
Agricultural Diversification in Algeria: Determinants and Opportunities

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Abstract :

The research aims to identify the state of agricultural diversification as part of the economic diversification project in Algeria, focusing on opportunities for diversification of agricultural products, as well as on the main factors that have influenced agricultural diversification during the course of the project. from 1990-2016, the diversification index of agriculture was based on Herfindahl-Hirshman, index was estimated from the main agricultural products, for which Algeria has significant comparative advantages, both in terms of production or in terms of exports.

Key words: Agricultural sector; Agricultural Diversification; Herfindahl-Hirshman index ; Agricultural products.

JEL classification codes: O13 ,Q15

Résumé:

Cet article vise à identifier l'état de la diversification agricole en Algérie , qui s'inscrit dans la réalisation du projet de la diversification économique souhaité en Algérie, en se basant Sur les moyens de diversification des produits agricoles. Nous avons également essayé de déterminer les principaux facteurs qui affectent la diversification agricole pendant la période 1990-2016, Avec une estimation de l'indice de diversification agricole selon l'indice de Herfindahl-Hirshman. L'indicateur a été estimé à partir des produits agricoles les plus importants , et ont des avantages comparatifs significatifs que ce soit en termes de la production ou de l'exportation

Mots clés : Secteur agricole; Diversification agricole; Indice de Herfindahl-Hirshman; Produits agricoles.

Codes de classification JEL: O13 ,Q15

1.Introduction.

The Algerian agricultural sector is one of the main sectors of national economy: it represents 12.3% of GDP in 2016 and absorbs part of the Algerian workforce. Algerian agricultural products are divided into three main sectors: the crop production sector, the livestock sector and the fishing sector.

The study of agricultural diversification is part of disciplines of agricultural economics and the geography of agriculture in general ; and the researchers focused on the degree of agricultural diversification in order to compare regions in terms of specialization and productive tendency, reflecting the structure of agricultural construction in the regions, before embarking on the agricultural planning process at a sectoral or regional as level, agricultural diversification means the existence of a large and varied number of agricultural products in the region, allowing them to reach the stage of self-sufficiency. Thus ,it respond to the size and quality of the population demand in the country (Andrzej C, Katarzyna S-Ambroży,2015) .

Algeria attaches particular importance to the agricultural sector as a key pillar in achieving development objectives and as a catalyst for the Government's efforts to improve living conditions and reduce unemployment rates. However, the agricultural sector still faces a number of challenges, including the fact that agriculture is not evenly distributed among the country's states, which means that some agricultural products make up a large part of the country's agricultural structure. and that their share is not comparable to that of other existing products.

The use of limited agricultural products as a source of income for farmers, especially for the rural population, is dangerous and can be a cause of poverty for farmers. In some seasons and years, agricultural production is subject to natural disasters or problems for which farmers may lose their efforts and resources. Limited plant and animal products may not be enough to raise farmers' living

standards and save them from poverty. Therefore, farmers have to diversify their traditional and non-traditional agricultural crops, thus creating additional income.

1.1. Problematic study

The problem of this study is that Algeria has the resources and the natural and agricultural potential that makes it an agricultural and agricultural-dependent country in providing its food needs on the one hand and generating a larger share of its national income on the other. However, despite all these possibilities, Algeria still mainly depends on oil revenues, which necessitates finding alternative sources of national income and developing the production base. In this context, we ask the following question:

Given the number of agricultural crops produced in Algerian lands and farms, can the agricultural sector in Algeria be considered a diversified sector? , And what are the main factors affecting the degree of agricultural diversification? , And how can diverse agriculture contribute to the realization of the project of economic diversification in Algeria desired for years?

1.2. Objectives of the study

The research aims to achieve the following objectives:

- ✓ Determining the importance and role of the agricultural sector in diversifying sources of national income.
- ✓ Demonstrate the importance of agricultural diversification in Algeria, by measuring it using the economic diversification index Herfindahl-Hirshman.
- ✓ Identification of the main factors affecting agricultural diversification in Algeria.

