Journal of Financial, Accounting and Managerial Studies
ISSN 2352-9962/E-ISSN 2572-0147
Vol 07, Number 01 – June 2020

OEBUniv.Publish. Co.

The impact of the parallel exchange market premium On economic growth in Algeria: An Application of Auto-Regressive Distributed LAG (ARDL) Bound Testing Approach

أثر علاوة سوق الصرف الموازي على النمو الاقتصادي في الجزائر: تطبيق نموذج الانحدار الذاتي للفجوات الزمنية الموزعة المتباطئة (ARDL)

KHALLOUT Manal [1*], KHALLOUT Allaoua [2]
[1] LEEM laboratory,University of Batna 1, Batna-Algeriamanal.khallout@univ-banta.dz,
[2] University of Batna 1, Batna-Algeria, a.khellout3@univ-batna.dz ,
Date of receipt: 30/09/2019 **Date of revision:**15/03/2020 **Date of acceptation:**13/05/2020

Abstract

This paper aims to investigate the impact of the parallel exchange rate premium on economic growth in Algeria during1994-2017 by using Auto-regressive Distributed Lag model (ARDL). The model showed that the current variables are co-integrated. The results suggest that the parallel exchange rate premium has insignificant long-run effect on economic growth, while it has a negative and significant impact in the short-run period.

Keywords: Parallel Exchange Rate premium, ARDL, Algeria.

ملخص

تهدف هذه الورقة إلى دراسة تأثير علاوة سوق الصرف الموازي على النمو الاقتصادي في الجزائر للفترة الممتدة من 1994 إلى 2017، وذلك باستخدام نموذج الانحدار الذاتي للفجوات الزمنية الموزعة المتباطئة(*ARDL*). تشير النتائج التجريبية للدراسة عن وجود علاقة تكامل مشترك بين متغيرات الدراسة، كما أظهرت النتائج أن أثر علاوة سوق الصرف الموازي على النمو الاقتصادي غير معنوي في الأجل الطويل، إلا أنه في الأجل القصير تبين وجود أثر سلبي ومعنوي لعلاوة سوق الصرف الموازي على النمو الاقتصادي.

الكلمات المفتاحية: علاوة سوق الصرف الموازي ، ARDL ، الجزائر.

* Corresponding Author: KHALLOUT Manal, Email: manal.khallout@univ-banta.dz

1. INTRODUCTION

The developing countries encounter a shortage of foreign reserves to balance their payments deficit and manage their exchange rates because of their limited capacity of borrowing foreign currency. Generally, these countries rely on direct controls that are imposed on their foreign reserves (Bahmani-Oskooee & Shiva, R., 1998, p. 97).

Moreover, Algeria is no exception. Foreign exchange controls have been implemented since 1963 to maintain the stability of the dinar exchange, and to protect the national product and to prevent the capital flight (Bouraada, 2014, p. 141).

In contrast, foreign exchange controls have contributed to the emergence of the parallel exchange market or what is known as "The Black Market Exchange". This market provided the necessary amounts of the foreign currencies for citizens with much higher prices than the prices applied on the official market. This difference between the parallel exchange rate and the official one is called "the Parallel Exchange Market Premium" (Bouraada, 2014, p. 145)

Some studies argue that the parallel exchange rate has a negative impact on macroeconomic performance, and the power of this impact relatively relies on the size of the parallel exchange rate premium (Kiguel, M. A., O'connell , S. A., & Ghei, N., 1995, p. 17). Since Algeria is one of the countries which are characterized by its large parallel exchange market, the present paper discusses the following question:

- Does the parallel exchange rate premium affect the economic growth of Algeria during the period 1994-2017?

The objectives and importance of the study

The main purpose of this paper is to investigate the impact of the parallel exchange rate premium on GDP per capita as an indicator of economic growth. This study will contribute in filling a gap literature on the impact of parallel exchange rate premium on economic growth in Algeria since that the empirical study of this issue is limited.

Limits of the study

This study discusses the effect of parallel exchange rate premium on economic growth and we use GDP per capita as an indicator of economic growth. Therefore, the limit of study we relied only on one indicator of economic growth to examine the impact of the parallel exchange rate premium on economic growth. Also the Spatial limit and the temporal limit, the study was in Algeria and the period of study was between 1994 and 2017. Moreover, the study tackles the beginning of the year 1994 in order to exclude the effect of the change in the exchange regime on the GDP per capita, particularly this year the fixed exchange rate regime in Algeria was changed to managed float regime between the central bank and commercial banks, thus updating information on this issue may reveal new dimensions on the phenomenon.

