high acceptance rate very.

6.4. Test Hypotheses of the study

•**Test The First main hypothesis:** There is no statistically significant effect of marketing innovation in improving the quality of tourist service in the tourist boat Sidi Yahia at the level of 0.05".

To test this hypothesis, we used a simple regression analysis test to verify the impact of marketing innovation on the quality of tourism services as shown in the following table:

Table 4: Analysis of the results of simple regression of marketing innovation and service quality of tourism

Model	Regression coefficient "B"	Hard	Correlation coefficient "R"	The coefficient of determination "R ² "	"F" value calculated	"T" value calculated	SIG :
Marketing Innovation	.8250	1,278	,7890	,5470	26,028	5,102	0.000

Source: Authors construction based on SPSS outputs

We can see from the table above that the correlation coefficient between the marketing innovation and the quality of tourism service is positive and equal to (0.789). That is a significantly high rate, which indicates that by developing the innovation in the marketing mix elements the boat can improve the quality of the tourism service, which also confirms that the regression coefficient is also positive and high. Equivalent to (0.825), while the coefficient of determination was (0.547), which indicates that (54.7%) of the variation in the level of

quality of tourism service is explained by the boat's efforts in the field of marketing innovation. In addition, the calculated value of F is significant at the level of significance 5% evidence that the level of significance of the relationship between marketing innovation and tourism service quality is equal to (0.000). That is well below the required level of significance (0.05), which indicates that there is a trace of the attempts of the boat to introduce innovations in the marketing mix directed to customers in improving quality in tourism services. It can be seen from the table that the calculated "T" is equal to (5,102) It is greater than the tabular "T" which equals (1,96) at a function level (5%), and with a degree of freedom 0.05.

Based on the above analysis, we reject the first main hypothesis, which states that: There is no statistically significant effect of marketing innovation in improving the quality of tourism service at the level of 0.05.

In terms of the linear regression relationship between marketing innovation X and the quality of tourism services Y, it can be formulated with the following mathematical relationship: $Y = 825X + 1,278$

It is clear from the results of the main hypothesis that marketing innovation has an impact in improving the quality of tourism service, and we explain this that Sidi Yahya applies marketing innovation in every dimension of tourism service quality and a very high degree in all dimensions of tourism service quality.

• **Test The Second main hypothesis:** There are no statistically significant differences between the trends of service providers and customers on marketing innovation in the tourist boat Sidi Yahia at the level of 0.05."

Independent Samples T Test was used to test the second main hypothesis concerning the difference between two averages of two independent communities. In this regard, we will test two independent samples, customers and service providers in the tourist boat under study. To test this hypothesis, we used the Test- t, as shown in the following table:

Table 5: Test-t Homogeneity in Marketing Innovation by Tourism Service providers and customers

Marketing Innovation	Levene's test for Equality Variance		Test-t						
	F	مستوى الدلالة	T	df	Sig(2 tailed)	Mean difference	Std. Error Difference	Confidence Interval 95% of the Difference.	
								Lower	Upper
Y	1,423	,165	2,120	49	,015	,62905	,45666	,08985	1,0036

Source: Authors construction based on SPSS outputs

According to the Levens test (sig = 0,256) and therefore heterogeneity among the study population, the test t (sig = 0,025). There are no differences in the trends of tourism service providers and customers on the level of application of marketing innovation in the tourist boat Sidi Yahia. Therefore, we accept the main hypothesis. In addition, there are no statistically significant differences between service providers and customers' trends on marketing innovation in the tourist boat of Sidi Yahia at a level of 0.05. thus we conclude that the high level of marketing innovation applied by the boat of Sidi Yahia is perceived by customers as innovation in providing Tourist service, individuals and work This is primarily through response and successful treatment.

• **Test the Third main hypothesis:** There are no statistically significant differences between the trends of service providers and customers on the quality of tourism services in the tourist boat Sidi Yahia at the level of 0.05".

We tested the third main hypothesis using the Test-t test, as shown in the following table:

Table 6: Test-t Homogeneity in Tourism Service Quality by Tourism Service providers and customers

Service Quality of Tourism	Levens test for standard deviation		Test-t اختبار						
	F	Sig	T	df	Sig(2 tailed)	Mean difference	Std. Error Difference	Confidence interval of 95% difference	
								lower	upper
Y	1,88 1	,17 9	2,227	49	,041	,56111	,25193	,05483	1,0673 8

Source: Authors construction based on SPSS outputs

The above table shows the Levens homogeneity tests for tourist service quality. It was found that there is a homogeneity between service providers and customers, whose level of significance was (0.179) which is greater than 0.05, as the results of the t-test showed that both service providers and customers of the boat are replaced. The same trend is applied on the level of tourist service quality applied in the boat, according to the level of significance estimated at (0.041), from which we accept the second main hypothesis which states that: There are no statistically significant differences between the trends of service providers and customers on the quality of tourism services. For the compound of Sidi Yahia at the indication level of 0.05, this means that for cheek providers Of tourism in the composite perception is true to the level of customer satisfaction for the quality of services, which we found is located in the high area, and this perception contributes to the payment of service providers to improve, through attention to the achievement of the service dimensions studied, as well as focus on innovation and marketing as one of the basic approaches to improve the quality of tourism services.

5. Study Methodology :

Analytical methods, in which this approach is used to collect data from the sample vocabulary to express the phenomenon studied quantitatively and qualitatively, using a set of primary data collection

tools, mainly in the form, **interview and observation**, which are studied by a **quantitative approach**.

6. Study Results :

- There is an impact of marketing innovation in improving the quality of tourism service of the boat case study, through its attempt to develop new tourism services.

- There is an impact of marketing innovation in improving the concrete aspects of the boat case study.

- There is an impact of marketing innovation in improving the reliability of the tourist service of the boat case study, through the effective performance of therapeutic services, for the modernity of the boat building, both individual and collective baths, through which customers enjoy quality services.

- Marketing innovation has an impact on the customer's sense of security in the case study, through employees' concern for the safety of customers and their purposes, as well as the confidentiality of their information. Perhaps the enormous space owned by the boat contributed significantly to the increase of arrivals and this is due to the availability of sheds for cars and shops, as well as diverse tourist spaces....

There is an impact of marketing innovation in improving the compassion and care factor in the boat case study, through the boat trying to develop a lasting relationship with customers and attention to people with special needs. Such framework ensures the social responsibility of the boat and perhaps embrace the boat for many cultural and social events demonstrates its great ability to contain as many as possible Of customers.

- And. There is no difference in the attitudes of service providers and customers in the boat.

- The case study has a great potential for change and renewal, as the services provided are continuously updated and updated with improvements to existing services, or the addition of new tourism services.

- The case study followed a very attractive pricing policy that

contributed to its reputation and made it a tourist destination for visitors from all states of the country and even foreigners.

According to the field study of the boat we found that most customers agree that the tourist boat Sidi Yahia is attractive in design, as it is compatible with cultural heritage.

- The case study consists of employees of the National Institute of Hotels graduates who possess excellent skills and qualifications in the field of providing tourism services, whether at the level of hotels or treatment centers, making them able to solve the problems of customers, and provide them with the necessary information.

- Lack of the use of brochures and wall stickers to advertise the different types of tourist services provided by the boat, their prices, characteristics, times of use, and places of existence, which made customers not familiar with the offers of the boat case study.

The case study has a high level of safety and security, whether in the provision of equipment and facilities in the treatment centers, or in the facilities available in the hotel of the boat, the safety element is an important factor to ensure the provision of the boat workers from the top management to the base management. This to avoid any defect It may impede the proper and good delivery of tourism services that attract thousands of customers annually.

Customers from all over the world can book the boat via the Internet. Therefore, the boat has a high level distribution system, booking via the Internet is active, and therapeutic service, which is one of the most important activities on which the boat depends on almost 18 hours for both women and men. In addition to the possession of the SPA space, which is dedicated to the treatment of steam SONA, as well as the availability of muscle massage rooms monitored by specialists in this area. Additionally, to all this boat case study contains entertainment that can be used by the client in times of rest before and after the activity and therapeutic spaces Big Dedicated to children's games and hiking.

- The boat is interested in distinguishing its service providers through uniforms for each field, allowing customers to identify them, satisfaction them, and seek service and advice from them.

- Customers acknowledge the good treatment of service providers in the case study, by listening carefully to customer concerns, providing the necessary information, and the assistance they need, indicating the availability of human behavior to service providers in general.

- The Tourist boat Sidi Yahia reflects the nature of the Algerian desert heritage, which is characterized by simplicity and tranquility, as most of the interior design of the boat is designed according to the desert environment of the region, which increased the place suit and the desire of visitors to return again.

7. Conclusion

Based on the results of the field study; which has been presented in advance, we can formulate the following suggestions, which could help researchers as well as workers in the field of marketing and tourism marketing:

Establishing a culture of marketing innovation as an important element to ensure the survival of the tourism institution in the changing environmental conditions and intense competition.

- Attention to creative individuals by supporting them, involving them in the decision and motivating them to continue.

- Supporting innovative projects in the field of tourism, and patience in evaluating them until achieving commercial successes.

- To give the marketing function its position and weight within the tourist institution and rely on the screening of ideas and study the market until the provision of services to customers, any upstream to downstream.

- To focus on marketing innovations in all marketing activities in the tourism organization because of its significant impact on customer behavior and preferences and achieve strategic satisfaction for all competitors.

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9. Appendices:

1. *Stability and honesty coefficient*

Alpha Kronbach	The number of statements
0..872	18
0.930	22
0.993	40

2. Median, and std deviation

Statistics				
	N		Median	Std. Deviation
	Valid	Missing		
	Service Quality of Tourism in General	74	0	4,3338

3. Appendices of T. Test on the details above

Statistics				
	N		Median	Std. Deviation
	Valid	Missing		
Tangibility	74	0	4,890	0,939
Reliability	74	0	4,447	0,830
Response	74	0	4,235	0,908
Safety	74	0	4,085	0,937
Empathy	74	0	4,012	0,866
Service Quality of Tourism in General	74	0	4,3338	0,742

The Long-Run Effect of Quantitative Easing on Financial Stability in USA: An Econometric Study Based on ARDL Approach

أثر التيسير الكمي على الاستقرار المالي في المدى الطويل في الولايات المتحدة الأمريكية:

دراسة قياسية معتمدة على مقارنة ARDL

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Abstract:

This study examines the long-run impact of quantitative easing on financial stability in USA during the period from the third quarter of 2008 and the final quarter of 2018. The unit root tests showed that some variables are stationary at level whereas others are stationary at first difference. Then, the ARDL bounds testing approach was applied.

The results indicate that QE has a weak significant positive long-run effect on FS in the United States. Based on these results, the study recommends that the QE policy should not be overstated.

keyword:Quantitative Easing; Financial Stability; ARDL

JEL classification code : E52, E58

ملخص:

تختبر هذه الدراسة أثر التيسير الكمي على الاستقرار المالي في المدى الطويل في الولايات المتحدة الأمريكية للفترة الممتدة من الربع الثالث من عام 2008 إلى الربع الأخير من عام 2018. ولقد أظهرت اختبارات جذر الوحدة أن بعض المتغيرات مستقرة عند المستوى والبعض الآخر مستقر عند الفرق الأول. وعليه تم استخدام مقارنة ARDL من خلال اختبار الحدود. وتوصلت نتائج الدراسة الى وجود أثر إيجابي ومعنوي ضعيف لسياسة التيسير الكمي على الاستقرار المالي في المدى الطويل في الولايات المتحدة الأمريكية. وبناءً عليه، توصي الدراسة بعدم المبالغة في تطبيق سياسة التيسير الكمي.

الكلمات المفتاحية : التيسير الكمي؛ الاستقرار المالي؛ ARDL

تصنيف JEL : E58،E52

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1. Introduction and literature review :

Quantitative easing (QE) is a monetary policy to increase the money supply by injecting liquidity into the economy by buying government assets back from the market. It increases the capital within the financial sector, and therefore, increases the amount which banks lend to consumers and small businesses, in an effort to promote economic growth. However, it is usually done when interest rates are already extremely low and there are no other measures which can be taken. Through the purchase of long-term government bonds, the central bank decreases yields and, consequently, overall financial costs. QE also impacts the economy by devaluing the home currency hence making export goods more competitive. Therefore it is believed that the increase in government expenditure will lead to increased consumption, which will further increase the demand for goods and services, thus fostering job creation and, ultimately, creating economic vitality.(Magavi, 2012, p. 3)

The most high-profile form of unconventional monetary policy has been Quantitative easing. The phrase was first applied to Japan as it dealt with the bursting of a real estate bubble and the deflationary pressures that followed in the 1990s. The central banks of the US, the Euro area and the UK have all followed Japan in adopting policies that have led to substantial increases in their balance sheets, although there are significant differences both amongst themselves and with Japan in terms of how they have implemented QE and other unconventional policies.(Joyce, Miles, Scott, & Vayanos, 2012, p. 274)

Fed has bought US Treasuries but also large quantities of agency debt and agency-backed mortgage backed securities. The first quantitative easing was announced on November 25, 2008, that the Fed would purchase \$500 billion in mortgage-backed securities and up to \$100 billion in agency debt of Fannie Mae, Freddie Mac, Ginnie Mae, and Federal Home Loan Banks. Furthermore, in March 2009, the Fed expanded the mortgage buying program with additional purchase of \$750 billion more in mortgage-backed securities. Overall, when this first round of LSAP ended on March 31, 2010, it purchased a total of \$1.25 trillion in mortgage-back securities and \$175 billion in agency

debt. The main purpose of this action was to reduce the cost and increase the availability of credit for the purchase of houses, which in turn should support housing markets and foster improved conditions in financial markets more generally. The second quantitative easing was announced on August 10, 2010 Federal Open Market Committee will keep constant the Federal Reserve's holdings of securities at their current level by reinvesting principal payments from agency debt and agency mortgage-backed securities in longer-term Treasury securities. Additionally, the Fed started purchasing \$600 billion of longer-term securities. It was intended to promote a stronger pace of economic recovery. The third quantitative easing was announced on September 13, 2012 that the Fed was committing to an open-ended purchase of \$40 billion in agency MBS per month until the labor market improves substantially. On December 12, 2012, the Fed decided to continue and magnify the attempt of the third round of quantitative easing by increasing the amount of open-ended purchase from \$40 billion to \$85 billion per month.(Joanne, 2015, p. 2) The monthly purchase consisted of \$45 billion of U.S. Treasury securities and \$40 billion of mortgage-backed securities. (Williamson, 2017, p. 10)

The implications of all of these programs for the Fed's balance sheet can be observed in Figure 1 in Appendices. From December 2007 to October 2014, the Fed's total assets increased from \$882 billion to \$4.5 trillion— five times its pre-crisis size. By the end of the quantitative easing program, it will gradually decline to about \$4.1 trillion in December 2018.

The vast majority of studies on the Fed's QE address its impact on financial markets, long-term interest rates and other macroeconomic variables. Fuster and Willen(Fuster & Willen, 2010) studied the effect of MBS purchase on the mortgage market and found that the purchase of MBS under QE improved the mortgage market via boosting mortgage refinancing activity rather than house purchase as intended by the Fed, and the benefit of QE is disproportionately skewed towards borrowers with high creditworthiness. Krishnamurthy and Vissing-Jorgensen (Krishnamurthy & Vissing-Jorgensen, 2011) using the interaction of different characteristics of assets purchased, showed that QE1 and QE2 lowered the nominal interest rates on Treasuries,

Agencies, corporate bonds and MBS through the portfolio balance and signaling channels, but the effect is heterogeneous, as the purchase of US Treasuries has stronger effect on long-term safe assets while lower-rate corporate bonds are more influenced by MBS purchase. Williamson (Williamson S. D., 2014) constructed a model of money, credit and banking, and showed that QE done with US Treasuries lowers inflation through the liquidity channel, which goes against the intention of the Fed. Woodford (Woodford, 2016) compared three alternative dimensions of central bank policy — conventional interest-rate policy, increases in the central bank's supply of safe liabilities, and macroprudential policy — and concluded that quantitative easing policies increase financial stability risk (in the absence of an offsetting tightening of macroprudential policy), but they actually increase such risk less than either of the other two policies, relative to the magnitude of aggregate demand stimulus; and a combination of expansion of the central bank's balance sheet with a suitable tightening of macroprudential policy can have a net expansionary effect on aggregate demand with no increased risk to financial stability. Shogbuyi and Steeley (Shogbuyi & Steeley, 2017) examined the impact on the variance-covariance structure of UK and US equity markets of the QE operations implemented by the Bank of England (BoE) and the Federal Reserve (Fed), and they found that while QE operations in general reduced equity volatility, day to day operations generated spikes in volatility in UK equities and they also found that BoE operations increased the covariance between the UK and US equity markets. Ronkainen and Sorsa (Ronkainen & Sorsa, 2017) suggested that the Fed has legitimated the QE programmes somewhat successfully, Fed has been able to conduct the large-scale purchases, and their legitimation have been imitated by other central banks. But many social institutions influencing Fed's activities have not been aligned with the formal institutions of finance-led growth regimes. Moreover, the asset class limitations of Fed's legal constraints make it difficult to conduct QE consistently. Reisenbichler (Reisenbichler, 2019) showed that QE programmes have supported private housing markets to different degrees as part of these balance sheet expansions. While the Fed has bought close to \$2 trillion in mortgage debt, the ECB has purchased housing-related bonds much less extensively. He also showed that growth models, and the role of housing within them, explain these

monetary policy differences in the United States and the eurozone. Labonte(Labonte, 2019) provided an overview of how the Fed’s monetary policy works and recent developments, and showed that the increase in the Fed’s balance sheet has the potential to be inflationary because bank reserves are a component of the portion of the money supply controlled by the Fed (called the monetary base), which grew at an unprecedented pace during QE, but in practice, overall measures of the money supply have not grown as quickly as the monetary base, and inflation has remained below the Fed’s goal of 2% for most of the period since 2008. The growth in the monetary base has not translated into higher inflation because bank reserves have mostly remained deposited at the Fed and have not led to increased lending or asset purchases by banks.

In this paper we examine the long-run impact of quantitative easing on financial stability in USA during the period from the third quarter of 2008 and the final quarter of 2018.

Researchers have utilized various methods to establish weightings for the variables included in the aggregate financial stability index (AFSI). This paper uses the method of equal weighting across indicators. Furthermore, in order to aggregate the variables into a single index each indicator is normalized to allow for comparability across variables by using the method of empirical normalization. Under this method, the indicators’ values will range between 0 and 1, where a value of 0 represents the weakest value of an indicator. More specifically, the formula used for the normalization process is: (Albulescu, 2010, p. 86)

$$I_{it} n = \frac{I_{it} - \min(I_i)}{\max(I_i) - \min(I_i)}$$

where I_{it} represents the value of type i indicator during the t period; $\min(I_i)$ and $\max(I_i)$ is the minimum respectively the maximum value registered for type i indicator in the analyzed period; $I_{it}n$ is the indicator’s normalized value.

The individual indicators, grouped into the composite (or partial) stability indexes which reflect the dimension of the financial stability,

are presented in Table 1 in Appendices. The formulas used to calculate the composite indexes are:

$$FDI = \frac{1}{3} \sum_{j=1}^3 I_{dj} \quad ; \quad FVI = \frac{1}{8} \sum_{j=1}^8 I_{vj} \quad ;$$

$$FSI = \frac{1}{5} \sum_{j=1}^5 I_{sj} \quad ; \quad WECEI = \frac{1}{3} \sum_{j=1}^3 I_{wj} .$$

Finally, the aggregate financial stability index is composed as follows:

$$AFSI = \frac{1}{19} (3 \times FDI + 8 \times FVI + 5 \times FSI + 3 \times WECEI) ,$$

from which we obtain the following formula:

$$AFSI = 0.16 \times FDI + 0.42 \times FVI + 0.26 \times FSI + 0.16 \times WECEI .$$

The evolution of the AFSI and its sub-indexes in the United States over the sample period are presented in Figure 2 in Appendices. A general positive evolution of the AFSI can be observed starting with 2010 after the deterioration that occurred after the financial crisis in 2008, despite the severe deterioration in the World Economic Climate Index (WECEI), thanks to the positive development of the Financial Development Index (FDI) and the Financial Soundness Index (FSI).

2. Data and methodology :

The quarterly data used in this study which aims to determine the relationship between QE and FS for the period 2008Q3 to 2018Q4, in USA are obtained from the websites of the Federal Reserve, the Federal Reserve Bank of St. Louis, the Organisation for Economic Co-operation and Development and the Ifo Institute for Economic Research. The models to be used for the analysis are as follows:

$$QE_t = \alpha_0 + \alpha_1 FS_t + \varepsilon_t \quad (1)$$

$$FS_t = \beta_0 + \beta_1 QE_t + \varepsilon_t \quad (2)$$

where QE_t is the ratio of quantitative easing to total assets of the

Federal Reserve; FS_t is the aggregate financial stability index (AFSI); α_i and β_i are parameter estimates and ε_t is the error term.

According to Pesaran et al. (Pesaran, Shin, & Smith, 2001, p. 291), if one of the variables' unit root degree is higher than I(1), the critical values obtained by Pesaran et al. cannot be used in the Autoregressive Distributed Lag (ARDL) approach. These critical values are based on I(0) and I(1). Therefore, it is necessary to determine whether or not the variables abide by the assumptions of the ARDL bound testing approach by performing the unit root test at the first stage of the analysis. In the first phase of the econometric analysis in this framework, the Augmented Dickey-Fuller (ADF) and Phillips-Perron (PP) unit root tests are to be performed to determine the degrees of integration of the series. The ADF and PP unit root test results are shown in Table 2 in Appendices.

As noted in Table 2, QE variable is stationary in level (I(0)) at significant level of 5%, while FS variable is stationary in the first difference (I(1)) at significant level of 1%.

After the degrees of integration of the series are determined, the ARDL method developed by Pesaran et al. (2001) is used. The ARDL bound testing approach has several advantages. The first advantage involves the applicability of the ARDL method, irrespective of whether the series are either I(0) or I(1). Two asymptotic critical bounds are utilized in the ARDL method. If the obtained F-statistic value exceeds the critical upper bound, the null hypothesis which claims a long-run relationship between the variables would be rejected. If the F-statistic value is below the critical lower bound, the null hypothesis cannot be rejected, and the result is that there is no long-run relationship between the variables. If the F-statistic value is between two critical bounds, no comments can be made. Table 3 and 4 in Appendices indicate the ARDL test results for Equations (1) and (2), respectively.

Since the F-test value of Equation (1) is below the lower bound at 10% significance level, no long-run relationship between the variables involved in the analysis is found. Since the F-test value of Equation

(2) is above the upper bound at 1% significance level, a long-run relationship is found between the variables.

Based on the results of the ARDL bound testing, no long-run relationship between the variables for Equation (1) and the long-term coefficients are found by using ARDL model for Equation (2).

The results of the Error Correction Model (ECM) are shown in Table 5. In order to comprehend the short-term adaptation process, the sign and the magnitude of the error correction coefficient $ECM(-1)$ should be considered. Since the $ECM(-1)$ coefficient is between -1 and 0 ($ECM(-1) = -0.53$ with $Prob = 0$), the adaptation process may be monotonic towards the long-term equilibrium value. According to the magnitude of $ECM(-1)$, any deviation of the equilibrium will be corrected at the speed of 53% quarterly, or the financial stability will take approximately two quarters for full adjustment. To explain further, it is the speed of convergence towards a new long-run equilibrium after a shock due to QE.

The estimated coefficients in ARDL model adequate, only if the model is statistically viable. The Table 6 reports the results of diagnostic tests. The Jurqu-Bera test of the model accepts the null of "residuals are normally distributed", the Breush-Pagan-Godfrey heteroscedasticity test indicates that the residuals are not serially correlated and the ARCH test shows that the residuals have no heteroskedasticity problem. Further, Cumulative sum (CUSUM) and CUSUM of squares (CUSUMSQ) tests (see Figure 3) show that estimated parameters are stable over the period.

The goodness of fit indicators of the ARDL model shows that estimated long-run coefficients are efficient and adequate. According to the estimation results of the ARDL model in which the financial stability variable is considered as a dependent variable and the quantitative easing variable is considered as an independent variable, there is a long-run relationship between the variables, suggests a 1% increase in the quantitative easing rate reduces the financial stability rate by 0.28%. This result indicates that the quantitative easing policy

has a weak significant positive long-run effect on the stability of the financial system in the United States.

3. Conclusion :

This study examines the impact of the quantitative easing policy on the stability of the financial system in the United States in the long term analyzing time series data from the third quarter of 2008 to the final quarter of 2018. First, the Augmented Dickey-Fuller (ADF) and Phillips-Perron (PP) tests were used to examine for unit roots and cointegration. The results show that the variable QE is stationary at level whereas the variable FS is stationary at first difference. Then, the autoregressive distributed lag (ARDL) bounds testing approach was applied to cointegration which is more appropriate for estimation in small sample studies. We found cointegration relations between the independent variable QE and the dependent variable QE in the ARDL model.

The results indicate that QE has a weak significant positive impact on FS the long-run in the United States, although that the quantitative easing eases financial conditions by reducing the spread between the required return on risky investments and the return on safe assets. And this reduces the incentive for private issuance of safe liabilities and favors financing of investment through issuance of non-safe liabilities, which is desirable on monetary and financial stability grounds. But this does not imply the creation of conditions under which it should be more tempting for banks to take on greater risk.

Based on these results, the study recommends that the quantitative easing policy should not be overstated. In addition, taking into account the importance of stock market development, as well as attract more domestic and foreign investment.

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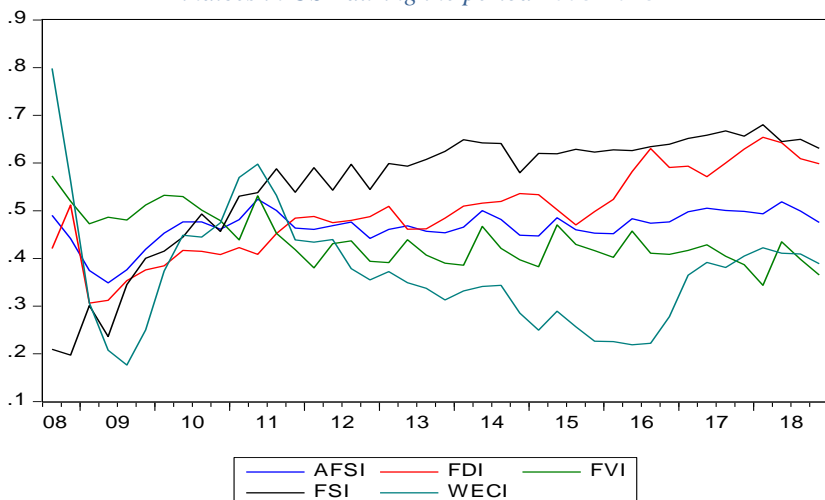
15. Appendices :

Fig.1: Federal Reserve assets during the period 2008-2018

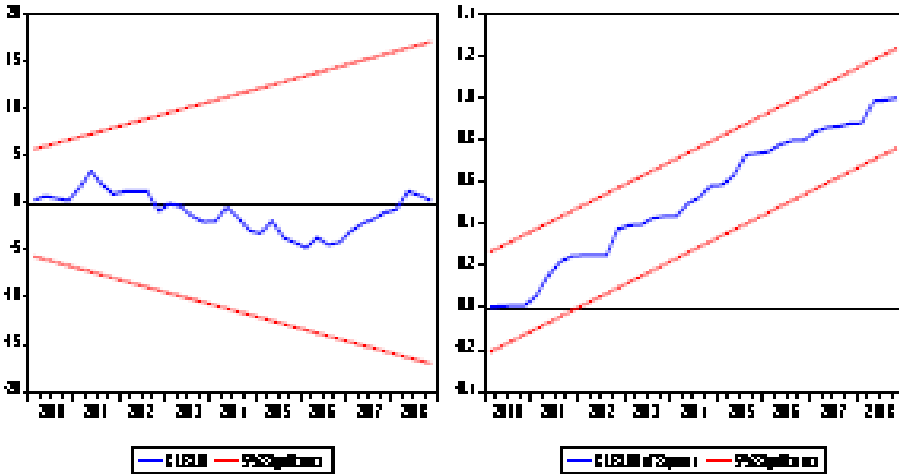


Source: Prepared by researchers, based on Fed reports.

Fig.2: The trend of the aggregate financial stability index and its composites indices in USA during the period 2008-2018



Source: Prepared by researchers, based on EViews 9 software.
 Fig.3:CUSUM and CUSUMSQ tests for parameter stability



Source: Prepared by researchers, based on EViews 9 software.
 Table 1:Individual indicators for financial stability analysis

Indicators	Symbole	Impact	Subgroup
Market Capitalization/GDP	I_{d1}	+	Financial Development Index (FDI)
Total Credit/GDP	I_{d2}	+	
Interest Spread	I_{d3}	-	
Inflation Rate	I_{v1}	-	Financial Vulnerability Index (FVI)
General Budget Deficit/Surplus (%GDP)	I_{v2}	+	
Current Account Deficit/Surplus (%GDP)	I_{v3}	+	
Real Effective Exchange Rate (REER)	I_{v4}	-	
Non Governmental Credit/Total Credit	I_{v5}	+	
Loans (%deposits)	I_{v6}	-	
Deposits/M2	I_{v7}	+	
(Reserves/Deposits) / (Note & Coins/M2)	I_{v8}	+	
Non Performing Loans/Total Loans	I_{s1}	-	Financial Soundness Index (FSI)
Regulatory Capital / Risk Weighted Assets	I_{s2}	+	
Own Capital / Total Assets	I_{s3}	+	
Liquidity Ratio	I_{s4}	+	
General risk ratio	I_{s5}	-	
World Economic Growth	I_{w1}	+	World Economic Climate Index (WECI)
World Inflation Rate	I_{w2}	-	
Economic Climate Index	I_{w3}	+	

Source: Prepared by researchers, based on (Albulescu, 2010, p. 81) and (Verlis, 2010, p. 7).

Table 2: The ADF and PP unit root test results for QE and FS series

Unit Root Test		ADF		PP	
At Level					
Variable		FS	QE	FS	QE
With Constant	t-Stat	-4.6495	-3.2065	-2.7033	-4.2542
	Prob.	0.0006	0.0267	0.0821	0.0017
	Stationarity	***	**	*	***
With Constant & Trend	t-Stat	-3.917	-2.3981	-3.498	-2.7097
	Prob.	0.0215	0.3751	0.0529	0.2383
	Stationarity	**	n0	*	n0
None	t-Stat	0.5903	1.0174	-0.2517	0.658
	Prob.	0.8396	0.9155	0.5894	0.8542
	Stationarity	n0	n0	n0	n0
At First Difference					
Variable		d(FS)	d(QE)	d(FS)	d(QE)
With Constant	t-Stat	-4.6901	-10.4248	-7.106	-5.487
	Prob.	0.0007	0	0	0
	Stationarity	***	***	***	***
With Constant & Trend	t-Stat	-4.5902	-4.8388	-7.4364	-6.3317
	Prob.	0.0048	0.0026	0	0
	Stationarity	***	***	***	***
None	t-Stat	-6.6906	-4.8134	-6.5143	-5.1687
	Prob.	0	0	0	0
	Stationarity	***	***	***	***
Notes: a: (*)Significant at the 10%; (**)Significant at the 5%; (***) Significant at the 1% and (no) Not Significant b: Lag Length based on AIC c: Probability based on MacKinnon (1996) one-sided p-values.					

Source: Prepared by researchers, based on EViews 9 software.

Table 3: The ARDL bound test results for Equation (1)

ARDL Bounds Test

Date: 12/06/19 Time: 14:04

Sample: 2009Q3 2018Q4

Included observations: 38

Null Hypothesis: No long-run relationships exist

Test Statistic	Value	k
F-statistic	3.295813	1

Critical Value Bounds

Significance	I0 Bound	I1 Bound
10%	4.04	4.78
5%	4.94	5.73
1%	6.84	7.84

Test Equation:

Dependent Variable: D(QER)

Method: Least Squares

Date: 12/06/19 Time: 14:04

Sample: 2009Q3 2018Q4

Included observations: 38

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(QER(-1))	0.113667	0.109771	1.035492	0.3090
D(QER(-2))	0.178520	0.085943	2.077183	0.0467
D(QER(-3))	-0.071261	0.046316	-1.538602	0.1347
D(AFSI)	0.053348	0.082280	0.648377	0.5218
D(AFSI(-1))	0.029090	0.084117	0.345822	0.7320
D(AFSI(-2))	-0.130462	0.082747	-1.576632	0.1257
C	0.167646	0.067889	2.469413	0.0197
AFSI(-1)	-0.044363	0.094302	-0.470432	0.6416
QER(-1)	-0.155350	0.065654	-2.366196	0.0249
R-squared	0.939212	Mean dependent var		0.009256
Adjusted R-squared	0.922443	S.D. dependent var		0.027220
S.E. of regression	0.007581	Akaike info criterion		-6.723070
Sum squared resid	0.001666	Schwarz criterion		-6.335221
Log likelihood	136.7383	Hannan-Quinn criter.		-6.585076
F-statistic	56.00832	Durbin-Watson stat		2.234489
Prob(F-statistic)	0.000000			

Source: Prepared by researchers, based on EViews 9 software.

Table 4: The ARDL bound test results for Equation (2)

ARDL Bounds Test

Date: 12/06/19 Time: 14:01

Sample: 2009Q1 2018Q4

Included observations: 40

Null Hypothesis: No long-run relationships exist

Test Statistic	Value	k
F-statistic	20.69581	1

Critical Value Bounds

Significance	I0 Bound	I1 Bound
10%	4.04	4.78
5%	4.94	5.73
2.5%	5.77	6.68
1%	6.84	7.84

Test Equation:

Dependent Variable: D(AFSI)

Method: Least Squares

Date: 12/06/19 Time: 14:01

Sample: 2009Q1 2018Q4

Included observations: 40

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(AFSI(-1))	0.250413	0.119541	2.094792	0.0433
C	0.176463	0.037191	4.744703	0.0000
QER(-1)	0.113919	0.023965	4.753576	0.0000
AFSI(-1)	-0.592942	0.095081	-6.236156	0.0000
R-squared	0.568853	Mean dependent var		0.000847
Adjusted R-squared	0.532924	S.D. dependent var		0.024679
S.E. of regression	0.016866	Akaike info criterion		-5.232343
Sum squared resid	0.010241	Schwarz criterion		-5.063455
Log likelihood	108.6469	Hannan-Quinn criter.		-5.171278
F-statistic	15.83274	Durbin-Watson stat		1.892122
Prob(F-statistic)	0.000001			

Source: Prepared by researchers, based on EViews 9 software.

