

The determinants of economic diversification in Algeria: an empirical approach

محددات التنوع الاقتصادي في الجزائر : نهج تجريبي

Zoulikha ZIANI*

University of Bejaia (Algeria)

Received: 12/06/2023; Accepted:28/06/2024

Abstract:

The aim of this article is to identify the main determinants of export diversification in Algeria. To achieve this objective, we regress the export diversification indicator, measured successively by the Herfindhal-Hirschman index, on a set explanatory variables. The results show that trade openness, competitive real exchange rate, credit provided to the private sector and gross fixed capital formation are the main determinants of export diversification in Algeria.

Keywords: Diversification, exports, determinants, Algeria, multiple regression.

Résumé :

Cet article a pour objectif d'identifier les principaux facteurs de la diversification des exportations en Algérie. Pour atteindre cet objectif, nous régressons l'indicateur de diversification des exportations, mesuré successivement par l'indice Herfindhal-Hirschman, sur un ensemble de variables explicatives. Les résultats montrent que l'ouverture commerciale, le taux de change réel compétitif, le crédit fourni au secteur privé et la formation brute du capital fixe sont les principaux déterminants de la diversification des exportations en Algérie

Mots-clés : Diversification, exportation, déterminants, Algérie. Régression multiple.

ملخص:

يهدف هذا المقال إلى الوقوف على المحددات الرئيسية لتنوع الصادرات في الجزائر. ولتحقيق هذا الهدف، نقوم بدراسة ع مؤشر تنوع الصادرات، المقاس تباعاً بمؤشر Herfindhal-Hirschman ، على مجموعة من المتغيرات التفسيرية. وتظهر أهم النتائج أن كل من الانفتاح التجاري، وسعر الصرف الحقيقي التنافسي، والائتمان المقدم للقطاع الخاص رأس المال الثابت الإجمالي هي العوامل الرئيسية لتنوع الصادرات في الجزائر.

الكلمات المفتاحية: التنوع الاقتصادي ، الصادرات، المحددات، الجزائر، الانحدار المتعدد

I- Introduction :

* E-mail: zoulikha.ziani@univ-bejaia.dz

In economic literature, the issue of diversification is not new. For several reasons, diversification is a key factor in economic development and growth, particularly in developing countries. It helps to reinforce macroeconomic stability, reduce investment risks and improve countries' resilience to the cyclical shocks to which they are exposed, especially in the case of commodity-exporting countries (Berthelmy, 2005).

In terms of benefits, the empirical literature highlights that diversified economies lead to increased trade, higher capital and labor productivity, greater regional economic integration, poverty reduction and the promotion of human and social development (OECD, United Nations, OSAA, 2010: Overview), secondly, better long-term economic performance (Hesse, 2008; Lederman and Maloney, 2007) (Diop, 2019) , and thirdly, diversification of exported products contributes to productivity growth in exporting companies (Melitz, 2003), stimulates economic growth (Feenstra and Alii, 1999; Lederman and Maloney, 2003; Ben Hammouda et al. 2006, Berthélemy and Söderling, 2001) and consequently promotes economic development (Kamgna, 2007).

Numerous research studies have focused on the determinants of export diversification (Imbs & Wacziarg, 2003), (Berthelmy, 2005), (Gylfason, 2005), (Harding & Javorcik, 2007), (Mubeen & Ahmad, 2016), (Ben Hammouda, Karingi, Njuguna, & Sadni-Jallab, 2006), (Diop, 2019), etc. through empirical studies using different investigative methods. Empirical studies, particularly on developing countries, constitute the bulk of the literature in the field of export diversification determinants. In the Algerian context, we have not identified much work on the determinants of diversification in Algeria, since empirical studies in this country are relatively recent and less abundant than those in developing countries. In particular, we cite the research conducted by (Zenasni & Senouci Bereksi, 2022) and (Touati & Keddari, 2022).

The first study is conducted by Zenasni S and Senouci Bereksi I (2022), who looked at the determinants of export diversification in Algeria using a VECM model over the period from 1990 to 2019. The results of the estimations indicate that trade openness is considered an essential determinant positively affecting export diversification. Furthermore, the results show that export diversification positively, but non-significantly, affects Algerian economic growth.