Methodology of the study

The methodology of the study relies on the Deductive Approach and the Quantitative research to quantify the effect of the parallel exchange rate premium on the economic growth of Algeria by using the ARDL model and the Eviews 10 program.

The emergence of the Parallel Exchange Market in Algeria: An overview

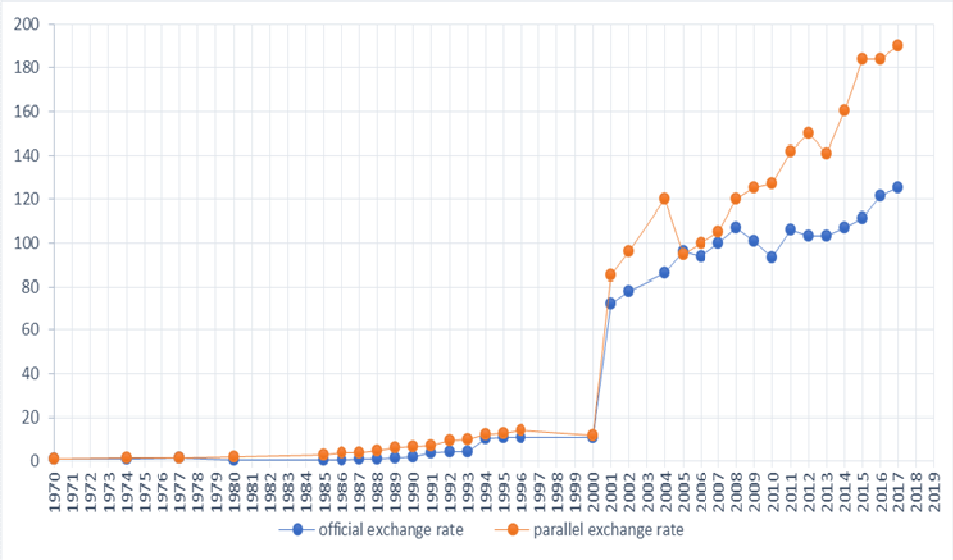
The parallel exchange market in Algeria has emerged in the mid-seventies with the increase of foreign exchange demander out of the official market due to the excess of demand for foreign exchange and inability to satisfy it in the official market, especially in the seasons of Haj, Umrah and New Year holidays. Furthermore, Algeria's foreign debt burden has been increased through the oil crisis in 1986; thus, the foreign exchange revenues decreased, which contributed the excess of the parallel exchange rate premium during the eighties until 2004 when the premium has amounted to DZ 34.

On the contrary, at the beginning of the year 2005, the parallel exchange rate has reduced to 94.5 dinars compared to 96 dinars on the official market due to a law passed by the Algerian authorities that prohibited the importation of vehicles exceeding three years, in addition to the decision made in the financial law in 2004 which fixed the minimum capital of importing companies at 20 million DZ. Thus the latter declined of exchange currencies in the parallel market (Kara, 2010, p. 144).

From 2007 to 2013, the parallel exchange rate has risen again because

of the appreciation of the euro against the dollar at the international level. This rise is also due to the increase in wages with the retroactive wage increases for public sector workers, which allowed them to spend more (Bouraada, 2014, p. 153). In 2014 the decline of oil prices again led to a shortage in foreign currency reserves of the Treasury, this factor contributed in rising the demand for foreign exchange which stimulated the movement of the parallel exchange market and raised the parallel exchange rate premium until at the end of 2017 (see Figure 1)

Fig.1. The evolution of Official Exchange Rate and Parallel Exchange Rate in Algeria (1970-2017)



Source: Source: Author's Computation Using Excel 2013

Literature Review

There is a little of literature on the impact of parallel exchange rate markets on growth economic in comparison with the reasons of the emergence of parallel exchange rate markets, for that in this section we shed the light on previous studies, which have shown the effect of parallel exchange rate markets on growth economic.

Edwards (1992) studied the parallel market premium on economic growth in 51 developed and developing countries from 1970-1982 using the

Lower Squares Method (LOS). The results of this study show that the high parallel market premium has negatively affected economic growth in 30 countries. In the same vein, Barro and Lee (1993) studied the differences in growth rates for 116 countries from 1965 to 1985 across countries that are large and relate systematically to a set of quantifiable explanatory variables. They found that the growth economic affected negatively on a group of variables that reflect distortions and size of government like the ration of government consumption to GDP, the Black- Market Premium on foreign exchange, and the frequency of revolutions.

