Modeling the Determinants of Algerian Dinar Exchange Rate

M. Daoudi, O. Akacem, A. Ghouali

***Abstract*— This paper tries to build a model of real exchange rate determinants for Algerian Dinar. We use an empirical model (VAR) based on cointegration test, error correction model ECM and causality test using some macro-economic variables. We used annual data covering the period 1970 to 2011. The variables used for fundamentals were determined by two considerations, theory and availability of data.**

The results of the study show positive effect of government expenditures, oil prices and real GDP. Whereas, it shows negative effect of FDI and trades openness

***Index Terms*— real exchange rate, Algerian Dinar, determinants, model, cointegration**

I. INTRODUCTION

Algeria has remained for a long time live the structural imbalances in the balance of payments, which caused a multiplicity of exchange rates and the deterioration of the value of the Algerian dinar as reflected in the structure of the Algerian economy in the short and long term. Algeria, which necessitated the allowance important efforts in order to find mechanisms to help stabilize the exchange rate in the long term, reflected in the reforms that took place in the framework of agreements with the International Monetary Fund, through the first standby credit program for the year 1989 and the second in 1991. Then the economic reforms expanded as part of the installation program (1991-1995) and the structural adjustment program (1995-1998).

Because as it was clear that the exchange rate that prevailed since independence did not reflect the real situation of the national economy, and the exchange rate system based far from the foreign exchange market, and knew the Algerian dinar excessive increase is real so it was necessary to changed that policy.

From the importance of the exchange rate in the economic structure and its impact on international trade, as well as the role of the exchange rate policies made known to the achievement of macro-economic balances. We will try through this paper to build a model of the most important determinants of the real exchange rate of the real exchange rate of Algerian dinar, users in order that VAR models and application cointegration test and model error correction ECM and causality test Granger's, passing through the most important stages that have defined the exchange rate policy in Algeria since independence to the present time.

II. LITERATURE REVIEW

The real exchange rate is the ratio of the foreign to domestic prices measured in the same currency; or the nominal exchange rate adjusted by relative prices between the countries. It measures a country's competitiveness in international trade.

The importance of the real exchange rate has led to several studies to investigate its determinants. Such studies include Ghura and Grennes 1993 for a panel of sub-Saharan countries, Cottani et al 1990 Elbadawi and Soto 1997 each on a group of developing countries, and Aron et al 1997 for South Africa. In these studies, the most common determinants of the real exchange rate were found to be terms of trade, openness, capital inflows and nominal devaluations.

Williamson 1994 provides a simple and excellent account of the way the concept of real exchange rate evolved through the desire by economists to determine what the equilibrium exchange rate it. Williamson pointed out that the motivation behind the preoccupation with issues of the real exchange rate has been the desire to identify an appropriate concept of equilibrium exchange rate and estimating its value. Whichever definition of the real exchange rate is used, the equilibrium real exchange rate is considered to be the one that is consistent with both the external and internal balance of the economy. Studies on the determinants of the real exchange rate and the effects of real exchange rate misalignment have assumed an important part in research over the past decades. Edwards 1989 developed a theoretical model of real exchange rate behaviour and devised an empirical equation of how to estimate the real exchange rate dynamics. According to him the long- run equilibrium real exchange rate is affected by real variables only that can be classified as internal and external fundamentals. In the short-run however, the real exchange rate may be affected by both real and nominal factors. The important fundamentals that determine real exchange rate are the terms of trade, level and composition of government consumption, controls on capital flows, exchange and trade controls, technological progress, and capital accumulation. Edwards 1989 empirically tested his model and its main implications using pooled data for a group of 12 developing countries by analyzing the relative importance of real and nominal variables in the process of real exchange rate determination in the short-runand long-run. The study found that in the short-run, real exchange rate movements are affected by both real and nominal factors. In the long-run however, only real factors affect the sustainable equilibrium real exchange rate. His conclusion was that the countries whose real exchange rates were closer to equilibrium out performed those with misaligned real exchange rates.

