Assessing the Dynamics of the Algerian Dinars Competitiveness: A Real Exchange rate Approach

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Abstract:

In our study, we directly calculated Algeria's real effective exchange rate (REER) using the IMF methodology. We began by identifying Algeria's main trading partners. Then we constructed an annual time series (1999–2019) and tested its stability using the Extended Dickey-Fuller (ADF) test with Eviews 12 software, confirming its stability at 5%. Our results are largely consistent with IMF figures and support the validity of purchasing power parity in Algerian context. Finally, we conclude that Algeria's real effective exchange rate is generally in line with economic fundamentals and that the Algerian dinar is fairly valued against partner currencies, thus enhancing competitiveness.

Mots clés :
Mot clé.1 : taux de change real
Mot clé.2 :taux de change effectif réel
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Mot clé.5 :la parité de pouvoir d'achat

Codes de classification
JEL :F4, F14, F31.

Abstract :

Dans notre étude, nous avons calculé directement le taux de change effectif réel (TCER) de l'Algérie selon la méthodologie du FMI. Nous avons commencé par identifier les principaux partenaires commerciaux de l'Algérie. Nous avons ensuite construit une série chronologique annuelle (1999-2019) et testé sa stabilité à l'aide du test de Dickey-Fuller étendu (ADF) avec le logiciel Eviews 12, confirmant sa stabilité à 5 %. Nos résultats concordent largement avec les chiffres du FMI et appuient la validité de la parité de pouvoir d'achat dans le contexte algérien. Enfin, nous concluons que le taux de change effectif réel de l'Algérie est globalement conforme aux fondamentaux économiques et que le dinar algérien est correctement valorisé par rapport aux devises des pays partenaires, renforçant ainsi sa compétitivité.

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1. INTRODUCTION

The exchange rate constitutes the fundamental instrument that link the domestic economy to the global economic system, which is reach up to 115 trillion US dollars in 2025 according to Global economy prospect of June 2025 edited by World Bank Group. In this context, countries seeking to preserve and expand their share in the world economy must devote careful attention to exchange rate dynamics, as they play a decisive role in shaping international competitiveness. For Algeria, whose economic structure remains heavily dependent on hydrocarbon exports, a thorough understanding of the Real Exchange Rate (RER) is particularly important for assessing trade performance and the effectiveness of economic policy. A considerable group of literature has examined this issue from diverse perspectives, employing different theoretical basis that often led to difference conclusions. In the following section, we provide an overview of these studies and their principal findings.

(Drareni, 2019) Find that the Algerian Real Effective Exchange Rate (AREER) remains a valuable short-term indicator of Algeria's international competitiveness, despite its limitations. Its calculation is relatively simple, due to the availability of data on exchange rates and consumer price indices.

(Guechari, 2012)Study clearly demonstrates that real devaluations of exchange rate in Algeria have been positively associated with improvement of trade balance. Hence, devaluation of currency as a whole seems to be beneficial for Algeria exports

(Doubal, Mekhachef, & Kadda, 2025) In his attempt to link the exchange rate to the local interest rate and local interest rate differentials using the Autoregressive Differential Diagram (ARDL) model. The results indicated that, according to the econometric estimation, there is no evidence of a long-term relationship between the independent variables (local interest rate, interest rate differentials) and the dependent variable (exchange rate). However, the local interest rate exerts a positive and significant short-term effect of 11.83% on the currency rate. Furthermore, the study highlights the necessity of interest rate liberalization.

(Mouhoubi Aissa, 2021)Study analyzed the equilibrium real exchange rate in Algeria using behavioral and fundamental models. Its findings revealed a frequent discrepancy between the effective real exchange rate and its equilibrium value, heavily influenced by fundamental factors such as productivity, terms of trade, and government spending. (Bouzemlel, Mehenna, & Boulnoir, 2024) They tried to determine whether there was a relationship between the real effective exchange rate (REER) and the growth of non-hydrocarbon exports, and by using the ARDL model, they finally concluded that there was no statistically significant relationship between the REER and the growth of non-hydrocarbon exports.

Most studies attempt to estimate the real effective exchange rate or examine the impact of the real effective exchange rate on other variables using econometric tools. In contrast, our study directly calculates the REER index based on the International Monetary Fund (IMF) methodology using the geometric mean.