Table 5: The ARDL cointegrating and long run form for Equation (2)

ARDL Cointegrating And Long Run Form

Dependent Variable: AFSI

Selected Model: ARDL(2, 0)

Date: 12/08/19 Time: 05:35

Sample: 2008Q3 2018Q4

Included observations: 40

Cointegrating Form				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(AFSI(-1))	0.247239	0.120524	2.051373	0.0476
D(QER)	0.147948	0.031565	4.687091	0.0000
CointEq(-1)	-0.533020	0.089404	-5.961931	0.0000
Cointeq = AFSI - (0.2776*QER + 0.2174)				
Long Run Coefficients				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
QER	0.277566	0.056469	4.915331	0.0000
C	0.217351	0.050955	4.265520	0.0001

Source: Prepared by researchers, based on EViews 9 software.

Table 6: The diagnostic tests for ARDL approach for Equation (2)

Breusch-Godfrey Serial Correlation LM Test:			
F-statistic	1.093451	Prob. F(2,34)	0.3466
Obs*R-squared	2.417342	Prob. Chi-Square(2)	0.2986
Heteroskedasticity Test: ARCH			
F-statistic	0.212924	Prob. F(1,37)	0.6472
Obs*R-squared	0.223149	Prob. Chi-Square(1)	0.6367
Histogram– Normality Test			
Jarque-Bera	0.564269	Prob.	0.7542

Source: Prepared by researchers, based on EViews 9 software.

*The impact of coronavirus (Covid-19) on world's economy
-Algeria study case-*

أثر فيروس كورونا (كوفيد-19) على الاقتصاد العالمي -دراسة حالة الجزائر-

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Abstract: This article aims to identify the role of the coronavirus (Covid-19) in influencing the world's economy, with highlighting the Algerian situation, by presenting the nature of Coronavirus (Covid-19), how it is affecting the world's economy, with a focus on Algeria. Among the most important findings in this article is that the Coronavirus (Covid-19) has influenced the world's economy with very negative effects in most fields. Algeria took some measures to face the pandemic, but it will face financial difficulties regarding the decreased oil prices in GM.

keyword: Coronavirus, Covid-19, World, Economy, Algeria.

JEL classification code : XN1, XN2

ملخص: يهدف هذا المقال إلى تحديد أثر فيروس كورونا (كوفيد-19) على الاقتصاد العالمي، مع تسليط الضوء على الوضع الجزائري، من خلال عرض طبيعة فيروس كورونا، وكيف يؤثر على الاقتصاد العالمي، مع التركيز على الجزائر. من بين أهم النتائج المتوصل إليها في هذا المقال، أن فيروس كورونا من أكثر الفيروسات ضررا وأكثرها سرعة في الانتشار، كما قد أثر على الاقتصاد العالمي بتأثيرات سلبية للغاية في معظم المجالات. اتخذت الحكومة الجزائرية عدة إجراءات لمواجهة هذه الجائحة، وبما أن اقتصادها يعتمد على المحروقات، فسوف تواجه صعوبات مالية بسبب انخفاض أسعار النفط في السوق العالمية.

الكلمات المفتاحية: كورونا، كوفيد-19، العالم، الاقتصاد، الجزائر.

تصنيف JEL : F62

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1. Introduction :

COVID-19 spread with a very fast speed in China after the country first alerted the World Health Organization to several cases of unusual pneumonia at the end of December 2019, in which some measures have been taken in order to contain the spread of the virus within Hubei Province, the epicenter of the pandemic, even though these measures weren't good enough to contain the spread of the coronavirus (covid-19), because the virus has spread globally. According to the World Health Organisation (WHO), the world is counting 750,890 of confirmed cases being infected with the coronavirus, With a total of 36,405 deaths until March 31st 2020. Algeria—like most countries—is being affected by the coronavirus (covid-19) socially and economically. From this point, we raise the following main question:

“How the coronavirus (covid-19) is affecting the world’s economy generally, and Algeria particularly ?”.

From the main question, we can formulate these sub-questions:

- 1- How did the coronavirus (covid-19) appear, and what are the ways of its propagation ?
- 2- How is the coronavirus (covid-19) affecting the world’s economy ?
- 3- What are the effects of the coronavirus (covid-19) on Algeria both socially and economically ?

As pre-answers to those sub-questions:

- 1- The coronavirus (covid-19) has zoonotic origins, and its propagation is caused by the transmission of the virus from one person to another.
- 2- The coronavirus (covid-19) is affecting the world’s economy by the shut of several companies in multiple sectors.
- 3- The coronavirus (covid-19) is affecting Algeria, by the shut of most commercial activities, and pausing the work which can lead to lower productivity.

This article aims to achieve these goals:

- The identification of the coronavirus (Covid-19).
- The exchange of experiences in the field of global economy.
- Showing the influence of coronavirus (Covid-19) on the world’s economy in general and on Algeria in particular.

In order to reach the above objectives and test the proposed hypotheses we have divided our article to three sections, the first section highlight

on the nature of coronavirus (Covid-19), the second section shows the influence of coronavirus (Covid-19) on world's economy. The third and last section points on the impact of the coronavirus on Algeria.

2. The nature of Coronavirus (Covid-19):

The Coronavirus is the common problem faced by all the countries of the world, also known as "Covid-19" which is an abbreviation for "Corona virus disease of 2019", but before highlighting the nature of Covid-19, which was set as a global pandemic by the World Health Organization (WHO), we must know what does the word pandemic means, and what is the difference between pandemic and other virus spread descriptions as: outbreak, epidemic and endemic.

2.1. Difference between the word pandemic and other virus spread descriptions:

In this part we will highlight on the difference between pandemic, outbreak, epidemic and endemic.

2.1.1. Definition of Pandemic:

First of all what is "**Pandemic**" Modern definitions include "extensively epidemic", it is an epidemic over a very wide area and usually affecting a large proportion of the population, and distributed or occurring widely throughout the continents or globally, and it has the same source (David and al, October 2009, P 1018).

2.1.2. Definition of Epidemic:

An "**Epidemic**" is the occurrence in a community or region of cases of an illness, specific health-related behavior, or other health-related events clearly in excess of normal expectancy (Marsh, January 2020 P2).

Also It is an occurrence of a group of illnesses of similar nature and derived from a common source, in excess of what would be normally expected in a community or region (Arinjay, April 2020).

2.1.3. Definition of Outbreak:

An "**Outbreak**" is the sudden occurrence of a disease in a community, which has never experienced the disease before or when cases of that disease occur in numbers greater than expected in a defined area (Arinjay, April 2020).

2.1.4. Definition of Endemic:

An "**Endemic**" means a disease occurs all the time, and with predictable regularity, in a specific area or population. Or disease that

occurs regularly in a particular area, as malaria does in many tropical countries (Shamsul, April 2020).

2.2. The Coronavirus (Covid-19):

In this part we will talk about the appearance and progression of Covid-19, its definition, its survival in the environment and the ways of its transmission.

2.2.1. Appearance and propagation of Covid-19:

Coronavirus disease 2019 (COVID-19) emerged in December 2019 in Wuhan, the capital of Hubei province, China. While the outbreak in China is almost over, this highly contagious disease is currently spreading across the world and throughout EU/EEA Member States, with a daily increase in the number of affected countries, confirmed cases and infection-related deaths. Updated data are published on a daily basis on the ECDC, US Centers for Disease Control and Prevention (CDC) and World Health Organization (WHO) websites. On 30 January 2020, the World Health Organization (WHO) declared that the outbreak of COVID-19 constituted a Public Health Emergency of International Concern (PHEIC). Based on the high levels of global spread and the severity of COVID-19, on 11 March 2020, the Director-General of the WHO declared the COVID-19 outbreak a pandemic (ECDC Report, March 2020, P 1).

As of 25 March 2020, more than 416 916 cases of COVID-19 were reported worldwide by more than 150 countries. An increasing proportion of global cases are from EU/EEA countries and the UK. As of 25 March, 204 930 cases and 11 810 deaths have been reported in the EU/EEA and the UK. The number of reported COVID-19 cases is rapidly increasing in all EU/EEA countries and the UK, and the notification rate is increasing at similar trajectory as was observed in Hubei province in late January/early February and in Italy in late February/early March. Clinical presentations of COVID-19 range from no symptoms (asymptomatic) to severe pneumonia; severe disease can lead to death. In EU/EEA countries with available data, 30% of diagnosed COVID-19 cases were hospitalised and 4% had severe illness. Hospitalisation rates were higher for those aged 60 years and above. Estimates of crude case-fatality for Germany, Italy and Spain showed that both the risk and absolute numbers of deaths rapidly increased with age for those aged 60 years and above in each country.

Among hospitalised cases, severe illness was reported in 15% of cases, and death occurred in 12% of these cases, with higher case–fatality rates in older adults (Rapid risk assessment, March 2020, P 1).

2.2.2. Definition of Coronavirus (Covid-19):

The word Coronavirus refers to any of various RNA-containing spherical viruses of the family Coronaviridae (**Coronavirus**, April 2020). Which cause severe acute respiratory syndrome (Secretary of state Regulations, 2020, P 1).

The “COVID-19” is an acute respiratory disease caused by a newly emerged zoonotic coronavirus. A positive-sense enveloped single-stranded RNA virus, named Severe Acute Respiratory Syndrome Coronavirus-2 (SARS-CoV-2), has been isolated from a patient with pneumonia, and connected to the cluster of acute respiratory illness cases from Wuhan. Genetic analysis has revealed that it is closely related to SARS-CoV (ECDC Report, March 2020, P 1).

2.2.3. Survival in the environment:

In light of limited data for SARS-CoV-2, evidence was assessed from studies conducted with previous human coronaviruses including MERS-CoV and SARS-CoV. Human coronaviruses can survive on inanimate objects and can remain viable for up to 5 days at temperatures of 22-25°C and relative humidity of 40-50% (which is typical of air-conditioned indoor environments). Survival on environmental surfaces is also dependent on the surface type.¹ An experimental study using a SARS-CoV-2 strain reported viability on plastic for up to 72 hours, for 48 hours on stainless steel and up to 8 hours on copper.¹ Viability was quantified by end-point titration on Vero E6 cells. Extensive environmental contamination may occur following an aerosol generating procedure (AGP). The rate of clearance of aerosols in an enclosed space is dependent on the extent of any mechanical/natural ventilation – the greater the number of air changes per hour (ventilation rate), the sooner any aerosol will be cleared. The time required for clearance of aerosols, and thus the time after which the room can be entered without a filtering face piece (class 3) (FFP3) respirator, can be determined by the number of air changes per hour (ACH) as outlined in WHO guidance; in general wards and single rooms there should be a minimum of 6 air changes per hour, in negative-pressure isolation rooms there should be a minimum of 12 air

changes per hour. Where feasible, environmental decontamination should be performed when it is considered appropriate to enter the room/area without an FFP3 respirator. A single air change is estimated to remove 63% of airborne contaminants, after 5 air changes less than 1% of airborne contamination is thought to remain (DHSC and al, March 2020, P 9-10).

2.2.4. Ways of transmission:

COVID-19 is transmitted via droplets and fomites during close unprotected contact between an infector and infectee. Airborne spread has not been reported for COVID-19 and it is not believed to be a major driver of transmission based on available evidence; however, it can be envisaged if certain aerosol-generating procedures are conducted in health care facilities. Fecal shedding has been demonstrated from some patients, and viable virus has been identified in a limited number of case reports. However, the fecal-oral route does not appear to be a driver of COVID-19 transmission; its role and significance for COVID-19 remains to be determined (WHO Team, February 2020, P 8).

3. The influence of Coronavirus (Covid-19) on world's economy:

In this section we will highlight on the effects of the virus on human life worldwide, and the impact coronavirus (Covid-19) on China since this country is playing an important role in world's economy.

3.1. The effects of the virus on human life worldwide:

The spread of the novel coronavirus has led to a substantial disruption of global economic activity through a reduction in international production, travel, and trade. This supply shock has led many economists to express concerns about an upcoming global recession. Global leaders have rightly prioritized efforts to prevent widespread contagion in order to reduce the burden on countries' health care systems and minimize the loss of human lives (Christopher, April 2020).

Table (01): Covid-19 data worldwide (until 31 march 2020)

Reporting Country/ Territory/Area ¹	Total confirmed † cases	Total confirmed new cases	Total deaths	Total new deaths	Transmission classification [†]	Days since last reported case
Western Pacific Region						
China	82545	98	3314	4	Local transmission	0
Republic of Korea	9786	125	162	4	Local transmission	0
Australia	4359	393	18	2	Local transmission	0
Malaysia	2626	156	37	3	Local transmission	0
Japan	1953	87	56	2	Local transmission	0
Philippines	1546	128	78	7	Local transmission	0
Singapore	879	35	3	0	Local transmission	0
New Zealand	600	48	1	0	Local transmission	0
Viet Nam	203	15	0	0	Local transmission	0
Brunei Darussalam	127	1	1	0	Local transmission	0
Cambodia	107	4	0	0	Local transmission	0
Mongolia	12	0	0	0	Imported cases only	3
Lao People's Democratic Republic	8	0	0	0	Local transmission	1
Fiji	5	0	0	0	Local transmission	5
Papua New Guinea	1	0	0	0	Imported cases only	10
Territories**						
Guam	58	2	1	0	Local transmission	0
French Polynesia	36	1	0	0	Local transmission	0
New Caledonia	15	0	0	0	Local transmission	3
Northern Mariana Islands (Commonwealth of the)	2	0	0	0	Under investigation	2
European Region						
Italy	101739	4050	11591	810	Local transmission	0
Spain	85195	6398	7340	812	Local transmission	0
Germany	61913	4615	583	128	Local transmission	0
France	43977	4335	3017	415	Local transmission	0
The United Kingdom	22145	2619	1408	180	Local transmission	0
Switzerland	15412	1138	295	38	Local transmission	0
Belgium	11899	1063	513	82	Local transmission	0
Netherlands	11750	884	864	93	Local transmission	0
Turkey	10827	1556	168	37	Local transmission	0
Austria	9618	805	108	22	Local transmission	0
Portugal	6408	446	140	21	Local transmission	0
Norway	4226	124	26	4	Local transmission	0
Sweden	4028	328	146	36	Local transmission	0
Czechia	3002	173	24	8	Local transmission	0
Ireland	2910	295	54	8	Local transmission	0
Denmark	2577	182	77	5	Local transmission	0
Poland	2055	193	31	9	Local transmission	0
Luxembourg	1988	38	22	1	Local transmission	0

Romania	1952	192	44	4	Local transmission	0
Russian Federation	1837	303	9	0	Local transmission	0
Finland	1313	95	13	2	Local transmission	0
Greece	1212	56	43	5	Local transmission	0
Iceland	1086	66	2	0	Local transmission	0
Croatia	790	77	6	0	Local transmission	0
Serbia	785	44	13	0	Local transmission	0
Slovenia	763	33	11	0	Local transmission	0
Estonia	715	36	3	0	Local transmission	0
Ukraine	549	69	13	2	Local transmission	0
Lithuania	484	0	7	0	Local transmission	1
Armenia	482	0	3	0	Local transmission	1
Hungary	447	0	15	0	Local transmission	1
Latvia	376	0	0	0	Local transmission	1
Andorra	370	29	8	2	Local transmission	0
Bosnia and Herzegovina	359	34	9	3	Local transmission	0
Bulgaria	359	13	8	0	Local transmission	0
Slovakia	336	0	0	0	Local transmission	1
Kazakhstan	312	18	1	0	Local transmission	0
Republic of Moldova	298	35	2	0	Local transmission	0
North Macedonia	285	26	7	1	Local transmission	0
Azerbaijan	273	83	4	0	Local transmission	0
Cyprus	230	16	7	1	Local transmission	0
San Marino	230	1	25	1	Local transmission	0
Albania	223	0	11	1	Local transmission	1
Malta	156	5	0	0	Local transmission	0
Belarus	152	0	0	0	Local transmission	1
Uzbekistan	149	4	2	0	Local transmission	0
Kyrgyzstan	107	23	0	0	Local transmission	0
Georgia	103	5	0	0	Local transmission	0
Montenegro	91	6	1	0	Local transmission	0
Liechtenstein	64	2	0	0	Under investigation	0
Monaco	49	3	0	0	Local transmission	0
Holy See	6	0	0	0	Under investigation	1
Territories¹⁰						
Faroe Islands	168	9	0	0	Local transmission	0
Kosovo ¹¹	106	12	1	0	Local transmission	0
Gibraltar	69	4	0	0	Local transmission	0
Jersey	63	0	2	0	Local transmission	1
Guernsey	45	6	0	0	Local transmission	0
Isle of Man	42	0	0	0	Local transmission	1
Greenland	10	0	0	0	Under investigation	2
South-East Asia Region						
Thailand	1524	0	9	0	Local transmission	1
Indonesia	1414	129	122	8	Local transmission	0
India	1071	0	29	0	Local transmission	1
Sri Lanka	120	0	1	0	Local transmission	1
Bangladesh	49	0	5	0	Local transmission	1
Maldives	17	0	0	0	Local transmission	1
Myanmar	10	2	0	0	Local transmission	0
Nepal	5	0	0	0	Imported cases only	2
Bhutan	4	0	0	0	Imported cases only	1
Timor-Leste	1	0	0	0	Under investigation	10

Eastern Mediterranean Region						
Iran (Islamic Republic of)	41495	3186	2757	117	Local transmission	0
Pakistan	1865	240	25	7	Local transmission	0
Saudi Arabia	1453	154	8	0	Local transmission	0
Qatar	693	59	1	0	Local transmission	0
Egypt	656	47	41	1	Local transmission	0
Iraq	630	83	46	4	Local transmission	0
United Arab Emirates	611	41	5	2	Local transmission	0
Morocco	574	58	33	6	Local transmission	0
Bahrain	515	0	4	0	Local transmission	1
Lebanon	446	8	11	1	Local transmission	0
Tunisia	362	50	9	1	Local transmission	0
Jordan	268	9	5	2	Local transmission	0
Kuwait	266	11	0	0	Local transmission	0
Oman	179	12	0	0	Local transmission	0
Afghanistan	166	52	4	0	Local transmission	0
Djibouti	26	7	0	0	Local transmission	0
Syrian Arab Republic	10	1	2	1	Imported cases only	0
Libya	8	0	0	0	Local transmission	1
Sudan	6	0	2	0	Imported cases only	1
Somalia	3	0	0	0	Imported cases only	4
Territories ¹						
occupied Palestinian territory	117	2	1	0	Local transmission	0
Region of the Americas						
United States of America	140640	17987	2398	286	Local transmission	0
Canada	6317	662	66	5	Local transmission	0
Brazil	4256	352	136	22	Local transmission	0
Chile	2449	540	8	2	Local transmission	0
Ecuador	1962	127	60	12	Local transmission	0
Mexico	993	145	20	4	Local transmission	0
Panama	989	88	24	7	Local transmission	0
Dominican Republic	901	320	42	22	Local transmission	0
Peru	852	181	11	0	Local transmission	0
Argentina	820	75	20	1	Local transmission	0
Colombia	702	94	10	4	Local transmission	0
Costa Rica	314	19	2	0	Local transmission	0
Uruguay	309	6	0	0	Local transmission	0
Cuba	170	51	4	1	Local transmission	0
Honduras	139	29	2	0	Local transmission	0
Venezuela (Bolivarian Republic of)	129	16	3	1	Local transmission	0
Bolivia (Plurinational State of)	97	23	5	5	Local transmission	0
Trinidad and Tobago	82	6	3	0	Local transmission	0
Paraguay	64	5	3	0	Local transmission	0
Guatemala	36	2	1	0	Local transmission	0
Jamaica	36	4	1	0	Local transmission	0
Barbados	33	7	0	0	Local transmission	0
El Salvador	30	6	0	0	Local transmission	0
Haiti	15	0	0	0	Imported cases only	1
Bahamas	14	4	0	0	Local transmission	0

Cayman Islands	12	4	1	0	Imported cases only	0
Grenada	9	2	0	0	Local transmission	0
Saint Lucia	9	5	0	0	Local transmission	0
Guyana	8	3	1	0	Local transmission	0
Suriname	8	0	0	0	Imported cases only	3
Antigua and Barbuda	7	0	0	0	Imported cases only	3
Nicaragua	4	0	1	0	Imported cases only	2
Belize	3	1	0	0	Local transmission	0
Saint Kitts and Nevis	2	0	0	0	Imported cases only	0
Saint Vincent and the Grenadines	1	0	0	0	Imported cases only	18
Territories						
Puerto Rico	174	110	6	4	Imported cases only	0
Martinique	111	6	2	0	Local transmission	0
Guadeloupe	106	10	4	2	Imported cases only	0
Aruba	50	4	0	0	Local transmission	0
French Guiana	43	12	0	0	Local transmission	0
United States Virgin Islands	30	8	0	0	Imported cases only	0
Bermuda	22	0	0	0	Local transmission	1
Saint Martin	18	12	1	1	Under investigation	0
Curaçao	11	4	1	0	Imported cases only	0
Dominica	11	0	0	0	Local transmission	4
Saint Barthélemy	6	1	0	0	Under investigation	0
Sint Maarten	6	3	0	0	Imported cases only	0
Montserrat	5	0	0	0	Imported cases only	3
Turks and Caicos Islands	5	1	0	0	Local transmission	0
Anguilla	2	0	0	0	Local transmission	4
British Virgin Islands	2	0	0	0	Imported cases only	4
African Region						
South Africa	1326	46	3	2	Local transmission	0
Algeria	511	57	31	2	Local transmission	0
Burkina Faso	246	24	12	9	Local transmission	0
Cote d'Ivoire	169	4	0	0	Local transmission	0
Senegal	162	20	0	0	Local transmission	0
Ghana	152	0	5	0	Local transmission	1
Cameroon	139	26	6	4	Local transmission	0
Nigeria	111	46	1	0	Local transmission	0
Mauritius	107	5	2	0	Local transmission	0
Democratic Republic of the Congo	98	17	8	0	Local transmission	0
Rwanda	70	0	0	0	Local transmission	1
Madagascar	46	9	0	0	Imported cases only	0
Kenya	38	13	1	0	Local transmission	0
Zambia	35	19	0	0	Local transmission	0
Togo	34	6	1	0	Local transmission	0
Uganda	33	0	0	0	Local transmission	1
Ethiopia	23	2	0	0	Local transmission	0
Niger	20	0	3	0	Local transmission	1
Congo	19	0	0	0	Imported cases only	3
United Republic of Tanzania	19	5	0	0	Under investigation	0
Mali	18	0	0	0	Local transmission	2

Guinea	16	0	0	0	Local transmission	1
Equatorial Guinea	14	1	0	0	Local transmission	0
Namibia	11	0	0	0	Imported cases only	1
Eswatini	9	0	0	0	Imported cases only	3
Mozambique	8	0	0	0	Local transmission	2
Seychelles	8	0	0	0	Imported cases only	1
Gabon	7	0	1	0	Imported cases only	3
Benin	6	0	0	0	Imported cases only	4
Central African Republic	6	0	0	0	Imported cases only	3
Eritrea	6	0	0	0	Imported cases only	4
Cabo Verde	5	0	1	0	Imported cases only	3
Chad	5	0	0	0	Imported cases only	4
Mauritania	5	0	0	0	Imported cases only	2
Zimbabwe	5	0	1	0	Local transmission	3
Gambia	3	0	1	0	Imported cases only	2
Liberia	3	0	0	0	Local transmission	9
Angola	2	0	0	0	Imported cases only	9
Guinea-Bissau	2	0	0	0	Imported cases only	5
Territories⁽¹⁾						
Réunion	207	0	0	0	Local transmission	1
Mayotte	82	0	0	0	Local transmission	1
Subtotal for all regions	750178	57610	36398	3301		
International conveyance (Diamond Princess)	712	0	7	0	Local transmission	15
Grand total	750890	57610	36405	3301		

Source: WHO Team, March 2020, P 3-7.

According to Table (01), we can clearly see that the pandemic has gone too far, touching big number of countries all over the world with 104 868 of confirmed cases in Western Pacific Region and 3671 deaths, 423 946 of confirmed cases in European region and 26 694 deaths, 4215 of confirmed cases in South-East Asia Region and 166 deaths, 50 349 of confirmed cases in Eastern Mediterranean Region and 2954 deaths, 163 014 of confirmed cases in Region of the Americas and 2836 deaths, 3786 of confirmed cases in African Region and 77 deaths. And a grand total of 750 890 of confirmed cases and 36 405 deaths.

3.2. The impact coronavirus (Covid-19) on the world’s economy:

Since the pandemic in January, close to 85,000 people have been infected worldwide, with a fast-rising share of these outside China. The epicentre of the pandemic was in Hubei province, which accounts for about 4.5% of China’s output, but the effects have been quickly apparent throughout China with efforts to control the spread of the virus leading to wide-ranging restrictions on passenger transportation labour mobility and hours worked. Available indicators for February

point to significant declines in activity inside China, and the tentative signs of a mild improvement towards the end of the month appear unlikely to be rapid enough to prevent the level of output in the first quarter of 2020 being lower than in the fourth quarter of 2019 (OECD Interim Economic Assessment, March 2020, P 5).

One of the biggest impacts of the Coronavirus crisis is supply chain disruption and the resulting interruption in business (Rick, February 2020, P 7).

This economic shock is a combination of both supply and demand effects. The initial supply shock came from supply-chain disruption and was followed by the effects of people being kept away from their jobs. The initial demand shock came from uncertainty about the health and economic situation, which led consumers to cut their physical interactions with others and companies to delay investment. The resulting falls in incomes and revenues led to a further fall in demand, which in turn has led to cuts in supply as companies have difficulties paying their employees and meet their financial obligations. Second round effects are likely to become stronger the longer the lock-down measures persist: demand will fall as consumers postpone or even cancel their consumption. While for some consumption there might be catching-up consumption later when the health crisis is over, other consumption is unlikely to recover – for example restaurant visits. Finally, demand is affected by confidence effects. As citizens worry about the future, they might increase their precautionary savings (André, March 2020, P 5).

The global economic impact of 2019-nCoV is expected to be substantially more significant than that of SARS, primarily because China has gone from being a bit player in the global economy in the early 2000s to an economic powerhouse today. Back then, China accounted for just over 4% of global GDP compared with 16% today. China has become an integral part of the global manufacturing supply chain accounting for about one-fifth of global manufacturing output (Mark, February 2020, P 3).

While there is still uncertainty about the impact of the COVID-19 on China's productive capacity, the most recent statistics point to a significant downturn. The full effect of COVID-19 on global value chains will become clearer in the coming months. However, one

question of importance is how a disruption in Chinese supply of intermediate inputs will affect the rest of the world. Based on the analysis of this note two key points can be made (Trade and development report, March 2020, P 5-6).

First, even if the pandemic of COVID-19 is contained mostly within China the fact that Chinese suppliers are critical for many companies around the world implies that any disruption in China will be also felt outside China's borders. European, American and East Asian regional value chains will be disrupted. The estimated global effects are subject to change depending on the containment of the virus and or changes in the sources of supply (Trade and development report, March 2020, P 6).

Second, it is expected that the spillover effects of a disruption in Chinese supply will be diverse across economic sectors and dependent on the geographic localization of the COVID-19 pandemic and of the containment measures within China. For example, automotive industry's intermediate exports may fall relatively more as the industry is geographically localized in the region where the pandemic of COVID-19 occurred. Importantly, because of lack of information this note does not consider this second aspect. Once sectoral data on Chinese output is available the likely effect on the various global value chains will become clearer (Trade and development report, March 2020 P 6).

Production declines in China have been quickly felt by businesses around the world, given China's key role in global supply chains as a producer of intermediate goods, particularly in computers, electronics, pharmaceuticals and transport equipment, and as the primary source of demand for many commodities. Temporary supply disruptions can be met by using inventories, but inventory levels are lean due to just-in-time manufacturing processes and alternative suppliers cannot easily be obtained for specialised parts. A prolonged delay in restoring full production in affected regions would add to the weakness in manufacturing sectors in many countries, given the time it takes to ship supplies around the world (Trade and development report, March 2020 P6).

I.e, February 17 was a holiday in the United States and stock markets were closed. But on that Monday, Apple sounded the alarm. It warned that it wouldn't meet its revenue projections for the first three months of the year because the coronavirus had reduced iPhone

manufacturing capacity in China, and with Chinese stores closed or operating reduced hours, demand for the company's products was also dropping. When US markets reopened on February 18, investors pushed the company's stock down by 2.6% (Charles, March 2020, P 2).

Tourism sector also being affected by the pandemic, travel restrictions, and the cancellation of many planned visits, flights, business and leisure events are severely affecting many service sectors. This is likely to persist for some time. Worldwide, Chinese tourists account for around one-tenth of all crossborder visitors, and one-quarter or more of all visitors in Japan, Korea and some smaller Asian economies. Exports of travel services to China, including the spending by Chinese visitors, are also significant in many countries. The virtual cessation of outbound tourism from China represents a sizeable nearterm adverse demand shock. This is already apparent in many destinations; visitor arrivals in Hong Kong, China in February were 95% lower than usual. If the spread of the coronavirus outbreak affects visitor numbers more widely across the major economies, there would be sizeable costs, with tourism accounting directly for 4¼ per cent of GDP in the OECD economies and almost 7% of employment (The financial, March 2020, P 5).

4. The impact of the coronavirus (Covid-19) on Algeria:

In this section, we will highlight on the social side and the economic side.

4.1. The social side:

Algeria has confirmed the first case of coronavirus within its borders in february 25th according to health minister Abderrahmane Benbouzid, who announced the finding to the nation on state-owned ENTV Tuesday evening. The patient is an Italian citizen who arrived in the country on February 17 and has been placed in isolation, the ministry said (**Algerian health minister confirms first COVID-19 case**, April 2020).

Algerian health ministry has confirmed two new cases of coronavirus infections, a woman and her daughter aged 53 and 24 years respectively. The cases brought to three the number of people infected with the virus in the North African country. The two people were put in isolation in Blida province south of the capital Algiers, the ministry said in a statement. The woman and her daughter in February hosted an

83-year-old man and his daughter based in France who were tested positive for coronavirus after their return to France, the statement said (**Algeria confirms two more coronavirus cases**, April 2020).

The situation is evolving quickly and dangerously in Algeria, where 48 cases of coronavirus, including 4 deaths, have been recorded this Sunday, March 15. Eleven new cases of contamination with the coronavirus were confirmed, including one (01) death, a woman aged 84 years in the wilaya of Blida, to reach a total of forty-eight (48) confirmed cases including four (04) deaths in Algeria, the Ministry of Health said on Sunday March 15, 2020. Nine (09) contact cases in the wilaya of Blida who were in contact with the first cases and two (02) cases in the wilayade Guelma. The epidemiological investigation is continuing to find and identify all the contact persons. Prime Minister Djerad said this morning in a statement to the national Radia that "45 cases have so far been confirmed by the Pasteur Institute of Algeria, including three deaths", adding that a device has was implemented in particular in sensitive areas (Blida and Boufarik) (**Alerte : 48 cas de coronavirus et 4 décès en Algérie !**, April 2020).

On March 22nd, "Algeria has entered phase 3 of the coronavirus epidemic and therefore we have to prepare for the worst", said Mr.Benbouzid on the radio of National Radio (**L'Algérie annonce le stade 3 de l'épidémie de Covid-19**, April 2020).

Today it was decided to impose a total quarantine in the state of Blida and a curfew in the capital to limit the spread of the Corona virus. The decisions were taken during the meeting of the Supreme Security Council today, headed by President Abdul Majeed Tabun, to study the situation of the outbreak of the Corona epidemic in our country. In light of the developments, it was decided to impose a total quarantine in the wilaya of Blida for ten days and a curfew in the capital from seven in the evening until seven in the morning and prevent people groups of more than two people across all national territory while respecting the safety distance estimated in meters (**A total stone in Blida and a curfew in the capital**, April 2020).

On 31st March, Algeria reached 716 of confirmed cases with 44 deaths, and 46 cases recovered (**Corona outcome for this Tuesday**, April 2020).

4.2. The economic side:

Algerian economy is strongly related to oil production, since the price of oil has sunk to levels not seen since 2002 as demand for crude collapses amid the coronavirus pandemic. Global oil benchmark prices hover around \$20 in March 31st (Clifford, April 2020).

The transport industry, including airlines, was severely affected by the spread of the virus and related travel bans (Financial Advisory March 2020, P 3). The International Air Transport Association (IATA) has said airlines could suffer a loss of \$113 billion as a result of COVID-19 (Patrick, April 2020). Oil producers are being pressured by rapidly softening commodity prices due to weaker demand for jet fuel and other petroleum products (AAM Credit Research Team, March 2020, P 2). Since The Finance Bill 2020 considered a reference price for a barrel of oil equivalent to \$ 50 and a market price of \$ 60, Algerian economy has entered a dangerous phase (**Finance Bill 2020 in numbers**, April 2020). Also, and because of the quarantine procedures which consist of referring of a workers category to an exceptional vacation, and also reducing work hours, Algerian companies will note very low levels of productivity, which will lead to a huge gap between expected performance and current performance.

5. Conclusion :

The Coronavirus (Covid-19) pandemic has suddenly become a serious threat to global economies. Taking into consideration the seriousness and difficulty of controlling the unknown about the spread and virulence of the virus. Because of that, there are no good scenarios to get out of this crisis, especially by the fragility of the global economy even before the virus appeared on the scene, and the long list of the important geopolitical threats. In this article, we derived to these results:

- The coronavirus (covid-19) is one of the deadliest and and fastest spreading viruses in the world.

- The coronavirus (covid-19) has influenced the world's economy with very negative effects in most fields.

- Algeria has taken several measures to face the pandemic, but since its economy is strongly based on oil production, it will face another

financial crisis because of the decreased prices of oil in the global market.

From the previous results, we suggest the following recommendations:

- People around the world must follow the instruction of W.H.O in order to restrict the spread of the virus.

- Worldwide companies including Algerian companies have to preserve the workers' health, and maintaining the minimum level of work, so as not to risk bankruptcy, for example distance working for the work who can be done at home, and by rotational work for other activities.

- In light of the falling oil prices, Algeria must find other alternatives that enable its economy to flourish, such as investing in renewable energies, tourism, agriculture, etc.

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Measuring Algeria's real effective exchange rate

A study (2010-2017)

قياس سعر الصرف الفعلي الحقيقي للجزائر دراسة (2017-2010)

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Abstract:

Algeria has lost market share despite the weak of the Algerian dinar (DZD). Different Algerian real effective exchange rates (AREER₈₋₁₃₋₁₉) measures and types are useful for different purposes. The results for all three AREER₈₋₁₃₋₁₉ indexes showed that for the period under review 2010-2017 a real depreciation in the narrow group by 3.02%, in the major group 3.15% and in the broad group 2.33% and in nominal by 21.8% in the narrow group, 22.18% in the major group and 19.66% in the broad group respectively.

Keyword: Effective exchange rates; Effective exchange rates for Algerian dinar;

JEL classification code : XN1, XN2

ملخص:

فقدت الجزائر حصتها في السوق على الرغم من ضعف الدينار الجزائري (DZD). تعد أسعار وأنواع أسعار الصرف الفعلية الجزائرية المختلفة (AREER₈₋₁₃₋₁₉) مفيدة ولأغراض ولأهداف متنوعة. أظهرت النتائج لجميع مؤشرات AREER₈₋₁₃₋₁₉ الثلاثة أنه خلال الفترة قيد الاستعراض 2010-2017، كان هناك انخفاض حقيقي يقدر بـ 3.02% في المجموعة الضيقة، 3.15% في المجموعة الرئيسية و 2.33% في المجموعة العريضة وبالمقابل هناك انخفاض اسمي يقدر بـ 21.8% في المجموعة الضيقة، 22.18% في المجموعة الرئيسية و 19.66% في المجموعة العريضة على التوالي.

