Real Exchange Rate Misalignments in Some Mediterranean Countries

Evidence from Panel Data

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ABSTRACT. *The main goal of this paper is to tackle the issue of the real exchange rate determination for some Mediterranean countries for a period 1979-2002 following the "Fundamental Equilibrium Exchange Rates" approach (FEER in the sense of Williamson 1985, 1994). In our paper, we address also the problem of Equilibrium Current Account determination, using some novel approach of dynamics panel data. The method used is the Generalized Method of Moments aka as GMM used to assess the equilibrium current account with a dynamics panel data framework.*

KEYWORDS: *Equilibrium Exchange Rate, Equilibrium Current Account, GMM, Panel Data*
***JEL Clasification** : F32, F33, F36*

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1. Introduction

Despite a huge amount of theoretical and empirical research on foreign exchange markets, there is still no clear consensus on one single model of fundamental equilibrium exchange rates. Given this inherent difficulty, it is not surprising that studies do not always agree on estimates of currency misalignment for MENA[1] countries. The difficulties to estimate the equilibrium exchange rate will increase with the liberalization of financial markets, given the structural changes in economic relationships and policies.

Conceptually, a Real exchange rate RER [2] is misaligned when it deviates from the underlying RER that would have prevailed in the absence of price rigidities, frictions and other short run factors. A more structured definition of misalignment uses the notion of an "equilibrium RER". This typically refers to the theoretical RER that would have prevailed if the economy were simultaneously in internal and external balance. Internal balance refers to the economy operating at full employment and at full capacity output. External balance refers to a sustainable current account position given a country's desired capital position, as a net lender or borrower. A RER misalignment can then be defined as the deviation of the actual RER from this "equilibrium RER".

In the case of MENA countries, the consequences of a significant exchange rate overvaluation could be very damageable for a small opening economy. Those countries relies mainly on exports to boost their growths and employment rates. At least, a currency misalignment would induce some distortions in the prices of traded and non-traded goods that could introduce an inefficient bias in the allocation of resources, such as investment decisions, and a fall in output relative to its potential level. A persistent misalignment would cause a loss of competitiveness following a rise in export prices and would cause a worsening of the current deficit as well as a loss of foreign exchange reserves that could lead to a balance of payments and economic crisis.

The objective of this paper is to estimate the Equilibrium Real Exchange Rate ERER misalignment of three MENA countries for a period 1979-2000 following the "Fundamental Equilibrium Exchange Rates" approach (FEER in the sense of Williamson [WIL 85], [WIL 86]).

According to the intertemporal approach to the balance of payements, the current account deficit is the outcome of forward-looking dynamic saving and investment decisions (Sachs, 1981 [SAC 81], Obstfeld and Rogoff 1995 [MAU 95]).

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1. In our study, we focus on three MENA countries: Morocco, Tunisia and Egypt
2. Real exchange rate (RER) misalignment refers to a situation in which a country's actual RER deviates from some notion of an implicit "deal" RER. An An exchange rate is labeled "undervalued" when it is more than this ideal, and "overvalued" when it is more appreciated than this ideal.

In our paper, we address also the problem of Equilibrium Current Account determination, using some novels approach of dynamics panel data.

Paper outline

The paper is organized as follows. Section 2 recalls the previous research on current account determination and exchange rate misalignments determination. In section 3, we present the generalized method of moments aka as GMM used to assess the equilibrium current account with a dynamics panel data framework, with a discussion of the results. Section 4 details the approach followed for computing exchange rate misalignment using FEER approach, and gives the results of equilibrium exchange rate misalignments for the three Mediterranean countries determined by the degrees of deviation of the economy from their medium term equilibrium. The final section 5 contains some concluding remarks drawn from this study.

2. Previous researches

2.1. *Current account determination*

According to the intertemporal approach to the balance of payements, the current account balance is the outcome of forward-looking dynamic saving and investment decisions (Sachs, 1981 [SAC 81], Obstfeld and Rogoff 1995, 1996 [MAU 95]). Mostly in the context of real business cycle models, the intertemporal approach has been used to evaluate the impact on the current account balance of fiscal policy (Leiderman and Razin, 1991 [LEO 91], Frenkel and Razin, 1996 [JAC 96]), the real exchange rate (Stockman, 1987 [STO 87]), terms of trade fluctuations (Obstfeld, 1982 [OBS 82]; Svensson and Razin, 1983 [SVE 83]; Greenwood, 1983 [GRE 83]; Mansoorian, 1998 [MAN 98]), capital controls (Mendoza, 1991 [MEN 91]) and global productivity shocks (Glick and Rogoff, 1995 [GLI 95]; Razin, 1995 [RAZ]).