The second is by Touati K and Keddari N (2022), who studied the determinants of export diversification in Algeria, over the period 1995-2020, using the multiple regression method. The multiple regression results showed that the main determinants of export diversification are GDP per capita, trade openness and credit provided to the private sector. Given the paucity of research on the main determinants of export diversification in Algeria, the main aim of this article is to fill this gap: What are the determinants of export diversification in Algeria?

We assume in this work, that export diversification in Algeria depends on several factors which are GDP per capita (GDP per capita), (GFCF), (INV), (REER), (INF), (TOR) and (CPS) in % GDP.

In order to achieve our objective, this article is divided into three sections. Section 1 reviews the empirical literature on the determinants of export diversification in Algeria. Section 2 outlines

the methodology and presents the data used. Section 3 presents the empirical results, enabling us to identify the main factors contributing to export diversification in Algeria.

I.1.Review of the literature on the determinants of export diversification

Following a wide-ranging literature on the benefits of diversification, the question arises as to what factors explain export diversification. Numerous contributions have revealed a number of factors contributing to export diversification. The first study, by (Imbs & Wacziarg, 2003), investigated the relationship between a country's level of development and the diversification of its exports. These authors found that diversification initially increases, then decreases, as a function of the country's per capita income.

Later, other studies, notably those by Berthelemy (2005), sought to test the hypothesis of (Imbs & Wacziarg, 2003), while introducing the population variable to control for the non-linear effect of development on diversification, but with a slightly higher transition threshold. Subsequently, while several empirical works confirm the non-linear effect of per capita income on diversification (Cadot et al. 2016 ; Agosin et al, 2012 ;Kpren and Tenreyro, 2007), others argue the opposite (De Benedictus et al. 2009 ;Parteka and Tamberi, 2013).

(Gylfason, 2005) analyzed the determinants of economic growth and diversification, working on a sample of 85 resource-rich countries with data covering the period 1965 to 1998. The results of this study show that the determinants of economic diversification are public investment in sectors other than extractive industries, such as infrastructure, tourism, education and training, trade openness, foreign direct investment and political pluralism.

(Ben Hammouda, Karingi, Njuguna, & Sadni-Jallab, 2006) showed in their study that the main determinants of economic diversification are: income growth, an optimal trade policy, a macroeconomic policy that stabilizes the exchange rate and inflation, an ambitious fiscal policy, good governance and the absence of conflict. According to the study, Kenya, Mauritius and Tunisia are the countries where the diversification process has made the most progress.

Drawing on the continent-wide study by Ben Hammouda et al (2006), (Kamgna, 2007) conducted a study to determine the trends and determinants of economic diversification in the CEMAC sub-region for the period 1987 to 2002. He concluded that the economies of this sub-region are characterized by a low level of diversification and a strong concentration around the oil, mining and agricultural sectors. Based on the results of studies carried out at continental (Africa) and sub-regional (CEMAC) levels, (Ndjambou, 2011) carried out a study of the links between investment and economic diversification in Gabon, using annual time series data from 1980 to 2008. Like the findings of the above-mentioned studies, the study demonstrated that there is a significant relationship between public investment, foreign direct investment and the diversification of the Gabonese economy. In terms of level of influence, public investment has a greater impact on economic diversification than foreign direct investment. Empirical evidence also shows that the up-marketing of export products is closely correlated with a greater impact of domestic production diversification on productivity growth (FMI, 2014). Services, like manufacturing, can also be seen as drivers of diversification and structural transformation (Hallward-Driemeier & Nayyar, 2017).

In their study, Harding & Javorcik, (2007) carried out an econometric study to examine whether foreign direct investment contributed to export diversification in nine Central and Astral European countries (Bulgaria, Czech Republic, Latvia, Lithuania, Pologna, Romania, Slovak Republic and Slovenia) that moved from a planned to a liberalized economy. The study revealed a positive relationship between FDI and export diversification in these countries.

Similarly, an empirical study was conducted in the Middle East and North Africa (MENA) on the determinants of export diversification by (Alaya, 2012). According to this author, the endowment of natural resources explains the concentration of exports in this region. On the other hand, openness and the accumulation of physical capital (foreign and domestic) leads to greater export diversification. Furthermore, the same author finds an inverted U-shaped relationship between economic development and diversification, over the period 1984-2009, using panel data for 12 MENA countries.