الكلمات المفتاحية : أسعار الصرف الفعلية ؛ أسعار الصرف الفعلية للدينار الجزائري؛

تصنيف JEL : XN1 ، XN2

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1. Introduction :

In times of global economic integration, countries are increasingly influenced by movements in their exchange rates against the currencies of many partner countries. In order to obtain a useful aggregate measure of exchange rate fluctuations, an effective exchange rate combines various bilateral rates into a single indicator. The effective exchange rates (EERs) are an indicator to grip country's international competitiveness in terms of its foreign exchange rates that cannot be understood by examining only individual exchange rates between the country's currency and other currencies (Zanello & Desruelle, 1997). The term effective means that exchange rate changes are not measured against one particular currency, but instead use an average index of a whole basket of currencies, each weighted depending on the issuing countries' respective importance as a trade partner (Hirsch & Higgins, 1970). However, the real effective exchange rate index is still important as an indicator of the external competitiveness of the economy (Turner & Van't dack, 1993).

The concept of the real effective exchange rate (REER) derives originally from the purchasing power parity (PPP) (Hinkle, 1998, p.43). The real exchange rate is evolved from the theoretical model of dependent economy and is based on the ratio of domestic prices of non-tradables to tradables (Dwyer, 1993, p.1). According to Hinkle (1998, p.44) who stated that the real exchange rate for the home country can be defined either in relation to one trading partner or to an average for its main trading partners. In the first case, it is called the real bilateral exchange rate (RBER), and in the second multicountry case, it is called the real effective exchange rate and is calculated as a weighted average. The REER index measures how the nominal exchange rate adjusted for price differences between a country and its trading partners, moves over a period of time (Lafrance, 1998, p.1). The nominal effective exchange rate (NEER) is a weighted average of the changes in the bilateral (nominal) exchange rates of the domestic currency in terms of foreign currencies. The REER, meanwhile, is a weighted average of bilateral exchange rate indexes adjusted for relative price differentials between the home country and foreign countries.

Moreover, Bahmani-Oskooee (2001), Lal and Lowinger (2002), Stucka (2004), and Guechari (2012) found a significant and favourable effect of a currency depreciation on the trade balance in the long run for Middle Eastern countries (Bahrain, Egypt, Jordan, Morocco, Syria, Tunisia and Turkey), South Asian countries (Bangladesh, India, Nepal, Pakistan and Sri Lanka), Croatia, and Algeria, respectively. Onafowora (2003) found that, in general, a currency depreciation significantly affected the trade balance of Thailand, Malaysia and Indonesia with respect to the USA and Japan in the long run. Hence, Agbola (2004) found that a depreciation had a significant but negative impact on the trade balance of Ghana in the long run. A possible explanation is that the sample data includes periods when domestic prices, exchange rates, exports and imports were heavily controlled by the government, raising the question whether effects of exchange rate changes would be correctly reflected in volumes of exports and imports. Thus, the real effective exchange rate index is still important as an indicator of the external competitiveness of the economy. Therefore, Drareni (2019) found that between 2010-2011, although the effective exchange rates of the Algerian dinar against 19 currencies was relatively unstable, Algeria's NEER and REER depreciated unsteadily by 19.66 % and 8.59 %, respectively due to relatively higher inflation and lower productivity in Algeria compared to that in trading partners this resulted in the deterioration in international competitiveness of the Algerian products. While (IMF, 2014) indicated that the real effective exchange rate appeared to be on the strong side, despite recent efforts to offset the real appreciation incurred in 2012. The REER appreciated 8.3 % between April 2011 and June 2013, mainly reflecting higher relative inflation in Algeria. The REER increased sharply in the first half of 2012 as inflation spiked to as high as 11.0 % year on-year in April. It reversed some of these gains in the middle months of 2012 but resumed its appreciating trend toward the end of the year. In 2013, the REER appreciated slightly in the first half of the year before depreciating 6.2 % in recent months, reflecting the decline in inflation as well as a depreciation of the NEER.

The Algerian real effective exchange rate ($AREER_{8-13-19}$) and Algerian nominal effective exchange rate ($ANEER_{8-13-19}$) of the Algerian dinar are a summary measure of the Algerian's value against the currencies of the Algeria's most important trading partners such as narrow group (8 currencies) ,major group (13 currencies) and broad group (19 currencies). The AREER obtained by deflating the nominal rate with appropriate price or cost indices. So, (Bank of Algeria ,2018) show that it is worth recalling that the real effective exchange rate is the reference point for exchange rate policy and remains the relevant indicator for observing exchange rate movements and therefore relative prices. This helps to avoid excessive deviations of the AREER from its equilibrium level, which is detrimental to macroeconomic stability, in the medium term.Thus, these adjustments of the exchange rate of the dinar being limited; this makes it possible to avoid fueling feeding potential inflationary pressures.

This paper is organized as follows: Introduction discusses the methodologies underlying the calculation of effective exchange rates, ending with a summarized description of the methodologies used by some international bodies and central banks; next presents the new nominal effective exchange rate index and three real effective exchange rate indexes; the last presents the conclusion, where the main results obtained are summarized.

2. Methodological features:

In order to construct the set of the effective exchange rates of the Algerian dinar (AEERs), the CBA had to address a number of methodological issues and as stated by (Maciejewski ,1983) these related to 1) the trade basis upon which the weights for the indexes had to be computed choice between goods and services; 2) the selection of the currencies of Algeria's trading partners to be included in the EER indexes; 3) the type of weighting scheme and the method for capturing competition in third markets; 4) Choice of Index Formula and 5) the choice of deflators to derive the real counterparts of the AEERs indexes for measuring Algeria 's international price and cost competitiveness. The study describes the methodology behind the real effective

exchange rates of the Algerian dinar taking economic theory and data constraints into account. In particular, it discusses the weighting method (based on the theoretical foundations outlined by Armington, 1969) and set of deflators used to compile the AREERs.

2.1. Data sources:

The basic source for data on exchange rates, trade (imports and exports) and consumer price index (CPI) for 8-13-19 countries are the international financial statistics (IFS) of the international monetary fund and world development Indicators (WDI) of the World Bank. Data on Algeria's trade with these 8-13-19 countries/regions have been taken from the central bank of Algeria (CBA), Algerian customs (AC) and the national office of statistics (NOS). In general, the selection of countries is based on their importance as trading partners of Algeria and on data availability, particularly in respect of the high quality data on price required for calculating the AREERs.

2.2 Steps of measurements

Several items must be entered in order to calculate the AEERs, which include the following elements:

2.2.1 Trade basis

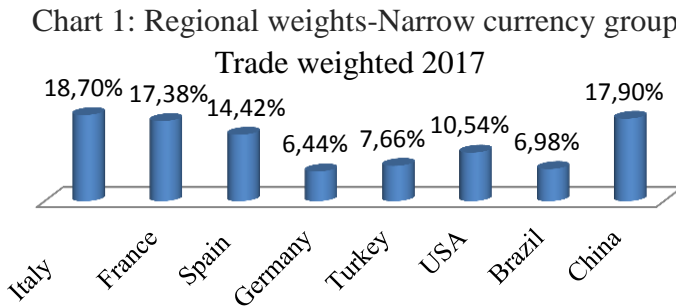
There are three broad categories of trade flows: manufactured goods; commodities; and services. Traditionally, trade-weighted effective exchange rates have focused on exports and imports manufactured goods and have excluded commodities and services. There are good reasons to exclude commodities trade. Commodities are largely homogeneous and so are priced in world auction markets based on global supply and demand. That means the country of origin or destination is relatively unimportant in determining how price-competitive the product is. Of course, in practice, it is difficult to know where precisely to draw the line between commodities and manufactured goods. The proposed index continues to exclude commodities trade based on standard international trade classifications. The weights are based on bilateral data on trade in manufactured goods, as defined in sections 5 to 8 of the Standard International Trade

Classification (i.e. excluding trade in services, agricultural products, raw material and energy products) for the periods 2010-2017.

2.2.2 Trading partners and weights

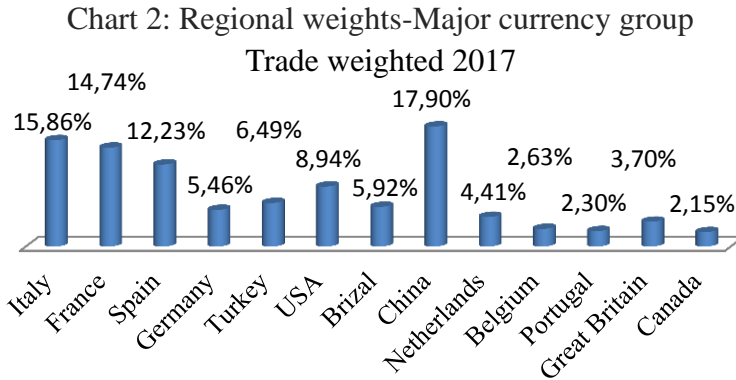
According to Loretan (2005) the selected currencies for inclusion in three indexes are the narrow currencies index (NCI), the major currencies index (MCI) and the broad currencies index (BCI) including the other important trading partners (OITP). The AEERs are calculated for three groups of trading partners: AEER-₈, AEER-₁₃ and AEER-₁₉ (Rhomberg, 1976).

✓ The AEER-₈: this group includes Italy, France, Spain, Germany, Turkey, China, Brazil and The United States of America. The narrow currency group, which covers a significant proportion of around 65 % of total Algerian trade weighted in the 2010-2017 period.



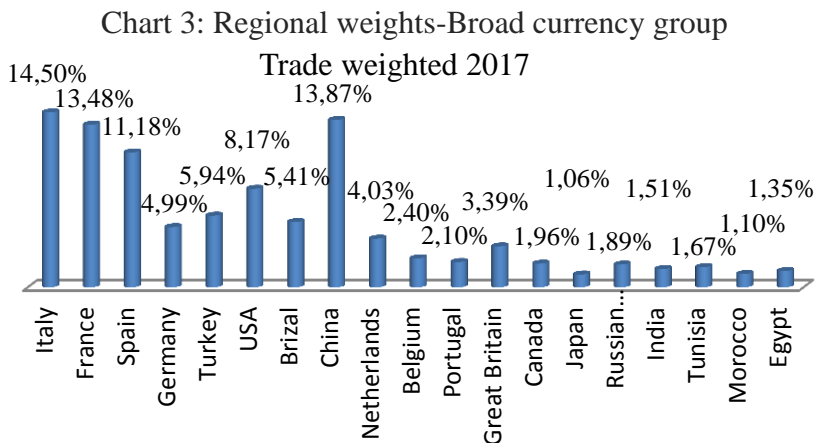
Source: Prepared by author

✓ The AEER-₁₃: in addition to the trading partners in the EER-₈, this group includes Netherlands, Portugal, Great Britain, Belgium and Canada. The major group, which covers a significant proportion of around 93 % of total Algerian trade weighted in the 2010-2017 period.



Source: Prepared by author

✓ The AEER-19: in addition to the trading partners in the AEER-8 and AEER-13, the AEER-19 includes Japan, Tunisia, Morocco, Egypt, India and the Russian Federation. The broad group of partner countries covers of around 97 % of total Algerian trade weighted in the 2010-2017 period. In addition to the countries in the narrow group, major group and broad group which includes other countries (OITP).



Source: Prepared by author

As shown in the charts 1, 2 and 3, geographical characteristics for Algeria are also reflected in the composition of trade weights in terms of the contribution of import and export weights (total trade). The

weights of the next three most important trading partners (regional weights) are -European area , American area, Asia area and Arab area - in the narrow group are 65%,21%,12% and 0%, in the major group are 64% , 26 % , 11% and 0 % while in the broad group they amount to 64 % , 7% ,5% and 4 % respectively. In terms of regional groupings, the European industrial economies clearly constitute the most important regional group for Algeria's external trade, carrying a weight of around 65 % in the narrow, 69% in the major and 64% in the broad currency group. The second largest region is America (including The United States of America, Brazil and Canada), with some 21%, 20% and 19% respectively, followed by Asia (including China, Japan and India), with around 12%, 10% and 12 % . The Arab economies (including Egypt, Tunisia and Morocco) account for around 0%, 0% and 3%. As shown in the charts 1, 2 and 3 above show how the weights attributed to different regions have varied over time in the narrow, major and broad proposed indexes. The three charts clearly showed a trend increase in the weights attributed to America (including the USA, Canada and Brazil). But this weight drops between 2013 and 2017 in the narrow group, reflecting falls in the import shares of the USA from Algeria. That is related to the sharp slowdown in the rate of growth in the USA and the rise of oil prices in the world in that period. On the other hand, there is a trend increase in the weights attributed to Asian and Arab countries between 2016-2017.

2.2.3 Weighting method

The AEERs of Algerian dinar are calculated using trade weights that combine information on both exports and imports. Import weights and export weights are each trading partner's simple share in total Algeria imports plus exports (total trade). The overall weight of each partner country j is obtained as the weighted average of the export and import weights (see table 5 in the appendices).

2.2.4 Deflators

Deflators for the real EERs are consumer price indexes (CPIs), producer price indexes (PPIs), gross domestic product (GDP) deflators

and unit labour costs, both for the total economy (ULCT) and for the manufacturing sector (ULCM). Deflator data are collected from several sources (mainly Eurostat, OECD, ONS, CBA and IMF). For the estimation of the AREER indexes for Algeria, the study used CPI, due to the limitation in the availability of data for other price indexes. According to Edwards (1989, p.24) four alternative price indexes are suggested as possible candidates for estimation the real effective exchange rate. However, as he states, most of them relate to the purchasing power parity (PPP) definition.

2.2.5 Base period and frequencies

The AEERs for the AEER-8, AEER-13 and AEER-19 are available annually. The base period for all indexes is 2010 (2010= 100).

2.2.6. Exchange rates

The bilateral exchange rates used in the calculation are, in most cases, the CBA's official daily reference rates (if these are not available, indicative rates published by other international organizations are used).

2.2.7 Choice of Index Formula

The practice followed by the staff of bank of Algeria and by that of several other central banks such as (FED , ECB , BOJ (Shimazaki, M. and Solomou S. ,2001) , BANK of ENGLAND , Bank of Canada (Ong, 2006) and Bank of New Zealand (Steenkamp,2014 & Kite ,2008), international organizations (IMF, WB , JPMORGAN and BIS), and private-sector financial institutions are to use exchange rate indexes that are geometrically weighted averages of bilateral exchange rates (Erlandsson & Markowski, 2006).

2.3 The Algerian effective exchange rates calculation

The AEERs of the Algerian dinar are weighted geometric averages of the bilateral exchange rates of the Algerian dinar against the currencies of the Algeria area's main trading partners. A positive change in the index denotes a strengthening of the AEERs of the

Algerian dinar. The weights assigned to each trading partner combine information on imports and exports of manufactured goods between it and Algeria. The Algerian nominal effective exchange rate (ANEER) constitutes a summary measure of the external value of an Algeria's currency against the currencies of its most important trading partners. The Algerian real effective exchange rate (AREER) is the most commonly used indicator of international price and cost competitiveness. The AREER is constructed in such a way that any changes in the index can be decomposed into two effects. An increase in the AREER index represents an appreciation or a loss of competitiveness while the converse is true for a decrease in the index.

2.3.1 The Algerian nominal effective exchange rate

The process begins by first calculating Algerian dinar's nominal effective exchange rate index which reflects the value of the Algerian dinar relative to the value of the currencies of its major trading partners, with reference to a specific base period (Des Vignes & Smith, 2005) and Schmitz et al. (2012), using the geometric mean, the formula for computing the Algerian nominal effective exchange rate can be defined as:

$$ANEER = \prod_j^n (E_j)^{W_{jt}}$$

Where:

ANEER = Algerian nominal effective exchange rate index in a given period (t)

E_j = Price of foreign country (j) currency in terms of the home country (i) currency in period (t) expressed as an index form (base =2010).

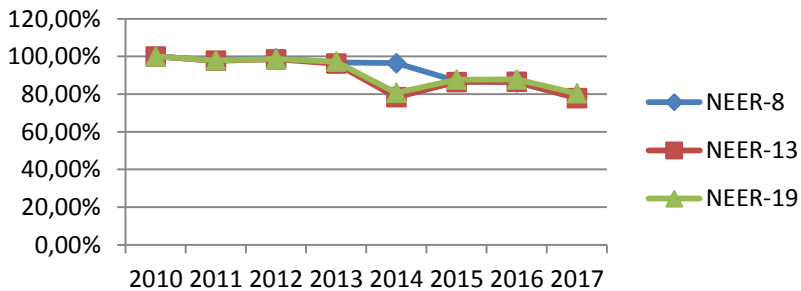
W_{jt} = the appropriate trade weight for each trading partner (j) in period t (weight for country j) note that $\sum_{j=1}^N W_{jt}=1$

\prod = is the product of the N currencies in the basket

n = the number of countries in the basket 8 currencies, 13 currencies and 19 currencies.

The ANERs of the Algerian dinar are currently calculated against three main groups of trading partners, i.e. the ANER-8 narrow group, the ANER-13 major group and the ANER-19 broad group. The selected currencies for inclusion in three indexes are the narrow index (NI₈ currencies), the major currencies index (MCI₁₃ currencies), and the broad index (BI₁₉ currencies including the other important trading partners index (OITP₆ currencies).

Chart 4: Narrow, Major and Broad Algerian dinar ANEER₈₋₁₃₋₁₉



Source: Author's own calculation based on different sources of data such as: central bank of Algeria, International financial statistics, national office of statistics, World Bank and Algerian customs from Microsoft Excel.

As shown in the chart 4, the ANEER₈, the ANEER₁₃ and the ANEER₁₉ provide useful information about the movement of the Algerian dinar over the time 2010-2017 in different areas with different currencies. It is a measure of the value of the Algerian dinar against a trade-weighted basket of other currencies, relative to a base date 2010 (Euro, Dollar, and GBP). The weights used are designed to measure the relative importance of each of the other countries as a trading partner (Narrow group, major group and broad group (including the other important trading partner's group)). During the period 2010-2017, the ANEER₈, ANEER₁₃ and ANEER₁₉ of the Algerian dinar were depreciated by 21.8%, 22.18% and 19.66% respectively and continuing till the end of 2017 because of the slipping policy of the Algerian dinar and also due to the collapse of oil prices and the emergence of a deficit in the balance of payments. This is mainly driven by the movements of Algerian dinar against Euro, USD and GBP. Also, they were appreciated against Turkish Lira (TRY) and Brazilian Real (BRL). As

shown in the chart 4 and chart 5, movements in the nominal effective exchange rate (ANEER₈₋₁₃₋₁₉) were reflected in the evolution of the real effective exchange rate (AREER₈₋₁₃₋₁₉), but not with the same magnitude. This showed a general tendency for the value of the Algerian dinar to fall relative to other currencies during this period. This calculation has the advantage that it enables us to assess immediately the extent to which the exchange rate has appreciated against Turkish Lira and Brazilian Real or depreciated against Euro, USD, GBP and other currencies. In this case, we saw that the value of the Algerian dinar relative to the 8-country, 13-country and 19-country mentioned above depreciated between 2010 and 2017, mainly due to the widening of the inflation differential and weak productivity of the industrial sector between Algeria and its main partners.

2.3.2 The Algerian real effective exchange rate

The AREER indexes are computed by deflating a nominal effective exchange rate (ANEER) index by an index of relative prices, which is termed, effective inflation rate (EIR). The EIR measures domestic inflation rates relative to those of the major trading partners. In the study, we use geometric-average real effective exchange rate, due to advantages discussed in the literature review. The AREER released by the central bank of Algeria (CBA), is computed as the weighted geometric average of the prices in Algeria relative to the prices of its principal trade partners in international markets (Hinkle, 2000, p.49). Therefore, we use the following equation for the construction of AREER indexes for Algeria. Mathematically, the index can be written as:

$$AREER = \prod_j^n (E_j \cdot P_i/P_j)^{w_{jt}}$$

Where:

AREER = Algerian Real effective exchange rate index in a given period (t)

E_j = Price of foreign country (j) currency in terms of the home country (i) currency in period (t) expressed as an index form (base=2010).

P_i = Index of the cost (or price) indicator of home country i (Algeria).

P_j = Index of the cost (or price) indicator of partner country j (8-13-19-country).

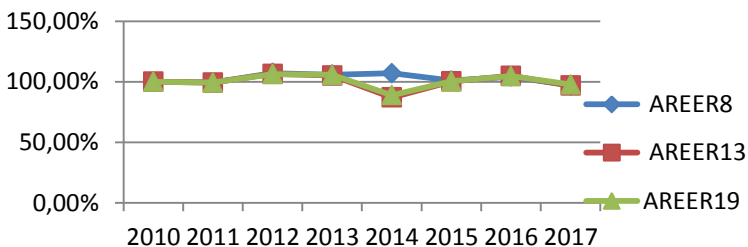
W_{jt} = the appropriate trade weight for each trading partner (j) in period t (weight for country j) note that $\sum_{j=1}^N W_{jt}=1$

\prod = denotes the product of the variables.

n = the number of countries in the basket 8 currencies, 13 currencies and 19 currencies.

The AREERs of Algeria are currently calculated against three main groups of trading partners, the narrow AREER-8 group, the major AREER-13 group and the broad AREER-19 group. The selected currencies for inclusion in three indexes are the narrow index (NI_8), the major currencies index (MCI_{13} currencies), and the broad index (BI_{19} currencies including the other important trading partners index ($OITP_6$ currencies)).

Chart 5: Narrow, Major and Broad Algerian dinar AREER₈₋₁₃₋₁₉



Source: Author 's own calculation based on different sources of data such as: central bank of Algeria, international financial statistics, National office of statistics, World Bank and Algerian customs from Microsoft Excel.

As shown in the chart 5, there were three distinct periods of movements in the AREER₈₋₁₃₋₁₉ by appreciated and depreciated. Over the entire period, the AREER₈₋₁₃₋₁₉ depreciated by 3.02%, 3.15% and 2.33% respectively as the rate of inflation in Algeria was higher than

those of its major trading partners and competitors, except for Brazil, Russian Federation, Turkey, India and Egypt. Thus, the impact of the inflation differential on the AREER₈₋₁₃₋₁₉ outweighed the effect exerted by the depreciation of the nominal effective exchange rate (ANEER₈₋₁₃₋₁₉). From the chart 5, we saw that between 2011 and 2016 the Algerian dinar appreciated in real terms relative to all the other currencies in our sample by 4.9%, 5.54% and 5.28% this is because of the rise in the oil prices. This temporary increase in the AREER₈₋₁₃₋₁₉ was also a result of very expansionary domestic policies reflected in the massive growth of fiscal spending. An increase in government expenditure tends to push the real exchange rate upward as it creates pressure on non-tradables such as services. For example, from 2016 through to 2017, the real effective exchange rate depreciated by 7.27%, 7.97% and 6.95% significantly leading to a substantial profit of competitiveness for the Algerian industry but not the case because of the large entries in the capital in foreign currency and a significant drop in the oil prices. According to the Dutch Disease theory, capital inflows affect real exchange rate through the tradable and non-tradable sectors of the Algerian economy and through that extends to affect the level of international competitiveness of Algeria. In fact, this has not happened because of the poor productivity of the Algerian industrial economy.

3. Results and discussion

3.1 Results

As shown in chart 4 and 5, that shows the results for the three types of AREER and indicates that the narrow, major and broad indexes follow a similar trend but with more exaggerated fluctuations. While the nominal effective exchange rate (ANEER₈₋₁₃₋₁₉) largely depreciated since Algerian inflation was relatively higher. The fluctuations of the narrow AREER₈ were strongest with a steep initial depreciation of 0.65 % (2010-2011) and subsequent appreciation of 4.9 % (2011-2016), followed by a 7.27% (2016-2017) depreciation. The movements in the major AREER₁₃ were slightly more pronounced than the narrow AREER₈, depreciating slightly in 2011, then appreciating by 5.54% between 2011 and 2016, followed by a moderate depreciation of nearly

the same magnitude 7.97% as the narrow AREER₈. Also, the fluctuations of the broad AREER₁₉ were strongest with a steep initial depreciation of 0.66 % (2010-2011) and subsequent appreciation of 5.25 % (2011-2016), followed by a 6.95% (2016-2017) depreciation. However, the observation that fluctuations of the ANEER₈₋₁₃₋₁₉ were due to inflation differentials between countries eventually led to the adoption of the Real Effective Exchange rate (AREER) as a more appropriate indicator of international trade competitiveness. Thus, according to the chart 4 and 5, compared with 2016-2017, there was recorded a depreciation of the Algerian dinar in both nominal and real terms. The AREER₈₋₁₃₋₁₉ depreciation was mainly determined by the nominal depreciation. This evolution involves the increase of the competitiveness of domestic goods relative to Algeria's trading partners. It should be mentioned that these indicators reflect only the price competitiveness. The chart 5 showed, for example, that the Algerian dinar depreciation against the U.S. dollar determined the decrease of prices of the Algerian products expressed in U.S. dollars. At the same time, prices for Algerian products, also expressed in U.S. dollars, remain at the same level.

3.2 Discussion and Limitation

In recent years, the geographical composition of the Algeria trade has undergone significant change, which is also reflected in the trade weights of the AEERs of the Algerian dinar. In particular, the growing importance of emerging economies. The table 5 in appendices presents the average trade weights of each country included in the narrow AEER₈, major AEER₁₃ and broad AEER₁₉ group for all available periods. Advanced economies continue to account for a sizeable share of total Algeria trade such as Italy, France, Spain, USA and China although the importance of the largest advanced economies in the AEER₈, AEER₁₃ and AEER₁₉ of Algeria has been declining over time such as the USA, Canada and Germany. Between 2010 and 2017, the five individual countries with the greatest weights were, on average, the United States, France, Spain, Italy and China which together accounted for almost two-thirds of the AEER₈ group, AEER₁₃ group and AEER₁₉ group. With Turkey, Netherlands, Brazil and Great Britain, they also were among Algeria's four largest single trading

partners in the period 2010-2017. Over the entire period (2010-2017), the $AREER_{8-13-19}$ depreciated by 3.02%, 3.15% and 2.33% respectively as the rate of inflation in Algeria was higher than those of its major trading partners and competitors, except for Turkey, Russian Federation, Brazil, Egypt and India. Thus, the impact of the inflation differential on the $AREER_{8-13-19}$ outweighed the effect exerted by the depreciation of Algerian nominal effective exchange rate ($ANEER_{8-13-19}$) by 21.8% , 22.18% and 19.66% respectively.

In theory, the REER contains information useful to estimating the future growth in exports and imports for a country since it expresses the overall premium that consumers in that country pay relative to consumers in the country's trading partners. Movements in REER and NEER indexes would indicate whether REER and NEER have been stable, appreciating or depreciating. In addition, we argue that the change of the REER significantly influences the competitiveness of Algeria on the world market. It is one of the key variables that determine trade balance dynamics and it is the essential indicator of economic development of Algeria. Moreover to those indexes, there are several more that can be used for the constructing the real effective exchange rate (producer price indexes PPI) and unit labour costs (ULC) (Lafrance, 1998, p.4).The CPI is among the most commonly used indexes for the constructing the real effective exchange rate. The main advantage of the CPI over other price indexes is that it is available monthly in most developing countries. However, it has several disadvantages. It includes a broad group of goods and services, and, thus, it is arguable whether it is a good index for the constructing the real effective exchange rate, since it includes non-tradable goods. Therefore, if prices of tradables and non-tradable will diverge over time, the CPI could be very misleading indicator. Additionally, CPIs for different countries are based on the different baskets of goods, and they reflect consumption patterns that can differ from one country to another. These differences limit the usefulness of real effective exchange rate for comparing standards of living.

4. Conclusions and Recommendations

The nominal and real effective exchange rate indexes are constructed using a weighted average of a country's nominal and real bilateral exchange rates against a group of countries. In the absence of a solid consensus on the proper target of exchange rate management, we propose, in particular, the following recommendation is made based on the results obtained in this study so the study recommended the development of a new AREER requires the identification of a set of countries for inclusion in the analysis to construct different other types of AREER such as AREER_{Euro area}, AREER_{America area}, AREER_{Asia area}, AREER_{Arab area} and AREER_{Africa area} (Jair Santoya Candice Soutar, 2011; Buldorini, L, S Makrydakis and C Thimann, 2002 and Simon Potter, 2018). So the depreciation of the AREER₈₋₁₃₋₁₉ has been beneficial to certain industries, these industries still require essential structural reforms to improve productivity and, where the opportunity arises, to broaden their exports base through value added products. Entrepreneurs should look beyond the traditional export markets (Europe, USA, Asia and Arab countries) to grasp business opportunities in Africa. Finally, the study concludes that AREER₈₋₁₃₋₁₉ continues to be an important short-term indicator of Algeria's international competitiveness despite its shortcomings. It is very easy to compute given the freely availability of the data on exchange rates and consumer price indexes.

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Appendices: Data and methodology description

Table 1: Data sources

Variables	Data sources
Consumer Price index of Algeria, France, Germany, Italy, Spain, Belgium, Netherlands, Belgium, Portugal, Turkey, Russian Federation, United States of America, Canada, Brazil ,China, Japan, India , Egypt ,Morocco and Tunisia.	World development Indicator (World Bank) and International Financial Statistics (IMF).
Official exchange rates (DZD, GBP,CAD,JPY,CNY,TRY,BLR ,TND,MAD,EGP,RUB,INR)	International financial statistics, World Bank, Central bank of Algeria (various years).
Official exchange rates EUR/USD	European Central Bank and Eurostat.
The 8-13-19 main importers of the Algerian economy	National Office of Statistics Algeria.
The 8/13/19 main exporters of the Algerian economy	National Office of Statistics Algeria.

Source: Prepared bu author.

Table 2: Evolution of the effective exchange rates (ANEER₈₋₁₃₋₁₉ and AREER₈₋₁₃₋₁₉) indexes over the period (2010-2017)

	2010	2011	2012	2013	2014	2015	2016	2017
The ANEER ₈	100	97.76	99.01	96.75	96.45	86.90	86.21	78.20
The AREER ₈	100	99.35	107.12	105.85	107.04	100.90	104.25	96.98
The ANEER ₁₃	100	97.74	98.46	96.18	78.34	86.38	86,52	77.82
The AREER ₁₃	100	99.28	106.46	105.15	86.98	100.28	104.82	96.85
The ANEER ₁₉	100	97.89	98.63	97.20	80.70	87.71	87.74	80.34
The AREER ₁₉	100	99.34	106.36	105.69	88.93	100.32	104.62	97.67

Source: Author's own calculation based on different data such as: International Financial Statistics, World Bank Central bank of Algeria, National Office of Statistics and Algerian Customs from Microsoft Excel.

Table 3: Data and series construction

Variables	Data construction	Data source
Trade weighted	Author's own calculation	International financial statistics, World Bank, Central bank of Algeria. Various years.
Exchange Rate Indexes E _j	Author's own calculation	International financial statistics, World Bank, Central bank of Algeria. Various years.
Real Bilateral Exchange Rates	Author's own calculation	International financial statistics, World Bank, Central bank of Algeria. Various years.
Weighted ANEER	Author's own calculation	International financial statistics, World Bank, Central bank of Algeria. Various years.
Weighted AREER	Author's own calculation	International financial statistics, World Bank, Central bank of Algeria. Various years.

Source: Prepared bu author.

Table 4: Methodological construction of ANEER₈ and AREER₈ over the period 2010-2017 Why AEER₈? How are the ANEER₈ and AREER₈ calculated? So there are three questions to answer which currencies? Which weighting system? Which formula? Finally, to obtain ANEER₈ and AREER₈ (more details see Hooper and Morton (1978), Belongia (1986) and Rosensweig (1986)).

Table 4a: Exchange Rate Indices E_j (ANEER = $\prod_j^n (E_j)^{W_{jt}}$)

Country	2010	2011	2012	2013	2014	2015	2016	2017
France	100.0	99.4	100.0	99.4	99.3	97.7	98.0	95.1
Italy	100.0	99.4	100.0	99.3	99.3	97.7	97.6	94.8
Spain	100.0	95.1	100.0	99.3	99.3	97.7	98.2	95.9
Germany	100.0	99.8	100.0	99.8	99.8	99.2	99.2	98.1
Turkey	100.0	100.6	100.7	100.9	101.8	102.0	101.9	103.6
United states of America	100.0	99.3	99.0	99.3	98.1	96.6	95.1	95.4
Brazil	100.0	99.7	100.3	100.7	101.1	101.5	101.6	101.2
China	100.0	99.7	98.5	97.7	97.3	93.6	93.5	91.7
ANEER₈	100.0	97.76	99.01	96.75	96.45	86.90	86.21	78.20

Source: Author's own calculation based on different data such as: Central Bank of Algeria, International Financial Statistics, National Office of Statistics, World Bank and Algerian Customs from Microsoft Excel

AREER₈ in 2010= $\prod [E_j \times 100]^{w_j} = 1 \times 1 \times 1 \times 1 \times 1 \times 1 \times 1 \times 1 = \mathbf{100.0}$
 AREER₈ in 2011= $\prod [E_j \times 100]^{w_j} = 0.994 \times 0.994 \times 0.951 \times 0.998 \times 1.006 \times 0.993 \times 0.997 \times 0.997 = \mathbf{97.76}$
 AREER₈ in 2012= $\prod [E_j \times 100]^{w_j} = 1 \times 1 \times 1 \times 1 \times 1.7 \times 0.99 \times 1.03 \times 0.985 = \mathbf{99.01}$
 AREER₈ in 2013= $\prod [E_j \times 100]^{w_j} = 0.994 \times 0.993 \times 0.993 \times 0.998 \times 1.009 \times 0.993 \times 1.007 \times 0.977 = \mathbf{96.75}$
 AREER₈ in 2014= $\prod [E_j \times 100]^{w_j} = 0.993 \times 0.993 \times 0.993 \times 0.998 \times 1.018 \times 0.981 \times 1.011 \times 0.973 = \mathbf{96.45}$
 AREER₈ in 2015= $\prod [E_j \times 100]^{w_j} = 0.977 \times 0.977 \times 0.977 \times 0.992 \times 1.020 \times 0.966 \times 1.015 \times 0.936 = \mathbf{86.90}$
 AREER₈ in 2016= $\prod [E_j \times 100]^{w_j} = 0.951 \times 0.948 \times 0.959 \times 0.981 \times 1.036 \times 0.954 \times 1.012 \times 0.917 = \mathbf{86.21}$
 AREER₈ in 2017= $\prod [E_j \times 100]^{w_j} = 0.951 \times 0.948 \times 0.959 \times 0.981 \times 1.036 \times 0.954 \times 1.012 \times 0.917 = \mathbf{78.20}$
 \prod = is the product of the N currencies in the basket (denotes the product of the variables)

Table 4b: Consumer price indexes for main trading partners (P_j) and
Algeria (P_i) ($\prod_j^n (P_i / P_j)^{W_{jt}}$)

Country	2010	2011	2012	2013	2014	2015	2016	2017
France	100.0	1.009	1.029	1.033	1.040	1.061	1.063	1.076
Italy	100.0	1.003	1.016	1.018	1.022	1.031	1.046	1.051
Spain	100.0	1.001	1.012	1.019	1.024	1.033	1.036	1.040
Germany	100.0	1.000	1.003	1.004	1.007	1.010	1.014	1.017
Turkey	100.0	0.999	0.998	0.996	0.992	0.989	0.989	0.984
United states of America	100.0	1.003	1.013	1.011	1.011	1.014	1.025	1.025
Brazil	100.0	0.998	1.000	0.999	0.997	0.995	0.993	0.993
China	100.0	0.999	1.005	1.007	1.009	1.016	1.025	1.032
$\prod_j^n (P_i / P_j)^{W_{jt}}$	100.0	1.016	1.081	1.093	1.109	1.161	1.209	1.240

Source : Prepared by author.