Mainly, three lessons can be drawn from the theoretical literature for our purposes [CAL 02]: First, empirical studies should address the issue of joint endogeneity of current account balances and other macro variables. Secondly, the implication for empirical studies is that they should attempt to distinguish between business-cycle and trend effects. The response of the current account balance to economic shocks depends on their degree of persistence, that is, whether the shocks are related to the business cycle or to long-run trends. Thirdly, the impact of economic shocks on the current account balance may vary according to whether these are country-specific or global. For instance, the literature shows that global productivity shocks have a smaller impact on current account balances than country-specific ones (Glick and Rogoff, 1995

[GLI 95]; Razin, 1995 [RAZ]) and that the effect of domestic interest rates are the opposite of that of international rates.

2.2. *Real Exchange Rate Misalignments*

The analysis of exchange rate behavior has been an important topic in international economics. There are mainly two strands: One relates to the explanation of observed movements in nominal and real exchange rates in terms of relevant economic variables. A different strand focus on assessing exchange rates relative to economic fundamentals and coming to a judgment as to whether a particular exchange rate is misaligned, i.e., over or undervalued.

A number of empirical papers attempt to measure RER misalignments by operationalizing the theoretical concept of an "equilibrium RER"[3]. [4] One of those approaches was that developed by Wiliamson [WIL 85], which involves the calculation of what is called the Fundamental Equilibrium Exchange Rate (FEER). There are essentially two approaches to estimating a FEER. The first involves taking an estimated macroeconomic model, imposing internal and external balance, and solving for the real exchange rate which is then classified as the FEER. In this approach the equilibrium exchange rate is defined as the real effective exchange rate that is consistent with macroeconomic balance, which is generally interpreted as when the economy is operating at full employment and low inflation (internal balance) and a current account that is sustainable, i.e. that reflects underling and desired net capital flows (external balance).

This exchange rate concept is denoted as "fundamental" in that it abstracts from short-term factors and emphasizes instead determinants that are important over the medium term. An assessment of a country's exchange rate can be made by comparing its current level with the calculated FEER.

In general, empirical works for developed countries typically takes advantage of both extensive available data and the findings from large multi-country macro models (like the IMF's Multimod). Such extensive information is not available for the developing countries. Data is much less detailed and incomplete, and there are no comparable dynamic simulation models. Existing empirical work here is done mostly at a cross country level, using pooled data and estimating cross country regressions. In this study, we try out to use estimations for some lacked information in the FEER approach for our countries panel, namely elasticities, price imports and exports.

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3. This literature includes Williamson (1995) [WIL 85], Bayoumi , Clark, Symansky, and Taylor (1994) [BAY 94], and Edwards (1989, 1995) [EDW 96].
4. See Razin (1996) [RAZ]for additional discussion of this literature.

3. Methodology for current account determination

One question that should to be addressed when computing FEER, concerns the notion of what a sustainable current account is. One way of thinking about a sustainable current account position is if it is covered by long-term capital movements and if it stabilizes the external debt-to-GDP ratio at a given level. This is the approach taken by Williamson in his operationalization of the internal-external approach.

It remains, though, an open question, though, what the optimal level of this ratio is. Secondly, the current account can be viewed in terms of saving-investment balances. According to this approach, econometric models are estimated by regressing saving and investment on an array of explanatory variables, such as population growth, the fiscal position or openness etc. In our work, the econometric approach we use to estimate the equilibrium current account is the generalized method of moments or GMM.

In the following, we describe data used in our work, then we present an overview of the econometric methodology used, based on system GMM estimators.

3.1. *Used data*

We use an balanced panel of annual observations from 23 developing countries over the period 1979-2002.

In what follows we define and provide data sources for the current account deficit and its main explanatory variables:

CUR current account balance (as a percentage of GDP).

DEF government budget balance (as a percentage of GDP)

FDI foreign direct investment (as a percentage of GDP)

NFA net foreign assets (as a percentage of GDP)

GAP output gap (actual real GDP as a percentage of potential GDP)

YPPP real GDP per capita, in PPP dollars (as a percentage of that of the United States, base year = 1990).