Additionally, the study of Kiguel, O'connell and Ghei (1995) analyzed and interpreted the Experience of parallel exchange rates in developing countries: Argentina, Ghana, Mexico, Sudan, Tanzania, Turkey, Venezuela, and Zambia. The results of this study show that the rising of the parallel exchange rate premium was tolerated for a long time in these countries, which exerted detrimental effects on the allocation of resources and growth. It has also been stressed by the study of Ebaidalla (2017), he studied the impact of parallel exchange premium on Macroeconomic Performance in Sudan during the period 1979–2014, as he focussed on three key macroeconomic indicators namely, economic growth, inflation and exports. The empirical results show that a parallel premium has a detrimental impact on both economic growth and export performance. Expectedly, the results show a positive and significant association between premium and inflation rates. This paper concludes that the parallel exchange rate premium has negative consequences on macroeconomic performance in Sudan.

In contrast, the study of Matallah and Bounoua (2015) investigated the impact of black market exchange rate and trade freedom on economic growth in 4 North African countries (Egypt, Tunisia, Algeria, and Morocco) over the period 1995-2011, through the use of Panel Data Analysis, including Fixed Effects Model, Random Effects Model and Hausman test. According to the Hausman test, the fixed effects model is the most suitable one. It reveals that the black market exchange rate exhibits a statistically significant positive impact on economic growth in the four North African countries.

2. EXPERIMENTAL

2. 1. Model Specification and Description of the Data:

Following the previous study of Ebaidalla, the estimable model could be expressed as follows in equation 1; for examining the impact of parallel market premium on economic growth.

$$GDP_t = \beta X_t + \delta PREM + \varepsilon_t \dots\dots\dots\dots\dots (1)$$

Where GDP is the real GDP per capita growth, X is the vector of control variables, including inflation rate (INF), terms of trade (TOT), domestic investment (INV) and government expenditure (GOV), PREM is the parallel market premium and ε_t is the error term.

We used the annual time series data covering the period 1994-2017. All the collected data of the GDP per capita growth, inflation, trade openness, domestic investment, and government expenditure gathered from the World Bank. Also the data of the parallel market premium for 1994 to 2013 gathered from previous study and the data for 2014 to 2017 gathered from Square Port-Said (Algerian black market).

2. 2. ARDL Model Estimation

The ARDL modeling approach was originally introduced by Pesaran and Shin (1999) and later extended Pesaran et al. (2001). The ARDL co-integration approach has numerous advantages in comparison with other co-integration methods. Unlike other co-integration techniques, the ARDL does not impose a restrictive assumption that all the variables under study must be integrated of the same order. In other words, the ARDL approach can be applied regardless of whether the underlying regressors are integrated of order one [I(1)], order zero[I(0)] or fractionally integrated. Secondly, while other co-integration techniques are sensitive to the size of the sample, the ARDL test is suitable even if the sample size is small. Thirdly, the ARDL technique generally provides unbiased estimates of the long-run model and

valid t-statistics even when some of the regressors are endogenous (Odhiambo, 20019, p. 219). Assumption of ARDL model:

- All variables are stationary at level;
- All variables are stationary at first difference;
- All variables are stationary at level while few stationary at first difference;
- Data must be normally distributed;
- Data must be free from HSK;
- Data must be free from autocorrelation;

The ARDL model used in this study can be expressed as follows in equation 2:

$$GDP_t = \beta_0 + \sum_{i=1}^{p} \beta_1 \Delta GDP_{t-i} + \sum_{t=0}^{q} \beta_2 \Delta PREM_{t-i} + \sum_{t=0}^{r} \beta_3 \Delta TOT_{t-i} + \sum_{t=0}^{s} \beta_4 \Delta INV_{t-i} + \sum_{i=0}^{u} \beta_5 \Delta INF_{t-i} + \sum_{t=0}^{z} \beta_6 \Delta GOV_{t-i} + \alpha_1 GDP_{t-1} + \alpha_2 PREM_{t-1} + \alpha_3 TOT_{t-1} + \alpha_4 INV_{t-1} + \alpha_5 INF_{t-1} + \alpha_6 GOV_{t-1} + \varepsilon_t$$

Where Δ: is the first difference operator;

p, q,r..,z: are the lagged values of the dependent and independent variables to control for higher-order correlation;

$\beta_0, \beta_1, \beta_2$ **....:** are coefficients correspond to the long-run dynamic relationship.re coefficients of short-run dynamics;

$\alpha_1, \alpha_2, \alpha_3$ ....: are coefficients correspond to the long-run dynamic relationship.