Before calculating the REER, we sought to examine the topic from multiple perspectives and to clarify the theoretical distinctions within a research framework. We began with the theoretical foundations of the real exchange rate5 (REER), focusing on purchasing power parity (PPP) theory, which we consider as the principal framework that explaining the REER in the Algerian context and, more broadly, in developing countries. We then briefly outlined the methodology of computing the REER, starting with the identification of Algeria's main trade partners. These mostly include some of European countries, because of the important bilateral agreements signed between Algeria and the European Union since 2002, China, the United States, and some of other countries.

A major challenge we faced was the data scarcity, particularly concerning bilateral trade flows (imports and exports). This limitation forced us to rely on large and authoritative data sources such as the International Monetary Fund (IMF), UN COMTRADE, World Bank and the Bank for International Settlements (BIS). We also used Microsoft Excel to construct and calculate some missing components by using data from the sources cited above. After completing the creation of our annual time series from 1999 to 2019, we tested the stationarity of the series using Eviews 12**.** To enhance credibility, we compared our results with those published by the IMF, extracted directly from the IMF database.

objective of the study: The objective of this study is to determine whether the Algerian currency is fairly valued in a way that support the Algerian economy, and to provide a definitive answer to the inconsistencies observed in prior researches on the real exchange rate of the Algerian Dinar.

The hypotheses of the study: From that objective, we pull the hypothesis:

- **the Algerian real effective exchange rate enhances the competitiveness of the Algerian economy**.

2. Theoretical basis of the real exchange rate:

There are several theories that discuss the real exchange rate; the principal theory is the theory of purchasing power parity, which his basic idea consist that the exchange rates should adjust so that the prices of identical goods are the same across countries. This theory base on the law of one price; which states that in the absence of the transportation costs and trade barriers the identical goods should sell for the same price worldwide when converted into a single currency(Jérôme, Dufrénot, & Mathieu, 1994). When remove inflation, we theoretically get in to the concept of absolute purchasing power parity; whereas in practice, differences in inflation rates between

countries make exchange rates change over time. That reinforce the applied efficiency of relative purchasing power parity concept; although there are reservations about the practical application of the law of one-price, it considers as the fundamental pillar of the purchasing power parity theory, which is the main theory that explain the concept of real exchange rate.

The theory of Balassa-Samuelson Effect explains how productivity differences between tradable and non-tradable sectors influence the real exchange rate. Arguing that higher productivity in the traded sector leads to wage increases, which can result an appreciation in the real exchange rate. Precisely and "According to the so-called Balassa-Samuelson effect, if productivity in the tradable sector grows faster than in the non-tradable sector, the resulting higher wages in the tradable sector will put upward pressure on wages in the non-tradable sector, resulting in a higher relative price of non-tradable (i.e., a real appreciation). Under standard neoclassical assumptions as in the original Balassa-Samuelson contributions the effect of the productivity in tradable and in the non-tradable would be of the same magnitude (and opposite sign). The productivity differential used in the specification below is the difference in output per worker in tradable and non-tradable production (relative to trading partners), and is expected to have a positive effect on the real exchange rate"(Lucca, Gian , & Jaewoo, 2008)

The third concept of the real exchange rate derives from the Mundell-Fleming open macroeconomic model, originally designed for industrial economies. In this model, the real exchange rate is defined by the cost of production index, which measures the costs of goods in both domestic and foreign markets. The model considers Global Domestic Product (GDP) and exports as a composite good with a uniform price evolution. The model links import prices to the GDP deflator for foreign goods and export prices to the GDP deflator for domestic goods(Afari, 2004). Consequently, the Mundell-Fleming formula equates the terms of trade with the real exchange rate. This approach is suitable for economies where manufactured goods dominate trade and fluctuations in terms of trade are limited, unlike developing countries where primary exports predominate and external factors determine the terms of trade.

Finally, while production cost indicators (such as the GDP deflator) include export prices but exclude imports of finished goods, the lack of consistent annual GDP deflator data is the biggest obstacle to the applicability of the Mundell-Fleming real exchange rate in developing economies(Edwards, 1989).

The Mundell-Fleming theory chooses between different exchange rate regimes to deal with crisis scenarios; a floating exchange rate regime

absorbs the shock resulting from an increase or decrease in the real exchange rate and transmits it to imports and exports.