There are many factors contributing to real exchange rate, among these factors are the level of output, inflation, the openness of economy, interest rates, domestic and foreign money supply, the exchange rate regime and central bank independence (Stancik 2007). The degree of the impact of each of these factors varies and depends on a particular country's economic condition. There is a wide consensus in the literature that the purchasing power parity(ppp) is not an

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appropriate model for determination the equilibrium real exchange rate because of the slow convergence of the real exchange rate with the long-run equilibrium level (Macdonald and Ricci 2003). These important topics are still in debate among researches, the study of Juthathip 2009 found that in developing Asia countries the real exchange rate is determined by 5 key fundamental variables that are medium to long-run fundamentals; productivity differentials, openness, terms of trade, net foreign assets, and government spending. Carrera and Restout 2008 have introduced a good survey of the literature about the determinants of real exchange rate, where they determined the factors that drive real exchange rate in the long-run, the Balassa Samuelson effect, government spending, terms of trade, openness degree, foreign capital flows, and added as a determinant the facto nominal exchange rate regime.

III. ALGERIAN EXCHANGE RATE POLICY

We can mention the most important changes defined by the Algerian dinar exchange rate since independence to the present time by tracking the following periods:

3-1 Period 1964-1973

The value of the Algerian dinar has fixed to 0.18 grams of gold, the same parity with the French franc at that time. In 1964, the date of the establishment of the national currency and the year was 1969, reducing the French franc. What has been seen that after the events of 1968 forced the French bank to reduce the value of the French franc in agreement with the International Monetary Fund, and the use of reserves after a long period in order to maintain equality of French currency, so he moved the official parity in the month of August 1969 from 4.9370 francs per US dollar to 5.5544.

During this phase the Algeria application development scheme triple who was requires a stable exchange rate of the dinar, it can be said that the trio planned application of the reasons that led to the failure to follow the dinar to the French franc in the reduction, despite the continuation and continue the dinar in fixed relationship with the French franc . The weakness of the French franc has led during this phase to the continuous decline of the dinar against the various currencies Algerian payment for imports, and this is what resulted in the re-evaluation of the costs of investment projects that start implementation within the first four-wheel scheme (1970-1973).

In the midst of this situation, which coincided abandon the fixed exchange rate and emanating from the Bretton-woods and agreements for the distribution of floating exchange rates, the decision was made to change the Algerian dinar pricing system and its application in the field of implementation of the planned four-second (1974-1977) and has the goal of this system to achieve two goals, the first was to provide convincing support for the Algerian institutions through dinars value higher than its real value, in order to reduce the cost of equipment and raw materials and the various inputs imported by these institutions, which are in their entirety emerging public enterprises, while the second goal It was to allow the Algerian enterprises do prevision in the long term without being exposed to the changes that can be drawn sharp fluctuations in the exchange rate.

3-2 Period of fixed Value of Algerian dinar 1974-1986

I knew this period determine the value of the Algerian dinar on the basis of a 14-currency basket on top of the US dollar, so that each of these currencies currency likely on the basis of a specific weight in the external payments, as they appear in the balance of payments. From this standpoint, it has been identified the price of Algerian dinar exchange rate by the Central Bank.

3-3 Period September 1986-March 1987

Was introduced at this period a slight adjustment at the expense of the Algerian dinar exchange rate compared to previous ways, bringing the relative change each currency intervention in the dinar basket, calculated on the basis of the outlet is equal to the prevailing exchange rate in the base year 1974 and considered this amendment as a prelude to the policy of motor functioning to rate Algerian dinar exchange initiated work out starting in March 1987.

3-4 Period March 1987- 1994

Causing a sudden drop of the price of a barrel in 1986 to enter the Algerian economy is in a severe crisis was characterized by a deficit in the state budget and balance of payments, resulting in a serious slowdown in economic activity due to lower imports in the various income needed by the productive apparatus, which has remained a follower and linked to world market prices. This situation has shown that the Algerian economy entered into a structural problem of difficult to get out of it without modification and structural correction pox. It necessitated the need for gradual transition and quickly from a planned economy to a free economy guided by market mechanisms, so natural have been to take the monetary side and the financial fate bulk of the reforms.

Algerian monetary authorities announced that since mid-1990 in its desire to reach the convertibility of the Algerian dinar for current currency after three years, so in the end of 1993 or the beginning of 1994 that this process is gradual and precaution. And in the meantime, and before start the process of making the dinar convertible to the ongoing currency with the outside world, was adjusted the official exchange rate for piped to the level of the national demand for goods and foreign services with the availability of foreign currency balance, been this way they were followed to hold the adjustment process in the organization gradually sliding observer.