3. RESULTS AND DISCUSSION

3. 1. Unit Root Test

To test the stationarity on differenced variables, we use the Phillips-Perron test, which is presented in table 1. The result shows that after differencing in variables once, all variables were integrated on the first difference except the inflation (INF) was integrated on the level. That means all variables were confirmed to be stationary in this study.

Table 1. Phillips-Perron Unit Root Test

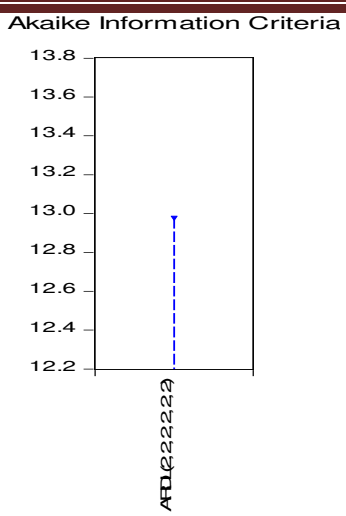
series	degree of integration	Level			1st difference		
		intercept	Trend and intercept	None	Intercept	Trend and intercept	None
GDP	I(1)	-1.10 (0.69)	-1.35 (0.84)	-0.45 (0.80)	-4.27 (0.01)	-4.29 (0.01)	-4.17 (0.00)
TOT	I(1)	-1.39 (0.56)	-1.39 (0.83)	0.05 (0.68)	-4.16 (0.00)	-4.22 (0.01)	-4.15 (0.00)
INF	I(0)	-4.98 (0.00)	-6.28 (0.00)	-3.75 (0.00)			
GOV	I(1)	2.19 (0.99)	-1.20 (0.88)	2.97 (0.99)	-4.82 (0.00)	-8.48 (0.00)	-3.94 (0.00)
INV	I(1)	-0.14 (0.93)	-1.88 (0.62)	1.54 (0.96)	-3.40 (0.02)	-3.31 (0.08)	-2.81 (0.00)
PREM	I(1)	0.08 (0.95)	-0.95 (0.93)	1.60 (0.96)	-5.16 (0.00)	-5.73 (0.00)	-4.80 (0.00)

Source: Author's Computation Using Eviews 10

3. 2. Optimum Lag Selection

To select the number of lags required in the co-integration test, we use the Akaike Information Criterion (AIC) as shown in the following Figure 2. The results of AIC showed that the model (2.2.2.2.2.2) was the optimal lag lengths.

Fig.2. Results of Akaike Information Criteria



Source: Author's Computation Using Eviews 10

3. 3. F-bound Tests

To determine the co-integration between the variables under study, we apply a bound F-test (see Table 2), and when the computed F statistic is greater than the upper bound critical value, we can reject the null hypothesis which means that the variables are co-integrated, but if the F-statistic is less than the lower bound critical value, we cannot reject the null hypothesis meaning that there is no co-integration among the variables. When the computed F-statistic falls between the lower and upper bound, then the results are inconclusive.

The results reported in Table 2 show that the F-statistic is greater than the upper critical bound at all level of significance and K = 5, which means that the null hypothesis is rejected and confirms the existence of a long-run relationship between the GDP per capita and independent variables.

Table 2. The F-statistic tests

F-Bounds Test		Null Hypothesis: No levels relationship		
Test Statistic	Value	Signif.	I(0)	I(1)
			Asymptotic: n=1000	
F-statistic	9.826802	10%	2.37	3.2
k	3	5%	2.79	3.67
		2.5%	3.15	4.08
		1%	3.65	4.66

Source: Author's Computation Using Eviews 10

3. 4. Robustness Checks

We should check the robustness of the optimal model by using the Residual Diagnostics and Stability Diagnostics Before estimating the ARDL model (2.2.2.2.2.2) in Long-run Coefficients and Error Correction Regression test.