Table 4c: Weighted real bilateral exchange rates (AREER = (ANEER) * $\prod_j^n (P_i / P_j)^{w_{jt}}$)

Country	2010	2011	2012	2013	2014	2015	2016	2017
ANEER ₈	100.0	97.76	99.01	96.75	96.45	86.90	86.21	78.20
$\prod_j^n (P_i / P_j)^{w_{jt}}$	100.0	1.016281907	1.081918351	1.093810119	1.109797508	1.16107135	1.209206054	1.240095
AREER ₈	100.0	99.35	107.12	105.85	107.04	100.90	104.25	96.98

Source: Prepared bu author

AREER₈ in 2010= $\prod [(P_i/P_j) \times E_j \times 100]^{w_j} = 1 \times 1 = \mathbf{100.0}$

AREER₈ in 2011= $\prod [(P_i/P_j) \times E_j \times 100]^{w_j} = 0.9776 \times 1.016281907 = \mathbf{99.35}$

AREER₈ in 2012= $\prod [(P_i/P_j) \times E_j \times 100]^{w_j} = 0.9901 \times 1.081918351 = \mathbf{107.12}$

AREER₈ in 2013= $\prod [(P_i/P_j) \times E_j \times 100]^{w_j} = 0.9675 \times 1.093810119 = \mathbf{105.85}$

AREER₈ in 2014= $\prod [(P_i/P_j) \times E_j \times 100]^{w_j} = 0.9645 \times 1.109797508 = \mathbf{107.04}$

AREER₈ in 2015= $\prod [(P_i/P_j) \times E_j \times 100]^{w_j} = 0.8690 \times 1.16107135 = \mathbf{100.90}$

AREER₈ in 2016= $\prod [(P_i/P_j) \times E_j \times 100]^{w_j} = 0.8621 \times 1.209206054 = \mathbf{104.25}$

AREER₈ in 2017= $\prod [(P_i/P_j) \times E_j \times 100]^{w_j} = 0.7820 \times 1.240095654 = \mathbf{96.98}$

\prod = is the product of the N currencies in the basket (denotes the product of the variables)

Table 4d: Decomposition of changes in AREER₈₋₁₃₋₁₉ and ANEER₈₋₁₃₋₁₉ indexes

Country	Change in					
	ANEER ₈	AREER ₈	ANEER ₁₃	AREER ₁₃	ANEER ₁₉	AREER ₁₉
2010-2017	-21.8	-3.02	-22.18	-3.15	-19.66	-2.33
2011-2016	-11.55	+4.9	-11.22	+5.54	-10.15	+5.28
2016-2017	-8.01	-7.27	-8.7	-7.97	-7.4	-6.95

Source: Prepared bu author.

Table 5: Shares of Algeria’s trading partners (base year = 2010, trade weighted) gives the normalized weights for the 8-13-19 group for over the period 2010-2017, which is based on trade weighted (imports plus exports = total trade).

Country	Trade weighted 2010			Trade weighted 2017		
	8	13	19	8	13	19
Italy	20,77%	16,92%	15,86%	18,70%	15,86%	14,50%
France	15,89%	12,94%	12,13%	17,38%	14,74%	13,48
Spain	13,84%	11,27%	10,56%	14,42%	12,23%	11,18
Germany	4,36%	3,55%	3,33%	6,44%	5,46%	4,99%
Turkey	6,82%	5,56%	5,21%	7,66%	6,49%	5,94%
The USA	25,86%	21,07%	19,75%	10,54%	8,94%	8,17%
Brazil	5,37%	4,38%	4,10%	6,98%	5,92%	5,41%
China	7,09%	5,78%	5,41%	17,90%	15,18%	13,87%

Netherlands	6,15%	5,76%	4,41%	4,03%
Belgium	3,56%	3,33%	2,63%	2,40%
Portugal	1,74%	1,63%	2,30%	2,10%
Great Britain	2,71%	2,54%	3,70%	3,39%
Canada	4,37%	4,10%	2,15%	1,96%
Japan		2,00%		1,06%
Russian Federation		0,20%		1,89%
India		0,94%		1,51%
Tunisia		1,13%		1,67%
Morocco		1,05%		1,10%
Egypt		0,95%		1,35%
Total		100		100

Source: Author's own calculation based on different data such as: Central Bank of Algeria, International Financial statistics, National Office of Statistics, World Bank and Algerian Customs from Microsoft Excel

Table 6: Abbreviations

Abbreviations	Meaning
EERs	Effective exchange rates.
NEER	Nominal effective exchange rate.
REER	Real effective exchange rate.
CPI	Consumer price index.
Wpi	Wholesale price index.
ULC	Unit labour costs.
GDP	Gross domestic product.
ANEER	Algerian nominal effective exchange rate.
AREER	Algerian real effective exchange rate.
AEERs	Algerian Effective exchange rate.

Source: Prepared bu author.

Foreign direct investment as one of the international distribution mechanisms to achieve the competitive advantage – case of Algeria 2002-2017–

الاستثمار الأجنبي المباشر كألية من آليات التوزيع الدولي لتحقيق

الميزة التنافسية- حالة الجزائر 2002-2017-

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Abstract:

This study aims at discuss an important subjects of today, the FDI and the competitive advantage, where great importance is given to them, most companies are urged to take partnership with foreign companies to be protected from dangers or threats of competition,a set of conclusions and recommendations are presented that FDI can help companies to support their competitive advantages.

keyword:f.d.i; competitive advantage; international distribution

JEL classification code : F21, M30, M31

ملخص:

تهدف هذه الدراسة الى تناول موضوع الاستثمار الأجنبي المباشر والميزة التنافسية، فقد تنامي الاهتمام بهما مع اشتداد المنافسة بين مختلف القطاعات، الامر الذي جعل معظم الشركات تدخل في شراكة مع شركات أجنبية لتكون محمية من تهديدات المنافسة، وكحوصلة لهذه الدراسة تم تقديم مجموعة من النتائج والتوصيات التي تمكن الشركات من دعم ميزتها التنافسية عن طريق الاستثمار الاجنبي المباشر .

الكلمات المفتاحية: الاستثمار الأجنبي المباشر؛ الميزة التنافسية؛ التوزيع الدولي.

تصنيف JEL:F21، M30، M31 .

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1. Introduction :

The role of the foreign direct investment has been internationally increased, and all their economies have taken this investment very seriously and made sure to use it in all its domains. Most of these countries have earned great incomes from it. It is a means of importing technologies and new techniques to build competitive projects. It helps increasing the means of production and improving economies through inventions and creativities, also, it can help to create competition between the foreign investor and local companies in a way that leads to reduce monopoly and motivate companies to improve the quality of their products and services if they are willing to protect the continuity and the maintain lasting.

The foreign investment increases the human resources capacities from the training of the local resources and reinforcement of the skills in production fields and managerial experience of the foreign invested companies, however, this can achieve competitive advantages to the local companies in the production, marketing and distribution fields. From what have been mentioned up above, the following question can take place:

How can the foreign direct investment play a good role in supporting the competitive advantage of the company?

1.1 The objectives of this study as followed:

- Trying to make the necessary efforts to give general idea to the different concepts are linked to the foreign direct investment and competitive advantage.
- Trying to show how the foreign direct investment is important as an activity that supports to achieve competitive advantage to the local companies.
- Show the important role to the foreign direct investment that because of it the company can achieve a better competitive advantage compared to other competitors.

To reach some results and make recommendations that can contribute and attract foreign competitors to increase the competitive advantage.

1.2 The importance of the study:

- The importance of the foreign direct investment considered as one of the most important external sources that brings change, and positive effects on the host country.
- This study gets its importance through the status and vital role played by the foreign direct investment in supporting the competitive advantage of the local company.
- Show the necessity to pay good attention to the foreign direct investment for its role to achieve and support the competitive advantage to the company.
- Show the great importance of the foreign direct investment which is well represented in transferring the technology and the managerial skills to the host country.

2. Main principles of the foreign direct investment and the international distribution:

2.1 foreign direct investment definition and its advantages

The foreign direct investment is a major subject that interests many researchers and specialists either in its theory or practical phase. We are going to take this subject focusing on the definitions and advantages the foreign direct investment, its types and the most of its important determinants.

2.1.1 Definition of the foreign direct investment:

The foreign direct investment has so many definitions that differ from one researcher to another, to have a general definition, the researchers have a lot of opinions about that, we do now mention some of these different opinions:

Foreign direct investment means buying or owning complete parts of foreign companies or taking only parts in it so the investor will have a relative effect and an ability to control these companies and their politics in a way that can connects the investor to the amount and percentage of the investment (Abdul Rahim &Firas , 2013, p. 19).

The foreign direct investment is a means of transferring the technology, new products, new skills (for example, innovative, product designs and managerial skills)(Rafat, 2018, p. 164) .

After what we have mentioned, we can say that the foreign direct investment is the process of owning or taking parts from the project (tangible and intangible assets) in foreign countries, in order to give the foreign investor a managing ability in the investment.

In this study we will focus on Algeria case 2002-2017 where it has made so many partnerships with countries and foreign companies which are mentioned in the table below:

Table 1 : projects involving foreigners 2002-2017

Amount: million of DA			
Region	Projects Number	Amount	Jobs Number
Europe	472	11 48208	78415
Of witch	332	666499	44646
European union			
Asia	114	169732	11761
America	18	68813	3737
Arab countries	262	1057257	34462
Africa	6	39686	609
Australia	1	2974	264
Multinationality	28	33160	4335
Total	901	2519831	133583

Source: Source:(Development, 2002-2017)<http://www.andi.dz/index.php/en/declaration-d-investissement>, visited 23/06/2019 at 19:30

From what have been mentioned before, we notice that the Algeria partnership share with foreigners was most benefited by Europe by 472 projects, secondly was European union and then Asia, and then the multi-nationalities with 28 projects, after that there will be America and Africa with very low percentages (18 projects to America and 6 projects to Africa).

And for the Arabic countries, the percentage were very good estimated with 262 projects which are a good results compared to the previous ones, and at last was Australia with one project.

For the distribution of foreign investments declared in Algeria gathered by sector of activities as followed:

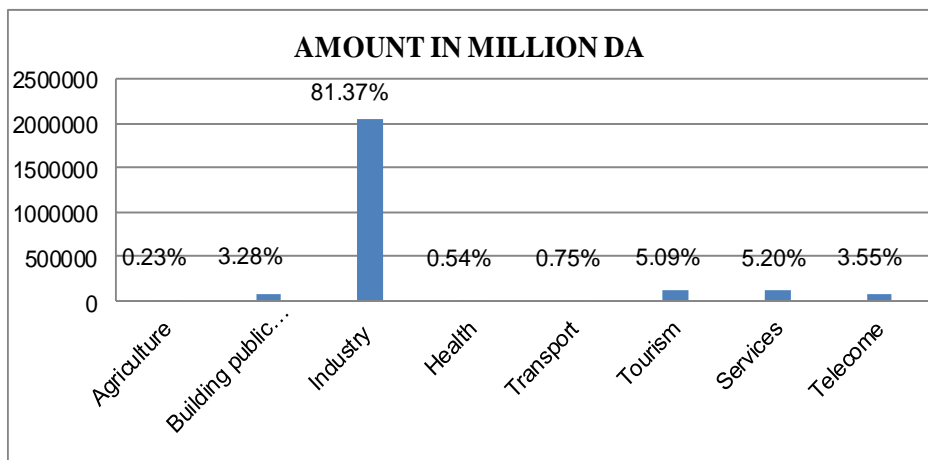
Table N°02: distribution of foreign declared investments projects gathered by sector of activities 2002-2017

Amount: million of DA						
Secteur of activities	Projects Number	%	Amount	%	Jobs Number	%
Agriculture	13	1.44%	5768	0.23%	641	0.48%
Building public works	142	15.76%	82593	3.28%	23928	17.91%
Industry	558	61.93%	2050277	81.37%	81413	60.95%
Health	6	0.67%	13572	0.54%	2196	1.64%
Transport	26	2.89%	18966	0.75%	2407	1.80%
Tourism	19	2.11%	128234	5.09%	7656	5.73%
Services	136	15.09%	130980	5.20%	13842	10.36%
Telecome	1	0.11%	89441	3.55%	1500	1.12%
Total	901	100%	2519831	100%	133583	100%

Source: (Development, 2002-2017)

21:05 <http://www.andi.dz/index.php/en/declaration-d-investissement>, visited 23/06/2019 at

Figure N°01: distribution of foreign declared investments projects gathered by sector of activities 2002-2017



Source:(Development, 2002-2017)By the researcher based on

<http://www.andi.dz/index.php/en/declaration-d-investissement>, visited 23/06/2019 at 21:05

From the above we take a notice that the industry sector percentage was the highest which estimated at 61.93% and 558 projects from total projects (901), its estimated value is 2050277 million of DA from total 2519831 million of DA, so this sector can provide many jobs number estimated at 81413 jobs number in Algeria.

But regarding to the other sectors (agriculture, building public works, health, transport; tourism, services, telecomm) the percentage were unstable and too low.

2.1.2 Foreign investment advantages:

These are the most important advantages that Mansour al zein talked about (Zein, 2013, pp. 383, 384):

- ☒ Foreign direct investment is the main source of transferring the advanced technologies to the developing countries.
- ☒ Foreign direct investment leads to higher productivity in local companies especially in manufacturing.
- ☒ The amount and type of technology transferred through foreign direct investment is influenced by the different characteristics of the industry and the host country which creates competition that level up the local investment's fixed capital and education, the environment also imposes fewer restrictions on the branches of multiple companies that have different nationalities which can lead to further expansion of transferring technology.
- ☒ The foreign direct investment offers a great possibility of benefiting from the competitive advantage owned by the international company that invests in foreign markets in the field of marketing and production (Al-Turkistani, 2017, p. 162)
- ☒ FDI provides companies with the chances to take full advantage of the internationalisation benefits, like gaining access to new customers, also can expend business risk into a larger market base, obtaining access to valuable natural resources, and achieving lower costs or exploiting better-possessed resource (Małgorzata, 2015, p. 126).
- ☒ Controlling inflationary pressures: with the help of foreign capital investment and foreign aid, it can possible the speedy growth in production in various economic sectors. It increases the quantity of goods of consumption, which results in stability of price level that

controls the inflationary pressures (Dr. K. S. & Bhanuben N , 2013, p. 08).

2.1.3 Foreign direct investment forms

Foreign direct investment contains a lot of forms, we would like to select the most important ones:

☒ The joint venture:

The joint venture can be defined as a partnership of two or more companies that create a separate business entity, in the way that each participant contributions in the form of capital, technology, marketing expertise and staff, and in order to take certain economic activities. The venture is a long-term character, according to the principle :shared tax - shared risk (Nebojša , Oliver , & Adriana , 2015, p. 187).

☒ Mergers and Acquisitions:

The terms merger and acquisition are often interchangeably, which is wrong because there are differences between these terms. (merger) is a transaction in which two or more companies agree to merge into a new company, and existing companies cease to exist, On the other hand, taking (acquisitions) indicates the transaction when one company buys i.e. it is taken over by another company (Nebojša , Oliver , & Adriana , 2015, p. 192).

☒ The investments fully owned by the foreign investor:

These kinds of investments create branches of production, marketing and distribution or any other productive activities that are fully owned by the foreign investor in the host countries, despite the risk, this kind of investment is the most preferred by the largest companies in the world (Zarzar& Barak , 2016, p. 137).

☒ Projects or aggregations:

This type takes the form of an agreement between the foreign part and the national part, which the first part supplies the other one with the components of a particular product to be assembled and collected into a final product. In most developing countries, the foreign part provides the necessary experience and knowledge regardless the internal design of the factory, the process of operations, the methods of storage, maintenance and capital equipment. In return, there must be an agreement about the outcomes (Abdel-Al, 2012, p. 206)

2.2 Definition of the international distribution and its methods

2.2.1 Definition of the international distribution

The effective ways used by companies to increase their international sales and expand their global market share by delivering goods and services to different types of users whether they are final consumers or industrial buyers according to their geographical location (Zakaria & Ahmad, year of publication is unknown, p. 321).

2.2.2 The international distribution methods:

The companies that want to reach to the international markets have two methods (Al-Okah, 2010, pp. 168,169):

- ☒ **First: Directly:** the company that wants to design its distribution system without dealing with intermediaries for the disposal of its products in foreign markets through the direct association with its foreign markets.
- ☒ **Second: Indirectly:** the indirect method does not make the producers distribute their products directly to the consumer, in which intermediaries can be selected to distribute goods, The intermediary is responsible for transporting products to the foreign markets, this gives the company many advantages such as low export costs.

3. General principles of the competitive advantage :

During the changes the economic world is facing, many companies are encountering some challenges that are connected to competition and how it is paced in the international field, they have become aware that their remaining in the market is linked to their ability to compete, and for that, it is a goal to both have and develop the advantages of competition using different methods and strategies, these companies are working so hard to stay and get along with the changes and get an important position compared to the other competitors.

3.1 Definition of competition and its types :

3.1.1 Definition of competition

competition is defined as an activity of individuals who seek to achieve the benefits that others want to gain at the same time and in the same conditions, Its essence is based on the elimination of competitors operating in the same industry and taking over their customers (Zelga, 2017, p. 302).

We can say that competition measured in the markets by its sold products or the number clients compared with the services by the company to have a better position compared to its competitors.

3.1.2 Types of competition:

The following types of competition are represented:

☒ **Perfect Competition**(Hanna, 2010, p. 336):

It has the following characteristics

- The existence of so many buyers and sellers to the product.
- The similarity of the product between all producers.
- Producers have the free access to the production field.
- A none_existing agreement between producers to unify their policies.
- The smooth movement of production factors
- The costumer's rational behavior.

☒ **The monopolistic competition :**

Monopolistic competition refers to the market situation in which many producers produce goods which are close substitutes of one another. Two important distinguishing features of monopolistic competition are: Product differentiation, and existence of many firms supplying the market (George & M. , 2015, p. 1065).

Oligopolistic competition consists of several companies producing the same or partially differentiated product. This diversity can affect the level of quality, special features, style or service, The company, which manufactures the same product cannot determine the prices of their products at a higher level than the market, unless it wants to attract customers (Zelga, 2017, p. 302)

☒ **Oligopoly:**

Oligopoly is one of the imperfect competition forms, its characteristics as followed (Mahmoud & Rudaina , 2011, p. 232):

- Productors should own high fortune and high human ressources.
- The existence of a few number of producers, the same for sellers and buyers.
- A big rate of production provided by a few number of producers who have all data about the market and consumers.
- The difficulty of intering the market by new producers.

- The similarity of products but differences between the similar competing goods regarding the policy of the commodity discrimination.

3.2 Definition of the competitive advantage and its characteristics :

3.2.1 Definition of the competitive advantage:

These are some of the definitions given to the competitive advantage:

Competitive advantage is an advantage over competitors gained by offering consumers greater value, either through lower prices or by providing more benefits that justify higher prices (Philip , Gary , & and , 1999, p. 434).

Competitive advantage is revealed, when activities of a given organization are more profitable than those of its market competitors or when it outperforms them as regards other significant results of activities, including, for example, the share in the market, product quality or technological advancement (Cegliński, 2016, p. 58).

The definition of the competitive advantage by Philip Kotler focused on the value that's given to the consumers through higher or lower prices.

Whereas, the second definition concentrated about the profitability of company and its share in the market compared to the other competitors in the quality of products or the technology advancement and other factories.

Through the two definitions, we conclude by saying that the competitive advantage is a company can overcome other companies by creating a value to the consumer with many ways that can make the company even stronger, the price or the product quality are included.

3.2.2 Characteristics of the competitive advantage:

The main characteristics of competitive advantage (Saadoun & Hussein , 2015):

- **The selected resources:** the goods or resources such as the company reputation that enables companies to last longer in market.
- **The creative capacities of the companies:** These abilities can achieve valuable competitive advantages which are too difficult to be imitated or simulated by others.

- **The strength of continuity:** The continuity of the resources that can guarantee the lasting of the competitive advantage.

3.3 The strategies of competitive advantage:

There are three strategies of the competitive advantage represented as: differentiation Strategy, cost leadership strategy and focus strategy, these three strategies were defined by 'Porter', They are explained down below:

☒ Differentiation Strategy:

This strategy demands the development of goods or unique services from unmatched by counting on the loyalty of the customer (positioning) to the brand. A company can be offered higher quality, performance or unique features that each of them can justify the higher prices (Hashem, , Hamid , & Samira , 2012, p. 15).

- Physical differentiation relates to the physical characteristics of products and services such as design, implementation method, channel distribution, weight, color, size, smell, etc.. (Pindelski, 2016, p. 09).
- Symbolic differentiation refers to feelings and emotions, and includes, for example, brand, image, perception, promotion, etc.. (Pindelski, 2016, p. 09).

☒ Cost leadership strategy:

Cost leadership strategy: according to Porter's Generic competitive strategies, cost leadership, creates a company to become the low cost producer in its industry. The sources of cost advantage are varied and depend on the structure of the industry. They may include the pursuit of economies of scale, proprietary technology, preferential access to raw materials and other factors. The goal of this strategy is to offer products or services with lower costs (Nyauncho M & Nyamweya , 2015, p. 02)

☒ Focus strategy:

The focus strategy based on a target segmentation of the buyer whose needs are less expensive than the rest of the market. On the other hand, the differentiation focus strategy relies on a buyer segment that requires unique product attributes (Akintokunbo, 2018, p. 259).

Through this strategy, the company aims to focus on a specific activity/activities, they might require a separate product or marketing

mixes to a specific marketing sector or to special costumers (Hisham&Boushamal , 2014, p. 161).

4. The foreign investment and its role in supporting competitive advantage. :

In this part we will discuss the important role of the foreign direct investment in supporting the competitive advantage, this role of supporting will be represented as followed: technology and managerial skills transferring, competition reinforcement.

4.1 The impact of the foreign direct investment in supporting administration and unemployment:

4.1.1 The impact of the foreign direct investment in supporting administration:

By transferring knowledge, FDI will increase the existing stock of knowledge in the host country through labour training, transfer of skills, and the transfer of new managerial and organizational practice. Foreign management skills acquired through FDI may also produce important benefits for the host countries. Beneficial spin-off effect arise when local personnel who are trained to occupy managerial, financial and technical posts in the subsidiary of a foreign MNE leave the firm and help to establish local firms (kurtishi-kastrat, 2013, p. 28).

Similar benefits may arise if the superior management skills of a foreign MNE stimulate local suppliers, distributors and competitors to improve their own management skills . Lall and Streeten (1977) emphasize three kinds of managerial benefits (kurtishi-kastrat, 2013, p. 28):

- Entrepreneurial capability in seeking out investment opportunities;
- Externalities arising from training received by employees (such as technical, executive, accounting and so on);
- Managerial efficiency in operations arising from better training and higher standards.

4.1.2 The foreign direct investment and employment in Algeria:

The problem of unemployment appears in different cities in the world especially in the developing countries, and it differs from one country to another according to the strength of the internal national economy and the total investment activities to each country, the

increased investments contribute in an effective way to decrease the unemployment.

The following table explains the jobs number provided by F.D.I declared in Algeria during 2002-2017 according to the national Agency of investment development

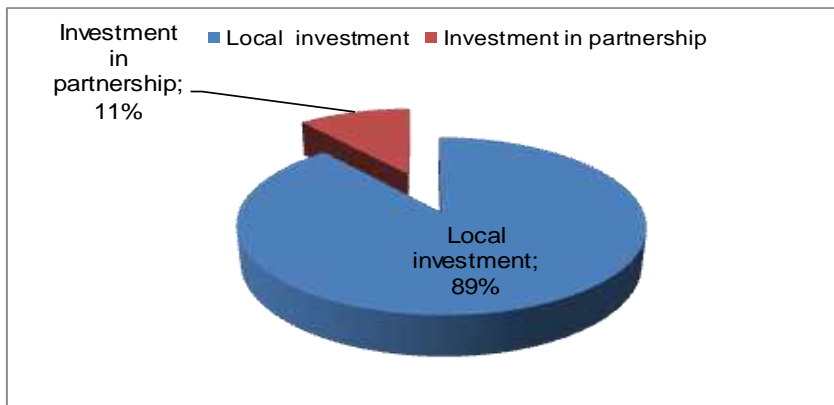
Table N°03:Jobs number declared in Algeria 2002-2017

Amount: million of DA						
Investment projects	Projects Number	%	Amount	%	Jobs Number	%
Local investment	62334	99%	11780833	82%	1098011	89%
Investment in partnership	901	1%	2519831	18%	133583	11%
Total	63235	100%	14300664	100%	1231594	100%

Source: Source:(Development, 2002-2017)

<http://www.andi.dz/index.php/en/declaration-d-investissement>, visited 25/06/2019 at 15:00.

Figure N°02:Jobs number declared in Algeria 2002-2017



Source:(Development, 2002-2017)

By the researcher based on the <http://www.andi.dz/index.php/en/declaration-d-investissement>, visited 25/06/2019 at 15:30

According to the statistics in the table above the F.D.I contribution stays limited and low at providing employments in Algeria, where the total number of employees as a part of the foreign investments declared in Algeria reached about 133583 employee during 2002-2017 of total 1231594 job number achieved at the same period at a rate of 10.85% of total, only that this percentage is reasonable

compared to the foreign declared investment during this period which have not reached to 2% of the total declared projects.

The table pinned above shows us the big possibility to provide large and wanted job opportunities in Algeria, So the rate 1% of total investment projects provided 11% of total job numbers.

logically Algeria has to increase the efforts to bring a large number of foreign investments.

4.2 Foreign direct investment outward stock- percentage of gross domestic product in Algeria 2002-2017

F.D.I contributes in increasing the internal production to the host countries through the industrial, production and service companies, which helps the host countries to reduce the imports.

The following to table shows the contribution of the F.D.I in the total internal outward in Algeria 2002-2017:

Table N°04: FDI outward stock- percentage of gross domestic product in Algeria 2002-2017

years	%
2002	9.78
2003	9.12
2004	8.29
2005	7.96
2006	8.63
2007	8.78
2008	8.47
2009	12.56
2010	12.12
2011	11.05
2012	11.29
2013	12.06
2014	12.54
2015	15.81
2016	17.52
2017	16.35

Source: (Corporation, 2002-2017)

by the researcher based on the <http://dhaman.net/ar/research-studies/data-tools/data-fdi/> visited: 25/06/2019 at 19.00

Through the previous table we notice that the percentage of the F.D.I contribution in Algeria in forming the local outward-stock remains too low and this is due to the weak value of F.D.I in Algeria

In spite of the increase in 2009, where it reached to 12.56% compared to the previous years, it did not exceed 10%.

And it started to rise again to reach to 17.52%, its highest percentage in 2016.

From the previous percentage, the role played by F.D.I is still weak in Algeria, although there is enormous untapped potential for investment in Algeria.

4.3 The foreign direct investment, transferring technology and reinforcement of the competition:

4.3.1 Transferring technology:

Technology refers to all manufactured materials and capital goods of machinery and equipment, with a necessary design and implementation. Regarding the experiences and skills related to the production arts, designs and documents, operating programs, maintenance, training and education (Boudjemaa, 2012-2013, p. 26).

foreign direct investment is one of the most important tools for technology transferring, multinational companies are now the main source of the world's research and development , because their total expenditure is equivalent to about 80% of the total expenditure from all over the world, developing countries started to encourage the multinational companies to invest in their countries making sure not to bring along the indirect effects of technology transferring with them (Jabbar, 2014-2015, p. 134).

The cost of the researches and development by the invested companies is not wasted as it seems to be, because the importance of its technology transferring, technology does not include only technical operations, but also managerial and marketing skills, therefore, the host countries can gain secondary represented as: technological spill-over effect, which is called Technological multiplier, it works on technology diffusion and modern management techniques both largely and widely (Boudjemaa, 2012-2013, p. 27).

4.3.2 Reinforcement of the competition:

Foreign direct investment (FDI) has a strong and direct effect on the competition. Foreign companies bring new technology to motivate local companies those who are wishing to maintain their market share

to stand against the foreign companies with their strong competitive abilities, however, local companies have to develop their producing technics to reach their goals (Jabbar, 2014-2015, p. 136).

Accordingly, from one hand, this can improve the current products and produce new products, on the other hand, increase the production factors which leads to accomplish higher growth rates (Jabbar, 2014-2015, p. 137) .

4.4 Adverse effects on competition:

Host governments sometimes worry that the foreign MNEs may have greater economic power than local competitors. If it is a part of large international organization, the foreign MNEs may be able to draw on funds generated elsewhere to support its costs in the host market, which could drive local companies out of business and allow the firm to monopolize the market (kurtishi-kastrat, 2013, p. 32).

5. Study Methodology :

To address the subject of this study and to know the aspects of the subject, this study used the analytical descriptive method, the researcher talked about the theatrical background which the study is based, and this is by addressing the various literatures and previous scientific studies in the research field.

6. Conclusion :

Through the previous study, we concluded that foreign direct investment is a major means for transferring the new technology and technics. It can have too many effects in different fields, production, administration and marketing as well, it has great effect on investment opportunities that were not available or could not be provided by local companies, because of the lack of experience and possibilities.

6.1 Recommendations:

After what we concluded in the last results, we finish with these following recommendations:

1. Create special organs that is interested to attract the foreign direct investments.

2. Simplify all the procedures especially the legal ones to the foreign investors to motivate them to invest.
3. Alliances are highly needed for local companies to face the competition in the international market.
4. Controlling the foreign investments in the host countries(indirect effects).

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The Purple Economy and Sustainable Development in Algeria (Requirements and Challenges)

الاقتصاد البنفسجي والتنمية المستدامة في الجزائر

(متطلبات وتحديات)

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Abstract:

This paper seeks to include an analysis of the most important requirements of the transition toward the purple economy in Algeria with a view to achieving sustainable development on all social, economic, environmental and cultural aspects, as the study showed that small and medium enterprises as well as the tourism sector have a central role to play in the process of the transition toward the purple economy, through the ingredients that the latter provides for the advancement of the Algerian economy.

keyword: Purple Economy; Sustainable Development; SMEs; Tourism

JEL classification code : O10, Q01, Z32.

ملخص:

نحاول من خلال هذه الورقية البحثية تضمين دراسة تحليلية لأهم متطلبات التحول نحو الاقتصاد البنفسجي في الجزائر بهدف تحقيق تنمية مستدامة على مستوى كل الجوانب الاجتماعية، الاقتصادية، البيئية والثقافية حيث بينت الدراسة أن للمؤسسات الصغيرة والمتوسطة بالإضافة إلى القطاع السياحي دورا محوريا في عملية التحول نحو الاقتصاد البنفسجي، من خلال ما توفره هذه الاخيرة من مقومات تسمح للنهوض بالاقتصاد الجزائري.

الكلمات المفتاحية : الاقتصاد البنفسجي؛ التنمية المستدامة؛ المؤسسات الصغيرة والمتوسطة؛ السياحة. **تصنيف JEL :** O10، Q10، Z32.

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1. Introduction:

Recently, a range of economic terminology has emerged, not as familiar as traditional macroeconomic, microeconomic, objective and normative topics, and also within well-known schools of economic thought. The concept of Smart Economy, the environmental economy, and so on has emerged. Very recently, talk began about other types and branches of the economy, resulting from development or from societal and institutional attention to specific issues, including the purple economy.

The purple economy means: A economy with values that are closely linked to the culture of society. This brings about the response and interaction of the cultured person, so that culture is a servant of the economy and a link to its goals. Culture is described as the soft power of the extreme impact of the economy.

The term made its first public appearance in France on 19 May 2011, at the initiative of the association, Diversum, in a manifesto published on Le Monde.fr, the day before the World Day for Cultural Diversity for Dialogue and Development. The 1st International Purple Economy Forum, organized by Diversum, was later held in Paris, from 11 to 13 October 2011, under the patronage of UNESCO, the European Parliament and the European Commission (Santosh Kumar Tripathi, 2018).

Based on the above, the following problem can be raised:

What is the requirements of the purple economy in achieving sustainable development in Algeria?

2. Sustainable Development (SD):

Sustainable development is a comprehensive, integrated and coordinated process among all sectors and should not be limited to one sector at the expense of the other, but should not depend on one axis. In order to achieve economically, ecologically and socially sustainable

development It is, therefore, incumbent that society work toward integral, equitable and sustainable social and economic development.

2.1. Definition:

Sustainable development requires the integration of economic, environmental, and social objectives across sectors, territories, and generations. The refore, sustainable development requires the elimination of fragmentation; that is, environmental, social, and economic concerns must be integrated throughout decision making processes in order to move towards development that is truly sustainable (Dernbach, 2003).

The overall goal of sustainable development (SD) is the long-term stability of the economy and environment; this is only achievable through the integration and acknowledgement of economic, environmental, and social concerns throughout the decision making process (Cerin, 2006). The key principle of sustainable development underlying all others is the integration of environmental, social, and economic concerns into all aspects of decision making. All other principles in the SD framework have integrated decision making at their core (Dernbach, 2003) It is this deeply fixed concept of integration that distinguishes sustainability from other forms of policy.

Institutionally, government organizations are typically organized into sectoral ministries and departments. This works fairly well until the system encounters something very comprehensive and highly integrated in nature, such as sustainable development. In practice, sustainable development requires the integration of economic, environmental, and social objectives across sectors, territories, and generations. Therefore, sustainable development requires the elimination of fragmentation; that is, environmental, social, and economic concerns must be integrated throughout decision making processes in order to move towards development that is truly sustainable (D.N.V.Krishna Reddy, 2017).

The notion of sustainability involves rethinking development to integrate environmental, economic, social and cultural goals. To be sustainable, development must foster protection and rehabilitation of ecological systems, improve economic efficiency and enhance the well being and cultural diversity of the population. In general, the concept of sustainable development includes not only environmental, but also economic, social and cultural aspects and is based on the main principles of integrity of the ecosystem, economic efficiency, social and intergenerational equity and cultural diversity (Gražulevičiūtė, 2006).