DEPYOUNG dependency ratio, population under the age of 19 years as a percentage of population between 20-64 years old.

DEPOLD dependency ratio, population over the age of 65 years as a percentage of population between 20-64 years old.

OPENESS degree of openness (imports+exports as a percentage of GDP)

In order to avoid modelling cyclical dynamics, we consider only a small number of time periods, based on five-year averages.

3.2. *Methodology*

Panel data have been used in this study, which allows us to identify and differentiate within-country and cross-country effects. Whereas the former emphasize the current-account response to over-time changes in a given country, the latter consider how the differences in current-account deficits across countries are driven by their respective characteristics.

To control for country-specific factors and joint endogeneity, we use Arellano and Bover's system GMM estimator [5]. This estimates in a system the regression equations in differences and levels, each with its specific set of instrumental variables.

The regression equation for the within-effects model is given by,

$$y_{it} = \beta_1 y_{it-1} + \beta_2 X_{it} + \eta_i + \varepsilon_{it} \quad [1]$$

where y_{it} is the current account balance, as a ratio to GDP, of country i in year t; X_{it} is a set of its economic determinants; and η_i represents country-specific factors.

The regression equation for the estimation of cross-country effects is given by,

$$y_{i\tau} = \alpha_1 y_{i\tau-1} + \alpha_2 X_{i\tau} + \mu_{i\tau} \quad [2]$$

where the index τ denotes a five-year period.

Models used of within-country and cross-country effects are dynamic (i.e., the set of explanatory variable includes a lag of the dependent variable) and include some explanatory variables that are potentially jointly endogenous (in the sense of being correlated with the error term).

In what follows, we describe the methodology used to consistently and efficiently estimate the within-country effects model. The estimation of the cross-country effects model follows similar lines but is simpler given that it does not control for country specific factors.

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5. For detailed overview of Arellano and Bover's system GMM estimator, we refer reader to [ARE 95]

First-differencing equation 1 yields,

$$y_{i,t} - y_{i,t-1} = \beta_1(y_{i,t-1} - y_{i,t-2}) + \beta_2(X_{i,t} - X_{i,t-1}) + (\epsilon_{i,t} - \epsilon_{i,t-1}) \quad [3]$$

We address the validity of instruments in the current account deficit regression by considering a specification test suggested by Arellano and Bond (1991) [ARE 91] and Arellano and Bover (1995) [ARE 95]. This is called Sargan test of overidentifying restrictions, which tests the overall validity of the instruments by analyzing the sample analog of the moment conditions used in the estimation process. Failure to reject the null hypothesis gives support to the model.

3.3. *Results*

The dependent variable is the current account balance as ratio to GDP.

We have used dpd98 as a tool for computing the regression equation. DPD98 is a program in the Gauss Matrix programming language to compute estimates for dynamics models from panel data. A number of estimators are available, including the generalized method of moments (GMM) techniques developed in Arellano and Bond (1991) and Arellano and Bover (1995), as well as more familiar OLS, within-groups and instrumental variables procedures.

We present here the estimation results of the country effects and joint endogeneity regarding the relationship between the current account balance and its determinants. First, we discuss the results obtained with the developing countries. The GMM estimator is considered in our study as the preferred one in comparison with the other used estimators because of theirs particular shortcomings. Thus OLS estimator eliminates the country specific but does not account for the joint endogeneity of the explanatory variables.

We now discuss briefly the effects of each explanatory variable on the current account balance (Table 1). These results have shown that coefficients are significant with the predicted sign, for our panel.

Demographic profile of the population has given significative results: young dependency ratio seems to be negatively correlated with the current account, while old dependency ratio has a negative sign, as expected.

For **Stages-of-development**, we have found a positive relationship between income per capita and the current account. As for **Foreign Direct Investment**, it has a negative correlation with current account. While **Output gap** have negative correlation with current account. These coefficients seem to be consistant with our analysis.