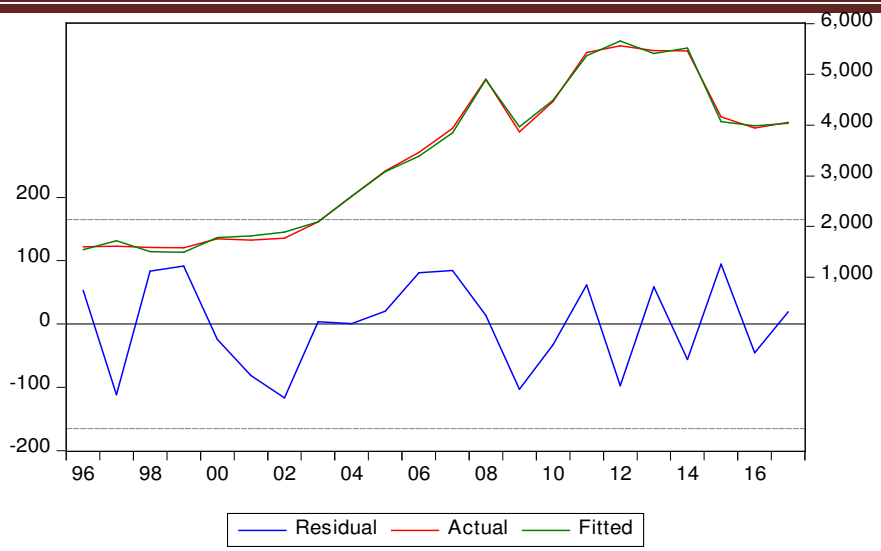
Residual Diagnostics:

a. The actual, fitted and residuals Graph

To estimate the regression of the model, we display a graph of the actual and fitted values for the variables along with the residuals. As shown in the following Figure 3.

Through The results of Figure 3, we observing the approximation of the fitted values of the actual values for variables, this result indicates the quality of the estimated model, for that it is reliable to interpret and analyze the results.

Fig.3. The actual, fitted and residuals Graph



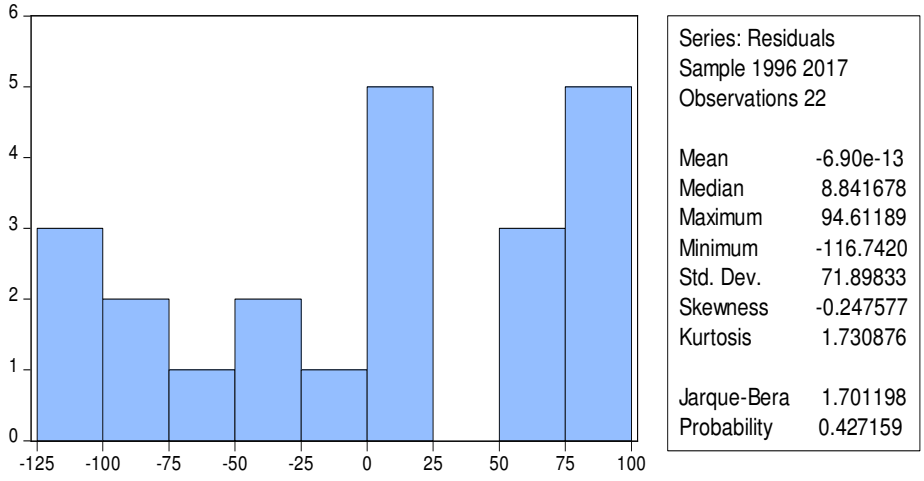
Source: Author's Computation Using Eviews 10

b. Histogram and Normality Test

To display a histogram and descriptive statistics of the residuals, we include the Jarque-Bera statistic for testing normality. As shown in the following Figure 4.

The result of the test was insignificant ($\alpha > 0.05$) and the value of J-B = 1.70 was less than $x^2 = 5.99$. This means accepting the null hypothesis, and residuals are subject to normally distributed residuals.

Fig.4. Normality Test Result



Source: Author's Computation Using Eviews 10

c. Serial Correlation LM Test

For testing serial correlation, we use Autocorrelation, Breusch-Godfrey correlation LM test as shown in the following Table 3.

Through The results of Table3, the Q-statistics are insignificant at all lags, and Prob chi-square is greater than 0.05, therefore we accept the null hypothesis (there is no Autocorrelation).