(Elhiraika & Mbate, 2004) empirically explore the long-term determinants of export diversification by estimating a cross-country regression, using a panel of 53 African countries for the period 1995-2011. They go through the generalized method of moments (GMM) in system provides strong evidence supporting the importance of per capita income, infrastructure, public investment, human capital and institutional framework, as drivers of diversification.

(Moussir & Tabit, 2016) investigated the relationship between foreign direct investment flows and diversification, in Morocco over the period 1980-2014 by applying the generalized method of moments (GMM). The results of this study showed that the variables foreign direct investment (FDI) and gross fixed capital formation (GFCF) positively affect export diversification in these countries. On the other hand, variables such as per capita income, real effective exchange rate, inflation rate and governance do not have a significant impact on export diversification.

(Mubeen & Ahmad, 2016) studied the determinants and degree of export diversification, in Pakistan, using the ARDL cointegration approach over the period from 1980 to 2015 and the Gini Hirschman Index (GHI) to estimate the degree of export diversification. The latter concluded that geographic concentration of exports increases product concentration in exports and reduces export diversification. On the other hand, foreign direct investment, world income and the real effective exchange rate can lead to greater export diversification.

Similarly, (Mampouya-M'bama, 2018) has carried out work on the problem of economic diversification, particularly in the Congo, using the multidimensional approach, specifically Principal Component Analysis (PCA), based on World Bank data. He notes that particular attention should be paid to the share of the budget devoted to agriculture, tourism, attractiveness, competitiveness of tourist sites and strengthening governance.

(Bakaboukila Ayessa, 2020) analyzed the determinants of economic diversification in CEMAC member countries. The difference generalized least squares method was used on panel data from 1996-2017. The results show that economic growth, institutional quality and investment are the determinants of economic diversification in CEMAC member countries.

In addition, other empirical studies consider other factors that impact diversification, such as human capital and the exchange rate. Indeed, a high level of human capital reduces the concentration of exported products (Agosin, Alvarez, & Orega, 2012) and (Elhiraika & Mbate, 2004). With regard to the exchange rate (Ben Hammouda et al, 2006), real exchange rate appreciation can also be a major obstacle to export diversification. A higher, uncompetitive exchange rate induces less diversification (Ferdous, 2011). On the other hand, a low exchange rate

can encourage diversification of export products and trading partners reducing the risk associated with investment in new sectors, particularly those destined for foreign markets.

In his study, (Diop, 2019), investigated the determinants of export diversification in UEMOA countries over the period 1995 to 2015 using the FMLOS method. The results show that trade openness, investment, human capital accumulation and a competitive exchange rate are the main determinants of export diversification. However, the results indicate that the high natural resource endowment and small size of the economies studied are major handicaps to the diversification process.

(Zenasni & Senouci Bereksi, 2022) studied the determinants of export diversification in Algeria using a VECM model over the period from 1990 to 2019. The results showed that trade openness is the main determinant of export diversification in Algeria. On the other hand, the results show that export diversification positively, but non-significantly, affects Algerian economic growth.

More recently, (Touati & Keddari, 2022), studied the determinants of export diversification in Algeria, over the period 1995-2020 using the multiple regression method. The multiple regression results showed that most of the explanatory variables were related to export diversification. Specifically, GDP per capita, trade openness and credit to the private sector. However, only credit to the private sector showed the expected positive sign. The results suggest a structural transformation of the Algerian economy and an improvement in the business climate and conditions of access to credit.

II– Methods and Materials:

In this section, we first present the methodological approach on which we will base our econometric study, and then specify the model to be estimated.

II.1. Methodological approach

To analyze the main determinants of economic diversification in Algeria, we have chosen to apply the multiple regression model. The use of this model is justified by the small size of our sample.

II.2. Study data

With the exception of the Herfindhal-Hirschman Index (HHID), the data used in this study come from the World Bank and the United Nations Conference on Trade and Development (UNCTAD). The study is based on annual data covering the period from 1995 to 2021. All these variables have been log-transformed.