This can lead to a decrease or increase in aggregate demand and national income(Jakob & Assaf, 1987). In contrast, in a fixed exchange rate regime, the central bank is committed to maintaining a fixed exchange rate that means there is no automatic currency adjustment, when the real exchange rate changes due to the inflation or external shocks, the nominal exchange rate cannot react freely to rebalance trade. To maintain the currency peg(Jakob & Assaf, 1987); central banks often intervene by buying or selling foreign exchange reserves or adjusting interest rates. If a country attempts to stimulate its exports through monetary expansion; this can trigger capital outflows and put pressure on the exchange rate; forcing the central bank to reverse its decisions(Jakob & Assaf, 1987).

Therefore, changes in the real exchange rate may not lead to a proportional response from imports and exports, as the government intervenes to counter these movements. Under a floating exchange rate, monetary policy is more effective in influencing output, in opposite of that and under a fixed exchange rate; fiscal policy has a stronger impact; this model is particularly useful for understanding short-term macroeconomic adjustments in response to policy changes(Stanly, 2008).

5. Competitiveness and the real effective exchange rate

In most economic studies, competitiveness defines as a broad concept encompassing aspects such as export price, overall economic, and technological development.“Economist used the notion of competitiveness in different ways. It can be employed in a purely macroeconomic sense, in which case the competitiveness is measured in terms of relative price and cost indices expressed in common currency while holding domestic structural factors constant, that is, the real effective exchange rate”(Mansoor, Elena, & Lubos, 2016)**.**

The definition of competitiveness often includes the indicators used. These indicators choose based on their suitability to the economy under study and their measurability. On the other hand, the extent to which the targeted aspect of the study accurately reflects the economic reality and aligns with the economic structure **“**the measure of competitiveness here is “relative price and/or cost indices expressed in some common currency**”** (Andrea, 1996).

According to (Gabriel, Mark, & Aurélie, 2007): **“**The international competitiveness defines as the ability of given country to produce goods and services of international quality standards more cost effectively than

othercountries**”** In this study, our attention is directed toward the price and cost dimensions of international competitiveness. A widely basic notion in this context is that when the RER is undervalued, the prices of domestically produced tradable goods tend to fall below those of foreign goods. This situation enhances the international competitiveness of domestic tradable goods by conferring a relative price advantage(Bose, 2014)**.** Conversely, when the RER is overvalued, the opposite effect isobserved, diminishing the competitive position of domestic goods in terms of price. This general idea misses some precision details that may affecting the economy from lateral sides causing different results; first according to (Godwin & Idra Obong, 2021) this results corresponding with economies that have trade surpluses, low import dependence, and a high share of manufacturing exports conditions rarely met in many developing countries. Second, that idea looks like an instantaneous analysis and when we take the time dimension in consideration we get to the important point in the analysis of international competitiveness is to determine RER misalignment(Gabriel, Mark, & Aurélie, 2007).Then there are additional causes that affect international competitiveness indirectly through RER like high production costs, infrastructural decay, and domestic inflation causing RER appreciation thing that has reduced competitiveness in developing countries (Godwin & Idra Obong, 2021).

4. Methodology

In this research, we employed the descriptive-analytical method. We first identified and defined the variables based on the relevant literature in the field of study, and then specified the methods of measurement, including the equations used to calculate the REER. Subsequently, we applied these methods to the Algerian economy and conducted the basic measurements.

To calculate the real effective exchange rate, the following key steps must be considered:

- Identifying nominal and real exchange rates with the right measurement tools.
- Identify the countries used in calculating the index.
- Assigning an appropriate weight to each country.
- Choosing the right price or cost indicators.

4.1 Identifying the real exchange rate (RER); the nominal effective exchange rate (NEER) and the real effective exchange rate (REER):

Some academic literatures refer to the real exchange rate as a bilateral exchange rate and itdefines generally in two ways: externally, as the nominal exchange rate adjusted for price level differences between two countries.

Internally, as the ratio of domestic prices of tradable to non-tradable goods in the same domestic market(Afari, 2004). While, the nominal effective exchange rate (NEER) extends beyond bilateral nominal exchange rates by providing a weighted average of a country's exchange rates with multiple trading partners, where weights reflect their relative importance in trade, it measures by the follow equation (Lazer, 2023):

$$\boldsymbol{NEER = 100 \times \prod_{i=1}^{n} (e_{it})^{wight_i}} \quad \textbf{(1)}$$

$\boldsymbol{n}$: Number of countries

$\prod$: Geometric mean

eit= Eit/Ei0: index of the exchange rate period **T=t** relative to period **T=0**

Eit: currency value of **i partner** country compares to **the Algerian Dinar.**

Wight i: weighting coefficient relating to the **i country**.