1.3. Study Hypothesis

The research is based on the hypothesis that Algeria has great agricultural and natural potentials (vast agricultural areas, fertile soil, significant water resources, available labor, considerable agricultural equipment, suitable natural climate ...), which enables it to build a diversified and balanced agricultural economy in providing security

and food security and creating an alternative source of national income that is excessively dependent on hydrocarbons.

2.Theoretical Framework

2.1. Definition of agricultural diversification

Agricultural diversification means transfer or conversion of agricultural products from a low-value commodity mix to a high-value commodity mix, focusing mainly on other sectors such as horticulture, dairy, poultry and fisheries(Frederic Nihous,2008).

It is also defined as the substitution of one crop or agricultural product with other agricultural products, or an increase in the number of projects or activities carried out by a particular farm. And This definition is used and applied in most developed countries, where agricultural growth is more closely related to the development of activities on farms that do not produce agricultural products. According to the British Department of Environment, Food and Rural Affairs, agricultural diversification is the “leading use of farm resources for non-agricultural purposes for commercial gain”. Using this definition, 56% of the UK farms were diversified in 2003(Iowa Dept,2009).

The agricultural diversification includes the botanical and the animalization process. By converting resources from one crop to a larger mix of crops or one type of animals, taking into account the changing nature of the risks and returns expected from each crop or livestock activity. This method would allow for the gradual transition from basic food crops to the cultivation of diverse market-oriented crops that have greater potential for land profitability. Such an agricultural diversification strategy would present significant opportunities for adding value to agriculture and would improve crop planning and improve income-earning opportunities in the agricultural community.¹

It also refers to the establishment and development of a larger number of crops or agricultural projects in favor of higher value and

more profitable projects and may have advantages(Mubarik Ali,2005) :

In addition, the agricultural diversification in a country indicates its ability to cultivate multiple varieties of crops on farmland, with many countries following a diversification strategy to address many of the problems associated with agricultural development(Brajesh Jha,2009).

2.2. Objectives of agricultural diversification

Agricultural diversification can help humanity by providing greater food security, reducing environmental damage and reducing poverty. Diversification also offers new opportunities for more environmentally sustainable farming systems, more farmers' livelihood options . and the integration of community knowledge with new scientific evidence and techniques(Jalan Broga,2016).

There are four main objectives of agricultural diversification (Mubarik Ali,2001) :

- Increase incomes of small landowners ;
- Provide additional job opportunities ;
- Ensuring food security and alleviating poverty ;
- Stabilize agricultural income during the seasons ;
- Conservation of natural resources.

In addition to(Andrzej Czyżewski,2015) :

Disclosure of comparative advantages and increased competitiveness of specialized farms

The possibility of reducing the costs of the producing unit through an increase in the volume of production, and thus increase the added value of agricultural activities.

Increasing the effectiveness of the marketing of agricultural products, through the reduction of costs transaction related to trad.

2.3.Types and levels of agricultural diversification: We have many types of agricultural diversification as follows :

a. Agricultural diversification by use:

✓ **Horizontal diversification** : Reduces the risk of dependence on a single product or a limited number of products whose price may be reduced in the domestic or global market or many decrease in production and productivity due to the intensive use of this main product. For example, horizontal diversification is used in agricultural areas for cotton production. It is used in a rotation system between two or more crops to protect soil erosion and cover vegetation(Frederic Nihous,2008):

✓ **Vertical diversification** : Allows the supply of diverse products that respond to the requirements of the market, the easy to buy agricultural products from all levels of society from the markets, For example, in cotton growing regions, vertical diversification focuses on cotton varieties that can add value. Cotton seeds (previously treated as waste) have allowed the establishment of oil plants that provide table and soap oil to the local market.

b. Agricultural diversification by activity :

Variety of products by activity (agricultural, plant and animal), according to the number of products (wheat, vegetables, fruits in agricultural activity, livestock breeding, birds in the second activity). It has multiple advantages :The conceration of oil fertility through agriculture periodies system

- The possibility of producing most of the crops needed by the farmer and his family ;
- Ensure land use and employment of workers throughout the year;
- Reducing the risk component due to the diversity of agricultural activity.

c.Agricultural diversification by levels:

Diversification can occur at the micro, regional and macro levels.At the micro lervel it refers to horizontal diversification towards new agricultural commodities, but vertical diversification occurs in non-agricultural activities, such as marketing, storage. And at the regional level, agricultural diversification refers to the diversification of agricultural products and agricultural activities that have

comparative advantages(Hamad Masoud,2010). Through the use of modern irrigation systems, such as drip irrigation , which contribute to reducing water consumption by 60 to 70%,While adhering to the actual water needs of different crop types.