II.3. Choice of variables

To determine the different variables used in this study, we drew heavily on the review of empirical literature on the determinants of export diversification developed in the first section of this article.

To identify the main determinants of export diversification in Algeria, we consider the concentration index as a dependent variable, also known as the Herfindahl-Hirschmann index (HHI of products), measures the degree of product concentration. The concentration index is presented according to the following formula:

$$H_j = \frac{\sqrt{\sum_{i=1}^n \left(\frac{x_{ij}}{X_j} \right)^2} - \sqrt{1/n}}{1 - \sqrt{1/n}}$$

H_j = index of the country or group of countries; x_{ij} = value of exports from country j for product i

$$X_j = \sum_{i=1}^n x_{ij}$$

And n= number of products (from SITC rev. 3, 3-digit position).

An index value close to 1 indicates that a country's exports or imports are highly concentrated on a few products. Conversely, values close to 0 reflect a more even distribution of shares between products.

By referring to the literature on the determinants of exports, we were able to identify a system of the main determinants of export diversification. These determinants are: GDP per capita, gross fixed capital formation, flow of foreign direct investment, real effective exchange rate, consumer price index, degree of trade openness, and credit provided to the private sector as a % of GDP. Table 1 presents the different variables used in this study

Table (1): Variables used in the study

Determinants of diversification	Measurement indicator
level of development	GDP per capita (GDP per capita)
public investment	Gross fixed capital formation(GFCF)
foreign direct investment	Inward investment flows (INV)
exchange rates	Real effective exchange rate (REER)
Inflation	Consumer price index (INF)
Trade openness	Trade openness ratio (TOR)
Private financing	Credit provided to private sector as % GDP((CPS)

The source: Produced by us.

II.4. Model specification

Based on a review of the empirical literature studying the determinants of export diversification in Algeria, we specify our regression model, which draws on the empirical literature. The model equation to be estimated is:

$$CI_t = c + \alpha_1 GFCF_t + \alpha_1 CPS_t + \alpha_1 INF_t + \alpha_1 INV_t + \alpha_1 TOR_t + \alpha_1 GDP_t + \alpha_1 REER_t \varepsilon_t$$

With t: 1... 27 covering the period (1995-2021) on annual data.

III- Results and discussion:

This section presents the results of the econometric analysis used to identify the main determinants of export diversification in Algeria. To do this, we first check the stationarity of the series.

III.1. Unit root test for variables

To check the stationarity of the time series, we will use augmented ADF. All these variables have been log-transformed. The results of the ADF unit root test for the variables are shown in Table 2.

Table (2): Stationarity study of series (ADF Test)

Variable	Level			First-Difference		
	None	Const	Const& Trend	None	Const	Const& Trend
LCI	0.572	0.854	0.724	0.000	0.002	0.016
LGFCF	0.765	0.779	0.217	0.000	0.005	0.031
LCPS	0.999	0.992	0.608	0.001	0.001	0.003
LINF	0.999	0.998	0.844	0.000	0.000	0.000
LINV	0.163	0.014	0.045	0.000	0.000	0.000
LTOR	0.579	0.601	0.952	0.000	0.001	0.004
LGDP	0.673	0.228	0.998	0.215	0.712	0.002
LPEER	0.234	0.791	0.485	0.000	0.001	0.009

The source: Compiled by us from Eviews 12.

The results show that for the variables CI, GFCF, CPS, INF, TOR, and PEER, the ADF test rejects the hypothesis of non-stationarity at the 1% and 5% significance levels, but not at the 10% level. This suggests that these variables are stationary after being differentiated once. For the variable GDP, the ADF test rejects the hypothesis of non-stationarity at the 1% and 5% significance levels when the variable is specified with a constant, but not when the variable is specified with a constant and a trend. This suggests that this variable is stationary with a constant.

III.2. Multiple regression estimation results

Having stationary zed the series, we now proceed to estimate the determinants of export diversification in Algeria. The estimation results are presented in Table 3.