This multilateral measure offers a broader view of external competitiveness than bilateral rates alone(Afari, 2004)**.** Yet, changes in NEER do not fully capture shifts in purchasing power or competitiveness, since relative price movements between domestic and foreign economies can have equivalent effects. To address this limitation, we need to use the real effective exchange rate (REER) that defined as the NEER adjusted for relative price or cost differentials across trading partners and competitors. It measures by the follow equation(Lazer, 2023)**:**

$$\boldsymbol{REER = 100 \times \prod_{i=1}^{n} \left(\frac{e_{it}}{P_{it}}\right)^{wight_i}} \quad \textbf{(2)}$$

REER: Real effective exchange rate

Pit = Pit/Pi0: The price index relating to period t compared to the price index relating to the base period

Pit: the price index of the **ith** country compared to the price index of **Algeria** (relative price index).

Conceptually, REER can be understood either as the nominal effective exchange rate corrected for foreign versus domestic price levels(Chinn, 2006)or as the relative price of tradable to non-tradable, reflecting resource allocation and consumer preferences(Lazer, 2023).Thus, REER provides a more comprehensive measure of competitiveness by integrating both nominal exchange rate movements and relative price dynamics(Afari, 2004).

4.2 Equilibrium Real Exchange Rate (ERER):

It's the real exchange rate that fulfill the condition of the general equilibrium and we mean by the general equilibrium full employment, stable inflation and the external balance, according to (Godwin & Idra Obong, 2021) the real exchange rate may be in equilibrium when it shows no tendency to change over time

Mundell defined ERER as "the relative price of international to domestic goods that simultaneously equilibrates the money market, the domestic goods market and the international goods market"(Edwards, 1989)

(Bose, 2014)Defined ERER as “the rate that equilibrates internal balance (Aggregate demand with aggregate supply) and external balance (savings - investment gap with capital flows)”
(Edwards, 1989)Defined it as “the relative price of tradable to non-tradable at which income equates expenditure and both tradable and non-tradable goods markets are in equilibrium”.

4.3 Weighting System:

To calculate the REER, whether nominal or real, a group of representative countries must be consideredthose with which the country in question has extensive trade relations or which constitute a major competitor to its exports in normal foreign markets. We then assigned a weighting factor to each country, based primarily on the desired objective. The most common method for calculating the effective exchange rate is to use trade weights to determine currency values(Edwards, 1989)a simpler approach is to assign each country a relative weight reflecting its share of the country under study's trade. According to (Lazer, 2023) there are four models:

4.3.1 Model-based weighting:

This method assigns weights based on the sensitivity (elasticity) of a country's trade balance to exchange rate fluctuations. For example, the IMF's Multilateral Exchange Rate Model estimates the impact of exchange rate changes on trade balances and uses these estimates to determine weights for bilateral exchange rates. Despite its theoretical rigor, this method is complex and limited by the difficulty of accurately estimating price and trade elasticity’s.

4.3.2 Double-weighting system:

This approach takes into account competition in both the local and third-party markets. In the local market, local producers compete with foreign exporters, whose importance is measured by their share of total imports. In third-party markets, countries can compete even with minimal bilateral trade. For example, China and India both export similar goods to the US market, and a change in the exchange rate between the **Yuan** and the **USD** can affect India's competitiveness in that market. The resulting "double export weights" reflect each competitor's contribution to the supply of similar goods in each market, including domestic production and comparative advantage. This method, used by institutions such as the **IMF**, combines bilateral import weights with double export weights to form overall trade weights.

4.3.3 Bilateral trade weights:

This method assigns weights based on the share of exports and imports with each trading partner. In export markets, only domestic producers are considered competitors.For imports, foreign suppliers are weighted according to their share of total imports. This approach does not take into account competition from third markets.

4.3.4 World trade weighting:

Here, each partner's currency is weighted according to its share of the total exports of all trading partners. This method emphasizes competition from third markets but neglects the relative importance of certain markets for the country concerned. Together, these methods offer different perspectives for understanding the influence of exchange rate fluctuations on trade, depending on the structure of trade flows, competitive dynamics, and the currencies used in international transactions.