2.4.The main pillars of agricultural diversification

There are five pillars namely «05I» **Incentives:** refers to the favorable policy environment for those agricultural commodities that increase incomes and generate employment without degrading agricultural resources.

✓ **Innovations:** Relate to economically viable and socially acceptable technologies and produce environmentally friendly crops that are used to increase agricultural diversification.

✓ **Inputs:** Indicates the availability of the inputs necessary for the cultivation or production of various crops or facilities in a timely manner.

✓ **Institutions:** Develop appropriate institutions for new crops or new projects. For example, seed production needs credit and insurance institutions.

✓ **Infrastructure:** refers to the presence of sophisticated infrastructure such as marketing, transportation, roads and commercial facilities for the export of products.

2.5.Agricultural diversification restrictions:

The hot, humid and low areas are generally not suitable for planting many kinds of vegetables, and therefore are less diverse compared to the heights. As well as some fruits and vegetables are affected by climatic seasons, leading to the aggravation of the problem of the inability to agricultural diversification. In addition, environmental shocks and other factors increase the risk of reduced production(Roehlano Briones ,2009).

In general, the transition from traditional agriculture to diversified agriculture is constrained by many factors, including low investment and weak technology, insufficient rural infrastructure, and excessive

government intervention in agricultural policies, such as restrictions on marketing and foreign trade.

2.6.Agricultural diversification indicators:

Agricultural diversification is measured by the number of crops grown by families(Ganesh T,Anjani k,2017), It is also measured by area allocated to different crops, and used to measure agricultural diversification such as the Simpson Index, the Modified Entropy Index, the Hirschman-Herfindahl Index, etc.

3.Agricultural diversification in Algeria

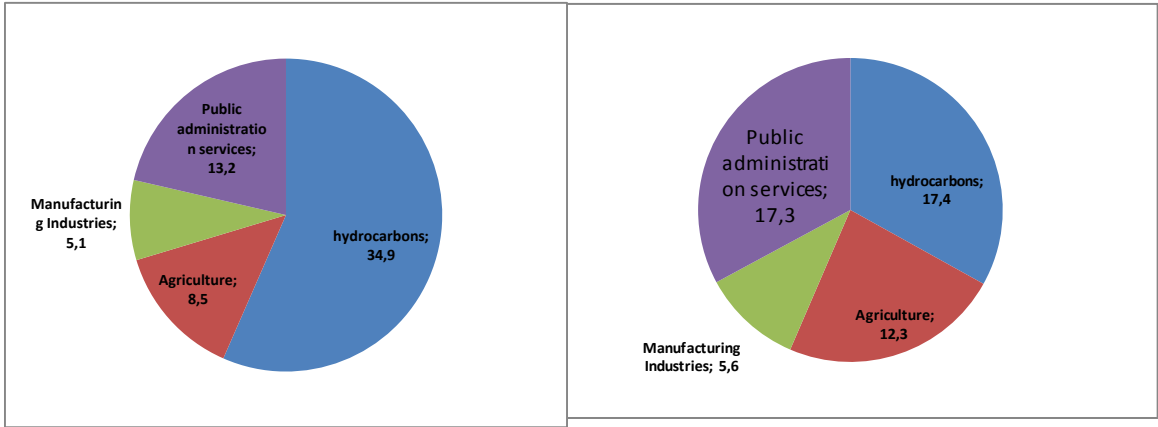
During the 1960s and 1970s, Algeria's agriculture was relatively diverse, both in terms of value and quantity. This diversification was accompanied by a decline in the production of some traditional crops and a rapid increase in the production of other agricultural commodities such as animal products. And to measure agricultural diversification in Algeria, we will focus on high value agricultural products in terms of the total value of production as an indicator of the diversity of agricultural crops.