Type of model	**Levels**	**F-D**	**O-D**	**F-D & L**	**O-D & L**	**Within Group**	**OLS**
Technique of estimation	GMM-IV	GMM-IV	GMM-IV	GMM-IV	GMM-IV	Within group	OLS
CUR (1)	0.3604 (3.6218)	0.2054 (1.4229)	0.2054 (1.4229)	0.1859 (1.3008)	0.1859 (1.3008)	0.3593 (2.3377)	0.3284 (-3.1906)
DEF	0.5213 (0.2283)	-0.5243 (-3.1440)	-0.5243 (-3.1440)	0.0720 (0.8347)	0.0720 (0.8347)	-0.2477 (-2.5654)	0.0447 (1.2372)
FDI	-0.2853 (-2.9423)	0.2533 (1.4621)	0.2533 (1.4621)	-0.1661 (-0.7317)	-0.1661 (-0.7317)	0.2687 (1.4862)	-0.1645 (-1.3398)
NFA	0.0929 (9.3440)	0.1728 (2.4064)	0.1728 (2.4064)	0.0824 (4.2554)	0.0824 (4.2554)	0.1516 (2.3181)	0.1005 (11.8712)
GAP	0.0270 (-2.4898)	0.1102 (-1.9857)	-0.1102 (-1.9857)	-0.0101 (-0.0967)	-0.0101 (-0.0967)	0.1024 (-1.6736)	-0.0892 (-2.7677)
YPPP	-0.0234 (-2.4086)	0.0584 (0.7234)	0.0584 (0.7234)	0.0081 (0.0895)	0.0081 (0.0895)	0.1141 (2.1680)	-0.0315 (4.8224)
DEPYOUNG	-0.8604 (-3.1856)	-0.2550 (-8.4787)	-0.5017 (-8.4787)	0.0580 (-4.0766)	0.0580 (0.0766)	-1.7495 (-5.8764)	1.3336 (4.4401)
DEPOLD	-0.5546 (-2.3696)	-0.7114 (5.1728)	1.7114 (5.1728)	-0.2865 (-0.1211)	-0.2865 (-0.1211)	14.7161 (2.7574)	-0.3301 (-0.7600)
OPENNESS	-0.0142 (3.0329)	-0.1287 (4.4393)	0.1287 (4.4393)	0.0117 (0.8947)	0.0117 (0.8947)	-0.0925 (3.4612)	-0.0113 (3.0603)
Sargan Test	13.729348	9.110247	9.110247	7.7663	7.7663	–	–

Table 1. *Within-country and cross-country effects: GMM estimations techniques: the dependent variable : Current Account balance (t-statistics are presented in parentheses)- Mediterranean Countries*

Results also indicate a positive correlation between **Net Foreign Assets** and current account. In fact, a country with net foreign assets, can access easily to capital markets due to its productivity increase.

Degree of openness is negatively related to its current account position. More opened economies have a better ability to service their external debts by export earnings. The openness variable might well be indicative of attributes such as liberalized trade that make a country attractive to foreign investment. Further, international trade often serves as an important vehicle for transfers of technology to developing countries.

Output gap has a positive relationship with the current account in our sample of panel data. An increase in the **Growth rate** of industrialized countries leads to a reduction in the current account deficits of developing countries. This can be explained by both a rise in the demand for the exports of devel-

oping countries and increased capital flows between industrialized countries at the expense of flows to developed countries.

Conclusion

Our objective here was to assess the empirical relationship between the current account balance and a list of its determinants relying mainly on the GMM estimator because of it capacity to deal with joint endogeneity and cross and within country effects. In next section, we will use the results founded here to compute equilibrium exchange rate and then exchange rate misalignement.

4. The Equilibrium Exchange Rate determination methodology

4.1. *Model description*

As discussed earlier, we have used a multinational model to calculate equilibrium exchange rates for three Mediterranean countries (Morocco, Tunisia and Egypt) as well as Europe, USA, and Japan. In the following we describe the equation systems that compose this multinational model, focusing on trade volume, international trade equilibrium in value and in volume, price equations (import and export), current account and real effective exchange rates, and so on.

Trade volume

Equation of exports in volume

$$X_i = X_{0i} DM_i^{\eta xi} COMPX_i^{\epsilon xi} \quad [4]$$

$$DM_i = \Pi_i M_j^{\alpha ij} \quad [5]$$

$$COMPX_i = PMX_i/(\frac{PX_i}{E_i}) \quad [6]$$

Equation of imports in volume

$$M_i = M_{0i} DI_i^{\eta mi} (\frac{PD_i}{PM_i})^{\epsilon mi} \quad [7]$$

for i = 1∼6 (1= Japan, 2= Europe, 3 = USA, 4 = Morocco, 5 = Egypt, 6= Tunisia)