Table (3): Multiple regression estimation results

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LGFCF	-0.791392	0.002354	-0.591383	0.0016
LCPS	-0.000155	0.004788	-0.232324	0.0106
LINF	-7.50E-05	0.000875	-0.085769	0.9326
LINV	0.003334	0.009282	0.359186	0.7236
LTOR	-0.433030	0.152646	-3.145378	0.0071
LGDP	-0.661895	0.580044	-1.961444	0.1150
LPEER	0.560196	0.001356	-2.144185	0.0070
C	0.001048	0.008996	-0.160944	0.0239
R-squared	0.758758	Mean dependent var		0.780846
Adjusted R-squared	0.685058	S.D. dependent var		0.083581
S.E. of regression	0.024563	Akaike info criterion		-3.327472
Sumsquaredresid	0.010860	Schwarz criterion		-3.940366
Log likelihood	64.25714	Hannan-Quinn criter.		2.216000
F-statistic	0.720035	Durbin-Watson stat		2.267094
Prob (F-statistic)	0.000004			

The source: Compiled by us from Eviews 12.

The results obtained from estimating the model using the Ordinary Least Squares (OLS) method indicate that the coefficient of determination (R²) is fairly high at 75.87%, which shows the existence of a fairly strong relationship between the explanatory variables and the variable explained in our model. This means that the explanatory variables in the model explain around 75.87% of the variation in the export diversification index. The adjusted R-squared is 68.50%, which suggests that the independent variables provide a good explanation of the variation in the export diversification index. The student statistics are higher than the tabulated value at the 5% threshold, which means that the coefficients associated with the variables (GFCF, (REER), (TOR) and (CPS) % GDP) are statistically significant except for the inflation, trade openness and gross domestic product variables.

Finally, the table provides measures of model information such as the Akaike Information Criterion (AIC), the Schwarz Information Criterion (BIC), the Akaike Information Criterion (AIC), Schwarz Information Criterion (BIC), Hannan-Quinn Information Criterion (HQ), and the Durbin-Watson test. These measures are used to assess the quality of the model and to compare different models.

The multiple regression results show that trade openness, the real exchange rate, credit provided to the private sector and gross fixed capital formation are the main determinants of export diversification in Algeria. The signs of their coefficients are in line with the prediction. For example, 1% openness (LTOR) leads to a 0.43% decrease in the diversification index.

Concerning openness, there are no conclusive results on its effect on export diversification. This result is confirmed by the empirical work of Agosin and al (2012). On the other hand, other studies based on intra-industry trade justify the importance of external openness in the diversification process on the grounds that the lowering of protectionist barriers facilitates the emergence of trade in the absence of comparative

advantages. Ali, (2005) and Berthémely (2005), find that trade openness is a positive and significant determinant of export diversification.

Similarly, a 1% increase in the real exchange rate (LPEER) induces a 0.56% increase in the diversification index (LDI).

This result corroborates the findings of empirical studies by (Ben Hammouda et al, 2006), who conclude that real exchange rate appreciation can also be a major impediment to export diversification. This result is also in line with the work of Diop M., (2019), who stipulate that a competitive exchange rate is one of the main determinants of export diversification. As for credit provided to the private sector (LCSP), a 1% increase in credit to the private sector (LCSP) induces a 0.23% decrease in the diversification index (LDI). This result is in line with the findings of the empirical study by (Altowaim, 2018).

The results also show the significant importance of gross fixed capital formation in the diversification process. Thus, a 1% increase in (LGFCF) reduces the diversification index by 0.79%. This result corroborates the findings of empirical studies by Gylfason (2005), Kamgna (2007) and Ndjambou (2011).