3.1 Agricultural diversification indicators in Algeria

To judge the degree of agricultural diversification in Algeria we need to identify indications of the possibility of diversification in the agricultural sector, or indications of the decline of the hydrocarbon sector on gross domestic product and total exports.

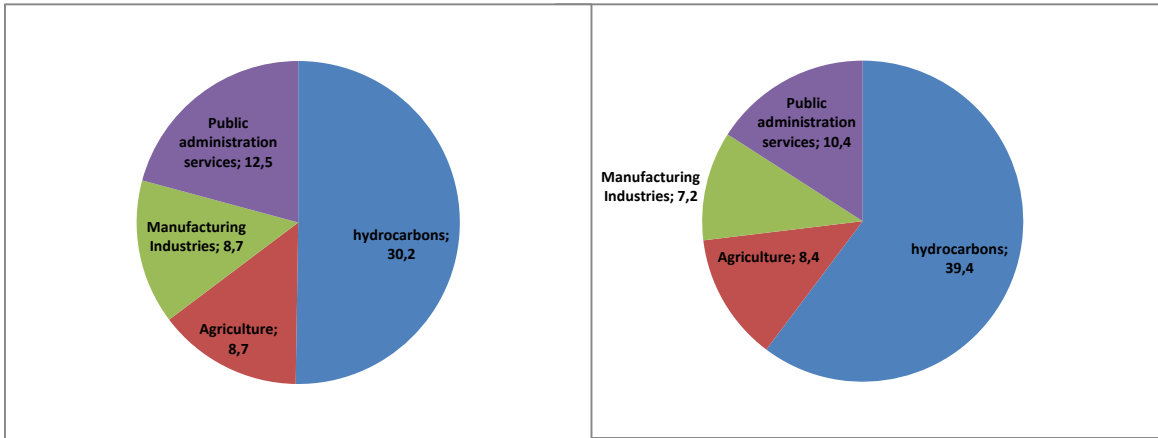
a.The agriculture sector in the gross domestic product

Figure 1: the Agriculture sector in the gross domestic product



2010

2016



1997

2000

Source: Annual Report of the Bank of Algeria 2002-2016.

With oil prices falling on world markets, Algeria has developed a strategy to diversify the economy, through the agricultural sector because it has great qualifications and potential in this sector. This is illustrated in Figure 01, Where the contribution of hydrocarbons decreased from GDP from 30.2% in 1997 to 17.4% in 2016, a period

in which the contribution of the agricultural output increased from 8.7% to 12.3% in 2016.

b. Increasing agricultural exports versus declining share of hydrocarbon exports:

Table 1: the development of exports of food versus hydrocarbon exports

	1997	2000	2005	2010	2015	2016
food exports	47	30	67	315	238	328
hydrocarbon exports	13181	21061	45588	56121	33081	27918
Non-hydrocarbon exports	643	590	746	967	1485	1393

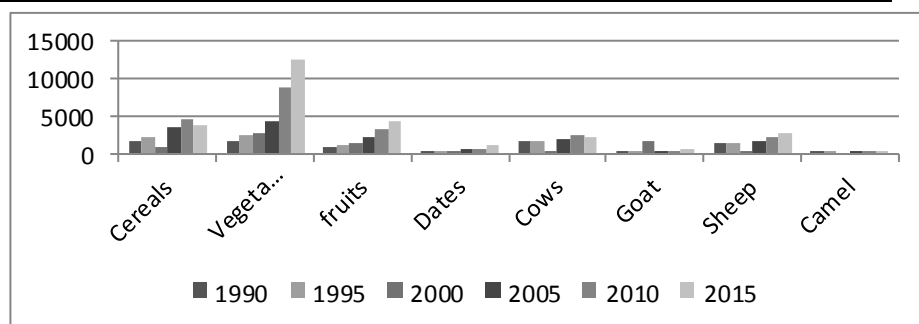
Source: Annual Report of the Bank of Algeria 2002-2016

Table 01 shows the rise in food exports from \$ 47 million in 1997 to \$ 328 million in 2016, while oil exports declined from \$ 56 billion in 2010 to \$ 27.9 billion in 2016. We conclude that the agricultural sector exports are developing compared to other sectors, which indicates the possibility of diversifying agricultural exports in Algeria.