2.2. The reality of sustainable development in Algeria:

The Algerian economy has gone through many stages and has experienced a series of financial and economic crises since independence to date, during which time a series of economic measures and reforms were undertaken to achieve sustainable development, all of which were part of the Algerian policy of sustainable development. Immediately after independence, Algeria started to structure its institutions for rebuilding the Algerian state and to draw up a new development policy through the socialist approach based on the participation of the people in the development work and the adoption of a set of development plans to follow the most prominent of them:

- The *three-year* programme (1967-1969);
- The *four-year* programme I (1970-1973);
- The *four-year* programme II (1974-1977);
- The *five-year* programme I (1980-1980);
- The *five-year* programme II (1985-1989).

The first development plans were marked by a major success but were characterized by dependence on central decision-making power, and by the international economic crises that affected the fuel sector in 1980 and the collapse of oil prices in the world market in 1986, Algeria witnessed the beginning of the deterioration of development policies, as the Algerian economy depends on the fuel sector to finance its

development programs. This required the embodiment of a series of economic measures and reforms, supported by the International Monetary Fund, which extended to 1993 through the restructuring of public institutions and the trend toward their establishment, thus paving the way for the abandonment of the socialist and centralized decision-making approach. In the last ten years, Algeria has witnessed a series of development programs aimed at achieving sustainable development, starting in 2001, which we make clear in the following table:

- **The Support Programme for Economic Recovery (PSRE) 2001-2004:** From 2001 to 2004, the government implemented a \$7 billion economic revival plan (PSRE) to boost growth and jobs. It set up a revenue regulation fund (FRR) in 2000 to enable the budget to be adapted to oil price fluctuations and drew up a medium-term expenditure framework (MTEF) independent of oil/gas revenue. It reformed taxation to gradually reduce the government's dependence on oil/gas revenue and divert spending to education and health with the aim of preparing the way for economic liberalisation by giving people more skills and qualifications.

Table 1: The Support Programme for Economic Recovery (PSRE) 2001-2004

The planned	Period	Economic	Social Dimension
The Support Programme for Economic Recovery (PSRE).	2001-2004	Supporting labour-intensive activities and developing small enterprises, as well as developing the agricultural sector.	Development of educational facilities, and improvement of the living framework of the population

Source: Prepared by the authors based on a set of references

- **Supplementary program to support economic growth and The supplementary development programmes in the high plateaux and south 2005-2009:** the supplementary support programme for economic growth (2005-2009) and the special programmes for the High Plateaux and the South, worth an overall total of around \$207 billion, has been a decisive factor in reviving economic growth, and supplementary development programmes in the high plateaux and south regions have helped to foster development throughout the country.

Table 2: Supplementary program to support economic growth and The supplementary development programmes in the high plateaux and south 2005-2009

The planned	Period	Economic Dimension	Social Dimension
Supplementary program to support economic growth	2005-2009	Supporting economic development, and infrastructure development.	the eradication of poverty, the right to work and to education, and the development of an infrastructure for public services.
The supplementary development programmes in the high plateaux and south	2006-2009	Industrial sector development, Support and development of peasant projects	Development and support of the justice sector and support for local development schemes

Source: Prepared by the authors based on a set of references

- **The five-year programme 2010-2014:** With regard to housing, the *five-year* programme provides for the construction of 2 million units, including social housing, It also aims to develop an institutional mechanism to expand health-care coverage for low-income patients.

Table 3: The five-year programme 2010-2014

The planned	Period	Economic Dimension	Social Dimension
The <i>five-year</i> programme	2010-2014	Support for peasant and rural development projects, support industrial development and support the establishment of SMEs	Support scientific research and funding mechanisms for the creation of job positions and the integration of university graduates

Source: Prepared by the authors based on a set of references

The financial situation of Algeria, starting in 2000 as a result of the oil revenues, allowed the launching of a series of public investments aimed at achieving sustainable development at all levels. These investments have been launched in the form of development programs, each of which contains a range of themes that take a range of development dimensions aimed at achieving sustainable and inclusive development.

These wide-scale programmes have created an environment which encouraged improvement in people's lives and elaborated infrastructures and services for development, modernized technology and established a new economic and social dynamism in the countr.

3. The purple economy:

The purple economy is an alliance between the economy and culture, to humanize globalization to reconcile economic development with sustainability. It is a promising area as a model based on cultural development to emerge from economic crises, to guide the future economy, as well as to renew productive activities. The contribution of the purple economy to the creation of a rich and diverse cultural environment makes it central to the achievement of the goals of progress and well-being.

3.1. Definition:

The purple economy refers to taking account of cultural aspects in economics. It designates an economy that adapts to the human

diversity in globalization and that relies on the cultural dimension to give value to goods and services.

The purple economy is multidisciplinary, in that it enriches all goods and services by capitalizing on the cultural dimension inherent to every sector. The sensory, experiential economy is one application of this. It differs from the cultural economy, which is sector-based (Santosh Kumar Tripathi, 2018).

The dynamic, healthy connection between the economy and culture encourages a view of culturalization as a field of opportunity and responsibility. Along with the green economy (which includes the ecological footprint) and the social economy (which includes the social footprint), the purple economy, with its cultural footprint, constitutes the third pillar of the burgeoning transition beyond purely quantitative growth.

The purple economy refers to an economic order which is organized around sustainability of caring labor through a redistributive internalization of the costs of care into the workings of the system just as the green economy is organized around sustainability of provisioning by nature through internalization of environmental costs into production and consumption patterns. Special measures aimed at reducing the unpaid work burden of rural households. An efficient rural physical infrastructure reduces women's unpaid work of carrying water, collecting firewood, farming and food processing. (İlkkaracan, 2016).

3.2. Connection to Sustainable Development:

The Three components of a sustainable development-

Fig.1 : The three components of a sustainable economy



Source: (Santosh Kumar Tripathi, 2018)

The purple economy emphasizes the presence of externalities: the cultural environment from which agents draw and on which, in return, they leave their own footprints is a common good. As a result, the purple economy sees culture as an axis for sustainable development. In fact, culture has been a whole sub-section of sustainability since the beginning. Corporate social responsibility can even be said to have originated in the International Covenant on Economic, Social and Cultural Rights adopted by the United Nations in 1966. This issue is just one of the different components of sustainable development, alongside concerns relating to the natural environment (green economy) and to the social environment (social economy) (Santosh Kumar Tripathi, 2018).

2.3. The requirements and challenges of the transition to the Purple Economy for Sustainable Development in Algeria:

The evolution of the concept of development in the form of multiple-factional models has led to the expansion of this model and the task of the way to recognize the role of culture. Although the theme of culture was not included in the millennium development goals adopted in 2000, country-level evidence and global recognition have highlighted the role of culture and its contribution to sustainable development efforts.

2.3.1. The reality of SMEs in Algeria:

SMEs can enjoy a number of behavioral advantages over their larger counterparts in innovation (e.g. rapid response to threats and external opportunities; effective internal communication; interactive management style) (Roy Rothwell, 1991), are non-subsidiary, independent firms which employ fewer than a given number of employees. This number varies across countries. The most frequent upper limit designating an SME is 250 employees, as in the European Union. However, some countries set the limit at 200 employees, while

the United States considers SMEs to include firms with fewer than 500 employee, The definition adopted for SMEs in Algeria is that contained in Act No. 17/02 of 10/01/2017, which is the guideline for the development of SMEs.

Table 4: Definition of SMEs according to Algerian law

Company category	Staff headcount	Turnover	Balance sheet total
<i>Micro</i>	< 10 Workers	≤ 40 million	≤ 20 million
<i>Small</i>	< 50 Workers	≤ 400 million	≤ 200 million
<i>Medium-sized</i>	< 250 Workers	≤ 4 billion	≤ 1 billion

Source: Prepared by the authors from the annual information bulletins N°33 of the Ministry of Industry

Statistics from the latest SMEs information bulletin issued by the Ministry of Industry show that the SMEs sector in Algeria is booming. Indeed, the total population of private SMEs during the first half of 2018 , is 1093170 SMEs, and that is higher than the total number of SMEs of previous years. The following table is used to quantify the evolution of this entity during the study during the first half of 2018:

Table 5: Enumeration of SMEs in Algeria during the first half of 2018

Types of SMEs		Number of SMEs	%
<i>Private SMEs</i>	<i>Moral person</i>	628219	57.47
	<i>Physical person</i>	464689	42.51
	<i>Liberal Professions</i>	223195	20.42
	<i>Artisanal activities</i>	241494	22.09
<i>Public SMEs</i>	<i>Moral person</i>	262	0.02
Total		1093170	100.00

Source: Prepared by the authors from the annual information bulletins N°33 of the Ministry of Industry

The overall workforce of SMEs at the end of the first half of 2018 is 2690246 of which only 22073 are public Smes. It should be noted that the overall SME workforce increased by 3.39% between the first half of 2017 and the first half of 2018.

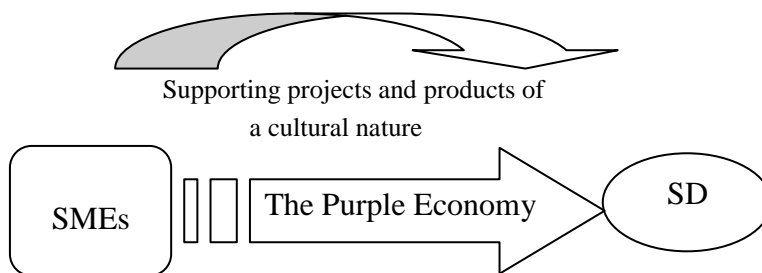
Table 6: The contribution of SMEs to employment during the first half of 2018

<i>Types of SMEs</i>		<i>Number</i>	<i>%</i>
<i>Private SMEs</i>	<i>Workers</i>	1575003	58.54
	<i>Employers</i>	1093170	40.63
<i>Public SMEs</i>		22073	0.82
<i>Total</i>		2690246	100.00

Source: Prepared by the authors from the annual information bulletins N°33 of the Ministry of Industry

Small and medium-sized enterprises (SMEs) can be said to be a key pillar in the transition to the purple economy in Algeria through the strengthening of cultural enterprises. Support for SMEs development is particularly important. The key to structural transformation and employment generation is the growth of small and medium-sized enterprises. Governments can also support SMEs by purchasing their goods and services.

Fig.2: Requirements for the transition to a purple economy by SMEs



Source: Prepared by the author based on a set of references

Improve institutional capacity for advocacy and marketing of cultural products and the protection of intellectual property. The latter can be incorporated in indigenous material or goods or services of a cultural nature, At the same time, local factors must not be neglected, for example products involving cultural identity, To provide the necessary managerial and organizational infrastructure for the efficient and effective presentation and marketing of the cultural products.

2.3.2. The reality of the tourism sector in Algeria:

Tourism activity is among the economic activities of interest to countries, Algeria seeking to develop this strategic sector, It is experiencing a qualitative shift in tourism through the provision of a range of tourist services.

- **Algeria's hotel infrastructure:** Algeria boasts an important hotel barn, with the number of hotels at the end of 2017 reaching about 1289, The hotel infrastructure in Algeria falls into two main categories, which can be summarized as follows:

Table 7: Shelter capacity by regional character and legal sector

Year	Designation	Character of hotels	Number of hotels	Shelter capacity
2017	Distribution by regional character	Urban	949	69 861
		Seaside	239	31 326
		Saharan	59	4 928
		Thermal	23	4 266
		Climatic	19	1 883
		Total	1289	112 264
	Distribution by legal sector	Public	65	18 613
		Private	1162	87 145
		Local or mixed collectivities	62	6 506
		Total	1289	112 264

Source: (https://www.mta.gov.dz)

In short, Algeria has significant hotel and tourism enterprises structures classified into public hotels, Private and Local or mixed collectivities hotels, divided by regional character into Urban, Seaside, Saharan, Thermal and Climatic, With a total equator capacity estimated at 112 264 Family during 2017.

- **Tourism agencies and travel agencies:** Tourism agencies are commercial enterprises that consistently practice tourism activity, organizing individual or group tours and stays, whether internal or external, and also play an important role in defamiation of tourism by offering travel and accommodation packages. In 2017 Algeria witnessed a remarkable growth in the number of accredited tourist agencies and travel, which is governed by Act No. 99-06 of 04 April 1999 establishing the rules governing the activity of the Tourism and Travel Agency. Algeria registered about 1918 agencies in addition to 302 branches of foreign tourist agencies at the end of 2017, as shown in the following table:

Table 8: Tourism and Travel Agencies (ATVs)

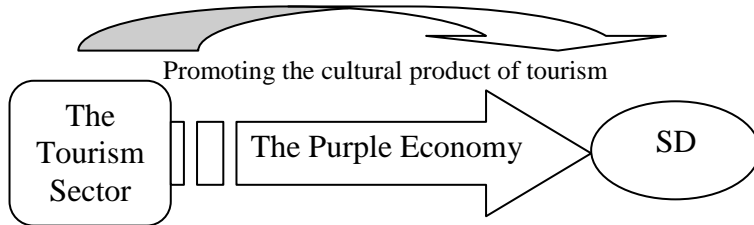
Year	Designation	
2017	Number of active ATVs	2 220
	Number of category "A" ATVs	1918
	Number of category "B" ATVs	
	Number of branches category "A"	302
	Number of branches category "B"	
	Number of sessions of the National ATVs Accreditation Commission	12

Source: (https://www.mta.gov.dz)

Tourism can be said to have a role in the transition to the purple economy in Algeria through the improvement and development of

cultural tourism, which is of particular importance. The key to the structural transformation of the Algerian economy is to develop mechanisms that allow the promotion of cultural tourism, particularly because of Algeria's cultural diversity.

Fig.3 : Requirements for the transition to a purple economy by tourism



Source: Prepared by the author based on a set of references

4. Conclusion:

The purple economy is more than just a new term student, because its dimensions have exceeded the economic values of cultural output, as it has become a more rich and diverse cultural environment, making it an essential engine of progress and wealth. A sustainable economy is based on making natural resources and human resources more efficient and reduces dependency on fluctuations in energy prices.

In Algeria, cultural diversity is an important factor in the transformation toward the purple economy for sustainable development in all fields and aspects, as well as a range of requirements, as Algeria has tried to develop meaningful development programs and provide them with natural factors conducive to the transition to cultural tourism, in addition to the business environment that characterizes the economy, helping to create small and medium-sized enterprises of a cultural nature.

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The Effect of Leverage on Earnings Management in the Algerian Companies

أثر الاستدانة على إدارة الأرباح في المؤسسات الاقتصادية الجزائرية

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Abstract:

This paper aims to explore whether leverage affects or not earnings management in the Algerian companies. For that, we employed the descriptive approach, through collecting the financial statements of 14 Algerian companies during 2006-2018 and using a multiple linear regression model and panel data to test the hypotheses. According to the results, leverage ratios do not affect earnings management in Algerian companies. However, the debts cost affect positively earnings management in the Algerian companies.

Keywords: Earnings management; Leverage; Debt cost; Algerian companies.

JEL classification code : M40, M41

ملخص:

يهدف هذا المقال إلى استكشاف فيما إذا كان مستوى الاستدانة يؤثر في مستوى إدارة الأرباح في الشركات الجزائرية، ومن أجل ذلك تم استخدام المنهج الوصفي، من خلال جمع البيانات المالية لـ 14 شركة جزائرية خلال الفترة 2006-2018، واستخدام نموذج الانحدار الخطي المتعدد وبيانات سلسلة زمنية مقطعية لاختبار فرضيات الدراسة. وفقا للنتائج فإن مستوى الاستدانة لا يؤثر في مستوى إدارة الأرباح في الشركات الجزائرية، غير أن تكلفة الاستدانة تؤثر إيجابا في مستوى إدارة الأرباح في الشركات الجزائرية.

الكلمات المفتاحية : إدارة الأرباح؛ مستوى الاستدانة؛ تكلفة الاستدانة؛ الشركات الجزائرية.

تصنيف JEL : M40 ، M41

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1. Introduction :

Financial statements are the most important channel of financial reporting, and a source of public information about companies, they contribute in reducing the information asymmetry between different related parties of the company. Furthermore, information included in financial statements is a mechanism to support the transparency and extend disclosure, which represents a pillar for corporate governance. However, the rising role of accounting data management within the process of preparing and presenting financial statements has become an obstacle to achieve those objectives and a source of misleading users about the performance and financial position of the company.

Earnings management is the commonly used technique of accounting data management by managers (Stolowy and Breton, 2003, p. 130), it is widely used to influence the form and content of financial statements, and thus influence the users' perception of the company and affect their decisions. Previous studies have been concerned with many aspects of this phenomenon, especially factors that explain or determine earnings management.

Earnings management is determined by many factors, like financial and economic characteristics of companies, especially those related to financing policy. Leverage is a determinant of the company's solvency and a constraint of future borrowing. As a result, earnings management can be used to make up the financial statements and cover the high level of leverage. Starting from that, our study aims to explore whether leverage affects earnings management in the Algerian companies.

1.1. Problem statement

We asked the question about the effect of leverage on earnings management, where the following questions guided our study:

- Is leverage affects the earnings management in Algerian companies?
- Is debt cost affects the earnings management in Algerian companies?

1.2. Hypotheses

To find answers for our questions, we tested the following null hypotheses at the 5% level of significance:

- **Hypothesis 1:** Leverage ratio does not affect the earnings management level in the Algerian studied companies.
- **Hypothesis 2:** Debt cost does not affect the earnings management level in the Algerian studied companies.

2. Theoretical background :

2.1. Earnings management concept

Schipper (1989) defined earnings management as an intentional intervention by managers in the process of preparation of financial statements in order to achieve self-benefits. According to Degeorge et al. (1999) earnings management is the use of managerial flexibility to influence the reported accounting earnings for various stakeholders. Stolowy and Breton (2003) described earnings management as the use of the available flexibility by managers in terms of accounting selection or operations structuration to change the wealth transfer risks associated with the company, which negatively affects the reliability of the company's performance and its financial position.

Earnings management includes any managers' practice that tends to influence earnings' amounts, based on available accounting flexibility or operational flexibility. Earnings management reflects several accounting procedures and operational decisions adopted by managers when preparing and presenting financial statements of their companies to influence the level of its performance, in order to achieve certain objectives, based on the flexibility contained in accounting standards and the required judgements to apply accounting policies.

Earnings management includes some techniques conducted in accordance with the accounting rules and principles, through the selection of appropriate accounting policies, and the use of estimations

and judgments in the application of those accounting policies, in order to control the level of earnings, what affects the performance of the company and its financial position in terms of form and content.

2.2. Earnings management motivations

The literature has distinguished between two perspectives in terms of earnings management motivations. The first is the "Opportunistic", which assumes that the managers' objective of earnings management is to mislead users, or disclose information in consistence with their expectations about performance and financial position of the company, in order to achieve self-benefits. The second is the "Informational", which assumes that the managers' objective of earnings management is to provide relevant information for users, reduce information asymmetry, and signal financial market about the company's future expected cash flows, in order to affect positively its value.

Based on the "Positive Accounting Theory" of Watts and Zimmerman (1978) and the works about the "Value Relevance" of accounting information (Lev, 1989; Amir et al., 1993; Francis and Schipper, 1999; Barth et al., 2001), earnings management motivations can be classified into three groups:

- **Contractual motivations:** they stem from "Contracts Theory" and "Agency Theory", where contracts between the company and related parties depend on financial statements, so managers seek to provide accounting information in consistence with contractual clauses, in order to increase their incentives, improve their reputation, or comply with debt covenants.
- **Financial market motivations:** these motivations tend to affect stock prices, especially in the lead-up to IPOs and stock offerings. It interested also with the disclosure of earnings in consistence with analysts' forecasts or management estimates, to prevent any significant volatility in stock prices in the short term.

- **Institutional motivations:** they arise as a result of the expected relationship between accounting information and government decisions, what lead managers manipulating earnings in order to reduce income tax payments, protect the company from any potential legislation (Antitrust, Environment protection, Consumer and employee rights, etc.), and thus reducing political costs.

2.3. Earnings management and leverage

Leverage is a classical financial concept that refers to the debt amount comparing with the equity amount that a firm uses to finance its assets. Primarily, leverage refers to the using of borrowed capital as a funding source when investing to expand the firm's asset base and generate returns on risk capital. Leverage is an investment strategy of using borrowed money, specifically, the use of various financial instruments or borrowed capital, to increase the potential return of an investment (Investopedia, 2019).

Leverage is a strategy of financing policy of the company that influences various financial ratios of capital structure and performance, and changes the risk map of the company.

Debt covenants are much related to accounting information, as they often include a set of incentives or restrictive clauses, which are formulated based on accounting information, especially earnings. For that, managers tend to manipulate earnings to disclose accounting information in consistence with those clauses, in order to achieve their benefits depending on the situation.

According to Mard (2005), pressures on managers from lenders and shareholders can motivate earnings management. Moreover, the debt evolution is not only the focus of lenders, but also the focus of all stakeholders, so to reassure these parties about the future of their company, managers of a leveraged company seek to improve its profitability, through earnings management. Therefore, many studies

have adopted the assumption that “the most leveraged companies tend to manage their earnings towards increasing“. On the other hand, many studies adopted the inverse assumption that “leverage limits accrual-based earnings management due to the scrutiny of auditors and regulators (Vakilifard and Mortazavi, 2016), which can encourage real earnings management.

3. Literature review :

Yero (2012) assessed the effects of leverage incentive on three known earnings management strategies (accrual, real and deferred tax). The study included 29 Nigerian listed manufacturing firms over 2003-2010; and found that while a significant positive relationship exists between leverage and accrual earnings management, the relationships are in the negative direction for both real and deferred tax strategies.

Ardison et al. (2012) analyzed the relation between leverage ratio and earnings management in Brazil; using a linear regression method with 3725 firm-year observations from 1994 to 2010 of all BMF & Bovespa listed firms. The model of study was controlled using the cost of capital and the natural logarithm of total assets. The results showed that no relations between leverage ratio and earnings management.

Zamri et al. (2013) examined the association between leverage and real earnings management. The study used 3745 firm-year observations over 2006-2011, from the companies listed on Bursa Malaysia. The results showed a significant negative association between leverage and real earnings management suggesting that leveraged firms have lower levels of earnings management.

Shirzad and Haghghi (2015) explored the impact of corporative leverage on earnings management. The sample of the study included 313 firm-year observations from the companies listed on the Tehran Stock Exchange, during the period of 2001-2014. According to the

results, there is a negative and significant association of earnings management with financial leverage.

Starting from the previous studies' conclusion about the role of leverage in limiting accrual-based earnings management, Vakilifard and Mortazavi (2016) examined whether leverage leads to move from accrual-based earnings management to real earnings management, using a sample of 118 firms listed on the Tehran Stock Exchange over 2008-2013. The results indicated that managers tend to engage more in real earnings management than accrual-based earnings management once leverage is increasing.

Shahzad et al. (2017) examined if the choice of real and accrual-based earnings management of family and non-family firms is associated with leverage. The study included 760 firm-year observations for all Pakistani listed companies over 2007-2014. According to the results, leveraged firms are more practice of real earnings management and less practice of accrual base earning management due to its higher litigation risk. Moreover, the impact of leverage on real and accrual earnings management is stronger for family than non-family controlled businesses.

Wijesinghe and Kavinda (2017) analyzed the impact of leverage on real earnings management, using a sample of Sri Lankan listed manufacturing companies, with 600 firm-year quarterly observations during 2010-2015. The results indicated that manufacturing companies are having abnormal cash flows and production costs in their operations, and there is a significant positive impact of leverage on real earnings management in Sri Lankan listed manufacturing companies.

Lazzem and Jilani (2018) examined the impact of leverage on accrual-based earnings management for a sample of French firms indexed in CAC All-Tradable from 2006 to 2012. Consistent with the "Debt covenants hypothesis", the study found that firm leverage has a

positive effect on earnings management for French firms. The empirical results showed that leverage increases provide incentives for managers to manipulate earnings.

Asim and Ismail (2019) examined the impact of leverage on earnings management in the manufacturing sector of Pakistan, using 159 non-financial listed firms over 2009-2015. The findings revealed positive and significant associations of earnings management with leverage and control variables (ROA and firm size), while the association of earnings management with growth was not significant.

Nalarreason et al. (2019) analyzed the effect of leverage and firm size on earnings management, using a sample of 75 Indonesian manufacturing listed companies during 2013-2017. Consistent with "Agency Theory" and "Positive Accounting Theory", leverage and firm size has a positive effect on earnings management for manufacturing companies in Indonesia. The empirical results showed that leverage and firm size encourage managers to manage earnings.

As the earlier studies were carried out in developing economies, our review focused on studies carried out in emerging economies. The review indicated that studies about the relationship between leverage and earnings management have generally used the panel regression and employed the different strategies of earnings management. Even though our study used panel data and employed accrual-based earnings management strategy, it focused on a developing economy like Algeria, which can consider an addition to the literature.

4. Study Methodology :

The study employed a descriptive approach, through the collection of financial statements of 14 Algerian companies, during 2006-2018, to collect data about the variables. The statistical method was used through designing a model as the form of multiple linear regression,

then the correlation and some statistical tests were employed, such as Analysis of variance, and Student test.

4.1. Model

The study model is a multiple linear regression equation, which relates earnings management with explanatory variables.

$$EM_{it} = a_0 + a_1 LEV_{it} + a_2 DC_{it} + \varepsilon_{it} \quad (1)$$

Where: EM_{it} is the earnings management of the company i during the period t , measured by the discretionary accruals; LEV_{it} is the leverage ratio of the company i at the end of the period t , measured by the total debts divided on the total equity; DC_{it} is the debt cost of the company i during the period t , measured by the financial expenses divided on the total debt; a_0 is a constant that measures the earnings management when the leverage and the debt cost take the value zero; a_1 and a_2 are the regression coefficients; ε_{it} is the error term.

4.2. Earnings management measurement

This study employed accrual-based earnings management that measured by the discretionary accruals using the Modified Jones model developed by Dechow et al. (1995) as shown in Equation (2).

$$TAC_{it}/A_{it-1} = \alpha_1(1/A_{it-1}) + \alpha_2[(\Delta REV_{it} - \Delta REC_{it})/A_{it-1}] + \alpha_3(PPE_{it}/A_{it-1}) + e_{it} \quad (2)$$

Where: TAC_{it} is the total accounting accruals; A_{it-1} is the total assets; ΔREV_{it} is the variation of sales; ΔREC_{it} is the variation of customers; PPE_{it} is the property, plant and equipment; α_1 , α_2 , and α_3 are the regression coefficients; e_{it} is the error term, which measures the unexpectable accounting accruals or discretionary accruals.

- **Calculation of total accruals:** in the first step, we calculated the total accruals for each company in each year depending on Equation (3).

$$TAC_{it} = \Delta WCN_{it} + CP_{it} - DOT_{it} \quad (3)$$

Where: ΔWCN_{it} is the variation of working capital needs during the period; CP_{it} is the non-cash expenses of the period; DOT_{it} is the amortization and impairment expenses of the period.

- **Estimating the parameters of the model of Dechow et al. (1995):** in the second step, we estimated the parameters of the model of Dechow et al. (1995) that shown in Equation (2) using the data of all companies during the period of study (Pooled regression). The results of the estimation summarized in Table 1.

Table 1 : The estimation results of Dechow et al. (1995).

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	F	Sig	R ²
	B	Std. Error	Beta					
	(Constant)	0.042	0.018					
A_{it-1}	40463	39374	0.092	1.03	0.306			
$(\Delta REV_{it} - \Delta REC_{it})/A_{it-1}$	-0.005	0.011	-0.039	-0.44	0.661			
PPE_{it}/A_{it-1}	-0.067	0.016	-0.384	-4.27	0.000			

a. Dependent Variable: TAC_{it}

Source: Based on SPSS V19.

- **Estimating the non-discretionary accounting accruals ($NDAC_{it}$):** in the third step, we estimated the non-discretionary accruals depending on Equation (4) and using the estimated parameters of the model of Dechow et al. (1995).

$$NDAC_{it}/A_{it-1} = \alpha_1 (1/A_{it-1}) + \alpha_2 [(\Delta REV_{it} - \Delta REC_{it})/A_{it-1}] + \alpha_3 (PPE_{it}/A_{it-1}) \quad (4)$$

- **Calculation of discretionary accounting accruals (DAC_{it}):** in the fourth step, we used Equation (5) to calculate the discretionary accruals.

$$DAC_{it}/A_{it-1} = TAC_{it}/A_{it-1} - NDAC_{it}/A_{it-1} \quad (5)$$

- **Earnings management index (EM_{it}):** in the last step, we calculated earnings management as shown in Equation (6).

$$EM_{it} = |DAC_{it}| / A_{it} \quad (6)$$

5. Study results :

5.1. The results of descriptive statistic

Table 2 presents the descriptive data of 117 observations related to 14 Algerian companies over 2006-2018. The table shows that the mean of earnings management reached 0.44 with a standard deviation of 3.41, which means that the discretionary accruals represent on average 44% of the total assets of Algerian companies. According to the mean of leverage, debts represent on average 71% of the total assets, which means that Algerian companies are highly leveraged. Finally, Table 2 indicates that the debt cost of Algerian companies reached 8% on average, which justifies the high leverage of companies.

Table 2 : The descriptive statistic for variables.

	<i>EM_{it}</i>	<i>LEV_{it}</i>	<i>DC_{it}</i>
Mean	0.44	0.71	0.08
Median	0.01	0.47	0.07
Std. Deviation	0.34	0.76	0.07
Minimum	0.02	0.02	0.01
Maximum	0.62	4.76	0.30
Observations	117	117	117

Source: Based on SPSS V19.

5.2. The validity of the model of study for the OLS

The Normality of errors is a required attribute to estimate a regression model using OLS. For that, we employed Kolmogorov-Smirnov and Shapiro-Wilk to test the normality of errors. As shown in Table 3, Kolmogorov-Smirnov and Shapiro-Wilk indicate that the errors arisen from the estimation of the model of study are normally distributed, as the significance levels are more than 5%.

Table 3 : The normality test of errors.

Tests of Normality						
	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Standardized Residual	0.081	102	0.098	0.984	102	0.275

a. Lilliefors Significance Correction

Source: Based on SPSS V19.

In order to examine the Homoscedasticity of errors arisen from the estimation of the model of study, the Goldfield-Quandt test was employed, starting from sorting the data in ascending order according to the dependent variable, then deleting 21 observations in the middle (20%). After that, we estimated the model of study using two different data series, the first included the first 40 observations (40%), and the second included the last 41 observations (40%). Table 4 presents the results of the analysis of variance for each series.

Table 4 : The ANOVA after the division of data into two series.

ANOVA ^b						
	Model	Sum of Squares	df	Mean Square	F	Sig.
1. The first 40 observations	Regression	4.784	4	1.196	144.604	0.000 ^a
	Residual	0.298	36	0.008		
	Total	5.082	40			
2. The last 41 observations	Regression	0.019	4	0.005	1.117	0.363 ^a
	Residual	0.161	37	0.004		
	Total	0.181	41			

a. Predictors: (Constant), DC_{it} , LEV_{it} b. Dependent Variable: EM_{it} **Source:** Based on SPSS V19.

Starting from Table 4, we calculated the F-value as follows:

$$F = \frac{\text{Sum of Squares Residual 2}}{\text{Sum of Squares Residual 1}} = \frac{0.161}{0.298} = 0.543$$

The calculated F-value that reached 0.543 is less than the F-critical value obtained from the F-table at the degrees of freedom 4 and 40 respectively, and the significance level of 2.5% (2-tailed), which attained 3.13. This means that the errors are homoscedastic.

From Table 6 presented below, it appears that the calculated Durbin-Watson value reached 2.183, and it is less than $(4 - d_u = 2.375)$, so the errors are not autocorrelated, knowing that $(d_u = 1.625)$ is the upper critical value obtained from Durbin-Watson table at the degrees of freedom 4 and 100 respectively, and the 1% significance level.

Finally, Table 7 shows that the Variance Inflation Coefficients (VIF) of all explanatory variables are weak and do not exceed 1.5. This suggests the absence of a linear correlation between the explanatory variables of the model of study.

The above results indicate the existence of OLS's assumptions to estimate the model (Normality, Homoscedasticity, Autocorrelation, Linear correlation), which suggests the validity of our model.

5.3. Estimation of the model of study

Table 5 summarizes the results of the analysis of variance, which indicates that the model of the study is significant at the 1% level, as the calculated F-value reached 84.128 and it is more than F-critical value obtained from F-table. Therefore, the determination coefficient of the model is significantly different from zero, and at least, one of the regression coefficients is statistically significant and differs from zero. Consequently, the leverage and/or the debt cost affect earnings management in the Algerian companies.

Table 5 : The ANOVA for the model of study.

ANOVA ^b					
Model	Sum of Squares	Df	Mean Square	F	Sig.
1 Regression	5.485	4	1.371	84.128	0.000 ^a
Residual	1.581	97	0.016		
Total	7.065	101			

a. Predictors: (Constant), DC_{it} , LEV_{it}

b. Dependent Variable: EM_{it}

Source: Based on SPSS V19.

Table 6 presents the model summary, it confirms the ANOVA results, where the determination coefficient of the model reached 76.7%, which means that 76.7% of the variations in earnings management during the period of the study can be explained by the leverage and/or debt cost, and only 23.3% of the variations in earnings management are due to other factors, including random errors.

Table 6 : The explanatory power of the model of study.

Model Summary ^b					
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	0.881 ^a	0.776	0.767	0.12766459	2.183

a. Predictors: (Constant), DC_{it} , LEV_{it}

b. Dependent Variable: EM_{it}

Source: Based on SPSS V19.

5.4. Hypotheses Testing

Table 7 summarizes the results of the partial significance of the model of study; it shows that the constant is significant at the 1% level, and reached -0.162, so the discretionary accruals are negative and represent 16.2% of the total assets when both the leverage and the debt cost take the value zero.

According to the results, the regression coefficient related to leverage is not statistically significant, because the significance level of

the Student test reached 0.102 and it is more than the hypothetical level of significance 5%, which suggests no statistically significant relationship between earnings management and leverage. As a result, the leverage ratio does not affect earnings management in the Algerian studied companies, which confirms the *Hypothesis 1*.

The results show that the regression coefficient related to the debt cost is statistically significant at the 1% level, where the calculated T-value is more than the T-value obtained from the T-table. The value of the regression coefficient is positive and reached 0.132, which means that any change of 10% in debt cost leads to a change of 1.32% in earnings management in the same direction. Consequently, the debt cost affects positively the earnings management level in the Algerian studied companies, which differs from the *Hypothesis 2*.

Table 7 : The Coefficients regression of the model of study.

Coefficients ^a							
Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
1 (Constant)	-0.162	0.046		3.525	0.001		
LEV _{it}	0.034	0.020	0.096	1.653	0.102	0.686	1.457
DC _{it}	0.132	0.008	0.856	17.543	0.000	0.969	1.032

a. Dependent Variable: EM_{it}

Source: Based on SPSS V19.