- gradual slide: the this method to organize a gradual sliding and observers over a long period rather, where extended from the end of 1987 until September 1992, where the dinar exchange rate of 4.9 to the US dollar moved at the end of 1987 to 17.7 per dollar at the end of March 1991.
- reduction frank: This method is applied after being taken Monetary Council and the loan at the end of September 1991 decision to reduce the dinar by 22% for the US dollar, and this for up to 22.5 to one US dollar. It has been marked dinar stable price in this value until March 1994, but with the conclusion of the new agreement with the International Monetary Fund FMI been doing a slight amendment did not exceed 10% and this was the decision to create the decision of reduction taken by the Monetary Council and the loan on 10 January 1994 to reduce the ratio reached 40.17%. In the light of this decision it

became Algerian dinar exchange rate 36 Algerian dinars to the US dollar

3-5 Period1994 to the present day :

Algeria has resorted many times to reduce the value of the dinar since rescheduling and expanded from the International Monetary Fund financing deal agreement, where the value of the dinar was reduced by 40.17% and before that had lost 50% of its value in 1990 and between 25% and 30% between 1991 and 1993. In the year 1994 the authorities reduce the dinar in two phases with a total of 70% between April and September 1994. During this year's select-floating exchange rate regime orbit between the central bank and commercial banks, and between the system 1995 and 1998 the real effective exchange rate of the dinar Algerian rose by more than 25% and was followed by a decline of about 13% between 1998 and 2001; this decline continued during the 16-month pro and this since early 2002.

In January 2003, the Bank of Algeria reduce the value of the dinar rate ranging between 2% and 5% and the measure mainly target to limit the increase in the money supply in the parallel market, especially after the expansion of the difference between the official basic value of the dinar and its value on the black market . Observed rise on the dinar value of about 11% in the last quartet of 2003, just that then proceeded to drop again and continue to decline until recent years.

IV. EMPERICAL INVESTIGATION

4-1 **Estimation technique**:

The sample study consists of 41 yearly observations; the data in this study was obtained from the statistics the Algeria's ONS(office national des statistiques), the international financial statistics of IMF, UNCTAD, and world developing indicators of the world bank WDI. All the variables are in logs , the data used is annual covering the period 1970 to 2011. The variables used for fundamentals were determined by two considerations, theory and availability of data.

The variables of study are:

- rer: real exchange rate
- trad : trade openness (the sum total values of exports and imports devised by nominal gdp)
- rgdp: real Gross domestic product
- g : public expenditure
- inf: inflation
- fdi: foreign direct investment
- oil: oil prices
- debt: Algerian externals debts

In order to studies and explained the determinants of the real exchange rate of Algerian Dinar, We can build the following specification due to the discussion in the former literature:

$$rer = f(debt, fdi, g, \inf, oil, trad, rgdp)$$

$$rer = \beta_0 + \beta_1 debt + \beta_2 fdi + \beta_3 g + \beta_4 \inf + \beta_5 oil + \beta_6 trad + \beta_7 rgdp + \varepsilon \ldots\ldots 1$$

4-2 Test of Stationary:

The first step of our methodology is to test the order of integration, that it is the stationary of our variables ,with the ADF(Augmented Dickey Fuller) test ;PP(phillips – perron) test and KPSS(Kwiatowski, Phillips, Schmidt and Shin) test. The second step is to test for cointegration . the Johansen procedure was also used to test the existence of long run equilibrium relationship between the variables of series. (results in the table 1)

Table 1

	KPSS		PP		ADF		Ordre of integration	Lags
Variables	First difference	level	First difference	level	First difference	Level		
rer	0.159	0.491	-22.394	-1.406	-6.081	-1.735	I(1)	2
debt	0.352	2.032	-4.328	-0.714	-2.308	-1.089	I(1)	2
fdi	0.179	1.858	-6.726	-0.474	-6.071	-0.610	I(1)	2
g	0.370	0.712	-7.002	-1.370	-5.143	-1.360	I(1)	2
inf	0.389	0.618	-18.662	0.010	-2.338	-0.883	I(1)	2
oil	0.323	1.913	-5.245	0.899	-4.655	1.665	I(1)	2
trad	0.413	0.573	-4.415	1.565	-3.757	1.388	I(1)	2
rgdp	0.120	1.123	-9.141	-2.692	-6.433	-2.775	I(1)	2