3.2. Diversification of agricultural products in Algeria

In Algeria there are more than fifty types of plant crops as well as fruit trees and their various types. For the multiplicity and variety of crops, agricultural crops were classified according to their economic importance and the nature of their production into five categories: categories: 1 - Cereal crops . 2- Vegetables . 3. Fruits 4. Dates. 5 - Livestock , Figure No. 02 shows the agricultural and animal crops for the period (1990-2015).

Figure 2: Plant and Animal Production in Algeria (1990-2015)



Source: Arab Organization for Agricultural Development, 1990-2016, Sudan.

The development of plant production in Algeria, due to the agricultural policies applied by the state to achieve sustainable agricultural development and food security. In 2015, vegetable and fruit crops rose to 40,000 tons due to improved irrigation methods. but Cereal cultivation remained low due to shrinking areas for agriculture and climate change. For livestock production, Algeria has a large wealth of animals, especially in sheep.

Table No. 02 shows the contribution of agricultural products to agricultural output, based on 36 agricultural products. Where wheat contribution declined from 71.9% in 1991 to 37.7% in 2015. Dates rose from 3.79% in 1991 to % 21.55 in 2015, and sheep meat from 7.84% in 1991 to 21.77% in 2015.

Table 2: The contribution of agricultural products in the agricultural output of Algeria 1991-2015

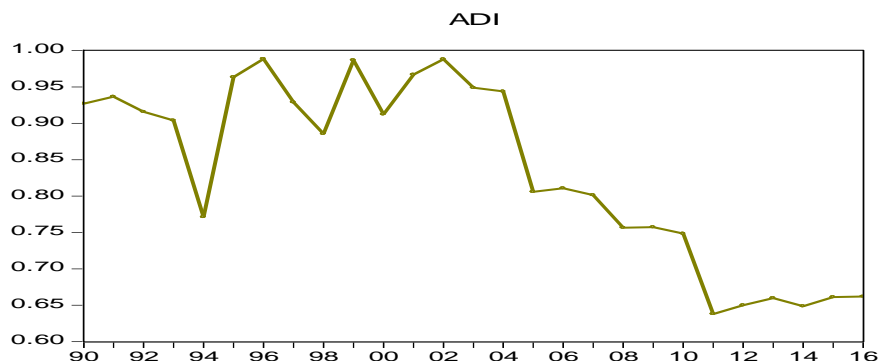
N ^o	Agricultural Products	1991	2015	Change %	N ^o	Agricultural Products	1991	2015	Change %
1	Wheat	12,8	7,37	-5,43	19	Tomatoes	1,83	3,58	1,75
2	Barley	5,28	1,58	-3,7	20	chickpeas	0,3	0,14	-0,16
3	An apple	0,57	4,074	3,504	21	Dry Pepper	0,06	0,08	0,02
4	Apricot	0,79	0,68	-0,11	22	green pepper	1,52	2,82	1,3
4	Grape	2,38	4,64	2,26	23	Cucumber	0,15	0,11	-0,04
6	Peaches	0,23	0,3	0,07	24	Aubergine	0,04	0,07	0,03
7	pear	0,4	1,7	1,3	25	eggs	6,79	4,45	-2,34

8	watermelon	1,1	3,55	2,45	26	garlic	0,58	1,1	0,52
9	dates	3,97	21,55	17,58	27	Natural honey	0,19	0,17	-0,02
10	Fresh vegetables	1,08	1,13	0,05	28	Citrus fruits	0,12	0,47	0,35
11	artichoke	0,02	0,14	0,12	29	Orange	1,64	5,95	4,31
12	Onions	1,61	2,27	0,66	30	beef	4,42	7,59	3,17
13	Green beans	0,23	0,68	0,45	31	Chicken	9,85	4,49	-5,36
14	Dry beans	0,16	0,08	-0,08	32	Sheep meat	7,84	21,77	13,93
15	cabbage	0,02	0,22	0,2	33	milk and dairy products	4,97	9,39	4,42
16	Turnips	0,74	0,96	0,22	34	Oats	0,42	0,06	-0,36
17	cauliflower	0,082	0,55	0,468	35	olive	0,39	1,28	0,89
18	Potato	4,44	12,26	7,82	36	Sesame seeds	1,15	2,24	1,09

Source: Arab Organization for Agricultural Development, United Nations Food and Agriculture Organization.