6. Conclusion :

Managers have widely used earnings management to manipulate accounting data for the purpose of influencing the financial statements, and thus influencing the users' perception of the company. Earnings management is determined by many factors, like the financial and economic characteristics of companies, especially, those related to financing policy. In this context, this paper explored whether leverage affects or not earnings management in the Algerian companies.

To achieve the aim of this study, we employed the descriptive approach, where financial statements of 14 Algerian companies during

the period of 2006-2018 have collected. We tested the hypotheses using a multiple linear regression model and panel data. The results indicated that the leverage ratio does not affect earnings management in the Algerian companies. However, the debt cost affects positively earnings management in the Algerian companies.

The findings of this study confirm the results of some studies that revealed no relations between leverage ratio and earnings management like Ardison et al. (2012). However, the findings of this study differ from the results of many studies suggesting that leverage has a positive effect on earnings management (Yero, 2012; Wijesinghe and Kavinda, 2017; Lazzem and Jilani, 2018; Asim and Ismail, 2019; Nalarreason et al., 2019). The findings of this study differ also from the results of several studies that revealed a negative effect of leverage on earnings management or that managers tend to engage more in real earnings management than accrual-based earnings management once leverage is increasing (Zamri et al., 2013; Shirzad and Haghghi, 2015; Mortazavi, 2016; Shahzad et al., 2017).

The differences recorded between this study and the most of the previous studies can be explained by the particularities of economic and institutional conditions of each environment and the period of each study, where the debt covenants differ in terms of country and time. Therefore, the managers' tendency towards earnings management will change following these specifiers. The results of this study imply that future studies must explore which debt constraints motivate earnings management and whether other financial characteristics of companies can affect earnings management.

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8. Appendices :

*Appendix 1 : Summary of data used to calculate the total accruals
(Mean for each company during the period).*

Companies	ΔINV_i	ΔREC_i	ΔSD_i	CP_i	DOT_i	TAC_i
Air Algérie	447714	53603	2565316	1190629	9037804	-9911175
EL AURASSI	51716	69712	75767	79184	319862	-195017
ENTP	860547	624078	-7010424	548007	8145381	897676
SAIDAL	237468	141963	351236	578237	1069695	-463262
Sonatrach	21573083	197439917	139525750	294738331	273547975	100677606
Sonelgaz	8770310	32379580	32827521	8578367	42766105	-25865369
SPA DAHLI	16048	178254	152995	25531	919334	-852495
ETRHB	1206762	4522618	3609166	1227526	1108066	2239673
ENAFOR	874723	535195	287516	582488	4550193	-2845303
CEVITAL	2348339	4856529	4592604	1430034	1921446	2120852
NCA-Rouiba	53793	116630	171090	71166	224723	-154224
BIOPHARM	669112	2410263	1682348	1332565	1470964	1258628
ALLIANCE	-	1839439	2800061	235619	322049	-206507
HYPROC SC	-16515	940773	879873	127254	1396706	-1225068

ΔINV_i : is the variation in inventories; ΔREC_i : is the variation in receivables; ΔSD_i : is the variation in short debts; $\Delta WCN = \Delta INV_i + \Delta REC_i - \Delta SD_i$

Appendix 2 : Summary of data used to estimate the model of Dechow et al. (1995) (Mean for each company during the period).

Companies	A_{it}	REV_{it}	REC_{it}	PPE_{it}
Air Algérie	130 262 045	57 617 173	11 605 223	118 679 777
EL AURASSI	8 648 220	1 816 184	537 583	8 391 782
ENTP	51 159 936	23 710 622	5 481 279	54 987 798
SAIDAL	23 383 667	14 635 588	4 970 537	24 227 000
Sonatrach	6 249 890 425	4 601 863 494	373 934 294	4 756 191 489
Sonelgaz	1 484 315 197	157 144 152	90 595 761	1 575 999 386
SPA DAHLI	24 013 362	2 597 899	693 067	28 417 938
ETRH B	28 166 659	20 212 508	11 448 260	12 357 303
ENAFOR	35 756 720	17 629 408	3 610 837	44 609 221
CEVITAL	78 610 161	64 052 687	4 883 804	44 723 074
NCA-Rouiba	3 738 321	4 076 295	688 172	3 229 004
BIOPHARM	42 627 046	58 869 609	16 014 380	5 938 211
ALLIANCE	5 936 062	3 994 018	2 155 294	1 027 281
HYPROC SC	52 873 834	16 876 456	5 292 003	27 853 908

Appendix 3 : Summary of data used to estimate the model of Dechow et al. (1995) (Mean for companies in each year).

Years	TAC_{it} / A_{it-1}	I / A_{it-1}	$(\Delta REV_{it} - \Delta REC_{it}) / A_{it-1}$	PPE_{it} / A_{it-1}
2003	0.26951	0.0000000680	0.83232	1.25154
2004	-0.03827	0.0000001615	-0.35336	1.11956
2005	-0.01547	0.0000001267	0.05996	1.11018
2006	-0.03071	0.0000001199	0.09282	1.02406
2007	-0.04087	0.0000001156	0.11231	1.28825
2008	-0.04979	0.0000001388	0.08035	1.04215
2009	-0.04635	0.0000001056	0.09573	0.91340
2010	-0.02140	0.0000001122	0.05368	1.00899
2011	-0.02354	0.0000000894	0.02903	0.94744
2012	-0.01330	0.0000000727	0.03789	0.87747
2013	0.00748	0.0000000649	0.02168	0.86696
2014	-0.05560	0.0000000629	0.05540	0.87684
2015	-0.02835	0.0000000840	0.00192	0.71289

Exploratory study of the role of sensory factors in the shopping experience

دراسة استكشافية لدور العوامل الحسية في تجربة التسوق

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Abstract:

The research's main objective is to explore the effect of sensory factors such as music, ambient fragrance, colour and light on consumer's experience inside a store. We followed a qualitative methodology including observation and a semi-structured interview using the N'Vivo11 and Sphinx IQ2 softwares. The results reveal that consumers are sensitive to sensory factors. Light and colours influence perceptions and promote approaching behaviour.

keyword: Sensory Marketing; Customer Experience; Emotions; Atmospheric Scents; Light.

JEL classification code : M31

ملخص:

تهدف هذه الدراسة الى استكشاف مدى تأثير العوامل الحسية على تجربة المستهلك داخل المتجر حيث اعتمدنا على المنهج الاستطلاعي عن طريق دراسة نوعية بما في ذلك الملاحظة والمقابلة الشبه منظمة ومن خلال استخدام N'Vivo 11 و IQ2 Sphinx توصلنا الى النتائج التالية: المستهلكون حساسون للعوامل الحسية. يؤثر الضوء والألوان على التصورات، ويثيران ردود الفعل العاطفية ويعززان السلوك المقرب. الأجواء الصوتية تخلق المتعة، وتنقل المشاعر، وتضع العملاء في مزاج جيد وتؤثر على إدراكهم للوقت الذي يقضونه في المتجر.

الكلمات المفتاحية: التسويق الحسي؛ تجربة المستهلك؛ العاطفة؛ العوامل الحسية؛ الضوء.

تصنيف JEL : M31

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1. Introduction :

In an environment characterized by the evolution of the offer, the exponential growth of e-commerce (Frochot, 2014), brands must challenge their marketing model and position themselves in a more qualitative field through the development of a particularly pleasant and attractive purchasing context. (Rieunier, 2017) to understand the emerging behaviours and symbolic needs of subjects who are looking for pleasant and original shopping experiences (Lemoine, 2002).

Initially, marketing consumption was conceived in a purely utilitarian dimension, but as we moved forward in time, changes in the way we consume have steadily increased and consumption has gradually discarded from a strictly utilitarian conception based on the use value towards a purely experiential dimension (Carù & Cova, 2006). This is justified by the emergence of a hedonistic consumer, better informed and more involved in his consumption process (Batat & Frochot, 2014). The individual no longer seeks the utilitarian function in purchasing or consumption; he also seeks to conduct an experience (Pine & Gilmore, 1999). Thus, the consumer became more sensitive to the subjective and symbolic characteristics of the product or service (Jeanpert & Caudron, 2007).

Otherwise, we are then witnessing a new phase of consumer society: a phase in which the experiential value of consumption would prevail over the utilitarian value (Chakor, 2009).

Effectively, we know that several brands operating in different sectors play the experiential, sensory and emotional card (Ben Dahmane Mouelhi, 2007).

Along what have been cited, store managers must now pay attention to the "essentially intangible dimensions of the offer, which mainly rely on the imagination of the barge as well as both the symbolic and hedonic component of consumption". (Bouchet, 2004). This is the whole point of sensory marketing, which consists in using the environment factors of the point of sale for a single purpose: to influence the customer's behaviour. The use of bewitching mood scents, attractive colours, a softening and pleasurable sound atmosphere or stimulating light diffusion are all practices that can be observed daily in commercial spaces. It is therefore the notion of experience, with its emotional purpose, that is at the heart of today's consumer society.

From that point, affect plays a role in the purchasing process and the consumer is looking for sensory stimuli during his or her consumption experiences (Ben Dahmane, 2003) in order to achieve this, companies are therefore forced to pay more attention to the atmosphere in their sales areas, which are designated as living and theatrical spaces (Bouchet, 2004).

On the other hand, many studies have proposed reflections on ways to enhance the value of the offer inside the point of sale, by creating new sensations to stimulate the consumer, reward the act of shopping through the lived experience (Filser M, 2002) (Cova & Deruelle, 2010), the atmospheric variables (Filser, 2003) on the stimulation of the senses (Rieunier, 2009).

As far as our research is concerned, the aim is to help the professionals to understand the importance of point-of-sale expressiveness and its role in creating a rewarding experience.

To understand this, a main question is asked: *How do we offer a rewarding consumer experience through the dramatization of the sales space?*

To grasp the contours of this phenomenon, other questions are interesting:

- How does the sound atmosphere influence the consumer both emotionally and behaviourally?
- What is the influence of ambient scents in retail outlets?
- How do light and colours affect the effectiveness of points of sale?

Our research will therefore aim to test in real-life situations the influence that sensory factors (ambient scents, sound atmosphere as well as light and colours) can have on the consumer's lived experience and behaviour inside the point of sale.

To answer these questions, we follow a qualitative methodology including two techniques, namely observation which is a study technique widely used in the social sciences, considered to be one of the most common techniques for collecting and analyzing verbal and non-verbal data (Batat & Frochot, 2014) and a semi structured interview.

The research theme is only about studying the ambient factors, more precisely music, ambient scents as well as light and colours.

2. Literature Review:

1.2. Experiential Marketing and Consumer Experience:

The study of consumer behaviour has evolved in recent decades. The research highlights the shift from a vision of a rational consumer to a more affective and emotional approach to consumption. The seminal work of Holbrook and Hirschman in the journal *Consumer Research* (1982a and 1982b) (Holbrook & Hirschman, 1982), one on hedonic consumer behaviour and the other laying the theoretical foundations for the experiential dimension of consumption. The consumer experience remains vast to define, complex to study, but open to different readings.

Norris (1941) emphasizes on the importance given to the moment offered by the product, considered superior to the product itself, its technical characteristics or its performance.

Later, Abbott (1955) considered the moment experienced with the product to be more important than the product itself. He argues: "*What people really want is not products but experiences*" (Abbott, 1955, pp.39-40).

Following these works, Holbrook and Hirschman (1982) proposed a conceptualization of experiential perspective that defines consumption as "a subjective state of consciousness accompanied by a variety of symbolic meanings, hedonistic responses and aesthetic criteria". "*Holbrook and Hirschman's experiential model prompted three major theoretical. First, it underscored the existence of primary processes of fantasies, feelings and fun (what Holbrook and Hirschman called the 'Three Fs'), thus rebalancing consumer behavior research from a purely functional and utilitarian perspective of consumption to a Downloaded... Second, the experiential model led to a shift from a research focusing primarily on consumers' buying decisions to research centered on consumption per se... Third, while information-processing models consider information an important driver of behavior, the experiential model rather favors internal factors such as variety or sensory stimulation seeking*" (Damien , Renaud , & Rémi, 2018, p.4)

The individual is considered at the centre of the experience; he is the initiator and actor of the experience. While recalling, "the experiential perspective is phenomenological in nature" (Holbrook & Hirschman, 1982). This implies that the subject is an actor and no

longer just a receiver of the experience: he feels and refeels and at that time, he lives the moment of consumption.

In the same vein, Carù and Cova define the consumer experience as "a personal experience - often emotionally charged - based on the interaction with stimuli such as the products or services made available by the consumer system". (Carù & cova, 2002).

However, other definitions followed, based on different and complementary visions.

Filser defined experience as "the set of positive and negative consequences that the consumer derives from the use of a good or service". (Filser, 2002).

The emergence of the concept of the consumer experience was largely built around the emotional character sought by the consumer. "Enhanced with her emotional adjective." (Carù &cova, 2006)

Lipovetsky (2006, p.58) considers that for companies, "it is no longer just a question of selling services, we must offer the experience, the unexpected and the extraordinary that can generate emotion, connection, affects and sensations."

The experiential context is presented as the common denominator between the vision of a consumer experience and that of an experience produced by the brand (Roederer, 2008). In the first approach, the experiential context is any framework in which the experience takes place. The second approach refers to the framework proposed by the brand in order to immerse the individual in the moment of consumption (Carù & Cova, 2006).

The experience is part of the P.O.S (Person - Object - Situation) paradigm (Belk, 1975) It is therefore approached as: "an interaction between a person and a consumer object in a given situation". This interaction leads to the co-production by the consumer and the company of an event that is intended to be pleasant, memorable and meaningful (Kwortnik & Ross, 2007; Abbott, 1955).

In this interaction, the object-situation dyad constitutes the experiential context, a notion often analyzed even without the presence of the consumer.

The notion of experiential context refers to the framework in which the consumer experience takes place. Patrick Hertzfel (2002) rightly points out that the experiential approach consists of five actions: surprising, proposing the extraordinary, creating a bond, using the

brand to serve the experiential and stimulating the five senses via the sensory.

The consumer is in interaction with the consumer object. Carù and Cova (2006a) define an experiential context as an "assembly of stimuli (products) and stimuli (environment-activities) that can bring about the experience". The experiential context appears to be a favourable element for the unfolding of the experience without constituting the experience itself; the vision of the experience as a new offer of the so-called brand. The company does not produce a consumer experience but organizes an experiential framework that is conducive to its development (Carù and Cova, 2006a). The experience then remains subjective and linked to the consumer's experience.

2.2. Sensory Marketing:

"Sensory Marketing" appeared in the 1950s, whose main objective was to study consumer perception of products. However, it was only in the 1990s that stores began to analyse the impact of their atmosphere on customer behaviour (P, Hetzel, 2002). Its managerial and academic interest remains undeniable and indisputable to this day, as its wide use in university research and in the discourse of marketing specialists (Ben Dahmane Mouelhi, 2007).

Daucé defines Sensory marketing as "a form of marketing that aims to stimulate purchases and strengthen the link between the brand and its customers through the solicitation of the 5 senses as part of actions carried out on the product, distribution and communication" (Daucé, Mercadoc.org, 2005).

As for Rieunier, he defines it as "the fact of using the store's atmosphere factors (music, scents, colours, tactile and gustatory sensations) in order to elicit favourable reactions from the consumer to the act of buying" (Rieunier, 2017).

From these definitions, we can deduce that the objective of sensory marketing is to seduce the shopper while stimulating his senses in order to positively influence his behaviour towards a product or within a point of sale, to place the consumer in a climate of confidence and to detach him from the intrinsic characteristics of the product.

The enthusiasm for this management tool continues to grow among researchers and distribution professionals (Bouchet, P, 2004) and it is now essential for distribution managers to identify shoppers' reactions

to the various environmental factors in order to stimulate certain desired behavioural responses (Lemoine, 2002).

The influence of the atmosphere on consumer behaviour dates back to the 1920s when the first research in environmental psychology was carried out. Psychologists' early work on atmospheric variables focused on the influence of light (Luckiesh, 1924), sound (Morgan, 1917; Gatewood, 1921) or the influence of colour (Davison, 1918; Pressy, 1921).

Thus, Kotler equates it to "creating a buying environment that produces emotional effects in the individual, such as pleasure or excitement that can increase the probability of buying". (Kotler, 1973). In the same vein, Derbaix (1987) defines it as "an emotionally oriented organization of space that aims to create impressions of well-being, welcome, joy, etc.» (Derbaix, 1987). Rieunier calls this "the set of store elements that can be controlled to influence consumers' emotional, cognitive and behavioural reactions. These elements can be multiple and include stimuli of atmospheres such as music, colour, light and smell as well as employee-customer interactions. ». (Rieunier, 2000)

2.2.1. The Music:

The use of music for brand communication purposes is not new since as early as the 19th century itinerant merchants sang their offers (Julien J.R., 1989). Common sense attributes an extraordinary power to music: which can bring life to a place, transmitting emotions, selling or influencing behaviour (Rieunier, 2017). Many researchers in psychology and marketing are exploring the role of music on client behaviour. Vaccaro et al have shown that an appreciated musical atmosphere can be a source of loyalty (Vaccaro V, Yucetepe V, & Ahlawat S, 1996). Other researches have highlighted the value of pleasing customers by playing music that matches their musical tastes, so that they would spend more and make more impulse purchases (Jeon, Park & Yi, 2016).

Recent research, based on an analysis of 66 published studies on the influence of the presence of music (Vs its absence), concluded that the presence of music in retail outlets increased customer satisfaction, and their purchase intentions (Roschk H, Correia S.M, & Breithsohl J, 2017). The analysis obtained by researchers over decades shows that music objectively deserves special attention from retail managers

because it has a benefit in relation to silence and is likely to change consumer behaviour in stores.

2.2.2. The Atmosphere Scents:

Man has always attributed certain powers to smells. This is a key element in the atmosphere of a point of sale. Research on the influence of scent diffusion on humans is limited and comes from different disciplines: psychology, neuropsychology and marketing. (Rieunier, 2017). Among the places where such research has been carried out are shopping centres, gift shops, ready-made cloths shops. Marketing results are still few but give a first idea of what can be expected from the diffusion of ambient scents in a place of service on the evaluation of the product or point of sale and on the impact on approach behaviours (presence time in stores) (Chebat J & Michon R, 2003). Chebat and Michon studied the impact of the diffusion of a lemon smell on the perception of a shopping centre and products (Chebat J & Michon R, 2003). This is also the case for Leenders et al, who showed by a study carried out in a shopping centre the impact that the intensity of scents has on point of sale evaluations in general (Leenders M & Smidts A, 2016). In the presence of an ambient scent, consumers also tended to lose track of time. (Daucé B, 2000). Another research shows the effect of congruence between odour and the context in which it is diffused (Spangenberg E & Sprott D, 2006). A study carried out in 2006 shows that odours have the ability to evoke memories that are highly charged with emotions (Herz R & Schankler C, 2004).

2.2.3. Light and Colours:

When opening a store, the questions of lighting and colour necessarily arise. Some colours may be imposed (Franchise), others will simply be chosen according to the taste and preferences of the operator.

Colour and light are themes that have always fascinated us, whether it is their perceptions, the sensation they evoke their meanings or their symbols (Rieunier, 2017). However, a limited number of studies have been conducted: about 20 studies have focused on colour and half a dozen on light intensity (Roschk H et al, 2016). The main constraints remain in the difficulty of handling these elements.

Regarding visual perceptions, the evaluation of a colored surface is variable according to its hue and brightness (Rouillet B, 2016). Colours

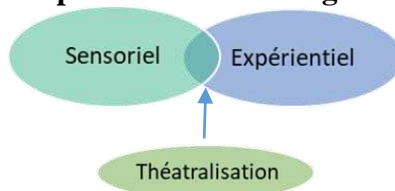
can affect olfactory performance. It would appear that the colour of an environment or object is likely to change the perceived intensity of an odour (Zellener D & Kautz M, 1990). Colours can also have an influence on affect in general and emotions in particular (Mehta R & Zhu J, 2009). Colours and light also influence cognition. Time flies in a warm shaded environment (Smets G, 1969). One study states that there is a congruence between illuminated stores and the number of visits (Yoo C & Park J, 1998) by creating excitement in the barge, and positively influencing its buying behaviour (Mehrabian A, 1976).

2.3. From the experiential/sensory relationship to the creation of atmosphere dramatization of the offer:

According to Rieunier (2009), the "theatricalization" of the point of sale is at the intersection of two concepts: sensory marketing and experiential marketing. Sensory marketing is therefore part of an experiential approach but does not cover a whole concept. Research shows us that these two concepts are interconnected and stipulate that "the sensory and at the service of the experiential". The figure below shows this reflection schematically (Daucé & Rieunier, 2002).

Indeed, the stimulation of the five senses is only one of the components of the experience, since it also includes surprise, proposing the extraordinary, but also creating the bond (Hetzl, 2002a). In 1973, Kotler mentioned the importance of various stimuli characterizing the atmosphere such as music, colours, smells or human density in order to give the brand a distinctive image (beyond price and assortment). Then, Filser and Jallais (1988) accentuated the reflection on the decor, the luminosity, the atmosphere of the store by developing on the example of visual, olfactory and tactile dimensions.

Fig.1: Link between the concepts of sensory marketing and experiential marketing



Source: Rieunier, 2009, page 7

The visit to the store is associated with pleasure and emotion through multi-sensory stimulation. Rieunier points out that sensory marketing is "the use of store atmosphere factors (music, scents, and

colours, tactile and gustatory sensations) to elicit favourable reactions from the consumer to the act of buying" (Rieunier, 2009, p.2).

As for Filser (2003, p. 6), he explains that it is "*a set of variables of actions controlled by the producer and/or distributor to create a specific multi-sensory atmosphere around the product or service, either through the characteristics of the product itself, or through communication in its favour, or through the product environment at the point of sale.*"

Thus, according to the literature, the brands will work on a sensory stimulation by The Atmosphere as a marketing action variable in order to make the consumer travel and live memorable, absorbent and unique experiences, charged with emotions and well-being.

Based on these findings, much researches have focused on the influence of atmospheric variables on consumer behaviour (Turley and Milliman, 2000). We have, for example, work on ambient music (Siberil, 1994; Rieunier, 2000), the effect of colours as well as light on cognition (time seems to pass faster in an environment with warm tones) (Smets G, 1969) or even ambient perfume (Daucé, 2000).

One of the main contributions of this work is that the atmosphere seems to be positively valued by the buyer and that it would thus be a source of psychological gratification (Filser, Des Garets, Paché, 2012).

The marketing literature thus presents a way of using atmospheric elements of the point of sale in order to create a "packaging" favourable to purchase for the consumer. Lemoine (2003, p.84) explains that "the dramatization of the offer, using a specific atmosphere at the point of purchase, constitutes an alternative that is increasingly used" to create a privileged link between the consumer and the brand.

El Aouni (2006, p.87), defines the theatricalization of a point of sale as "the interaction of all the sensory signals that emanate from a store considered as a living theatre according to the contribution of the ambient, architectural and social environments" Once again, we find the importance of sensory variables. The store is ultimately a place that will emit different sensory signals - thanks to a way of using certain environmental factors.

When we interact from sensory marketing to experiential marketing, we see that this production of experience has several tools at its disposal to create a specific atmosphere, largely through the

stimulation of the senses. The latter is one of the components of the experiment. Rieunier (2009) emphasizes the importance of sensory marketing to enhance pleasure, differentiation and shopping comfort.

3. Methodology:

Having the desire to better assimilate the sensory factors coordinated by the managers of the sales areas in order to offer the consumer an absorbing, i. e. extraordinary, shopping experience also to better understand their behavior within the store. We have chosen to carry out a study in the field and use ethnographic methods (Desjeux, 1997). These methods allow us to understand and apprehend interactions, to appreciate the emotional and symbolic dimensions that emerge in the experiences of consumers and groups of individuals, to check and control and to go beyond declarative (Frochot and Batat, 2014). In the light of the results obtained from the observation, one avenue of research is interesting and deserves to be explored further through a qualitative study: the role of atmospheric factors on the consumer's lived experience inside the point of sale.

1.3. Non-participant Observation:

We have chosen observation as our first mode of collection, which is a study technique widely used in the social sciences, and is defined as "the precise and systematic recording...of the activities in which people engage in their normal lives" (Evrard, 2009). Throughout the field activity, the main mission of the participating observer is to look, listen and interact with people, collect and gather information, while mixing with the community they are observing. (Georges Lapassade, 2016). Indeed, for five days, we carried out "disguised observation in a natural environment" (Filser, 1996).

The observation phase was conducted at the ARDIS shopping centre in Oran. Indeed, this store brings together all the factors that, according to literature, awaken all the senses: hearing through the music played, smell through the scents of the atmosphere, touch through self- service products and vision through light and colour. In addition, this space houses several boutiques of major brands that compete in ingenuity to captivate the eyes of customers such as Célio, Skechers, Sergeant Major, Jennifer, Okaïdi and Adidas, offering the possibility of buying theatricalized products and showcasing them in display cases that perfectly blend into the setting of the place.

We chose the Célio brand, which by its strategic position and its shop window that allows us to see the interior that attracts their attention and encourages them to push its door. This brand presents a sober interior, with warm pastel tones, slightly saturated, first of all highlighting the range of men's clothing. The parquet floor gives a warmer atmosphere to the whole. A soothing and muffled music, an enchanting atmosphere scent, a subdued lighting contributing to the positive reinforcement of the brand. The observation took place in early April 2019 for 5 days, outside the sales period.

Fig.2: Interior of the Célio store



Source: Photos taken by the observer

2.3. Qualitative study:

The choice of this research method is motivated by the observation of Aubin-Auger et al (2008, p143) that "Qualitative research does not seek to quantify or measure, it most often consists of collecting verbal data (more rarely images or music) allowing an interpretative approach"; it highlights the subjectivity of the individual while preserving his or her life and experiences.

As a collection method, we chose the semi-directive individual interview, also called the centred interview. The main objective of the collection using this method was to ensure an exchange between the interviewer and the respondent while preserving confidentiality (Malhotra, 2011, p111). A guide has been developed for a better conduct of interviews. The guide identifies the different themes that have been addressed, namely: Shopping habits, the consumer's experience in the store and favourable factors. Our sample consists of 21 individuals aged between 18 and 49 years old from different socio-professional categories. The interviews were recorded by a tape recorder with the agreement of the respondents and then transcribed in full. We then proceeded to the thematic analysis of the verbatim using the N'Vivo 11 software and the content analysis by the sphinx IQ2.

4. Findings:

1.4. Observation Results:

Several behaviours can be identified from this observation:

- A first type of behaviour related to customers who paid no attention to product prices: delighted and dazzled, trying several items at once.
- Many of these people were not shopping alone but rather accompanied by friends or relatives, consciously succumbed to an unexpected purchase and were carried away by this pleasant experience. They said to each other: "we came to the store and eat pizza and here we are with a shirt and pants in the bag" or "I came to buy jeans and now I'm going out with an extra t-shirt! ». They left the store very happily.
- Some people walked around the store for a long time and did not pay much attention to the notion of time, get carried away by the cosy atmosphere of the atmosphere that reigned inside the sign "you don't feel time once inside and it passes very quickly..." They gave the impression that they were insensitive to the experience offered by this store.
- Others would verbalize their satisfaction as soon as they entered the room with regard to the diffused scent and said "Mmmmmmm!!!! it smells good inside, it's lavender, doesn't it? ", "the smell is pleasant"
- A group of young people sang and rehearsed the words of the music played in the store while trying on t-shirts, pants and they seemed to be enjoying their purchase and having a good time inside the store.
- In most cases, the counsellor assisted the clients, tried the models on him to help them choose a shirt or sweater for their sons. Very quickly, the salesman fraternized with them and friendly ties were forged between them.

Following this observation period, we arrived at the following result: The majority of customers seemed to be sensitive to the sensory elements used by Célio. This atmosphere creates a sense of escape and encourages the consumer to immerse himself in a rewarding and memorable shopping experience, immersing them in a state of total disconnection: the visitor feels cut off from his usual environment to guide all his senses, emotions and intellect in the service of the experience he is currently living. Forget the time and enjoy trying all the models and talking to the seller and customers present. Some become hyper-excited and in a hurry like children in a toy store, others

are calmer, more serene, and take all their time and enjoy every moment of the experience before moving on to the act of buying.

2.4. Results of the Qualitative Study:

The analysis of the verbatim allowed us to identify a number of points that will be presented as follows:

2.4.1. Sensory factors: the majority of respondents (15/21) give very high importance to the experience lived inside the store and in particular to the sensory elements (visual, sound and olfactory)

2.4.1.1. Light and colours: During the analysis, we found that the visual (colour and brightness) is widely mentioned by respondents. Sober and relaxing colours, soft and subdued light favouring an approach behaviour, also provoking a positive reaction by evoking the cosy, noble, or neutral aspect. Light and colour seem to be important elements in a shopping experience. "... I am very sensitive to the visual, and colours are what I see first when I walk past a store..." (Female 38 years old). "...*pleasant colours and make you want to look and touch the products...*" (Female, 45 years old). "...*the light is very relaxing and highlights the colours of the walls and products... it's very cosy*" (Man, 28 years old).

2.4.1.2. Background music: Music is the element most discussed by respondents 19/21. According to the interviewees, it seems to bring life to a sales outlet, convey emotions, create pleasure, sell and influence the behaviour of shoppers.

"...*I feel pleasure in buying when I hear music in a store...*" (Male, 38 years old).

"... *When the music played is pleasant it makes me want to stay longer indoors...*" (Female, 38 years old).

"... *A soft music relaxes me...*" (Female, 41 years old).

2.4.1.3. Atmospheric scents: this element is significantly mentioned by the interviewees who stipulate that smells favour the approach behaviour and the time spent in the store and the evaluation of the latter. The olfactory atmosphere creates emotional and emotional reactions and improves the mood of the buyers

"...*The place was pleasant... a slight perfume of atmosphere came to decorate the place...*" (Female, 38 years old).

"...*The diffused smell is very pleasant; it makes me want to stay longer in a store...*" (Female, 45 years old). "...*An unpleasant smell makes me*

want to run away from the store... for me the presence of a pleasant smell is essential..." (Female, 38 years old). "...I feel good in a store that places perfume diffusers..." (Female, 38 years old). The themes that emerged are shown in Figure 3

Fig.3: Cloud of words: Ambient factors



Source: Nvivo11

2.4.2. The content of the experience: By asking the question "Tell us about your experience?" 14/21 states that they had pleasant and pleasant experiences while shopping"... *The place was pleasant; everything is clean in such a way that our eyes were captivated by only one element at a time...*" (Woman, 54 years old),"... *it smelled like vanilla and lavender since there were lots of candles, and the atmosphere was more like COSY...*" (Female, 38 years old). This state of immersion will have the role of altering his sense of reality "... *In such a shop I forget myself, I enter a new world and I want to buy everything...*" (Woman, 40 years old). A pleasant experience can make a product extremely attractive and desirable to the consumer"... *The products I buy are not necessarily essential or indispensable but rather for pleasure...*" (Female, 45 years old)

Fig.4: Word cloud: Experience inside the store



Source: Nvivo11

2.4.3. Emotion: Consumption is considered an experience that creates feelings and emotions. Joy represents the most frequently cited feeling

in for the emotional state of the barge
 "...I am very happy with my visit..." (Female, 48 years old) "...I felt happy once in the store..." (Male, 38 years old) The themes that emerged are shown in Figure 5

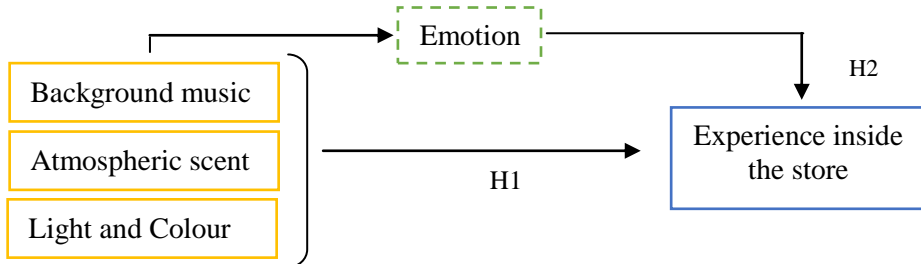
Fig.5: Cloud of words: Emotions felt



Source: Nvivo11

In the light of the results obtained from the qualitative study, we were able to build a conceptual model and formulate the resulting hypotheses.

Fig.6: Proposed conceptual model



Source: Prepared by the authors

H1: Sensory factors influence the content of the experience in the store.

H2: Background music influences the consumer's experience through the mediation of consumer affect.

5. Conclusion:

The main objective of our research is to explore the effect of sensory factors such as music, ambient fragrance, colour and light on the consumer's experience in a store.

With a view to deeply understand the role of environmental factors on the experience of shoppers, we explored the field by mobilizing an interpretative approach: non-participant observation in a real field and interview as parts of qualitative study.

The observation made us understand that the atmosphere elements mobilized by the store create a feeling of escape and encourage the consumer to immerse himself in a rewarding and memorable shopping experience, immersing them in a state of total disconnection: the visitor feels cut off from his usual environment to guide all his senses, emotions and intellect in the service of the experience he is living.

The results of the interview reveal that consumers are sensitive to sensory factors. Light and colours influence perceptions, evoke emotional reactions and promote approaching behaviour. The sound atmosphere creates pleasure, conveys emotions, puts customers in a good mood and can change the perception of time spent in the store. The results also show that odour increases the time spent in a store and has an influence on the consumer's perception.

Despite the managerial interests brought by this research, was not exempt from methodological and empirical limitations. Methodologically, the limitation lies in the fact that the observation is limited by a spatio-temporal window. We observe individuals over a period of time and in a given place. We do not know anything about their experiences until we get into the field of investigation. As for the empirical plan, the limitation lies in the exploratory nature of the study and the small sample size, which must be supplemented by a quantitative study with a large number of clients where a measurement of the impact of sensory variables on the purchasing experience will provide a path for future research to validate the proposed model.

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*Evaluation uncertain investment using sensitivity analysis with
@RISK Case study of an ANSEJ project*

تقييم الاستثمار في حالة عدم التأكد باستخدام تحليل الحساسية وبرنامج RISK@

دراسة حالة لمشروع أونساج

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Abstract:

This research proposes a problem that is constantly studied, to evaluate an uncertain investment by a small Algerian company that represent a car rental project. Applying an interesting method named sensitivity analysis, using @Risk software. We have approached many theoretical and technical aspects of the studied principle, the results obtained with a sufficiently positive NPV led to consider the project profitable and testify the efficiency of these methods, to provide accurate information allowing to take an optimal decision.

.keyword: Investment projects; uncertain investment; Sensitivity Analysis; Net Present Value.