International trade equilibrium in value and in volume

Equilibrium in value

$$\Sigma PX_i X_i = \Sigma PM_i M_i \quad [8]$$

Equilibrium in volume

$$\Sigma X_i = \Sigma M_i \quad [9]$$

pour i = 1 $\sim$ 7 (7 = the rest of the world)

Price equations

Import price equations

$$PM_i = PMM_i^{\alpha mi} PD_i^{1-\alpha mi} \quad [10]$$

$$PMM_i = \Pi_i (E_i PX_i / E_j)^{\mu ij} \quad [11]$$

Export price equations

$$PX_i^{=} PMX_i^{\alpha xi} P_i^{1-\alpha xi} \quad [12]$$

$$PMX_i^{=} \Pi_i (\frac{PX_i}{E_j})^{\lambda ij} \quad [13]$$

Consumer price equations

$$PD_i = PM_i^{ai} P_i^{1-ai} \quad [14]$$

Current account and real effective exchange rates

Current account

$$B_i = PX_i X_i - PM_i M_i - i_i F_i E_i F_i \quad [15]$$

Real effective exchange rates

$$R_i = \Pi_j (PD_j / E_j^{\nu ij}) / (PD_i / E_i) \quad [16]$$

pour i = 1 $\sim$ 7 (7 = the rest of the world)

Where :

X_i= exports in volume; DM = world demand in volume; DI = internal demand in volume; COMPX = export price competitiveness; PX = export prices; PMX = competitor exports prices; M = import in volume; PM = import prices; PMM = world import prices; PD = consumer prices; P = producer prices; E= nominal bilateral exchange rates vs dollar; R =real effective exchange rate; B = current account balances; i = interest rates for its external debt; F= net external debt.

In differential logarithms, the previous model is transformed into:

$$x_i = \eta_{xi}\Sigma\alpha_{ij}m_j + \epsilon_{xi}(pxm_i - px_i + e_i) \quad [17]$$

$$pxm_i = \Sigma\lambda_{ij}(px_j - e_j) \quad [18]$$

$$m_i = \eta_{mi}di_i + \alpha_{mi}\epsilon_{mi}(pd_i - pmm_i) \quad [19]$$

$$pmm_i = \Sigma\mu_{ij}(px_j - e_j) + e_i \quad [20]$$

$$\Sigma wx_i * x_i = \Sigma wm_i * m_i \quad [21]$$

$$\Sigma vx_i * (x_i + px_i) = \Sigma vm_i * (m_i + pm_i) \quad [22]$$

$$px_i = \alpha_{xi}pxm_i + (1 - \alpha_{xi})p_i \quad [23]$$

$$pm_i = \alpha_{mi}pmm_i + (1 - \alpha_{mi})pd_i \quad [24]$$

$$pd_i = a_ipm_i + (1 - a_i)p_i \quad [25]$$

$$b_i = \mu_iT_i(px_i + x_i - pm_i - m_i) - \mu_iT_i\sigma_{xi}(e_i - pm_i - m_i) \quad [26]$$

$$r_i = e_i - pd_i + \Sigma\nu_{ij}(pd_j - e_j) \quad [27]$$

wx_i, wm_i, vx_i, vm_i = the shares of country i in the world export in volume, the world import in volume, the world export in value and the world import in

value, respectively; $T_i = PX_iX_i/PM_iM_i$ = ratio of exportation to importation; $\mu_i = PM_iM_i/P_iY_i$ = openness ratio ; F_i = net external position in dollars; i_i= interest rates; $\sigma_{xi} = i_iE_iF_i/PX_iX_i$ = ratio of external debt services to exports.

The way the equation 26 is derived should be explained:

$$b_i = B_i/P_iY_i - B_i^e/P_i^eY_ie^{=}d(B_i/P_iY_i) \quad [28]$$

$$= \mu_i d(B_i/PM_iM_i) = \mu_i d((PX_iX_i - PM_iM_i - i_iE_iF_i)/PM_iM_i) \quad [29]$$

$$= \mu_i dT_i - \mu_i d(i_iE_iF_i/PM_iM_i) \quad [30]$$

$$= \mu_i dT_i - \mu_i(i_iE_iF_i/PM_iM_i)(e_i - pm_i - m_i) \quad [31]$$

$$= \mu_i T_i(px_i + x_i - pm_i - m_i) - \mu_i T_i\sigma_{xi}(e_i - pm_i - m_i) \quad [32]$$