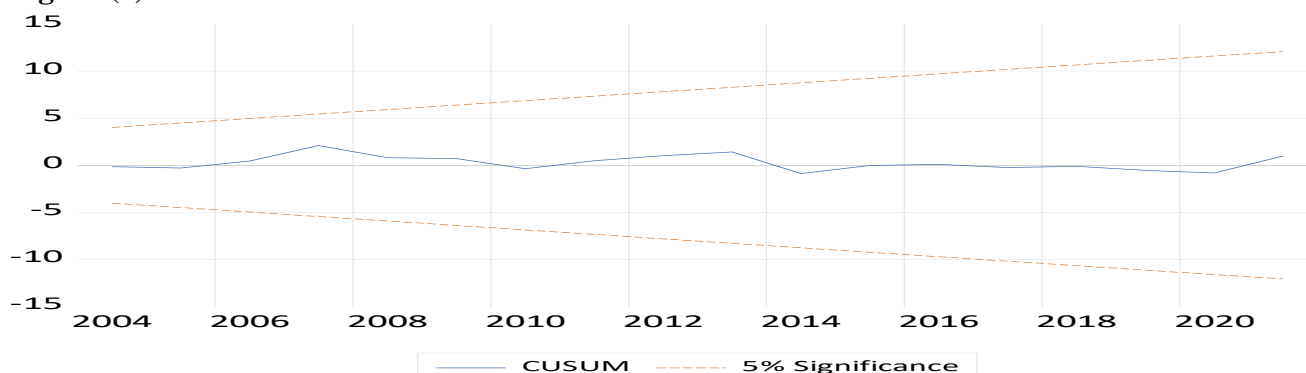
Contrary to previous empirical studies, the results of our study show that the investment variable does not appear to have a positive impact on export diversification. This result is surprising and at odds with the study by Harding and Javorcik (2007) and Ndjambou (2011). Furthermore, GDP does not appear to be one of the determinants of export diversification in Algeria. This result is at odds with the work carried out by (Imbs and Wacziarg, 2003). Finally, the inflation variable is also insignificant

III.3. Studying model stability

To check the stability of our model, we use the CUSUM and CUSUMQ tests to test the constancy of long-term parameters. The CUSUM test is based on the sum of residuals. It represents the cumulative sum of residuals together with 5% critical lines.

Thus, model parameters are unstable if the curve lies outside the critical zone between the two critical lines, and stable if the curve lies between the two critical lines. The same procedure is used to perform the CUSUMQ test, which is based on the sum of the square of the two critical lines based on the sum of squared residuals. The graphical representation of these two tests is applied to the model selected on the basis of the adjusted R^2 , as shown in figures 01 and 02.

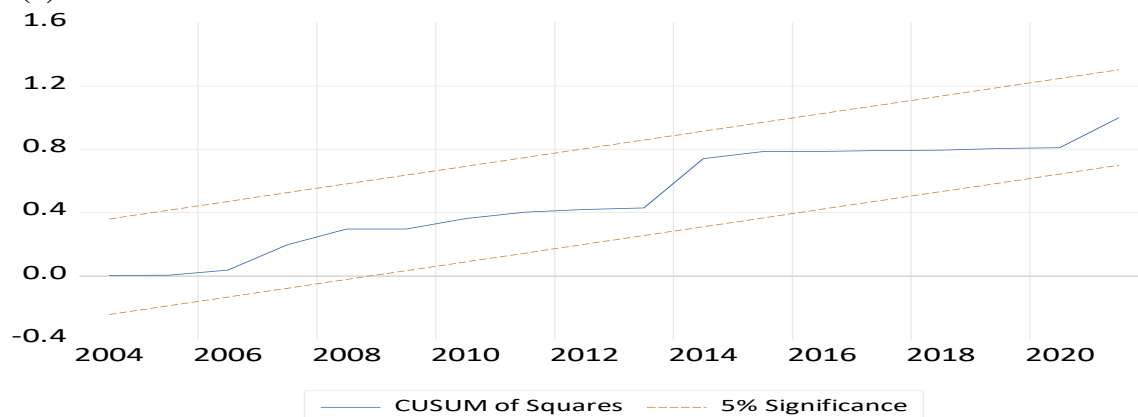
Figure (1): Cumulative sum of residuals curve



The source: Compiled by us from Eviews 12.

Figure 01 presents the test results and shows that all model parameters are stable over time, as the recursive residuals remain within the 5% confidence interval at all times.

Figure (2): Cumulative sum of residuals curve



The source: Compiled by us from Eviews 12.

Figure 02 shows the cumulative sum of squared residuals. It can be seen that this cumulative sum is totally stable, as the statistic lies within the critical lines.

III.4. Robustness test

To assess the robustness of our model, we performed the three usual diagnostic tests on our estimated ARDL model, namely serial autocorrelation, normality of residuals and heteroscedasticity.