4.4 Price or cost index

To calculate the real exchange rates accurately, we must take into account the consistency of price or cost indices between countries, each theory adopts a proxy index that corresponds to its theoretical foundations, as follows:

Purchasing power parity uses consumer price indices (CPIs), while the Mundell-Fleming theory favors GDP deflators, and the tradable goods theory relies on tradable goods price indices.

Consumer price indices are widely available and updated monthly, but they include non-tradable goods and vary across countries due to different consumption baskets and tax effects.

GDP deflators represent aggregate producer prices but are often unavailable or calculated inconsistently in developing countries. Wholesale and producer price indices had better reflect industrial trends but they are affected by import prices and dependence on raw materials.

Unit labor costs, particularly in manufacturing are used to assess competitiveness because of their stability and comparability, although they may overestimate productivity gains and are affected by economic cycles, which can be adjusted for statistically(Godwin & Idra Obong, 2021)

5. Application to Algerian economy

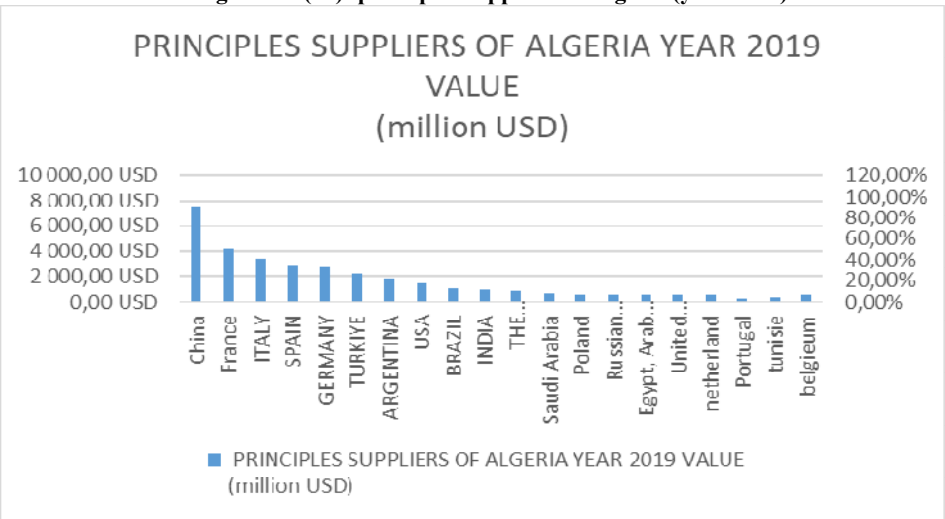
Building on the earlier discussion of the methodology for measuring the real effective exchange rate of Algerian Dinar, this section examines the calculation for the period **1999–2019** and analyzes its evolution over the same timeframe.

5.1 Data and Countries Selection

Driven by data constraints and the need for realistic outcomes, we focused on a group of 20 countries that together accounted for more than 80% of bilateral trade with Algeria (global imports and exports) in 2017, 2018, and 2019 and they are:

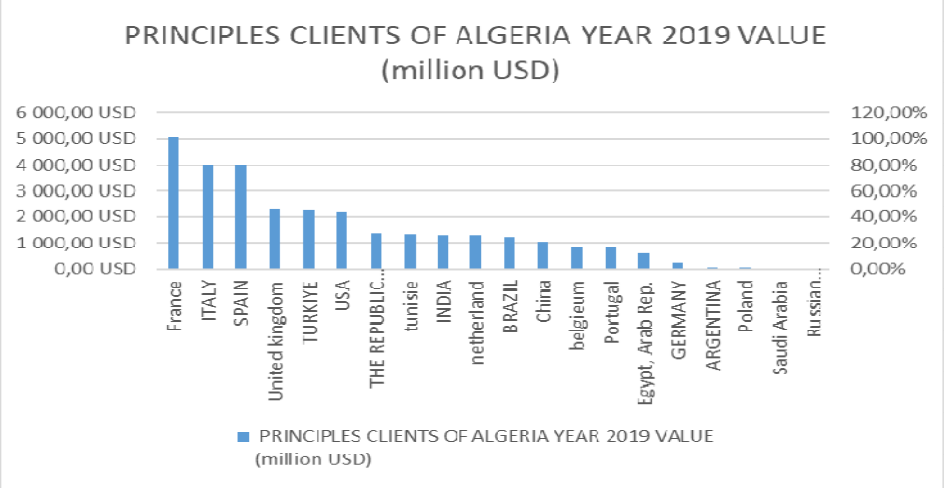
China, France, Italy, Spain, Germany, Turkey, Argentina, USA, Brazil, India, United Kingdom, Saudi Arabia, Poland, Russia, Egypt, Netherlands, Portugal, Tunisia, Belgium,The Republic of Korea.