Table 3. Serial correlation LM test

Breusch-Godfrey Serial Correlation LM Test:

F-statistic	0.170397	Prob. F(2,5)	0.8480
Obs*R-squared	1.403813	Prob. Chi-Square(2)	0.4956

Date: 07/16/19 Time: 12:46
Sample: 1994 2017
Included observations: 22
Q-statistic probabilities adjusted for 2 dynamic regressors

Autocorrelation	Partial Correlation		AC	PAC	Q-Stat	Prob*
		1	-0.136	-0.136	0.4617	0.497
		2	-0.029	-0.048	0.4833	0.785
		3	-0.280	-0.296	2.6542	0.448
		4	-0.056	-0.159	2.7465	0.601
		5	-0.119	-0.219	3.1889	0.671
		6	-0.231	-0.483	4.9446	0.551
		7	0.197	-0.156	6.3130	0.504
		8	0.243	0.035	8.5358	0.383
		9	0.008	-0.265	8.5387	0.481
		10	-0.057	-0.227	8.6800	0.563
		11	-0.079	-0.240	8.9804	0.624
		12	0.183	-0.035	10.753	0.550

*Probabilities may not be valid for this equation specification.

Source: Author's Computation Using Eviews 10

d. Heteroskedasticity Test

To test the variance of error terms whether are constant or not, we use the Heteroskedasticity test. As shown in the following Table 4.

Through The results of Table 4, the f-statistic is insignificant, prob F is greater than 0.05, therefore accepting the null hypothesis (the variance of error terms is not constant).

Table 4. Heteroskedasticity test

Heteroskedasticity Test: Breusch-Pagan-Godfrey			
F-statistic	0.617576	Prob. F(17,4)	0.7848
Obs*R-squared	15.93053	Prob. Chi-Square(17)	0.5288
Scaled explained SS	0.192450	Prob. Chi-Square(17)	1.0000

Test Equation:
Dependent Variable: RESID^2
Method: Least Squares
Date: 07/16/19 Time: 12:50
Sample: 1996 2017
Included observations: 22

Source: Author's Computation Using Eviews 10

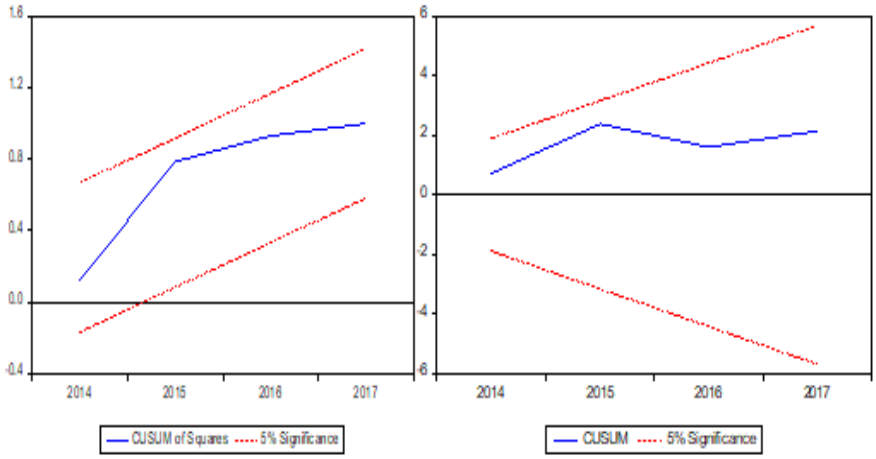
Stability Diagnostics:

a. CUSUM and CUSUMQ of Squares Tests

It is important to test whether the short- and long-term relationships found previously are stable over the entire period of the study. To do this, we use the CUSUM Test and CUSUM of Squares Test to check whether the parameters of the model are stable or not. As shown in the following Figure5.

Through The results of Figure 5, we note all the plots of statistics CUSUM and CUSUMSQ are inside the critical bounds at 5% level of significance (the blue line is within two red lines) which means that all the coefficients in the error correction model are constant, indicate that our ARDL model is stable which also means that the coefficients of regression are changing systematically.

Fig.5. Cusum Test and Cusum of Square Test



Source: Author's Computation Using Eviews 10

3. 5. Estimated Long Run Coefficients

The purpose of our study is to investigate the impact of the parallel market exchange rate premium on economic growth through the estimation of equation (2); we chose using the ARDL approach. As shown in Table 5.