In order to evaluate agricultural diversification in the agricultural production structure of the Algerian economy, we used the Hervendal coefficient for the period 1990-2016 (Figure 03), where the coefficient fell from 0.92 in 1990 to 0.90 in 2005, and decreased from 2005 to 2016 with an average of 0.71. , This shows that Algeria has changed its agricultural strategy in recent years, where the state has provided substantial support to farmers to increase agricultural production.

Figure 2: Agricultural diversification index by HHI coefficient (1990-2016)



Source: Eviews outputs based on FAO data 1990-2016

4. Diversification of agricultural exports in Algeria

The Algerian economy depends on agriculture after the hydrocarbons sector, where the agricultural exports consist of food products (99 million dollars, or 0.83% of total exports, and raw materials, 26 million dollars, ie 3.23% of agricultural exports and 0.21% of total exports)(Foreign trade statistics From Algeria,2017). The agricultural exports in Algeria are highly concentrated. Indeed the statistical data for the period 1995-2015 show that exports of 4 main commodities (alcoholic beverages, dates, raw materials, fresh fruits and raw sugar) account for more than 35% of total agricultural exports, Except for dates, and this shows the need to reduce dependence on the export of raw goods and expand the export of manufactured goods.

Table 3: Exports of agricultural products in total agricultural exports

N ^o	change %	2015	-1998 2002	Agricultural Products	N ^o	change %	2015	-1998 2002	Agricultural Products
1	-0,005	0,003	0,008	Preserved Vegetables	11	-0,13	0,1	0,23	Wheat
2	-10,11	4,34	14,45	fruit	12	-0,12	0,11	0,23	cereal
3	10,09-	4,34	14,43	dates	13	-0,019	0,001	0,02	potato
4	0,013	0,03	0,017	Red meat	14	-65,3	18,92	84,22	Raw sugar
5	-2,19	0,7	2,89	Dairy and its derivatives	15	-2,77	0,13	2,9	Vegetable oils
6	-2,37	0,82	3,19	Fish	16	-0,02	0,01	0,03	olive oil
7	-2,263	0,077	2,34	Fresh and chilled fish	17	0,673	0,69	0,017	Fresh vegetables
8	0,002	0,01	0,008	Raw tobacco	18	-0,007	0,001	0,008	Fresh tomatoes
9	-17.69	8.25	25,94	Wines	19	-0,76	0,14	0,9	Onions
10	-2,11	2,29	4,4	mushroom	20	-12,93	0,4	13,33	Raw materials

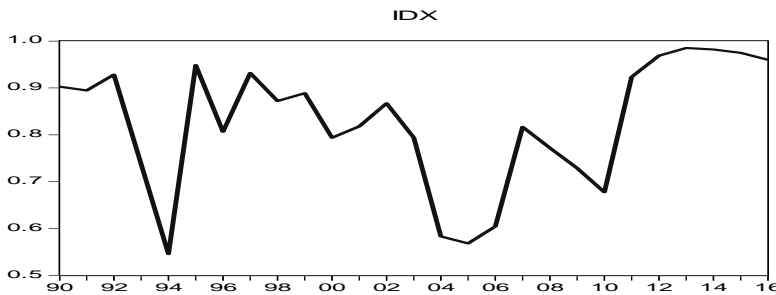
Source: Arab Organization for Agricultural Development

Table (03) shows that Algeria's agricultural exports are concentrated in the agricultural products group (raw sugar 18.92%, wines 8.25%,

dates 4.34%), with a combined exports of 31.51% in 2015 of total agricultural exports.

For Hervendal coefficient agricultural exports, it was calculated according to 19-15 agricultural products in the period 1990-2016 (Figure 04), It is evident from the figure that the agricultural export diversification index is unstable. In 1994 the coefficient was 0.54% and then increased by the other years. Until in 2005 to 0.56%.