III.4.1. Error autocorrelation test

Table 04 shows the results of the Breusch-Godfrey autocorrelation test. The results of the error autocorrelation test lead to the acceptance of the null hypothesis of non-autocorrelation of the error term, since the p-value associated with the test is greater than 5%.

Table (4): Breush-Godfrey error autocorrelation test

F-statistic	0.559566	Prob. F(2,16)	0.5822
Obs*R-squared	1.699704	Prob. Chi-Square(2)	0.4275

The source: Compiled by us from Eviews 12.

III.4.2. Breush-Pagan-Godfrey heteroscedasticity test

The results of the Breusch-Pagan-Godfrey heteroscedasticity test allow us to conclude that that the errors are homoscedastic at the 5% threshold. The probability of F $F(1,23)=0.56$, and prob chi-square(1)=054, which allows us to validate the null hypothesis of homoscedasticity H_0 . The model is therefore homoscedastic.

Table (4): Breush-Pagan-Godfrey heteroscedasticity test

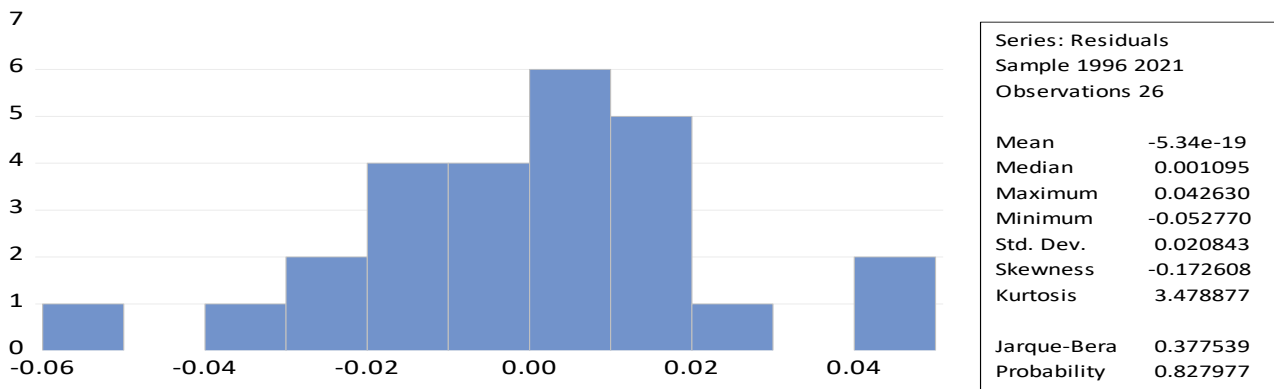
F-statistic	0.347220	Prob. F(1,23)	0.5614
Obs*R-squared	0.371800	Prob. Chi-Square(1)	0.5420

The source: Compiled by us from Eviews 12.

III.4.3. Residual normality test

Several tests can be used to check the normality of residuals from different series, but the most common is the Jarque-Bera test. In our case, the test results indicate that the p-value associated with the Jarque-Bera statistic is greater than 5%, which allows us to validate the hypothesis of residual normality.

Figure (3): Residual normality test



The source: Compiled by us from Eviews 12.

From the various econometric tests carried out, we conclude that our model is well specified and stable, and that its econometric robustness is therefore satisfactory.

IV- Conclusion:

This work aimed to identify the explanatory factors of export diversification in Algeria over the period 1995-2021. To achieve this goal, we applied the multiple regression model. Six explanatory factors have been retained: Gross fixed capital formation, loans provided to the private sector as a % of GDP, inflation, foreign direct investment, degree of trade openness, GDP per capita and the rate of effective real exchange rate to identify the main determinants of export diversification.

The main results of the multiple regression show that the variables trade openness, competitive real exchange rate, credit provided to the private sector and gross fixed capital formation have a significant impact on export diversification in Algeria. On the other hand, the other variables, namely: GDP per capita, investment and inflation do not have a significant impact on export diversification.