The results of long-run coefficients indicate that domestic investment (INV) and terms of trade (TOT) affect positively and statistical significance at level 10% on GDP per capita in the long-run, and we accept these results. Also, the impact of government expenditure (GOV) is found to be positive and not significant, and the impact of inflation (INF) and parallel market premium (PREM) are found to be negative and not significant on GDP per capita, implies that parallel market premium has no impact on economic growth in the long-run.

Table 5. Long Run Coefficients Test

ARDL Long Run Form and Bounds Test
Dependent Variable: D(GDPP)
Selected Model: ARDL(2, 2, 2, 2, 2, 2)
Case 2: Restricted Constant and No Trend
Date: 07/16/19 Time: 12:22
Sample: 1994 2017
Included observations: 22

Conditional Error Correction Regression

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	1212.421	502.3798	2.413355	0.0733
GDPP(-1)*	-1.219868	0.380960	-3.202089	0.0328
TOT(-1)	6.441648	4.066895	1.583923	0.1884
INFL(-1)	-11.40374	16.12484	-0.707216	0.5185
INV(-1)	6.65E-08	3.29E-08	2.023587	0.1130
GOV(-1)	-2.34E-18	1.76E-17	-0.133105	0.9005
PREM(-1)	-0.264415	0.188550	-1.402357	0.2334
D(GDPP(-1))	0.862405	0.444344	1.940850	0.1243
D(TOT)	7.493315	3.127412	2.396011	0.0747
D(TOT(-1))	-5.734940	5.071492	-1.130819	0.3213
D(INFL)	-11.80780	21.40629	-0.551604	0.6106
D(INFL(-1))	-1.784452	11.87251	-0.150301	0.8878
D(INV)	6.75E-08	2.53E-08	2.665479	0.0561
D(INV(-1))	-6.40E-08	4.10E-08	-1.560966	0.1936
D(GOV)	1.20E-17	1.07E-17	1.118272	0.3261
D(GOV(-1))	1.03E-18	2.22E-17	0.046321	0.9653
D(PREM)	-0.112330	0.157903	-0.711384	0.5161
D(PREM(-1))	0.082239	0.087509	0.939780	0.4005

* p-value incompatible with t-Bounds distribution.

Levels Equation
Case 2: Restricted Constant and No Trend

Variable	Coefficient	Std. Error	t-Statistic	Prob.
TOT	5.280612	2.903941	1.818429	0.1431
INFL	-9.348343	12.36823	-0.755835	0.4918
INV	5.45E-08	1.82E-08	2.993865	0.0402
GOV	-1.92E-18	1.42E-17	-0.135226	0.8990
PREM	-0.216757	0.154566	-1.402358	0.2334
C	993.8953	317.3114	3.132240	0.0351

EC = GDPP - (5.2806*TOT -9.3483*INFL + 0.0000*INV -0.0000*GOV -0.2 *PREM + 993.8953)

Source: Author's Computation Using Eviews 10

3. 6. ARDL Error Correction Regression Test

We use the ECM to find the short-run impact of the parallel market exchange rate premium on economic growth (see Table 6).

Through The results of Table 6, we notice that most of the variables are statistically significant at level 10% except the inflation (INF). The results also show that GDP per capita is positively influenced by terms of trade (TOT), domestic investment (INV), and government expenditure (GOV). Also, we found the impact of parallel market premium (PREM) on economic growth in the short-term is negative as expected, where this result validate the pervious study done by Edwards (1992), Barro & Lee (1993), Kiguel, O'connell, & Ghei (1995) and Ebaidalla, (2017).

Moreover, the results indicate that the error correction term (ECT) is

negative and statistically significant, confirming the existence of a long-run equilibrium relationship between the parallel exchange rate premium and its explanatory variables. The sign of ECT (-1.21) indicates that the parallel market premium has a relatively high speed of adjustment to the long-run equilibrium. In other words, approximately 121% of long-run disequilibria from the previous year's shock converge back to the equilibrium in the current year.