Figure 3: Agricultural Exports Diversification Index by HHI Factor (1990-2016)



Source: Eviews 06 outputs based on FAO data 1990-2016

The highest value of the coefficient, which indicates that agricultural exports are not diversified and concentrated in a few commodities, was recorded in 2013 with a value of 0.98 to 2016. This means that there is a concentration of agricultural exports, despite, Algeria's efforts in developing the export sector outside the hydrocarbon sector in recent years.

In addition, the majority of agricultural exports in Algeria are addressed to European Union, such as France, which is the first market for agricultural products (dates, wines, ...).

Table 4: Agricultural Exports to Five First Countries (%)

Exported goods	1990	2000	2005	2010	2011-2015
Dates	97.38	97.58	99.85	75.90	85.23
Wines	99.80	99.27	95.49	-	99.95
Fresh fruits	-	-	96.91	76.47	85.70

Source: United Nations Food and Agriculture Organization (FAO), 1990-2016, Rome.

The table shows that the market concentration of Algeria agricultural exports is very high, almost 100% in some products. Where France, Germany and Russia are the primary market for Algeria. Dates exports, for example, are based on 95% of five major countries: France, Germany, Canada and the United Arab Emirates, This requires diversify export markets and seek new business partners.

4.1. Determinants of agricultural diversification in Algeria

International experiences such as India, Nigeria, Malawi and Malaysia have shown that agricultural diversification has a positive impact on economic development (increasing employment, diversifying rural household income sources, increasing agricultural sustainability, reducing poverty ...). It also has an importance in raising commercial growth rates, creating other sources of state revenues, and thus alleviating the problem of economic concentration such as Algeria.

4.2. Data and Methodology

We estimated the effect of the determinants of agricultural diversification on agricultural crops in Algeria, based on previous studies in determining the variables of the model such as (exploited agricultural area, irrigated land, climate ...)(Ramdane Be,Louhichi B,2006) .

The study has used the data collected by the Food and Agriculture Organization of the United Nations and the National Bureau of Statistics in Algeria, for the period 1990 to 2016. Using the multiple regression method to test cointegration between variables, and Ordinary Least Squares method (OLS) to estimate coefficients of the model.

Where the multiple regression equation:

$$AGDIV= f(ACL, IRA , UEA, PCAO, AGEM).....(01)$$

$$AGDIV= b_0+ b_1ACL + b_2IRA + b_3UEA+ b_4PCAO+ b_5AGEM.....(02)$$

Where :

AGDIV : the dependent variable refers to the agricultural diversification index of the products, and was measured using Herfindahl Index.

ACL : area of agricultural land, measured in thousands of hectares.

IRA : total irrigated agricultural land, measured in thousands of hectares.

UEA : agricultural machinery and equipment, number of tractors used in agricultural land.

PCAO : Per capita agricultural output (USD).

AGEM : Total employment in the agricultural sector.

4.3. Results and Interpretation

The major findings of the study are in the following subsections. The first subsection deals with stationarity of the variables and estimate ols model, while the second discusses the statistical results. The final subsection discusses the key factors influencing on agricultural crops in Algeria

first subsection : unit root test and estimate coefficients

Table 5 : unit root test «ADF»

Variables	at level		first difference		result
	ADF ^C	ADF ^T	ADF ^C	ADF ^T	
AGDIV	0.92-	-1.95	-6.59	-1.95	first difference
ACL	2.13	-1.95	-4.39	-1.95	first difference
IRA	4.04	-1.95	-2.47	-1.95	first difference
UEA	1.67	-1.95	-	-1.95	first difference
			10.67		
PCAO	0.75	-1.95	5.54-	-1.95	first difference
AGEM	0.83-	-1.95	5.77-	-1.95	first difference

Source: outputs of Eviews

And after to estimate Ordinary Least Squares method (OLS) we found coefficients of the model as following :

$$AGDIV = -0.279 + 2.080ACL - 0.0003IRA + 6.385 UEA - 4.006 PCAO + 4.417 AGEM$$

n=27 *R*²=0. 87 *D.w*=2.18 *F* =28.28 *P.F*=0.000

second subsection : Discussion of statistical results

R² : Indicates that about 87% of the changes in the agricultural diversification index are due to the change in the independent variables, assuming the stability of other factors not included in the model.