JEL classification code : G11 ; C53

ملخص:

يقترح هذا البحث مشكلة يتم دراستها باستمرار، تهدف إلى تقييم استثمار غير مؤكد لشركة جزائرية صغيرة، حيث نحاول تقييم مشروع لتأجير السيارات. بتطبيق طريقة معتمدة تتمثل في تحليل الحساسية، باستخدام برنامج Risk@. بعد التطرق للعديد من الجوانب النظرية والتقنية للمبادئ المدروسة، أوضحت النتائج المحصل عليها أن القيمة الحالية الصافية للمشروع إيجابية بما فيه الكفاية، تدفعنا إلى اعتبار المشروع الاستثماري مريحاً، وتثبت كفاءة هذه الطرق لتوفير معلومات دقيقة تسمح باتخاذ القرار الأمثل في ظل ظروف غير مؤكدة.

الكلمات المفتاحية: الاستثمار؛ حالة عدم التأكد؛ تحليل الحساسية؛ القيمة الحالية الصافية.

تصنيف JEL: G11، G53

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1. Introduction :

Managers and investors frequently confront with long-term financial decisions for an uncertain investment choice. The investment decision is the only creator of wealth, it allows a better economic results and an increase in the value of the company. It ensures the distribution of wealth between lenders and shareholders. This research focuses on the decision to invest in the uncertain future and the application of methods and models of decision-making and shows that the decision to invest in uncertain future covers many dimensions difficult to compare with conventional models. As long as there are uncertainties about future cash flows, the risk attached to a project becomes a major element of the investment decision. (Alaeddine.ElAyadi.Mohammed, 2008, P1)

Main question:

Is sensitivity analysis an effective tool for evaluating an investment in uncertain conditions in order to make optimal decisions?

Sub-questions:

Does the Sensitivity analysis effects the evaluation of an uncertain investment?

Is the Sensitivity analysis an important tool to make optimal decisions?

Hypotheses:

- Sensitivity analysis is a very effective way to evaluate an uncertain investment.
- Sensitivity analysis is an important tool for making optimal decisions.

Work methodology:

In this paper, we propose a financial evaluation of an uncertain investment using several valuation criteria, the best known of which is the net present value, as well as the application of a sensitivity analysis model. Considering a car rental project.

Research objectives:

The project was well selective, to provide much more value to our work. Because we must know that According to the officials of the National Agency for Youth Employment Support (ANSEJ) of the province of Saida, the majority of the requests concern the "rolling stock". That is to say the transport and car rental, and because the

projects enjoy many tax benefits including the exemption from VAT, 5% reduction of tax taxes on imported equipment, tax exemption taxes imposed on micro-enterprises, even going as far as total exemption from corporate income tax.

2. Theoretical aspects of the investment:

2.1. Investment Definition:

Investment is the purchase of machinery and means of production made by an economic agent with the aim of maintaining or developing its technical capital. (G.Abraham-G.Caire, 2002, P236)

It is determined by the level of investment in the global economy through gross fixed capital formation (GFCF), Commercial investment refers to the development of fixed capital by companies whose real purpose is to produce other goods, Excluding residential investment and expenses of buildings. (POPIOLEK.N, 2006, P.2-3)

2.2. Investment Selection Criteria:

Investment selection criteria are conformed to a range of financial instruments to assist in decision-making to provide managers with the means to evaluate and compare various competing investment projects. There are two different types of criteria: Time standards (payback) and economic criteria (net present value, profitability index and internal rate of return), that we will present below:

2.2.1. Economic Criteria:

These criteria allow us to measure the profitability of a project. The net present value is the main criterion for this type, which account other criteria of this type, a profitability index and internal rate of return. (Bouyso.Denis, 2006, P1)

2.2.1.1. The Net Present Value (NPV):

The net present value (NPV) is an indicator for dynamic investment calculation, it is used in capital budgeting and investment planning to analyze the profitability of an investment or project expected. The (NPV) is the difference between the present value of cash inflows and the present value of cash outflows during a period of time. Moreover, it is calculated in the following formula:

$$NPV = \sum_{t=1}^n \frac{R_t}{(1+i)^t}$$

Where:

R_t = Net cash inflow-outflows during a single period t

i = Discount rate or return that could be earned in alternative investments

t = Number of timer periods

2.2.1.2. Profitability Index (PI):

A financial tool tells us whether an investment should be accepted or rejected. The PI measures the relative advantage, that is to say the return generated from 1 unit of money invested. Moreover, you can calculate the profitability index by dividing the present value of the expected initial cost of the project cash flows, the formula for the PI is as follows: (Gardès.Nathalie, 2006, P 9-11)

$$\text{Profitability Index} = \frac{\text{Present value of future cash flows}}{\text{initial investment}}$$

Or

$$\text{Profitability Index} = \frac{(\text{Net Present value} + \text{Initial Investment})}{\text{initial investment}}$$

2.2.1.3 Internal Rate of Return (IRR) :

Is the interest rate at which the net present value of all the cash flows from the project or the investment equal zero, In other words, the annual rate of return is expected to compound that will be earned in a project or investment. It is calculated by discounting the present value of future cash flows from the investment with the internal rate of return. The IRR Formula:

$$0 = \text{NPV} = \sum_{t=1}^T \frac{C_t}{(1 + \text{IRR})^t} - C_0$$

Where:

C_t = Net cash inflow during the period t

C_0 = Total initial investment costs

IRR = the internal rate of return

t = the number of time periods

NPV is the standard for comparing projects and IRR is not an appropriate criterion for project selection, It lets you only know if the projects profitable (compared to IRR rate for each project and the rate of capital discount). In choosing between two exclusive investments, it is not always wise to choose an investment with a higher IRR. May be in a conflicting situation according to NPV and IRR standards.

Temporal criteria: Payback Period of the Capital Investment (PP):

This method depends more on liquidity and profitability, according to this standard, between two projects in competition, we prefer a project with a shorter payback period, and In general, this method is commonly used. Now, and outside of the strategic project.

2.2.2. Uncertain investment projects evaluation Criteria:

Under the problem of uncertainty and decision-making, assuming that the consequences of our actions based on the occurrence of different events is supposed to decide what nature is not subject to our control. This decision node problem lies in the fact that we must choose an action before getting the nature of the decision . (Bouyso.Denis, 2006, P23)

Solving problems related to investments under uncertainty conditions, and the possibility of applying different methods and techniques, the most famous are: The sensitivity analysis, the scenario method and Game theory.

3. The technics theoretical aspects :

3.1. The scenario method:

A method demonstrates the potential visions of the future or aspects of the possible future. Probably the most insightful or the method of future studies. The application of scenario methods is not a matter of regions or themes, but of stable or unstable environments. This Simulation prevents analytical solution because it does not provide an accurate answer. It is only useful for studying complex systems. (Dodge.Yadolah, 2008, P6)

3.2. The Game theory:

Game theory is a theoretical framework for visualizing social attitudes among competing players. In some ways, Game theory is a strategy science, it examines situations in which the fate of each participant depends not only on the decisions it takes, but also on the decisions made by the other participants. Thus, the "optimal" option for a member generally depends on what others do. Therefore, too many decisions was set according to the criteria, by simply quoting the most important criteria: the criterion LAPLACE-BAYES, The criterion of WALD or MAXIMIN, the criterion of SAVAGE or MINIMAX Regret,

the HURWICZ criterion and the MAX MAX criterion. (Thisse.Jacques-François, 2011, P2)

3.3.1. The sensitivity analysis:

It's a technique that is used to Specifies how independent variable values will affect a particular dependent variable Within a certain set of assumptions as sensitive analyzes. Generally, it is used in a wide range of areas, Ranging from biology and geography to economics and engineering. It measures the impact of changes in project-specific variables (age, initial capital ...) on the final result (NPV or IRR).

The sensitivity analysis is a process by which we evaluate the robustness of an economic model by examining how the scan results vary when the value of major variables are adjusted within a certain range.

The sensitivity analysis shows the fluctuation in measures in measures of project profitability (present value, internal rate of return) due to the modification of one or more values of the determinants of project.

According to COUPER (Couper.J, 2003, P2) sensitivity, analysis is used to determine the impact of technical factors on the economic viability of the project. Due to the sensitivity analysis, we determined the prevalence of each factor and the effects of changes in these factors on the overall project. Every application of the principle here is "What if" For example, What if demand falls by 20%? As well, the method generates very relevant information concerning the exogenous or explanatory variables of the result (the NPV) by recording their critical values.

Sensitivity analysis is a calculation method used to predict the effects of varying the output of the system because of the changes in the input values (Jovanovic.P ,1999,P3). This method is often used to evaluate investment projects that is in risk and uncertainty; also, there are those that indicate sensitivity analysis as a tool that helps to identify the element of risk and uncertainty in investment projects (Koller.G, 2005)

3.3.2. Sensitivity Analysis Using Spider Plot:

The Spider plot is a relatively recent method of sensitivity analysis , used in the evaluation of investment projects under conditions of risk and uncertainty, it is based on the idea described in the definition of the

sensitivity analysis, it means to measure the impact of the variation of explanatory factors (exogenous) took one by one. Assuming everything else is equal to the economic benefit of the project (NPV). It is named after its shape very similar to a spider's web (Chaveesuk.R, 2000).The objective of the spider plot is to give an image of the economic performance of the project according to certain factors (Baker.Scott.William, 1997)

Spider plot is a graph whose abscissa represents the expected variations of the variables (usually in percentage), and the ordered indicates the impact on the economic measures , the internal rate of return, or any other saving measure of another project) (Eschenbach.T, 1996)

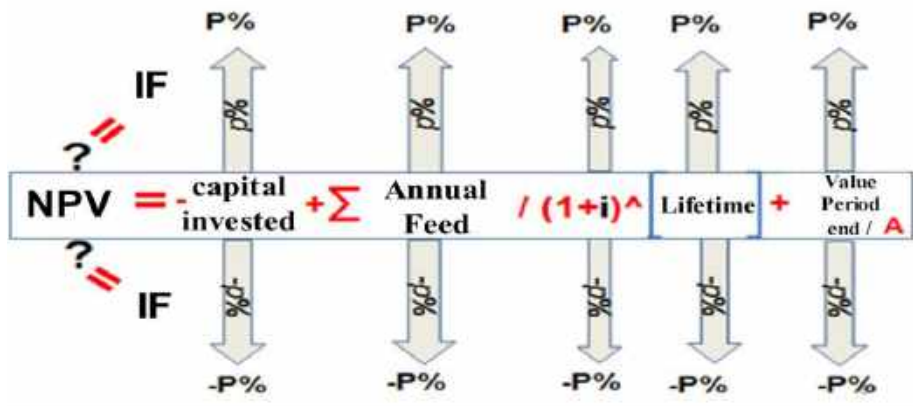
Spider Plot characterized by:

- Limits of the expected uncertainty for each variable.
- The effect of the variation of each factor on the scale of the economic measure.
- Ability to change each variable for the desired rate.

The sensitivity analysis begins on the broad baseline of the most likely estimates of project inputs. Then it starts to change an entry for the project to a certain percentage above and below the most likely value, keeping the other factors constant. And with each change in the input values, changes in the economic measurement of the project are noted (Pothanun.K, 2004)

3.3.3. The idea of Sensitivity Analysis

Figure 1 : Principle of Sensitivity Analysis



Source: Prepared by the researchers.

p: represents the step + or -5%

P: the interval + or- 50%

Step 1: Defines the equation of the net present value.

Steps 2: Identify the variables most likely to be uncertain.

Steps 3: varying one of the factors over an interval of [-50%, + 50%] with a step of 5% and keeping the other factors constant, then calculate the new NPV;

Then doing the same for the other factors.

4. Study Methodology:

This section represents the essence of our work, where, after an investigation, we try to go back to the question around which our memoir based on « how can we evaluate an investment project in an uncertain and risky universe ». To do this we have resorted to a powerful method. The sensitivity analysis to measure the impact of the fluctuations of the key variables of our project « Car rental from "Ansej" » on the economic performance measured using the VAN settings. To do this we used the Microsoft Office Excel program.

4.1. APPLICATION OF SENSITIVITY ANALYSIS

4.1.1. Introduction:

After exposing the principle of sensitivity analysis as well as the spider plot method, it is proposed in this chapter to apply it to evaluate a car rental project. Constitutes the statement of the project.

4.1.2. Project presentation

a. Project Statement:

The project we propose to evaluate under the conditions of uncertainty and risk, is the one of a car rental, the choice of the latter is explained by the fact that investment in the transport sector (whether in the state of Saïda or other) brings a very great interest. According to the National Agency for Youth Employment Support (ANSEJ) of the province of

Saïda, the majority of the requests concern the "rolling stock", which means transportation and car rental.

The datas related to this type of investment are recorded below:

b. Data Presentation:

For initial expenses :

The project has 10 ATOS type cars priced at 800,000 DA, a total of 8,000,000 DA

An office supply of 100,000 DA

For annual charges

Paid office worker up to 300,000 DA per year

Security agent remunerated up to 240,000 DA per year

Rental of the goodwill of 240,000 DA per year

A monthly CNSA contribution per employee of 26% of salary is:

78000DA per year for the office worker and 62400DA for the security guard.

Maintenance of cars with an initial amount of 300.000DA and which evolves of 20% per year.

Insurance of cars amounting to 300,000 DA per year

Repayment of the loan amounting to 8100.000 / 5 per year

Financial expenses of 1% of the credit per year

Revenues

Average number of cars rented per day 6

Number of days per year for each car 306 days

Rental price 3300 DA

Residual value of 5,000,000 DA

Lifetime of the project 5 years, knowing that the project is exempt from taxes for this same period according to the contract of the ANSEJ.

Discount rate 10% for the entire period.

4.1.3. Required Rate of Return on the project:

For the project to be considered sufficiently profitable, the study must show that the Project's Internal Profitability (IRR) is greater than or equal to the Required Rate of Return on this TRR project (discount rate): its profitability must meet the condition of a minimum return required.

For our project the TIR is 29.6252 calculate according to the formula [1.4]; it is greater than 10% that we retained.

In our case, it is not enough that the project generates wealth and that its profitability is positive: the remuneration represented by this profitability must be sufficiently high given the risks associated with this project and its implementation. The higher the risks, the higher the internal profitability of the project, it must be compensated (each individual is supposed to be risk-free: it accepts to take risks only if it is sufficiently well paid). Our project must be evaluated against a higher required net present value that we must of course determine.

To do this we will consider an investment project that fits into a risk-free framework such as savings to the bank with a profit rate of 7.4%: the return of a capital of 8.100.000 DA will grant a net present value of 3,000,000 DA, which we consider as a minimum expected value,

As a result, the car rental project must generate an NPV greater than 3000000 DA, for it to be accepted.

Table 1: Calculation of the NPV

Capital invested	8100000		Maintenance		300000 20%
Vehicle/day	6		Fixed costs		2840400
Day/Year	306		Amortization		1620000
Price/Vehicle	3300		VAT		0%
lifetime	5		Current Rates		10%
			End period Value		5000000
Year	1	2	3	4	5
Day/Year	306	306	306	306	306
Vehicle/day	6	6	6	6	6
Price/Vehicle	3300	3300	3300	3300	3300
Receipts	6058800	6058800	6058800	6058800	6058800
Maintenance	300000	360000	432000	518400	622080
Fixed costs	2840400	2840400	2840400	2840400	2840400
Debts repayment	1620000	1620000	1620000	1620000	1620000
Financial expenses	81 000	64 800	48 600	32 400	16 200
Amortization	1620000	1620000	1620000	1620000	1620000
Earnings without taxes	1 217 400	1 174 410	1 103 050	1 017 283	914 231
Earnings	1 217 400	1 174 410	1 103 050	1 017 283	914 231
Cash-flow	2 837 400	2 794 410	2 723 050	2 637 283	2 534 231
Fact.actu.	0,909	0,826	0,751	0,683	0,621
RESULT: NET ACTUELE VALUE					
NPV/5	5314216,45				

Source: Prepared by the researchers using Excel.

4.2. SENSITIVITY ANALYSIS USING SPIDER PLOT

To succeed in constructing a correct model of sensitivity analysis, one must follow some steps, which are defined as follows:

4.2.1. Define the NPV equation:

To calculate the net present value of the project we apply the following formula:

$$NPV = -I + \sum_{j=1}^n CF_j (1 + t)^{-j} + VR(1 + t)^{-n} \quad [1.1]$$

4.2.2. Define the Project data which Most likely to vary:

The sensitivity analysis shows the impact of the fluctuations of the fundamental factors of the project on its profitability expressed by the NPV. We consider as factors likely to be influential, the initial capital,

the discount rate, the lifetime. The cash flows and the residual value (besides these five factors which constitute the formula of the NPV. Which amounts to studying the impact of all the components). The following table lists the initial values of these factors as well as the abbreviations retained:

Table 2: influencing factors

CAPITAL INVESTED	I	8100000 DA
UPDATE RATE	t	10%
VALUE END PERIOD	VR	5000000 DA
DURATION OF PROJECT LIFE	n	5 years
DURATION OF PROJECT LIFE	CF1	2 837 400 DA
	CF2	2 794 410 DA
	CF3	2 723 050 DA
	CF4	2 637 283 DA
	CF5	2 534 231 DA

Source: Prepared by the researchers using Excel.

4.2.3. The NPV calculation:

Applying the project data in equation [1.1] gives:

$$\text{NPV}=5314216,451 \text{ DA}$$

The net present value of the project is 5314216,451 which represents a probable estimate.

To know the sensitivity of the current value by contribution the various factors identified, we assume a gradual change in these factors by $\pm 5\%$, up to $\pm 50\%$.

4.2.4. Define the equations of each change:

We formulate the equations of fluctuations for each factor of the project, as follows:

- The change in investment expenditure I by $\pm p\%$ changes the

net present value according to the following equation:

$$NPV = -I*(1 \pm p\%) + CF*(1 - ((1+t)^{-n}))/t + VR*((1+t)^{-n})$$

- To indicate changes in current value due to fluctuations of $\pm p\%$ of annual flows is as follows:

$$NPV = -I + CF*(1 \pm p\%)*(1 - ((1+t)^{-n}))/t + VR*((1+t)^{-n})$$

- Changing the ending VR period value by $\pm p\%$, affects the current value of the project as follows:

$$NPV = -I + CF*(1 - ((1+t)^{-n}))/t + VR*(1 \pm p\%)*((1+t)^{-n})$$

- The change $\pm p\%$ for the life of the project n, affects the current value of the project as follows:

$$NPV = -I + CF*(1 - ((1+t)^{-n*(1 \pm p\%)})/t + VR*((1+t)^{-n*(1 \pm p\%)})$$

- The change $\pm p\%$ for the discount rate affects the present value of the project as follows:

$$NPV = -I + CF*(1 - ((1+(t*(1 \pm p\%)))^{-n})/(t*(1 \pm p\%))) + VR*((1+(t*(1 \pm p\%)))^{-n})$$

Shows the results :

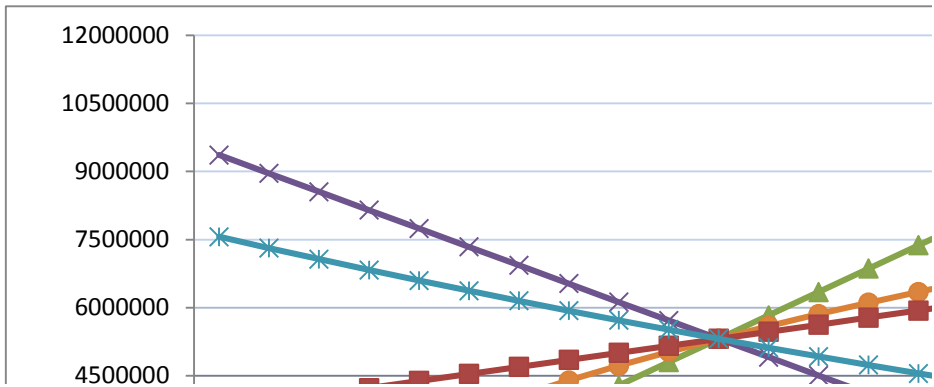
Table 3: Result of Sensitivity Analysis

Variation rate	NPV/val end period	NPV/Annual Feed	NPV/ invested capital	NPV/ Current rate	NPV/ Lifetime
-50%	3761913,144	159411,533	9364216,451	7562137,220	1801674,422
-45%	3917143,474	674892,025	8959216,451	7312667,546	2207443,993
-40%	4072373,805	1190372,517	8554216,451	7069123,447	2591325,995
-35%	4227604,136	1705853,009	8149216,451	6831329,049	3086424,356
-30%	4382834,467	2221333,501	7744216,451	6599114,616	3361114,483
-25%	4538064,798	2736813,992	7339216,451	6372316,311	3715721,167
-20%	4693295,128	3252294,484	6934216,451	6150775,956	4051119,316
-15%	4848525,459	3767774,976	6529216,451	5934340,814	4393247,859
-10%	5003755,790	4283255,468	6124216,451	5722863,371	4717371,598
-5%	5158986,121	4798735,960	5719216,451	5516201,139	5024148,733
0%	5314216,451	5314216,451	5314216,451	5314216,451	5314216,451

5%	5469446,782	5829696,943	4909216,451	5116776,285	5593843,540
10%	5624677,113	6345177,435	4504216,451	4923752,077	5858581,255
15%	5779907,444	6860657,927	4099216,451	4735019,555	6108975,736
20%	5935137,774	7376138,419	3694216,451	4550458,573	6345555,660
25%	6090368,105	7891618,910	3289216,451	4369952,956	6582686,688
30%	6245598,436	8407099,402	2884216,451	4193390,350	6807086,034
35%	6400828,767	8922579,894	2479216,451	4020662,077	7019221,789
40%	6556059,097	9438060,386	2074216,451	3851662,998	7219547,059
45%	6711289,428	9953540,878	1669216,451	3686291,384	7416492,994
50%	6866519,759	10469021,369	1264216,451	3524448,784	7602741,886

Source: Prepared by the researchers using Excel.

Figure 2: The Project’s Spider Plot



Source: Prepared by the researchers using Excel.

5. Study Results :

Through the visualization of the figure 2 knowing that the sensitivity analysis exposes the effect of the variation of a single factor while supposing the constancy of the others (it is besides the biggest disadvantage of this method since it implicitly assumes the absence of correlation or interaction between the factors) the following statement was made:

The nature of the relations between the factors and the NPV can be detected by visualizing the curves :

As for annual flows, the end-of-period value and the lifetime: the relation that binds these three factors with the NPV is positive, which corroborates with the theoretical foundation. The first two factors being revenues and the NPV is calculated by subtracting expenses from revenues, and for the lifetime. This is explained by the fact that the more we spread over time, the more flows we will have and the lower initial expenses for our case (the elimination of reimbursement costs and financial expenses). And the addition of taxes after the fifth year (as indicated by the ANSEJ contract) With regard to the capital invested and the discount rate the relationship is contradictory which also corroborates with the theoretical basis, the capital invested being expenditure and for the discount rate the more the latter increases the more the present value of the income decreases.

The effect can be appreciated through the curves of each factor, plus the slope increases, and the sensitivity of the net present value by contribution to this factor increases.

The factor whose variation has the greatest weight on the profitability is of course the annual flows followed by the lifetime, the capital invested, the discount rate and ultimately the residual value, the effect of which may be negligible.

The intersection of each curve with the vertical axis " the ordinate " Indicates the cases where the current value is zero, which means the total rejection of the project of course.

For our project, NPV nullity requires fluctuations of more than $\pm 50\%$ for all factors.

The point of interaction between the different factors is the initial NPV of the project "without any variation"

The figure allowed us to identify the different impacts, and this is the table that will allow us to identify the values that judge reviews. Each factor ie d. that if the (real) values of the different factors exceed

the designated critical value for each of them the project is rejected. Remember that the minimum value required was an NPV of 3,000,000 DA resulting from a project involving no risk.

The shaded cells in Table 3 refer to the cases where the project « considered less profitable than savings » is rejected.

For annual flows the project is rejected if the annual flows decrease by -25% of their initial values to be more precise, the project is rejected if the flows were less than:

Table 4: Cash Flow Reviews

	year 1	Year 2	Year 3	Year 4	Year 5
Critical values	2128050	2095807,5	2042287,5	1977962,25	1900673,25

Source: Prepared by the researchers.

For the invested capital, we reject the project if the amount exceeds 30% of the sum of 8.100.000 DA to be more precise the sum of 10.530.000 DA.

For the lifetime, the project is rejected if its life is 3 years or less.

For the end-of-period value, it would require a variation of more than 75%, i.e. an end-of-period value of 1,250,000 DA to reject the project.

For the rate of interest no doubt that we will reject the project for the rate of 25.47% which corresponds to the TIR of our project, but for the criterion to adopt that of beating the project without risk, the project will be rejected if the discount rate equals or exceeds 17%.

Decision-making:

We propose to invest in a context of risk and uncertainty, this risk taking can not be unjustified, we demand for this that the project generates a profitability superior to 3,000,000 DA generated by an investment carrying no risk, Sensitivity analysis is a tool for decision indeed identifies the variables whose profitability is most sensitive.

This will allow us to adapt to a not always favorable environment so we will accept if the circumstances are as follows:

We will agree to invest in a car rental if the cost is less than 10,530,000 DA. If the lifetime of the project exceeds 3 years, if the discount rate does not reach 17%. If the residual value of the project does not abbreviate 1.250.000 DA. Moreover, if the annual flows of the five years exceed 2128050, 2095807.5, 2042287.5, 1977962.25 and 1900673.25 DA successively.

The sensitivity analysis allows us to identify the external environment of the project, identifying the dominant and fundamental factors of an investment project does not mean to influence them, it's about instead of adapting to them, adapt to an environment of uncertainty and risk where these are likely to vary. The use of suitable software such as @RISK advantage facilitate the implementation of this technique.

6. Conclusion :

In order to address the issue that is the subject of interest of this research namely the assessment of a project in a risky and uncertain environment, we have discussed many theoretical and technical aspects the evaluation of investment projects principle of Monte Carlo simulation and sensitivity analysis. We first tried to understand theoretically the principle of these tools, and then we concretely approached these two methods by applying them to evaluate a car rental project from the National Agency for Youth Employment Support (ANSEJ). The interest of this choice is that according to this same agency the majority of the requests concerns the "rolling", that is to say, transport and car rental, this is so that our study must put a tangible scientific interest. As a criterion of project acceptance we have adopted overcoming the profitability of a risk-free project that of saving, where it generates a net present value of DA 3,000,000 over

five years, the sensitivity analysis method allowed us to identify the external environment of this project, and provided a very likely approximation of the actual NPV.

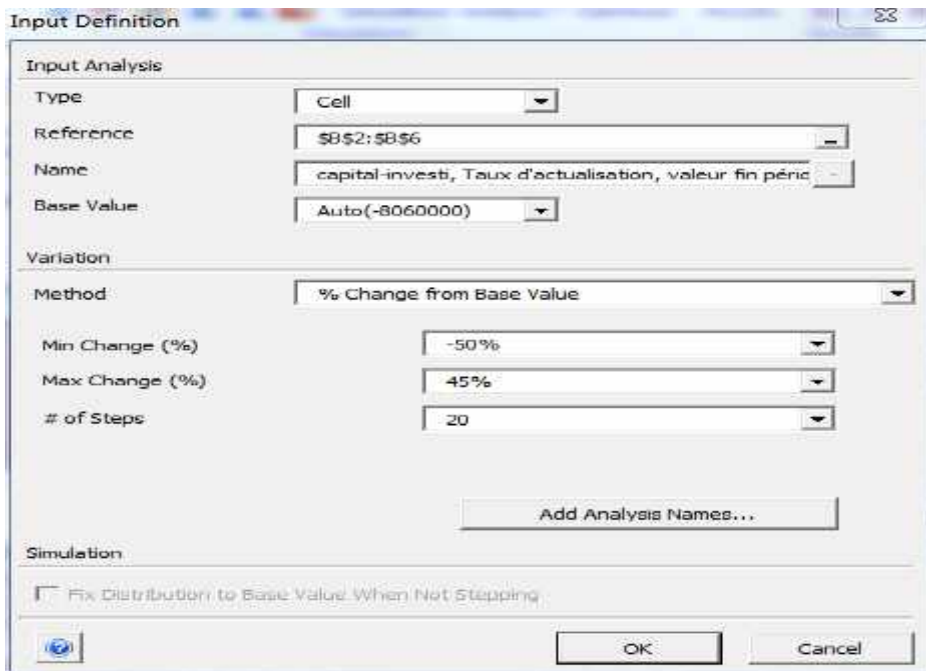
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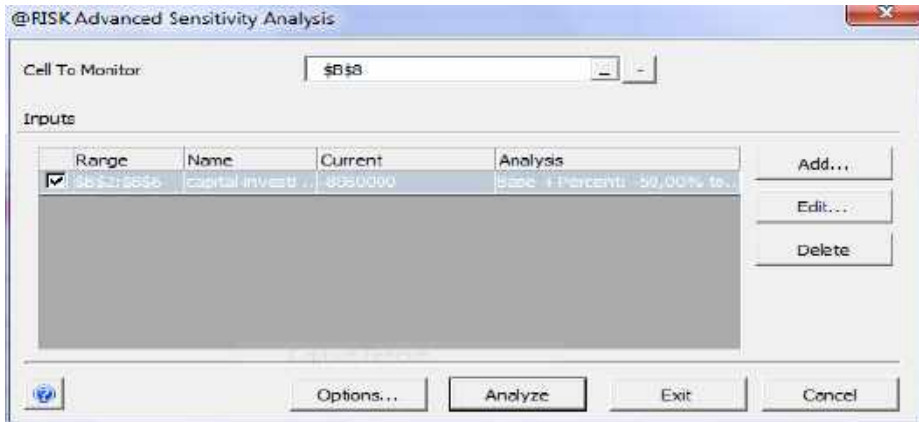
8. Appendices :

Figure 3: Input data definition with @Risk



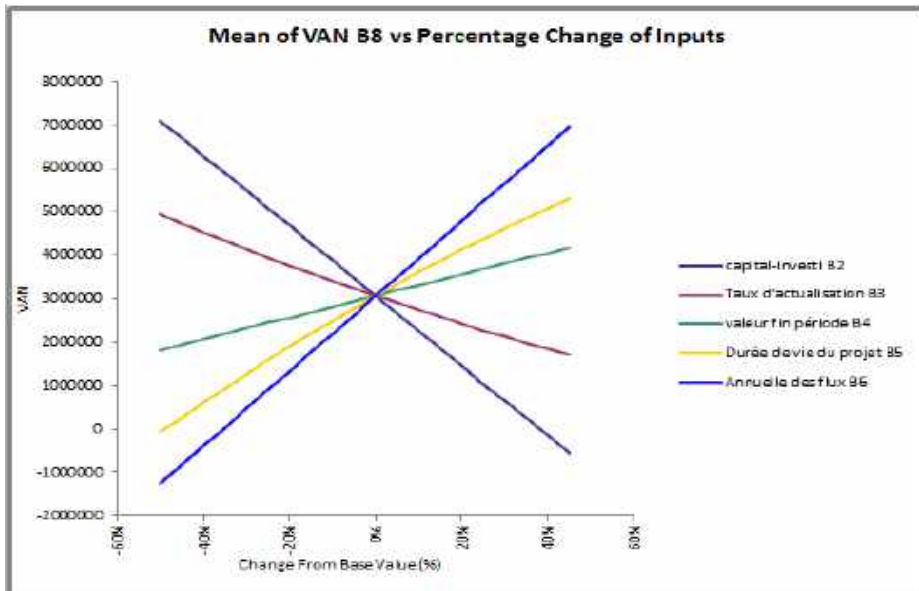
Source: Prepared by the researchers using @risk.

Figure 4: Sensitivity analysis window with @risk



Source: Prepared by the researchers using @risk.

Figure 5: The Project's Spider Plot



Source: Prepared by the researchers using @risk.

The Role of Waqf -Sukuk in Achieving Financial Sustainability in Waqf Institutions in Algeria: An Analytical Study According to NZ Waqf Sukuk

دور الصكوك الوقفية في تحقيق الاستدامة المالية للمؤسسات الوقفية في الجزائر: دراسة تحليلية على ضوء نموذج صكوك الوقف النيوزيلندية

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Abstract: This paper aimed at highlighting the role of Waqf Sukuk in achieving financial sustainability. Accordingly, the analytical study provides a conceptual framework of the possibility of Sukuk Waqf with the respect to its honorable role in achieving financial sustainability in Waqf Institutions in Algeria. A paper followed a descriptive research methodology, where set of semi-structured interview was applied.

This paper concluded that Waqf institutions in Algeria and in order to achieve financial sustainability, they must apply Waqf Sukuk

Keyword: Waqf institution; Financial Sustainability; Waqf Sukuk; Algeria

JEL classification code : Z13, P31

ملخص: هدفت هذه الورقة البحثية الى ابراز دور الصكوك الوقفية في تحقيق الاستدامة المالية. وبناء على ذلك، تقدم الدراسة التحليلية اطارا نظريا لإمكانية تطبيق الصكوك الوقفية فيما يتعلق بدورها المشرف في تحقيق الاستدامة المالية في المؤسسات الوقفية في الجزائر. تتبع الورقة البحثية المنهج الوصفي النوعي، حيث تم تطبيق مقابلة شبه مقننة ومتعمقة. خلصت الدراسة الى نتيجة مفادها ان المؤسسات الوقفية في الجزائر وفي سبيل تحقيق الاستدامة المالية يجب عليها تطبيق نموذج الصكوك الوقفية.

الكلمات المفتاحية : المؤسسة الوقفية؛ الاستدامة المالية؛ الصكوك الوقفية؛ الجزائر

تصنيف JEL : Z13, P31

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1. Introduction:

The revival of Waqf institutions has long been interest of Muslim communities around the world. In line with the revitalization, the issues of managing Waqf assets are growingly being discussed by academicians and practitioners. Waqf institutions must remain financially sustainable and efficiently managed in order to effectively make a long-term impact in the communities they serve. However, being a nonprofit organization (nonprofit) in nature, a religious entity in practise, and socio-economic institution in goal, the performance of Waqf institutions should also focus on realizing their social missions.

In an effort to improve sustainability, Waqf institutions seek to develop their financial resources. It is crucial therefore to conduct further research on more viable options that can simultaneously realize financial sustainability by raising funds from the Muslim public through sukuk.

Despite the Algerian Waqf Institution ranks second in the Arab world in terms of magnitude and seize of Awqaf, it still far long away from being the complementary institution for economic and social development due to the fact that these institutions face legal, finanacial and administrative challenges that prevented them from fulfilling their developmental role.

Hence, the aim of this paper is to propose a Permanent Cash Waqf (Waqf Sukuk) model for Algerian Waqf Institutions to acheive financial sustainability. In doing so, these institutions could empower the poor Muslims.

1.1. The Problem of the Study:

The study problem aimed to explore the potential source of funds for Waqf Institutions in Algeria through Waqf Sukuk to benchmark the best practices by managing entrusted Waqf assets efficiently, so that can guide the Waqf institutions to acheive financial sustainability. Therefore, the following sections look for answer to the question proposed below:

- *How Can Waqf Institutions in Algeria Achieve Financial Sustainability Through Waqf Sukuk?*

1.2. The Objectives of the Study:

The main objective of this study was to propose a dynamic model for Algerian Waqf Institutions to achieve a financial sustainability through sukuk. Briefly, the objectives of the study are as follow:

1. To introduce Waqf Institutions in Algeria.
2. To define financial sustainability and its main pillars.
3. To propose Waqf Sukuk model for adoption by Waqf Institutions in Algeria to ensure their sustainability.
4. To analyze the key success factors of the adopted model.