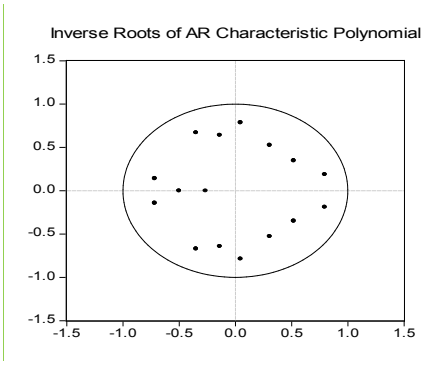
Critical value 5% :ADF:-1,950394 ,PP: :-1,950394 , KPSS:0,463000

Source: Eviews program outputs

The results of our unit root tests analysis according to the ADF(Augmented Dickey Fuller) test ;PP(phillips – perron) test and KPSS(Kwiatowski, Phillips, Schmidt and Shin) test are showed in the table 1.

Results of test of stationary show that most of those time series are integrated of order one. The number of lags in this form is estimated to two terms periods of time, through the Figure 1, it is clear that the estimated model achieves stability conditions (VAR satisfies the stability condition) as all transactions smaller than one, and all the roots are located inside the unit circle, which means that the model does not suffer from the problem of errors in the link or the instability of the contrast.

Figure 1: Estimated model achieves stability conditions



Source: Eviews program outputs

4-3 Cointegration analysis (Long- run):

Table 2 Johansen ciontegration test

UnrestrictedCointegration Rank Test (Maximum Eigenvalue)			
Hypothesized No. of CE(s)	Eigenvalue	Max-Eigen Statistic	0.05 Critical Value
None *	0.978350	130.3131	64.50472
Atmost 1 *	0.911808	82.55998	58.43354
Atmost 2 *	0.848407	64.14287	52.36261
Atmost 3	0.719007	43.16046	46.23142
Atmost 4	0.633754	34.15127	40.07757
Atmost 5	0.420114	18.52742	33.87687
Atmost 6	0.335413	13.89205	27.58434
Atmost 7	0.221266	8.502898	21.13162
Atmost 8	0.193396	7.307346	14.26460
Atmost 9 *	0.121503	4.404466	3.841466
Max-eigenvalue test indicates 3 cointegratingeqn(s) at the 0.05 level * denotes rejection of the hypothesisat the 0.05 level **MacKinnon-Haug-Michelis (1999) p-values			

Source: Eviews program outputs

From table2 above it is clear that λ_{trace} is smaller than the critical values at the level of significance of 5% and thus accept the hypothesis nihilism H_0, a relationship to integrate simultaneous, where the number of vectors integration Concurrent is r = 3 when a significant 5% level, which indicates that the structure of the real exchange rate rer integrated in sync with the rest of the determinants in the model, which indicates the existence of a long-run equilibrium relationship between variables, that is, they do not stray too far from each other in the long term so that they appear similar behavior.

Table 3 Engle & Granger test

$$rer = 0.74 - 0.15debt - 0.39\,fdi + 0.02g - 0.16\inf + 2.95oil - 0.02trad + 0.01rgdp + \varepsilon.$$

	prob	Test of t	Standard error	coeff
constant	0.0316	1.397752**	8.645016	0.7463
debt	0.1838	1.363976-	0.236870	-0.1596
fdi	0.0754	1.849440***-	0.213727	-0.3942
g	0.0157	2.579585**	0.097089	0.0213
inf	0.2025	1.306075-	0.043796	-0.1638
oil	0.0953	1.728870***	0.068074	2.9508
trad	0.0307	-0.347837**	0.043565	-0.2854
rgdp	0.0205	0.500959**	0.343464	0.0196
R-squard			0.4074	

% level5 % level , ** significant at 10% significant at ***
Source: Eviews program outputs
Based on the results in Table 3, it is clear to us that there are variables that are related to the real exchange rate positive relationship (positive) on the lines of all public expenditure and oil prices and real GDP. There are variables associated with a negative relationship such as Algerian external debt, foreign direct investment, inflation and trade openness . from his interpretation of significantly and there are those who do not achieve this, it is through the significant test parameters estimated will lead to the acceptance of all of the constant, foreign direct investment, public expenditure, oil prices, trade openness and real GDP, and it has been interpreted from the real exchange rate in Algeria variables through the model presented.