Figure No (01): principles suppliers of Algeria (year 2019)



Source: Algeria's foreign trade statistics Period: Year 2019 Directorate of Studies and Forecasting Algerian Ministry of Finance page (66-71)

Figure No (02):principles clients of Algeria (year 2019)



Source:Algeria's foreign trade statistics Period: Year 2019 Directorate of Studies and Forecasting Algerian Ministry of Finance page (66-71)

5.2 Determination of the weighting system and the weights assigned to each country

We used the weighting matrix for broad indices of BIS effective exchange rates, where the weight assigned to each country corresponds to the ratio of that country's annual imports plus exports with Algeria to Algeria's total trade with the world (imports and exports). These weights are updated every three years, which makes the results more realistic. The issue is that, the euro area (XM) is treated as a single entity in the indices relative to non-euro area economies. To address this, we dismantling the Euro area weight to the individual European countries' weights (France, Italy, Spain, Portugal, Belgium, and the Netherlands); this was done by using the bilateral trade weights method, adjusting each country's weight according to the ratio of its total trade with Algeria to Algeria's total trade with the euro area

5.3 Choice of the appropriate price index or costs index in the calculation:

We used consumer price indices because it is available on an annual and monthly basis and are suitable for developing countries.

6. Results

After organize the data of twenty countries during the period of twenty year from 1999 to 2019, and by applying the equation number (2) using geometric mean, we had the flowing results, then we have extracted IMF values from IMF database to compare with the values of our study for more credibility.

The following table accurately illustrates how the index was calculated for 2019 only, and the process was then repeated for the remaining years. It should be noted that the trade weights for the partner countries were adjusted so that their sum equals one, and we adopted 2010 as the base year for the Consumer Price Index (CPI) and the Exchange Rate Index (Eit).

Table No (01): Algerian real effective exchange rate of year 1999..

$$REER=100*\prod_{i=1}^{n}[(eit/Pit)]^{(weight\ i)}$$

PARTNERS	Eit Nominal Exchange Rate (01 FOREIN =x DZD)	E_{i0}	e_{it} =Eit/Ei0	CPI Forein Partner P*	CPI Algeria Domestic P	Trade Weight (%)	Normaliized weight (%)	NEER py country	RER by COUNTRY PARTNER	REER INDEX BASE YEAR (2010=100)
Argentina	66,23	75,19	88%	40,5730	70,2059	0,1666	0,28%	1,00	0,9981	97,87
Belgium	69,86	103,50	68%	79,4014	70,2059	2,1387	3,65%	0,99	0,9902	
Brazil	36,63	90,09	41%	49,0747	70,2059	0,3199	0,55%	1,00	0,9932	
China	8,00	90,91	9%	80,6894	70,2059	2,9743	5,08%	0,88	0,8902	
Egypt	19,53	90,91	21%	43,8987	70,2059	0,0549	0,09%	1,00	0,9981	
France	69,86	103,50	68%	82,9981	70,2059	12,1823	20,80%	0,92	0,9541	
Germany	69,86	103,50	68%	84,4820	70,2059	3,7640	6,43%	0,98	0,9867	
India	51,57	101,30	51%	52,2436	70,2059	0,3212	0,55%	1,00	0,9947	
Italy	69,86	103,50	68%	78,7133	70,2059	5,1851	8,85%	0,97	0,9756	
Netherlands	69,86	103,50	68%	80,0577	70,2059	2,5069	4,28%	0,98	0,9889	
Poland	69,86	103,50	68%	68,8322	70,2059	0,2385	0,41%	1,00	0,9983	
Portugal	69,86	103,50	68%	76,3540	70,2059	0,1351	0,23%	1,00	0,9993	
Russia	75,18796992	106,91	70%	25,4635	70,2059	1,7200	2,94%	0,99	0,9607	
Saudi Arabia	87,71929825	111,44	79%	77,5635	70,2059	0,3336	0,57%	1,00	0,9992	
South Korea	90,09009009	121,18	74%	71,4993	70,2059	3,2098	5,48%	0,98	0,9849	
Spain	69,86	103,50	68%	73,4054	70,2059	5,9650	10,18%	0,96	0,9651	
Tunisia	90,90909091	137,69	66%	71,8600	70,2059	0,3962	0,68%	1,00	0,9974	
Türkiye	95,23809524	133,71	71%	13,2942	70,2059	5,1240	8,75%	0,97	0,8392	
United Kingdom	94,8623	68,97	138%	80,5160	70,2059	2,6491	4,52%	1,01	1,0208	
USA	101,2979	75,19	135%	76,3911	70,2059	9,1821	15,68%	1,05	1,0618	