For i = 1 $\sim$ 6 (1 pour japan, 2= USA, 3 = Europe, 4 = Morocco, 5 = Tunisia, 6 = Egypt)

$$X_i = X_{0i}D_i^{\eta xi}(EF_iP * PX_i)^{\epsilon xi} = X_{0i}D_i^{\eta xi}R_i^{(1-\alpha xi)\varepsilon xi} \quad [33]$$

$$M_i = M_{0i}DI^{\eta mi}(P_i/PM_i)^{\epsilon mi} = M_{0i}DI^{\eta mi}R_i^{-\alpha mi*\epsilon mi} \quad [34]$$

$$PX_i = (EF_iP*)^{\alpha xi}P_i^{-\alpha xi} = R_i^{\alpha xi}P_i \quad [35]$$

$$PM_i = (EF_iP*)^{\alpha mi}P_i^{-\alpha mi} = R_i^{\alpha mi}P_i \quad [36]$$

$$B_i = PX_iX_i - PM_iM_i - iF_iEF_i \quad [37]$$

$$R_i = (EF_iP*)/P_i \quad [38]$$

P* = world prices; D* = world demand in volume; EF_i = nominal effective exchange rates of country i; R_i= real effective exchange rates.

Using logarithmic derivatives with $x_i = (X_iX_i^e)/X_i^e$ and the same notations as previously:

$$x_i = \eta_{xi} d_i * + (1 - \alpha_{xi}) \epsilon_{xi} r_i \quad [39]$$

$$m_i = \eta_{mi} di_i - \alpha_{mi} \epsilon_{mi} r_i \quad [40]$$

$$px_i = \alpha_{xi} r_i + p_i \quad [41]$$

$$pm_i = \alpha_{mi} r_i + p_i \quad [42]$$

$$b_i = \mu_i T_i (px_i + x_i - pm_i - m_i) - \mu_i T_i \sigma_{xi} ((1 - \alpha_{mi}) r_i - p * - m_i) \quad [43]$$

$$r_i = ef_i + p * - p_i \quad [44]$$

The real effective exchange rate, with respect to the equilibrium one in logarithmic differential($r_i = R_i - R_i^e / R_i^e$), can be estimated in a simpler way than in the case of multinational model using equations 39$\sim$ 43

$$r_i = ((b_i / \mu_i T_i) - \eta_{xi} d_i * + (1 - \sigma_{xi}) \eta_{mi} di_i - \sigma_{xi} p*) / S \quad [45]$$

with

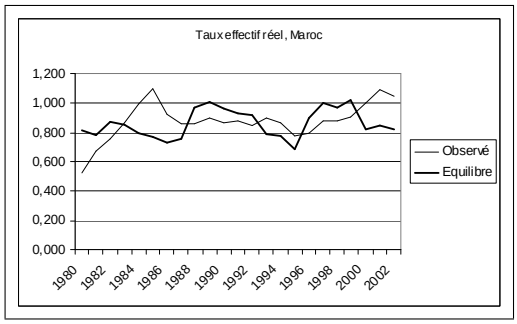
$$S_i = (1 - \alpha_{xi}) \varepsilon_{xi} + \alpha_{xi} + \alpha_{mi} \epsilon_{mi} - \alpha_{mi} - \sigma_{xi} (1 + \alpha_{mi} \epsilon_{mi} - \alpha_{mi}) \quad [46]$$

4.2. *Results*

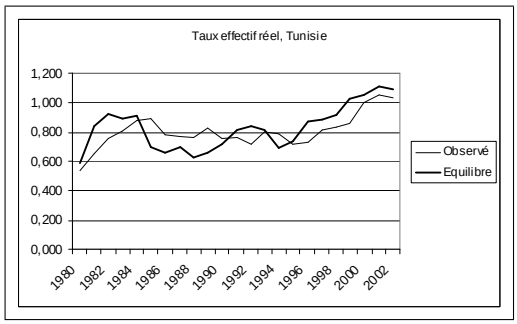
Many studies have approached the problem of equilibrium exchange rates determination of Europe, USA and Japan. In the following, we will focus only on the graphics (figure 1), and their analysis, related to the equilibrium exchange rates for the three Mediterranean countries: Morocco, Tunisia, and Egypt.