Based on the results obtained on the determinants of economic diversification in Algeria, we make the following recommendations:

- The combination and coherence of several complementary measures (fiscal and financial incentive policies, devaluation, improvement of the general framework for exports);
- Awareness of the strategic nature of the export promotion policy and its management at the highest level of government, which should be reflected in the creation of high-level structures;
- Adapting export incentive schemes specifically for SMEs and large companies;
- Improving financing conditions and facilitating access to credit by putting in place a range of financing formulas tailored to the needs expressed by exporting companies.
- Combining export promotion and attracting FDI.

V- References:

- Agosin, M. R., Alvarez, R., & Orega, C. B. (2012). Determinants of Export diversification around the world: 1962-2000. *The world Economy*, 35, pp. 295-315.
- Alaya, M. (2012). *The determinants of MENA export diversification: an empirical analysis*. Workingpaper 709, The economic research forum.
- Bakaboukila Ayessa, E. (2020). Determinants de la diversification économique dans les pays de la CEMAC. *International Multilingual Journal and Technology (IMJST)*, 5 (8), pp. 1500-1514.
- Ben Hammouda, H., Karingi, S., Njuguna, A., & Sadni-Jallab, M. (2006). *La diversification: vers un nouveau paradigme pour le développement de l'Afrique*. CAPC Travail en cours n°36, Commission économique des Nations Unies pour l'Afrique.
- Berthelmy, J. (2005). Commerce international, et diversification économique. *Revue d'Economie Politique*, 115 (5), pp. 591-611.
- Diop, M. 2.-1. (2019). Export diversification factors: Une analyse empirique au cas des pays de l'UEMOA. *Revue Finance & Finance internationale* , pp. 1-21.
- Elhiraika, A., & Mbate, M. (2004). Assessing the determinants of export diversification in Africa. *Applied Econometrics and International Development*, 14 (1), pp. 147-160.

- Ferdous, F. (2011). *Pattern and determinants of export diversification in East Asian Economies*. Proceedings of the International Conference on Social Science and Humanity, Singapore.
- FMI. (2014). *Assurer la croissance à long terme et la stabilité macroéconomique dans les pays à faible revenu :rôle de la transformation structurelle et de la diversification* .IMF Policy Paper , Fonds monétaire international, Washington, (D.C).
- Gylfason, T. (2005). *Institutions, Human Capital, and Diversification of Rentiers Economies*. Working Paper Series, institute of Economic Studies.
- Hallward-Driemeier, M., & Nayyar, G. (2017). *Trouble in the Making? The future of Manufacturing-Led Development*. Banque mondiale,, Washington. (D.C).
- Harding, T., & Javorcik, B. S. (2007). *Note on the effect of FDI on export diversification in Central and Eastern Europe*. DECRG-TR.
- Imbs, J., & Wacziarg, R. (2003). Stages of diversification. *American Economic Review*, 93 (1), pp. 83-86.
- Kamgna, Y. S. (2007). *Diversification économique en Afrique centrale : Etas des lieux et enseignements* . Paper N°9602, Banque des Etats de l’Afrique centrale.
- Mampouya-M’bama, F. C. (2018). Problématique de la diversification de l’économie congolaise :Analyse par l’approche multidimensionnelle. *Annales de l’université Marien Ngouabi*, 18 (2), pp. 126-138.
- Moussir, C., & Tabit, S. (2016). *Diversification des exportations et transformation structurelle au Maroc: Quel rôle pour les IDE ?* Équilibres externes, Compétitivité et Processus de Transformation Structurelle de l’Economie, OCP Policy Center.
- Mubeen, N., & Ahmad, N. (2016). Towards Measurement and Determinants of Export Diversification: An Empirical Analysis of Pakistan. *Journal of Commerce and Social Sciences*, 10 (3), pp. 588-605.
- Ndjambou, P. (2011). Investissement et diversification économique au Gabon. *Organisations &Territoires*, 20 (1), pp. 67-75.
- Touati, K., & Keddari, N. (2022). Déterminants de la diversification des exportations en Algérie :Une analyse empirique. *Revue scientifique Avenir économique*, 10 (1), pp. 160-181.
- Zenasni, S., & Senouci Bereksi, I. (2022). Diversification des exportations, Ouverture commerciale et croissance économique modélisation empirique. *Revue d'Economie & de Gestion*, 6 (2), pp. 19-33.