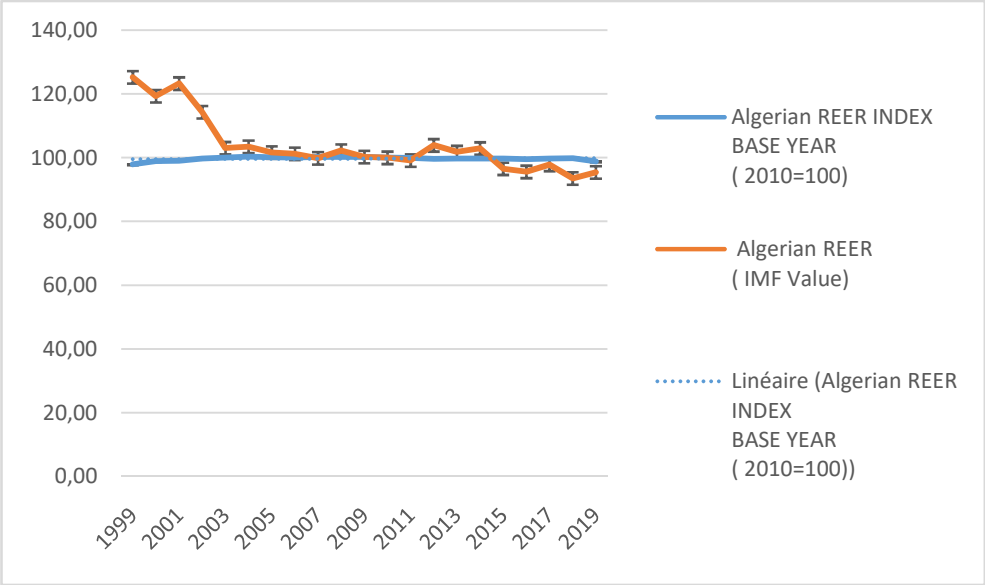
Source: prepared by the researcher based on the outputs of Microsoft EXCEL

Table No (02): Algerian real effective exchange rate author values and IMF values (from 1999 to 2019)

year	Algerian REER INDEX BASE YEAR	Algerian REER (IMF Value)
1999	97,87	125,23
2000	98,88	119,33
2001	98,97	123,28
2002	99,74	114,30
2003	100,06	103,01
2004	100,36	103,44
2005	100,19	101,67
2006	100,04	101,24
2007	100,27	99,87
2008	100,28	102,23
2009	100,23	100,26
2010	100,00	100,00
2011	99,92	99,12
2012	99,64	103,91
2013	99,75	101,80
2014	99,71	102,92
2015	99,71	96,57
2016	99,51	95,59
2017	99,79	97,81
2018	99,79	93,52
2019	98,79	95,45

Source: prepared by the researcher based on the outputs of Microsoft EXCEL

Figure No(03): Algerian REER index base year (2010=100) author values and Algerian REER index base year (2010=100) IMF values (from 1999 to 2019)



Source: prepared by the researcher based on the outputs of Microsoft EXCEL

6.1 Analysis of REER Dynamics:

The results obtained in this study show a close correspondence with the IMF figures for Algeria, demonstrating a high degree of similarity particularly during the period from 2003 to 2011. However, we observed slight discrepancies in two intervals: from 1999 to 2002 and from 2012 to 2019.
We think that these differences attributed to the evolution of the total volume of bilateral trade between Algeria and twenty countries selected for constructing the index. Over the course of the study, this share increased from 58% to 85%. In other words, the countries selected for constructing the index based on the final years were unable to fully cover the index in the initial years, this unlike the IMF's calculations, which are characterized by near-universal coverage,
Then the actual trade shares of the twenty chosen countries may have diverged significantly from the weights initially embodied in the index. Furthermore, some countries may had had greater importance in initial years in Algeria's trade relations but were not included in the index

6.2Testing time series stationary:

To test the stationarity of the Algerian REER index (1999–2019), we applied the Augmented Dickey-Fuller (ADF) test. The null hypothesis assumes the presence of a unit root, while the alternative suggest stationarity.