D.w: Is limited between (1.86 = du), and (dL = 1.004), That means the autocorrelation is uncertain, So we used Correlation LM Test and found that there was no Correlation between variables.

P.F : is equal to 0.000 less than 0.05 which means that the model is significant.

5.Results and discussion :third subsection: discussion about the key factors influencing on agricultural crops in Algeria

The increase of agricultural land area by 1% increases the diversification of agricultural products in Algeria by 2.08%, and this relationship is logical, where the expansion of agricultural areas helps to grow various products.

The decrease of irrigated land area by 1% raises the diversification of agricultural products to about 0.0003%. This relationship is not consistent with the economic theory. Therefore, this result can be explained that the irrigation factor in agricultural land is not an obstacle to diversification of agricultural crops.

The increase use of agricultural machinery and equipment about 1% increases the diversification of agricultural products in Algeria by 6.38%, wher The use of modern equipment, technologies and equipment will help farmers to produce various crops, and also contribute to raising the productivity of agricultural land.

The increase in the diversification of agricultural products by 1% reduces per capita share of agricultural output by about 4%. This explains that farmers lose part of their income as a result of diversification of their agricultural products, while environmental

and climatic conditions are often not suitable, and also to the local market conditions.

The increase in the number of workers in the agriculture sector to about 1% increases the diversification of agricultural products by 4.41%. This relationship is logical, where the rise in employment in the agricultural sector contributes to raising the production of new and varied agricultural crops.

6. Conclusion

Although the Algerian economy has been able to achieve a significant increase in the contribution of agricultural output to GDP (11.6%, 12.3% 2015 and 2016, respectively), the agricultural diversification index is still weak, agricultural products are concentrated in a limited number, Consequently, the diversification of the agricultural sector, which successive development plans considered to be a strategic goal, remains elusive. Oil exports continue to constitute the bulk of commodity exports. Despite the importance of agriculture as a promising sector, it has not yet succeeded in making significant changes. Contribute to increasing the degree of diversification of Algerian economy. While the standard model aimed to know the effect of the variables explained on agricultural diversification, which was included the agricultural diversification index as a dependent variable, the variables of the cultivated area, the agricultural per capita value, the use of agricultural equipment and the employment in the agricultural sector. That showed a strong positive correlation between the diversification coefficient, the use of agricultural equipment and the strength of agricultural labour, indicating that these factors are associated with Increasing the degree of agricultural diversification, on the contrary, the increase in agricultural per capital did not associated with the augmentation of Agricultural diversification.

Therefore, the diversification of agricultural products based on the contribution of the sector to the country's gross domestic product must be accompanied by the achievement of other goals such as

reducing the dependence on oil revenues, Despite the efforts exerted to achieve the diversification target based on some economic sectors, this has not yet been won. The development of the agricultural sector is still a captive to climatic conditions (drought and desertification), and is bound by legislation.

Based on all of these findings, we have decided to make the following recommendations:

To develop effective programs and plans aimed at transforming the agricultural sector in Algeria from a sector targeting the local market (production for domestic consumption) to a sector that focuses primarily on the external market (export production). To achieve this objective, a strategy should be developed to produce various commodities that can compete in the markets And adopt a decision to diversify agricultural exports is the best option to avoid price fluctuations in international markets and avoid inappropriate weather as export diversification can improve export realities and provide additional potential for increasing agricultural exports Such diversification should be put on top priorities by decision markets .to think about and seek to achieve.

Producers should be encouraged to adopt the most profitable crop cultivation, and exporters should be encouraged to diversify their exports in order to stabilize export revenues, as well as to facilitate and encourage the participation of exporters from the private sector to contribute positively to this field.

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Appendix :

¹ India is one of the most important developing countries in promoting the concept of agricultural diversification by directing government programs to promote agricultural diversification. and Agricultural diversification refers to "the shift from regional domination of one crop to regional production of a number of crops, taking into account the economic returns of crops Of high value in the regional and global markets.