Morocco

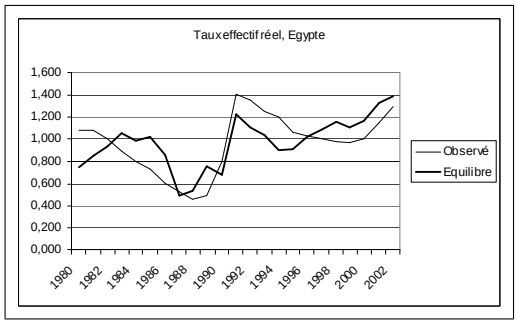
During 1980's, and following the application of the structural adjustments program from 1983, moroccan change policy has as an objective to generate a slow movement of real depreciation. 1990's will see an accentuation of liberalization movement. Authorities have chosen to concentrate theirs efforts on the consolidation of financial system and to alleviate the debt burden. It's from 2001 that moroccan authorities have devaluated de facto the Dirham value by 5%. They have modified the weighting of different currencies that compose the basket by giving more importance to Euro with respect to Dollar.



(a) Morocco



(b) Tunisia



(c) Egypt

Figure 1. *Equilibrium Exchange rates for three Mediterranean countries*

According to our estimations, we can notice that, from the end of 1970's to the mid of 1980's, the Dirham was over-evaluated, while an under-evaluation is clearly observed from the mid of 1980's to the mid of 1990's.

Tunisia

As for the tunisian Dinar, we notice that there has been a succession of depreciations and appreciation periods. However, the continuous depreciation in equilibrium exchange rate since the second mid of 1990's was due to some extent to a slowdown of the tunisian growth model based on manufacturing exports and tourism because of international competitiveness. We notice that in the end of 1990's, the tunisian currency seems find its equilibrium after periods of misalignments. The 1981-84 period has known a strong domestic demand and inflationist tensions that have contributed to a real over-evaluation of the national currency that's has been ended by the adoption of structural adjustment program in 1986 and the strong nominal depreciation of Dinar. Finally, a period of real over-evaluation of the tunisian dinar covers the beginning of 1990's owing to the golf crisis and to the slowdown of growth in the european commercial partners countries of Tunisia.

Egypt

The real exchange rate of the egyptian pound has experienced several developments. First, we observe that is was highly overvalued till the reform of 1991, which moved the real effective exchange rate closer to its equilibrium level. We find also a large appreciation of the equilibrium real exchange rates in the period 1991-95.

In the first part of this period up to the beginning of 1993, the real effective exchange rates is substantially misaligned with the equilibrium rate, since then it has moved closer to equilibrium, and it was in equilibrium in 1993-1994 in Egypt, and, in spite of a subsequent overvaluation in the period 1995-1996.

Then, the real exchange rate experienced appreciation further exacerbated by the 1997 Luxor incident and the East Asian crisis, in addition to other numerous external shocks such as Second Palestinian Intifadah of 2000, which had two major consequences massive capital outflows, and a drop of tourism receipts, leading, through two different channels, to the Egyptian pound devaluation.

5. Conclusions

The modelling of real exchange rate misalignments and current account balance has been, and remains, one of the main enduring and challenging topics of research in open-economy macroeconomics. Until quite recently, studies of the two variables have proceeded on largely separate tracks. On the one hand, the typical examination of the real exchange rate has relied upon either interest rate and purchasing power parity conditions or trends in productivity. On the other hand, the econometrics analysis of the current account balance has often been couched in terms of a composite-good world, at least when the framework is intertemporal in nature. Moreover, the role of exchange rate alignment as

a crucial ingredient of economic policy is frequently highlighted by empirical literature.

The main goal of this paper was to tackle the issue of the real exchange rate misalignments, defined as the gap in percentage between observed exchange rates and equilibrium ones, for some Mediterranean countries for a period 1979-2002 following the "Fundamental Equilibrium Exchange Rates" approach (FEER in the sense of Williamson 1985, 1994). The fundamental equilibrium exchange rate is estimated using an empirical approach in the framework of a multinational model, where the internal and external balances are estimated. We have also addressed the problem of Equilibrium Current Account determination, using a novel approach of dynamic panel data. The method used is the Generalized Method of Moments or GMM used to assess the equilibrium current account within a dynamic panel data framework.

Facing the exigences of international markets, these countries should consider some prospective considerations, such as the economy openness, the structural reforms to sustain productivity and efficiency. Which require to those countries to rethink their choice of exchange rate regime that could lead them to a "good" exchange rate more closer to the equilibrium one.

6. References

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