The Hypotheses:

Null hypothesis (H0): REER has a unit root (non-stationary).

Alternative hypothesis (H1): REER is stationary.

Test results:

Table No 03: Time series stationary test results of Algerian REER

Null Hypothesis: SER01 has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic - based on SIC, maxlag=4)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-3.479003	0.0199
Test critical values:	1% level	-3.808546	
	5% level	-3.020686	
	10% level	-2.650413	

*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(SER01)
Method: Least Squares
Date: 12/01/25 Time: 23:11
Sample (adjusted): 2000 2019
Included observations: 20 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
SER01(-1)	-0.438218	0.125961	-3.479003	0.0027
C	4375.187	1256.297	3.482607	0.0027

R-squared	0.402062	Mean dependent var	4.600000
Adjusted R-squared	0.368843	S.D. dependent var	40.70355
S.E. of regression	32.33709	Akaike info criterion	9.884946
Sum squared resid	18822.37	Schwarz criterion	9.984519
Log likelihood	-96.84946	Hannan-Quinn criter.	9.904384
F-statistic	12.10346	Durbin-Watson stat	1.278118
Prob(F-statistic)	0.002679		

Source: Eviews 12 output

By using **Eviews 12 program,** we had the results:

- The computed ADF statistic**(−3.479003)**
- The MacKinnon approximate p-value **(0.0199)**

According to the critical values **(1%: −3.809, 5%: −3.022, 10%: −2.651)**, the computed ADF value **(−3.479003)** is less than the critical values **(−3.022) (5%)**. This result conducted us to reject Null hypothesis **(H0) (**series has a unit root non-stationary) and confirmed the Alternative hypothesis (H1): series is stationary.

The MacKinnon approximate p-value **(0.0199)** less than **2%** means that there is less than **2%** chance that the Null hypothesis could come true; in conclusion, the two calculated values confirmed that the time series of REER of Algeria is stationary with good degree of confidence (5% significance level).

7. Discussion

The REER of Algeria series fluctuate around a stable mean and does not exhibit a unit root, supporting the validity of PPP in the Algerian context and This means that Algerian goods are priced in a balanced way neither too high nor too low after adjusting for exchange rates, consumer prices, and trade weights and remain competitive over time. This enhances non-price competitiveness, particularly in sectors such as industry and tourism. Algeria's exchange rate tends to revert to a long-term equilibrium; this suggests predictable price competitiveness, which is crucial for exporters and foreign investors and reduces uncertainty in trade contracts and investment decisions.

A stable REER reflects credible monetary and exchange rate policies, which attract long-term trade partnerships. It signals that Algeria works to avoid the excessive currency misalignments, making the country a reliable trade partner.

Aligned Algeria's Dinar value reflects the real economy. This ensures that Algerian exports, like manufactured goods and agricultural products, do not become too expensive abroad while imports remain fairly priced at home. In this way, sectors outside hydrocarbons stay competitive. As a result, when oil and gas revenues rise, they do not artificially push the Dinar upward and industries such as manufacturing and agriculture are protected from the negative effects of Dutch disease.

8. Conclusion:

In conclusion, the real effective exchange rate of the Algerian dinar cannot be held responsible for the weakening of Algerian exports' competitiveness. Its relative stability rooted in the indirect link with the US dollar via oil and gas revenues and the efforts of Algerian central bank maintained to limit the fluctuations of the Algerian Dinar has actually given the Algerian exports a comparative advantage in terms of price in many global markets.

However, exchange rate stability alone is not enough to guarantee effective integration into the international economy. Strengthening Algeria's global trade position requires additional levers of competitiveness, such as international marketing, efficient transportation systems, product quality, and a good pricing strategy for exported goods.

By combining the advantages of exchange rate stability with these broader structural measures, Algeria can ensure the sustainability of its presence in international markets and strengthen its resilience to future economic challenges.

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