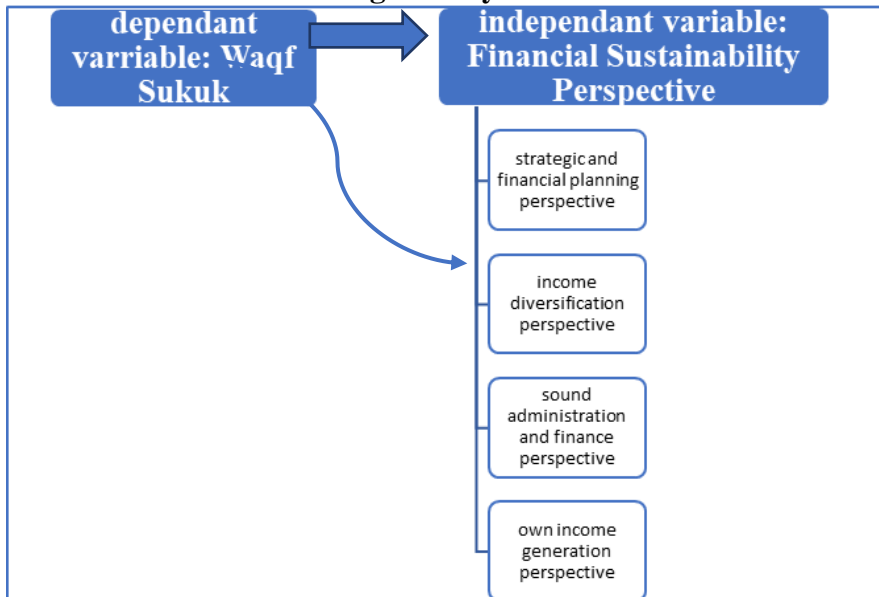
1.3. The Hypotheses of the Study:

In the light of the study problem and its objectives, the hypotheses of the study have been proposed as follow:

- Years of relying of Waqf Institutions in Algeria on limited range of funding sources to finance the real estate projects have limited their ability to change their revenue streams.
- There is an impact of Waqf Sukuk practice on achieving financial sustainability in Algerian Waqf Institutions.
- There are success factors that must be addressed for the sukuk issuance process to be successful.

1.4. Study Model:

Fig.1 Study Model



1.5. Study limitation:

The study is limited by a number of factors such as:

1. Geographic limitation: the study focused only on Algeria; therefore, the results may not be generalized to other Waqfs in other countries due to their jurisdictions.
2. Research field limitation: the financial instrument researched in this study is limited to Waqf Sukuk. However, the area of the research is niche area with a limited number of experts.

1.6. Literature Review:

In general, there has been a wealth research conducted by the scholars and academicians concerning Waqf, sukuk and financial sustainability in non-profit organizations. Some of studies have highlighted several issues concerning the components and the factors that influencing FS in nonprofits. However, the literature will focus only on the role and the application of Waqf Sukuk rather than financial sustainability in nonprofits.

Accordingly, Musari (2016a) has pointed out alarming issues related to Waqf Sukuk as a funding source to get low cost fund to finance the very micro society to avoid interest. Further, microfinance institutions in Indonesia can issue sukuk to finance the development of Waqf properties or using them to be underlying asset. Then, the structure of Waqf Sukuk can be integrated into nanofinance program to effectively alleviate absolute poverty through Qard Hasan or Mudharabah Waqf-Sukuk, Musharakah Waqf- Sukuk, cash/ E- Waqf- Sukuk. As a result, sukuk has an ability to be a tool for managing the lack and excess of liquidity, bridging the financial sector and real sector, and doing nanofinance in order to achieve economic sustainability.

Musari (2016b) outlined that there are two powerful Islamic financial instruments (Sukuk and Waqf) in Islamic finance, therefore, in order to achieve economic sustainability, the collaboration sukuk and Waqf to be an effective tool for financing the Higher Education Institutions (HEIs). However, the successful issuance of Waqf Sukuk in Saudi Arabia, Singapore, and NZ can be inspiration to receive the Waqf-based HEIs through many schemes, such as Mudharabah Waqf Sukuk, Musharakah Waqf Sukuk, Cash/ E- Waqf Sukuk. The last, the project of HEIs based Waqf Sukuk can benefit the social welfare.

However, there are few publications on Waqf and financial sustainability. In this area, Engku et. al, (2018) stated that higher learning education in order to achieve FS as one of the main objectives of the Malaysian Education Blueprint 2015-2025; the study came up with two SRI sukuk models as a proposal for HLIs or other interested parties to pursue and develop. These models namely: Wakalah-based SRI Sukuk and Cash Waqf-based SRI Sukuk, it is also proposed that the proceeds from this sukuk be used primarily for income-generating activities. Furthermore, the study suggests that a consortium of HLIs be formed to issue the sukuk and manage its proceeds. In both structure, special treatment should be given to the investors of the sukuk due to the fact that the latter do not priorities the sukuk structure but rather the returns, guarantee and incentives.

Boukredid et. al, (2018) pointed out that the endowment investment fund to be precondition for the continuity of the charitable organization in order to create long-term financial sustainability, the process of creating this type of funds provides a regular source of income to support the operational and working capital and to cover the expenses of charity programs, that have major impacts on the financing of the charitable sector as a whole.

Hila et. al, (2018) outlined that charities can be seen as the highest form of voluntary work that provide community with services without looking for awarded instead. In this context, the study attempts to search and find ways to revive these associations at which the legislator set up decisions that regulate the sources of the association's funding in the law 12-06; but they still insufficient and thus do not achieve financial sustainability.

2. Waqf Institutions in Algeria: History and Current

Literally, Waqf or its plural Awqaf means” hold, confinement or prohibition” while technically means “holding certain property and preserving it for the confined benefit of certain philanthropy and prohibiting any use or disposition of it outside that specific objective”. (Ambrose, et.al, 2015).

Another perspective to Waqf is that it can be a gift of money, estates/land property and other valuable items dedicated fully to

charity. The gift could be monetized as a leasing facility for the purpose of earning sustainable income (Raimi, et.al, 2016).

Historically, Waqf was a dynamic institution during the early Islamic society, long before it did in the West (Chapra, 2008). Therefore, there have been lands, mosques, buildings and so on.

With reference to Algeria, the awqaf has gone through many stages, including, the stage of prosperity and development, in which endowments gained particular importance in the late Ottoman Era, and the endowment wealth in this period was great and varied, including a large number of real estate properties and agricultural land and then the French colonial stage, the latter in which endowments have seen remarkable decline, because of his looting in order to weaken it and prevent performed exposed to function desired, as for the third stage: it is the period of the independent Algeria, which witnessed the significant return of the role played by Waqf by issuing the Law 10/91; Which gave a new impetus to the moratorium and identified the various parameters related to it. (بن عزة، 2015)

2.1. Waqf Institutions in Algeria Late in the Ottoman Era

The Ottoman period in Algeria was characterized by the proliferation of awqaf (plural of Waqf) and their prevalence throughout the country, since the beginning of the 15th century and the beginning of the 19th century .During this period, the endowments increased and diversified to make up a large proportion of real estate properties and agricultural lands, where in 1750 the endowments doubled 12 times compared to the year 1600(مسذور واخرون، 2008). However, awqaf in ottoman Algeria were distributed among several charitable institutions: The Two Holy Mosques Institution, Awqaf Great Mosque Institution, Good Works Awqaf Institution, Private Waqf Institution(صوفان، 2017)

2.2. Waqf Institutions in Algeria in the French Colonial Period

Awqaf Institutions in the eyes of French authorities are one of the difficult obstacles that limit the colonial policy and prevent major reforms, because the fact that the Waqf system is incompatible with the economic principles under the colonial existence, since the aqf was itself an administrative organ and an effective economic mean. That is why the French administration has worked hard to issue a series of decrees and stipulating the immunity of Waqf properties (مسدور واخرون)، (2008).

In comparison to the past, the colonial administration of endowments represented a period of decline in the history of the Algerian Waqf establishment, as it embodied the French policy towards the endowment sector based on liquidation, confiscation, exclusion and serving the colonial interests.

2.3. Waqf Institution in the Independent Algeria

At the dawn of national sovereignty, the Algerian state faced a legal vacuum that made the task of managing endowment wealth so difficult, Therefore, the Algerian state resorted to leave the laws as they are, except those which in relation to national sovereignty.

However, endowments at this stage are subject to all kinds of abuses and seizure by individuals as well as institutions.

The tightening of Waqf institutions continued until the early 1990s, at which the legal provisions governing Waqf and its institutions emerged.

Today, Waqf properties in Algeria are based on real estate rather than Cash Waqf; in regard to this, the endowment investment in Algeria has been dominated by real estate investment. Therefore, the Waqf exploitation is almost confined to one investment formula: Rent, with the percentage of about 70% while other formulas rank less represented by 23%.

Table 1. Waqf Properties Investment Instruments

Instrument	Percentage
Rent	69.42%
Other Investment Formulas	22.88%
Unexploited	07.70%

Source: Ministry of Religious Affairs and Waqf

At the level of each of the 48 provinces, there is a Directorate of Awqaf (Waqf Institution).

2.4. Difficulties Facing the Waqf Institutions in Algeria

From the above description, it is clear that Waqf in Algeria has several challenges, which are briefly mentioned below:

1. Legal and Legislative Difficulties:

- Absence of laws enabling the Waqf institution to recover all suspended properties, with regard to mixing endowment funds with public funds.

2. Financial Difficulties:

- The complexity of procedures in financial decision-making due to the central management of Waqf properties (2017، مجوع)
- Waqf projects based on projects of a religious nature rather than investment projects which yield returns.

3. Administrative Difficulties:

- Inefficiency of the administrative organization relating to awqaf, since the management of endowments needs an institutional framework linking the interest of the beholder and the objective of the institution. (كوديد، 2015).

3. The Financial Sustainability: A Conceptual Standpoint

Financial sustainability for nonprofits has seen an upsurge concern from leaders, funders, and the communities that these organizations serve. However, achieving financial sustainability is a goal that all

nonprofit organizations strive for. Evaluating activities and operations based on profitability and mission impact, as well as the interaction between these two dimensions, may allow nonprofits to develop strategic plans to manage short-term financial challenges while maintaining long-term mission goals. (Sontag-padilla, et. al, 2012).

Below, according to (Jean- Francois, 2014),

The financial sustainability is the ability of an organization to maintain a diverse source of revenue that enables it to continue to provide ongoing quality services to its clients over time regardless of changes in funding sources, in target population, and other changes among its internal and external stakeholders.

Financial sustainability refers to the ability to maintain financial capacity over time. However, maintaining the ability to be financially agile over the long term may be especially important for nonprofits in order to expand services within the organization to serve high- need communities while developing resilience to occasional economic shocks in the short term. (bowman, 2011).

Therefore, as mentioned above, financial sustainability is a critical element for ensuring that nonprofits continue to exist and offer their services beyond the current financial year or period. Financial sustainability of organisations involves fundraising strategies and methods, marketing, governance, leadership and management and building of partnerships. The external factors that affect the financial sustainability of organisations include; the current situation in the country (referring to the economy and the political situation), attitudes of foreign governments and local and international corporates and international and local faith-based organizations (harding, 2014).

3.1. Four Pillars of Financial Sustainability

Any organization on path toward financial sustainability, it can be compared to a table: it needs four legs to stand sturdily.

1st pillar: Financial and Strategic Planning

Strategic planning is a mechanism to help clarify an organization's mission and objectives as well as prioritize the actions needed to accomplish them (léon, 2001). The process involves examining an organization's current situation and its vision of the future in order to prepare a strategic plan- a broad map of the general programs and activities and objectives the organization will pursue over a period of

time-. Although, strategic planning is an opportunity to consider innovation, it does not adequately take into account the resources an organization has available to implement the chosen strategies, or its capacity to obtain new resources (léon, 2001).

Financial plan is a dynamic document that consists of projected expenditures and the organization's potential to generate the income to cover those expenditures. Moreover, the purpose of financial plan is to fulfill the mission within a specific time frame, and whether the organization is going to have sufficient resources available in the medium term to meet the objectives described in the strategic plan (léon, 2001).

2nd pillar: Income Diversification

Income diversification pillar refers to the increase in income sources or the balance share among the different sources (wan et. al, 2016).

This pillar is an important mean for nonprofit organization. With this in mind, the nonprofits with multiple income sources have a comparative advantage over those with lower diversity. This, in turn causes a variation in both the number of earning activities and distribution across volumes from each budget components. However, the organization will remain extremely vulnerable if a large portion of the budget depends on only one source. Otherwise, building income diversification could be important strategy for pre-risk management by bringing more kinds of income sources.

3rd pillar: Sound Administration and Finance

Sound financial practices are the basic requirement of financial sustainability as the routine manner in which the day-to-day financial activities of a nonprofit organization are gathered, recorded and reported, and when required.

4th pillar: Own Income Generation

Many non-profit organizations are looking at their own forms of income generation beyond donations in order to invest in their own growth and development (Williams, 2014).

4. Waqf- Sukuk: An Adapted Model for Ensuring FS

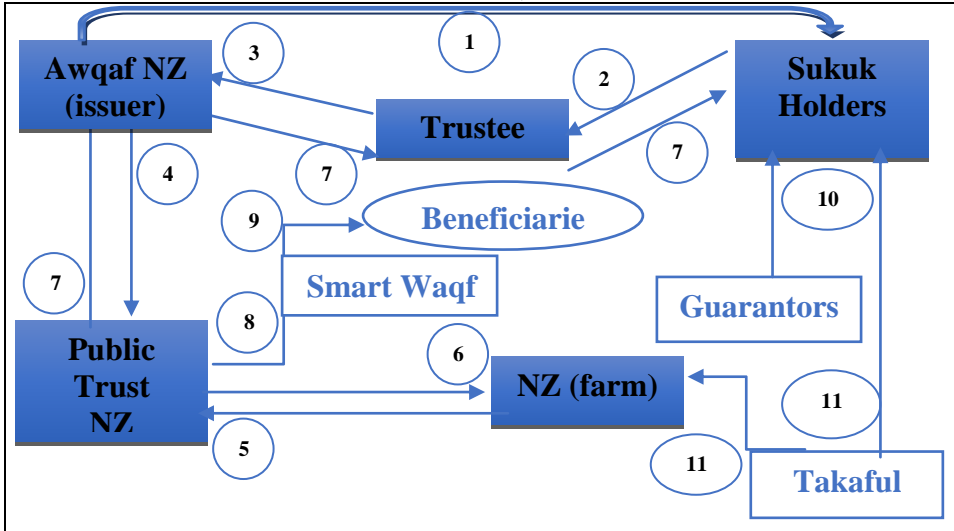
Sukuk plural; singular sak are defined by the Accounting and Auditing Organisation for Islamic Financial Institutions (AAOIFI) as "certificates of equal value representing undivided shares in ownership of tangible assets, usufruct, and services or (in the ownership of) the assets of particular projects or special investment activity" (AAOIFI, 2003). Furthermore, it could not be denied that some of Waqf institutions faced a problem of lack of capital to develop community projects. This problem could be solved through subscribing Islamic financing facilities. From this point of view, Waqf institutions could invest in sukuk, therefore producing profit, and the profit is used to finance Waqf activities.

3.1 Temporary and Permanent Cash Waqf Sukuk New Zealand

Questions about the viability and applicability of Waqf Sukuk by Algerian Waqf Institutions in order to achieve FS should be raised. However, the current awareness about the social dimension of Islamic finance has brought attention towards Waqf again. Indeed, projects based on Waqf Sukuk have started to merge. The most important one would be the model of Temporary and Permanent Cash Waqf Sukuk. The latter was proposed by ISRA (International Shari'ah Research Academy for Islamic Finance) in 2016 in response to a request by Awqaf New Zealand (Awqaf NZ) in order to launch a social project.

The project will be implemented conjointly by Awqaf NZ, ISRA and Security Commission of Malaysia. The goal is to issue the world's first Waqf Sukuk worth of \$1bn. The proceeds of the sukuk will be utilized to establish farming industry in New Zealand and Canada. Via these farms, Qurbani (slaughtering animals) will be provided for Muslims particularly in the west. The waste of the animals and skins will be used to produce shoes and bags etc. The revenue will be used for charitable and social purposes all over the world (Oubdi et. al, 2018). The chart of the structure is shown in figure (2) as follow:

Fig.2 Temporary and Permanent Cash Waqf Sukuk (NZ Waqf Sukuk)



Source: ISRA, 2016

A closer look into the chart above, shows that the model operates as follows (Engku, et. al, 2018):

01. Awqaf NZ as the issuer issues temporary and permanent Cash Waqf sukuk to the sukuk holders.
02. The sukuk holders subscribe to their respective tranche of the Waqf Sukuk by payment of the issue proceeds. The proceeds flow through the Trustee to be disbursed to the issuer. The Trustee is appointed with the declaration of trust and acts on behalf of the sukuk holders.
03. The issuer receives the funds and will manage two pools of the Cash Waqf: The Temporary Cash Waqf, for which repayment is required, and the Permanent Cash Waqf, for which repayment is not required.
04. The issuer releases the cash based on Qard Hasan to the public Trust NZ for the purchase of farm and equipment.
05. The Public Trust NZ enters into a contract with a contractor to manage and operate the farm. The contract can be in the form of ujah (fees for work done).
06. After the farming activities, the profits can flow to Public Trust NZ.

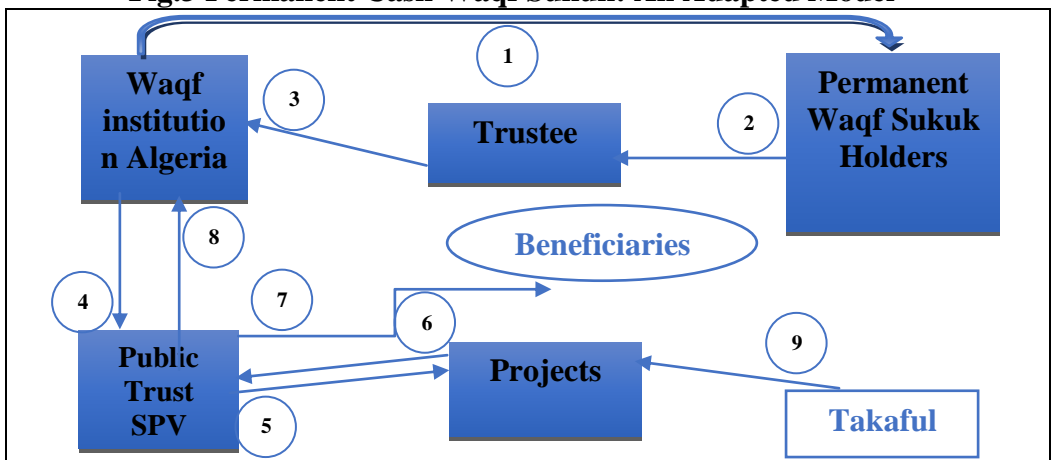
07. With the profits, the Public Trust NZ repays the loan (based on Qard Hasan) that it previously got from Awqaf NZ. Those funds would, in turn, be used to return the Temporary Cash Waqf contributions to the sukuk holders via the Trustee.
08. Meanwhile, the Smart Waqf is operated with activities of animal sacrifices for the Eid and other supply contracts.
09. Profits are generated from those activities. These profits would then be channeled to the beneficiaries.
10. The guarantors would provide unconditional and irrevocable guarantee in favor of the Trustee and on behalf of the sukuk holders.
11. Takaful coverage would be provided to mitigate any risks such as operational losses or to ensure loan repayment to sukuk holders.

3.2 Permanent Cash Waqf Sukuk: An Adapted Model for AWIs

Looking forward to the history of Waqf in Algeria, Waqf Institutions have the possibility to join the path of implementing Waqf Sukuk to develop their property assets to be self-sustaining.

In terms of FS, factoring in the promising potential of Waqf development in Algeria, besides, relatively untapped socially motivated institutional, this Cash Waqf model was adapted from Awqaf NZ with modifications as a preliminary model to be included in the interview. The adapted model is illustrated in figure (3) below.

Fig.3 Permanent Cash Waqf Sukuk: An Adapted Model



Source: Adapted from ISRA, 2016

With regards to the adapted model, the following steps and processes have to be followed in the issuance of this sukuk:

01. Specifying the amount that is need for executing the endowment project. Furthermore, the Trustee (acting on behalf of Sukuk holders) signs a Trust Deed between the issuer (Algerian Waqf Institution) and sukuk holders to receive and manage Waqf funds
02. The issuer will issue the Permanent Cash Waqf Sukuk to the Permanent Waqf Sukuk holders that is equivalent to the amount they need for investment. Therefore, the issuer will float the sukuk for subscription, and meanwhile, the sukuk holders provide the cash to the Trustee.
03. The funds will be disbursed to the issuer, who will issue pool of Cash Waqf to the permanent sukuk holders. As such, no repayment is required as they have fully committed their funds to the Waqf without expecting any returns.
04. The Waqf institution will establish an SPV Special Purpose Vehicle at which the funds will be disbursed to it (SPV) in the form of Qard Hasan.
05. A portion of the funds is also used to fund projects for the beneficiaries of the Waqf.
06. Proceeds of Qard Hasan will be used to fund income-generating projects. In addition, the surplus profit is returned to the SPV.
07. Depending on the profit, a portion of the profit from the Permanent Cash Waqf can be channelled to the beneficiaries.
08. The SPV will repay the Qard Hasan to the issuer over time.
09. Takaful coverage may also be procured to mitigate any losses to the project.

3.3 Key Successes for the Issuance of Waqf Sukuk to Ensure FS

In the case of Algerian Waqf Institutions, the preliminary model can vary based on suitability and the agreement of the sukuk holders. Therefore, there are several factors that must be made for the success issuance. However, these factors are grouped into five principal factors among each has sub-factors as shown in table (2)

Table 2: key successes of developing Waqf Sukuk for AWIs

Legal and Governance factors	Favorable legal framework Good governance Clear and concise contract
Macroeconomic factors	Available financial market Appropriate risk allocation and risk sharing Strong and good private consortium Government involvement by providing guarantee
Funding Mechanisms	Multi- benefit objectives Project technical feasibility Thorough and realistic assessment of the costs and benefits High quality team of experienced advisors Data measurement
Stakeholder Support	Commitment of the public and private sectors Political support Stakeholder engagement and awareness

Source: Engku, et. al, 2018, 26

As a note, although these factors may be difficult to address when developing and issuing the proposed model, but inevitably they encourage the Algerian government to establish Waqf Sukuk model for supporting Waqf properties, and financing income- generating projects.

5. Study Methodology:

The study follows the descriptive research methodology, where a semi-structured interview has been undertaken in order to address objectives of the study. (see Appendice 1)

5.1 Study Sample

The study sample consists of those who are experts and directly involved in the field that is very niche. Therefore, the interviewee was chosen based on his relevant experience and understanding of the subject matter. Despite not being able to interview more than the selected participant -one interviewee-, the study attained a saturation point due to the fact that the interviewee is an Algerian and he is working in Malaysia and he is researching in the field of Awqaf. The participant was interviewed through face- to- face in Kuala Lumpur - Malaysia-. The interview was undertaken in April 2019 and took 60

minutes time. The information obtained was transcribed and analyzed in order to answer the question above.

5.2 Data Collection Tools

The study utilized the following data collection:

Secondary data: This data collection was drawn from both print and electronic sources among which books, articles, websites and so.

Primary data: an interview guide was designed for collecting data for this study and a set of semi-structured questions was prepared.

Study tool

A set of semi-structured questions was prepared based on critical review of literature and validation by selected expert. In doing so, the questions were divided into three main sections to obtain the interviewee's responses:

1. General conception of the current status of Waqf Institutions in Algeria, focusing on the prospects and the challenges.
2. Views on the suitability of the proposed model of Waqf Sukuk and how the Algerian Waqf Institutions could be improved and financially sustainable.
3. Opinions on the proposed model of Waqf Sukuk: Key successes.

6. Study Results:

Algeria is standing at huge awqaf properties, which distributed over the 48 directorates of Awqaf. Particularly, these properties consist of real estate properties; besides, the large part of the real estate is unexploited due to the fact that these assets need maintenance, while the other part is exploited by rent with a lower price. From this point of view, it is necessary for every Waqf institution to revise the methods of managing awqaf.

Unlike human beings, institutions do not die! they linger on even centuries. Especially nonprofit organizations, there is a need for them to spring into being sustainable. The fact that perpetual instruments are beginning to raise and they are being needed, and considered more than ever.

Collaboration Waqf, a genuine Islamic institution that has superbly served Muslims, with sukuk, is a perfect instrument; and what makes it unique is that there are number of reasons for this.

First of all, from the Shari'ah perspective, Algerian Muslims have always needed such instruments, which obeys directly the holy Quran and the letter of the Shari'ah, as such Permanent Waqf Sukuk is by no means a loan, where there is no loan, there is no riba (interest).

Second, in order to mobilize global funds to finance Waqfs, then the correct choice should be Waqf linked sukuk. Whereby the principal funds are continuously invested in potential investment opportunities on the basis of the profit-loss sharing principle. The larger the investment returns, the more funds that can be allocated. The more capital can be functioned in perpetuity.

Third, the investment of the Waqf properties in Algeria is a property investment with a complete absence of investment in a Cash Waqf, the latter is as important as real estate. Moreover, Algerian Waqf properties are rude and need to be restored, maintained or restructured.

For the above practical purposes, the promulgation of Permanent Waqf Sukuk shall be incorporated into the financial strategy of the institution, through a pool of cash which based on subscription. Therefore, Waqf Sukuk may provide pool of cash to meet the described objectives in a strategic plan. On the other hand, the coming pool of cash may finance the generating income projects in order to cover the expenses and then earn profits. As a result, Waqf Sukuk is a helpful instrument for Waqf institution concerning strategic and financial plan.

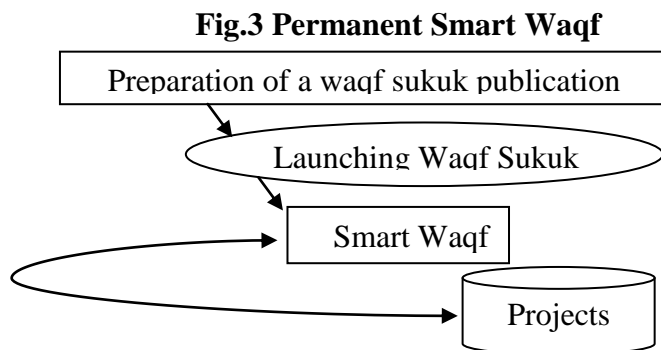
In terms of income diversification, Permanent Waqf Sukuk causes a variation in both the number of earning activities and distribution across volumes from each contract. Interestingly, a pool of cash gathered from sukuk holders may invest in Islamic financial contracts: Musharakah (participation), Murabahah (purchasing goods), Mudarabah (profit sharing), Wakalah (investment agency), Istisna (manufacturing / production of goods), Muzara'ah sharecropping), Musaqah (irrigation), Mugharasah (agricultural), Ijarah, Salam (purchasing goods to be delivered in the future)

Pursuant the previous section, financial activities of a Waqf institution when depending on sukuk for financing are gathered, recorded and reported transparently. Besides, a sound Shari'ah governance framework is required to ensure that the structures and processes employed in the issuance of sukuk comply with Shari'ah rules and principles; the framework aims to ensure Shari'ah compliance at different stages of the product structuring process, from the

conceptualization, through the structuring to the operationalization periods. (ISRA, 2017).

Waqf Institutions in Algeria when issuing Permanent Waqf Sukuk may generate income (accumulate profits) through various Shari'ah contracts and income-generating projects, as such these institutions could establish a Smart Waqf as the case of NZ Waqf Sukuk.

The following an explanation in detail how smart Waqf works:



Source: Adapted from BenYounes, 2017

From the graph above, what can be seen that Permanent Smart Wakf is a tantamount to a waqf fund. It collects proceeds from sukuk holders and then distributed to SPV as Qard Hassan; the latter will be used to finance income generating projects. Finally, a part of earned profits turn into permanent Smart Waqf annually till the project ends. In return, the project capital turn back to Smart Waqf. As a result, there will be always accumulated cash from each project under Smart Waqf by issuing Waqf Sukuk. By doing so, Awqaf Institutions in Algeria will be financially sustainable.

7. Conclusion:

The study addresses one of the main objectives of the nonprofit organization, which aims to achieve financial sustainability through four pillars: strategic and financial planning, income diversification, Sound administration and finance, and Own income generation.

After going through previous studies, and interview with the selected expert, the study came up with the Permanent Cash Waqf

Sukuk model. Moreover, in order to achieve the financial sustainability, the collaboration waqf and sukuk can be an inspiration to revive the Waqf Institutions in Algeria.

In conclusion, this paper has presented several issues concerning:

- The issuance of Permanent Waqf Sukuk becomes a 100 % innovative Waqf instrument to finance the development of AWIs.
- By issuing Permanent Waqf Sukuk, AWIs could achieve financial sustainability.
- A Smart Waqf has a monitoring role over Awqaf properties.
- There are key successes for issuing Waqf Sukuk, Algerian government should aware about it.

On the basis of the above conclusion, several recommendations have been highlighted:

- This paper may provide a platform for future studies on Waqf Sukuk.
- In view of all this, the advice to the founder of Awqaf in Algeria is to invest the Waqf capital plus Sukuk proceeds prudently and to take into consideration the key success factors to be aware about it when issuing Permanent Waqf Sukuk.
- The need to enact legislative regulations allowing the issuance of Waqf Sukuk.

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9. Appendices:

Appendice 1. A Semi- Structured Interview

An interview guide was designed to indirectly address the objectives of the study. In doing so, the questions were divided into three main parts to obtain the interviewee responses:

1. General conception of the current status of waqf Institutions in Algeria, focusing on the prospects and the challenges.
 - What your views on the current state of the Awqaf sector in Algeria?
 - In comparison to other Muslim countries such as Malaysia, how does the Awqaf sector perform?
 - Do the current circumstances (regulatory, knowledge, etc) support and facilitate and encourage the innovation in Islamic social finance?
2. Views on the suitability of the proposed model of Waqf Sukuk and how the Algerian Waqf Institutions could be improved and financially sustainable.

- In your opinion, what are the advantages of Waqf Sukuk over traditional investment instruments?
 - In a practical and realistic situation, what type of models (Permanent or Cash Waqf Sukuk) would you recommend AWIs to undertake?
 - In your opinion, is the Waqf Sukuk appropriate for funding AWIs (development needs, operational needs) for long term?
 - In your opinion, is the Waqf Sukuk appropriate for financing investment projects that yielding profits?
 - In your opinion, what are the improvements that could be made by Permanent Waqf Sukuk for AWIs?
3. Opinions on the proposed model of Waqf Sukuk: Key successes.
- In your opinion, what are the success factors that need to be considered when issuing the proposed model of Waqf Sukuk by the Ministry of Religious Affairs and Awqaf?



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كلية العلوم الاقتصادية والتجارية وعلوم التسيير

أبحاث اقتصادية وإدارية

مجلة علمية سداسية محكمة

جوان 2020

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قواعد النشر

أبحاث اقتصادية وإدارية مجلة تعنى بالدراسات والأبحاث الأكاديمية في حقل العلوم الاقتصادية، الإدارية (التسييرية) والتجارية المكتوبة باللغات العربية، الفرنسية والإنجليزية. للنشر بالمجلة على الباحث التقيد بالضوابط التالية:

- أن يكون البحث المقدم أصليا، منصبا في مجال اختصاص المجلة وغير مقدم للنشر إلى جهات أخرى بأي شكل من الأشكال.
- يكون المقال المكتوب باللغة العربية بخط "*Simplified Arabic*" حجم 14 بتباع بين الأسطر "*Simple*"، والمقال المكتوب باللغة الفرنسية أو الانجليزية بخط "*Times New Roman*" حجم 12 بتباع بين الأسطر "*Simple*".

- تعد الأشكال والجداول بالصيغة الآلية لبرنامج *Word*
- تكتب الهوامش مرتبة ترتيبا أبجديا في نهاية المقال. أما في المتن فيكتفي الباحث بذكر المؤلف، سنة النشر والصفحة والكل بين قوسين، مثلا: (علي السلمي، 1995، ص 142).

- تتضمن الصفحة الأولى بالضرورة اسم الباحث، الرتبة العلمية، مؤسسة الارتباط والبريد الإلكتروني وكذا ملخصين للمقال أحدهما بلغة المقال والآخر بإحدى اللغتين الأخرين.

- المقالات المنشورة لا تعبر إلا عن آراء أصحابها.
- المقالات المقدمة للمجلة لا ترد إلى أصحابها سواء نشرت أو لم تنشر.
- تحتفظ هيئة التحرير بحق تعديل شكل تقديم المقال إذا لزم الأمر.

الإفتاحية

هذا العدد الثاني باللغة الانجليزية الذي تصدره مجلة أبحاث اقتصادية و إدارية الصادرة عن جامعة محمد خيضر بسكرة و رغم هذه التجربة القصيرة الا أنني لفت انتباهي ملاحظة أراها جديرة بلفت الانتباه إليها و المتمثلة في إن الباحثين الذين يرغبون في نشر بحوثهم صنفان، صنف يود فقط النشر باللغة الانجليزية و بتجلي ذلك من خلال تقييم الخبراء لبحوثهم ، و فئة ترغب في النشر باللغة الانجليزية لإيصال بحوثهم إلى اكبر عدد من القراء، وهو الهدف الذي يعبر عن أهم الأدوار التي أنشئت من اجلها المجالات العلمية أي نشر الأفكار الإبداعية ما بين الأطراف الفاعلة في دائرة البحث لعلمي و المتمثلة في الباحثين في نفس المجال الذين يمكنهم الاستفادة من النتائج المقدمة أو تقديم الانتقادات في حال تعارض الأفكار بالإضافة إلى الطلبة الذين يمكنهم الحصول على أفكار جديدة لتشكل لهم مواضيع بحث متقدمة و استفادة المنظمات في حالة الأفكار الإبداعية.

كما تكس الأبحاث المنشورة في المجالات العلمية صورة المستوى الفكري السائد في محيط تلك المجلة وعامل استقطاب للنشر فيها في حالة رقي نتائج الأبحاث إلى مستوى يرضي الباحثين في الدول الأكثر تطورا.

و من هذا المنطلق ادعوا كل الراغبين في النشر بالمجلة جعل احد أهدافهم الأساسية هي المساهمة في تحسين صورة البحث العلمي في الجزائر وهو الهدف الذي يسعى فريق مجلة إلى تحقيقه.

بسكرة في 30 جوان 2020

رئيس هيئة التحرير

أ.د. حجازي اسماعيل