Table 6. Error Correction Regression test

ARDL Error Correction Regression
Dependent Variable: D(GDPP)
Selected Model: ARDL(2, 2, 2, 2, 2, 2)
Case 2: Restricted Constant and No Trend
Date: 07/16/19 Time: 12:23
Sample: 1994 2017
Included observations: 22

ECM Regression
Case 2: Restricted Constant and No Trend

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(GDPP(-1))	0.862405	0.183309	4.704646	0.0093
D(TOT)	7.493315	1.124819	6.661794	0.0026
D(TOT(-1))	-5.734940	2.049663	-2.797992	0.0489
D(INFL)	-11.80780	6.336209	-1.863543	0.1358
D(INFL(-1))	-1.784452	5.391508	-0.330975	0.7573
D(INV)	6.75E-08	7.24E-09	9.319375	0.0007
D(INV(-1))	-6.40E-08	1.06E-08	-6.052054	0.0038
D(GOV)	1.20E-17	4.89E-18	2.452670	0.0702
D(GOV(-1))	1.03E-18	4.79E-18	0.214482	0.8407
D(PREM)	-0.112330	0.042421	-2.647940	0.0571
D(PREM(-1))	0.082239	0.035349	2.326492	0.0806
CointEq(-1)*	-1.219868	0.213663	-5.709300	0.0047

R-squared	0.981296	Mean dependent var	118.6518
Adjusted R-squared	0.960722	S.D. dependent var	525.7210
S.E. of regression	104.1906	Akaike info criterion	12.43277
Sum squared resid	108556.8	Schwarz criterion	13.02789
Log likelihood	-124.7605	Hannan-Quinn criter.	12.57296
Durbin-Watson stat	2.241565		

Source: Author's Computation Using Eviews 10

4. CONCLUSION

The main objective of this study is to investigate the impact of the parallel exchange rate premium on economic growth in Algeria. The result of the empirical analysis reveals that the parallel market premium has no impact on economic growth in the long-term; however, in the short-term, we

found that the parallel exchange rate premium has a negative effect on economic growth.

The result of this paper confirms the previous studies, which have found that the effect is negative. In our case, the economic growth of Algeria encounters the exact same effect that is caused by huge price gap between the parallel market for foreign exchange and official market during the study period. As result, the speculators in black market exchange rate benefits from high premium. However, the expansion of the parallel market for foreign exchange with a high premium leads to the loss of government control over the economy as more and more of the official transactions are diverted to the parallel market, which made a huge amount of money outside the official channels, and thus weakening the effectiveness of monetary policy to stabilize economic indicators of Algeria.

At the other extreme, the rising of foreign exchange in parallel markets leads to higher domestic prices and reduces the purchasing power of the Algerian dinar.

Finally, this study shows that the parallel exchange market premium is one of the factors responsible for Algeria's economic deterioration. Therefore, we counsel the Algerian authorities to take the following recommendations into consideration:

- opening the exchange offices to buy and sell foreign currencies;
- raising the level of travel grant for an ordinary citizen to 2000 Euro;
- reform the real sector to raise the purchasing power of the Algerian dinar;

Additionally, as the study cannot be limited with one indicator, we recommend doing a new study about the impact of parallel exchange rate premium on another macroeconomic indicator in Algeria.

5. Bibliography List:

Bahmani-Oskooee, M., & Shiva, R. (1998). A method of detecting whether a central bank engages in the black market for foreign exchange: Evidence from Iran. *Economic Letters, 60*, 97-103.

Barro, R. J., & LEE, J. (1993). Losers and Winners in economic growth. *National Bureau of Economic Research Working*(4341), 1-59.

Bouraada, H. (2014). Iktisad ghayr rassmi fi eldjazair dirassat :souk elsarf elmouazi (Informal Economy in Algeria: Study of the Parallel Exchange Market). constantine, University of mantouri.

Ebaidalla, E. M. (2017). Parallel Market For Foreign Exchange in Sudan: Determinats and Impact on macroeconomic Performance. *working paper*(1155), 1-24.

Edwards, S. (1992). Trade orientation, distortions and growth in developing countries. *Journal of Devloping Economics*(39), 31-57.

Kara, M. (2010). Ishkaliyat Iktisad ghayr rassmi fi eldjazair (The problem of the informal economy in Algeria: comparative study of the experiences of Mexico, Tunisia and Senegal). ORAN, University of Oran.

Kiguel, M. A., O'connell , S. A., & Ghei, N. (1995). *Parallel market exchange rate in developing countries : Lessons from Eight Case Studies.* London: Macmillan Pressltd.

Matallah , S., & Bounoua , C. ((2015)). Black Market Exchange Rate, Trade Freedom and the Links Growth: Empirical Evidence from the N orth African Countries. *Revue Maghrébine d'Economie & Management*, 36-54.

Odhiambo, N. M. (2009). Energy consumption and economic growth nexus in Tanzania: An ARDL bound testing approach. *Energy policy*(37), 617-622.