4-4 Error correction model (Short- run):

Table 4

Variables	prob	Test of t	Standard error	coeff
constant	0.1994	-0.1872	0.5910	-0.1106
ECT	0.0384	-1.8207**	0.1283	-0.4932
Dfdi	0.7639	-0.3939	0.4420	-0.1741
Dg	0.0023	0.3985*	0.2137	0.0867
Doil	0.0697	-0.2849***	1.2647	-0.3603
Dtrad	0.5532	1.1499	0.4514	0.5191
Drgdp	0.0052	1.4158*	0.1081	0.1530
Dfdi(-1)	0.3242	-0.1528	10.1293	-1.5484
Dg(-1)	0.6917	-0.0359	0.6290	-0.0226
Doil(-1)	0.0011	0.2866*	0.6840	0.1961
Dtrad(-1)	0.6317	0.4799	0.3452	0.1657
Drgdp(-1)	0.4125	-0.5814	1.0550	-0.6134
Drer	0.0012	-0.6037*	0.8079	-0.4877
R-squared		0.4415		

% level , * significant at 1 % level5 % level , ** significant at 10% significant at ***
Source :Eviews program outputs
Through Table 4 R-squared was 0.4415, this coefficient show is evidence that the quality reconcile the model and its ability to interpret the changes that occur in the value of the real exchange rate remains linked to other variables have not been incorporated in the model, as the changes in the independent variables explain more than 44% of the fluctuations that occur at the level of the real exchange rate. It was there are other variables outside the model which affect more than 50%.
It, appears somewhat accented error correction ECT morale at the abstract level of 5% and a negative signal (-0.4932) and is proof that the behavior of the real exchange rate may take in the event of any shock nearly five years until it reaches the equilibrium position in the long term . And if we talk about the speed of the adjustment, we say that it is in each period (during the years of data) modified more than 49% of the imbalance of the real exchange rate in the long term, and this is what explains the cointegration hypothesis, as this result also shows that coefficient of real exchange rate to slow to Algeria; and one year were significant at level of 1% and a negative signal which indicates that the real exchange rate during the study in its entirety was heading downward.

4-5 Causality test:

Table 5 Granger Causality Tests

Pairwise Granger Causality Tests Date: 01/27/14 Time: 17:46 Sample: 1970 2011 Lags: 2			
NullHypothesis:	Obs	F-Statistic	Prob.
Debt does not Granger Cause rer Rer does not Granger Cause debt	41	0.41687 0.78178	0.6630 0.4670
Fdi does not Granger Cause rer Rer does not Granger Cause fdi	41	0.03536 0.18027	0.9653 0.8360
G does not Granger Cause rer Rer does not Granger Cause g	41	0.04285 0.46741	0.9581 0.6313
Inf does not Granger Cause rer Rer does not Granger Cause inf	41	0.25841 3.06584	0.7740 0.0620

Oil does not Granger Cause rer Rer does not Granger Cause oil	41	2.57433 0.62573	0.0935 0.5419
Trad does not Granger Cause rer Rer does not Granger Cause trad	41	0.00530 0.02924	0.9947 0.9712
Rgdp does not Granger Cause rer Rer does not Granger Cause rgdp	41	1.02245 0.46212	0.3723 0.6345

Source: Author's calculations using Eviews program outputs

5. Results and Analysis

From the econometrics results we got

5-1 significant positive effects:

1. **public expenditure has significant positive effect for the real exchange rate.**

Public expenditure in Algeria has had a significant positive impact through the proposed model, but the positive impact of this remains a little weak, whether long term or short run. And this kind of correspondence with economic theory, where the consequent increase in public spending to improve in the current account of balance of payments and the higher exchange rate also improves the demand for goods and equipment consumption imported, and this would increase the exchange rate of the dinar. But he noted that the impact is much lower in the short run and this has been demonstrated by Granger causality test where not find a causal connection in both directions.

2. **Oil prices has significant positive effect for the real exchange rate.**

Oil prices are a significant positive impact on the real exchange rate of the Algerian dinar, and its effect is better than the impact of public expenditure, such as the rise in real oil prices by 1% will increase the level of rates about 2.95% of real exchange through the proposed model, this result confirms the extent of the domination of Algeria sector on oil revenues during the study period and are confirming the previous result and extent to which public expenditure in Algeria on hydrocarbon revenues in each period of the study, and measurement of dinars link oil price rate in Algeria in the long run and the short. Granger causality test showed that there is a causal link in a sense that the oil price increases in the real price of the dinar.

3. **real Gross domestic product has significant positive effect for the real exchange rate.**

Real GDP positive and significant impact on the real exchange rate, but only in the long run, its impact remains very low, this is due to the nature of the structure of the Algerian economy, which is essentially a performance economy based on oil and gas wealth at the expense of manufacturing and weak exports outside the fuel strategy.

5-2 significant negative effects:

1. **foreign direct investment has significant negative effect for the real exchange rate.**

FDI negatively and significantly affect the real exchange rate in Algeria, where it is well known that the removal of restrictions on capital flows will lead to more capital and the consequent rise in the real exchange rate and vice versa. This is what is happening in Algeria, they will not open the doors to foreign capital, but in recent years, Add that these flows represented primarily in foreign direct investment and that are active in their entirety in the sector hydrocarbons does not match the size that revives and exports of Algeria was higher exchange rate of the dinar, as it does not exceed the value of 3 billion dollars at best since independence until now. The long-term negative effect is mainly flows meager foreign direct investment in each period of the study.

2. **trade openness has significant negative effect for the real exchange rate.**

affects trade openness as well as negative and significant on the real exchange rate in Algeria, but only in the long run. are not a great impact, because it is expected to lead to improved terms of exchange to improve the current account of the balance of payments, which will result in a price increase the real exchange rate, but it was not realized in Algeria, which exports should be more open and diverse.

Conclusion

The importance of the exchange rate policy to achieve economic balance college information can not be overlooked or closing his eyes, it is necessary to work on the exchange rate of adoption of a clear policy and a discrete help build the structure of the economy and make further volatility that can be drawn by the various shocks from the international economy. And we know the extent of domination and power of economic and financial globalization in the modern international economy.

Algeria should be more vigilant in that by adjusting the exchange rate policy, and that the private economy more vulnerable to such shocks, often for a dominant source of income and adoption are not hydrocarbon revenues. it may have been from, we tried to put a model for the most important determinants of the real exchange rate in Algeria in order to know what are the most important economic variables that could affect the value of the Algerian dinar short and long term. he showed us through the study results a positive impact but low in some measure for public expenditure and oil prices and real GDP. the negative impact is low and also for each of the direct foreign investment to Algeria and trade openness, which shows that the Algerian economy is still not open enough commercially worldwide, and negatively affects the real exchange rate, who notes that he still experiencing a continuing decline Algeria and recently I work on reduced again.

Algeria, it was to be more vigilant in its exchange rate policy, and is currently applied to the system and is managed floating system is better suited to the current economic situation in Algeria, makes it more safe to external shock.

REFERENCES

1. Bourbonnais R (2002), Econométrie (manuel et éxercices corrigés), Dunod, Paris.
2. Engle, R F, Granger, CWJ (1987), Cointegration and error correction, Representation, Estimation and Testing, Econometrica, 55:251-76.
3. Granger C (1981), Some properties in time series data and their use in econometric model specification, journal of econometrics, 16, 121-130.
4. Granger C, Newbold P (1974), Spuriousregression in econometrics, journal of econometrics, 26, 1045-1066.
5. Johansen, S (1988), Statistical analysis of cointegration vectors, Journal of economic dynamics and control, 12, 231-54.
6. Ghura and Grennes 1993,The Real Exchange Rate and macroeconomic performance in Sub-Saharan Africa, Journal of development economics,42,155-174.
7. Cottani et al 1990, Real Exchange Rate Behaviour and economic performance in LDCs, Economic Development and Cultural Change,39,61-76.
8. Elbadawi and Soto 1997, Real Exchange Rate and macroeconomic Adjustment in Sub-Saharan Africa and other developing countries, Journal of African Economies,6(3),75-120.
9. Aron et al 1997,Determinants of the Real Exchange Rate in South Africa,Centre of the study of African Economies, WPS/97-16,CSAE publishing ,Oxford.
10. Williamson 1994,Estimating Equilibrium Exchange rate ,Institute for international Economics ,Washington DC.
11. Edwards 1989, Real Exchange Rate ,Devaluation and Adjustment, The MIT Press,Cambridge.
12. Stancik 2007, Determinants of the Real Exchange Rate Volatility:The case of the new EU members,Czech, journal of economics and Finance,57, N°9-10.
13. Macdonald and Ricci 2003, Estimation of the real exchange rate for South Africa,IMF working paper.
14. Juthathip 2009,Equilibrium Real Exchange Rate Misalignment and export performance in Developing Asia, ADB Economics,WP N°151.
15. Carrera and Restout 2008,Long- run determinants of real exchange rates in Latin Amirica,GATE.