Does a Free Trade Area Favor an Optimum Currency Area? The Case of Morocco and the European Union

Lahcen Achy[1] and Juliette Milgram[2]

Abstract

The purpose of this paper is to investigate simultaneously the potential effects of European Union's Association Agreement with Morocco and the adoption of the Euro as a single currency on exchange rate regime of Moroccan Dirham. Since Morocco depends heavily on EU as a market for its exports and a source for its imports, limited variability of the DH against the Euro seems à priori, to be an appropriate policy option. This option may even be strengthened within the FTA. However, the nature and the composition of Moroccan exports are typical of North-South trade with little diversification and high concentration on textiles and agricultural products. From this perspective, the risk of asymmetric shocks is more likely, which reduces the expected gains from nominal anchorage.

This paper aims at contributing to the future exchange rate regime in Morocco and focuses on three main issues. The first issue is to investigate the potential effects of the FTA on trade structure and industrial specialization in Morocco. To this end, a computable general equilibrium model is used to simulate macroeconomic and sectoral effects of the implementation of the FTA on industrial sector. The second issue is to estimate the real exchange rate equilibrium based on macroeconomic fundamentals and assess the degree of misalignment of the actual value of the Dirham. Finally, the question of exchange rate arrangement is examined by combining the expected effects of free trade area between Morocco and the European Union, the existing degree of misalignment of the Dirham, and considering the adoption of the Euro as a single currency in 12 European countries. Our results seem to suggest that the implementation of a FTA may lead to a reallocation of industrial production toward an even more specialization in labor-intensive products. Under such circumstances, the symmetry of shocks, as an important condition for anchoring the DH to the Euro, is not satisfied making this option non-desirable.

[1] Université Libre de Bruxelles (Belgium) and Institut National de Statistique et d'Économie Appliquée (INSEA, Morocco). (lachy@ulb.ac.be)

[2] Université de Grenade (Spain) and TEAM, Paris 1 (France).

Introduction

The perspective of the Euro-Mediterranean free trade area, and the adoption of the Euro as a single currency in Europe raises once again the debate on the choice of the appropriate exchange rate regimes for Mediterranean countries. Since Morocco depends heavily on EU as a market for its exports and a source for its imports, limited variability of the DH against the Euro seems, à priori, to be an appropriate policy option. This option may even be strengthened within the FTA. However, the nature and the composition of Moroccan exports are typical of North-South trade with little diversification and high concentration on textiles and agricultural products. From this perspective, the risk of asymmetric shocks is more likely, which reduces the expected gains from nominal anchorage.

The rest of the paper is organized a follows. The first section presents briefly the FTA agreement between Morocco and the EU. It also reviews the criteria underlying the decision to joint a currency area. The second section investigates the potential effects of the FTA on trade structure and industrial specialization in Morocco. To this end, a computable general equilibrium model is used to simulate macroeconomic and sectoral effects of the implementation of the FTA on industrial sector. The third section estimates the real exchange rate equilibrium based on macroeconomic fundamentals and assesses the degree of misalignment of the actual value of the Dirham. Section four examines the issue of exchange rate arrangement by combining the expected effects of free trade area between Morocco and the European Union, the existing degree of misalignment of the Dirham, and considering the adoption of the Euro as a single currency in Europe. The results seem to suggest that the implementation of a FTA may lead to a reallocation of industrial production toward an even more specialization in labor-intensive products. Under such circumstances, the symmetry of shocks, as an important condition for anchoring the DH to the Euro, is not satisfied making this option non-desirable in the near-term.

1. FTA between Morocco-UE and Currency Area Criteria

1.1. FTA between Morocco-UE

The European Union's (EU) free trade agreement with Morocco aims at establishing, by the end of a 12-year transition period (starting from 2000), a free trade area (FTA) for most products and seeks to promote and enhance economic growth. The main features of the agreement are (1) progressive elimination of all tariffs on industrial goods over 12 years. This implies that Morocco has to dismantle the protection on the industrial goods imported from EU since its industrial exports already received preferential customs treatment, (2) gradual and limited liberalization for agricultural products (3) Adoption of a wide range of trade-related regulations such as harmonization of rules and regulations concerning competition, intellectual property, and industrial standards.

Since 1976, Morocco has benefited from a duty-free access to the European market for its industrial products. For agricultural products, which represents about 20% of Moroccan exports to the EU, Morocco is granted preferential treatment. Nevertheless, some tariff and non-tariff barriers are still important as shown in table (1). Liberalization in the agricultural sector is expected to increase Moroccan sells in Europe of fruits and vegetables either fresh or manufactured. However, south European countries are reluctant to an extension of trade preferences to Morocco given the consequence of such measure on their market shares in Europe.

Table 1: EU tariffs on Moroccan products in 1998

	Simple tariff (1)	Tariff max.	Weighted Tariff (2)	Share of the Sector imports In total EU imports from Morocco Mean 93-96
Agriculture	3,05	22,50	8,41	13,47
Mining industries	0,00	0,00	0,00	6,05
Energy	0,00	0,00	0,00	1,12
Food	5,01	404,00	4,63	5,95
Textile, clothing and leather	0,00	0,00	0,00	44,79
Others manufacturing industries	0,00	0,50	0,04	2,43
Metal, electric, mechanic	0,00	0,00	0,00	22,07
Chemical products	0,00	0,00	0,00	4,12
Total	**1,08**	**404,00**	**1,41**	**100,00**

Notes: (1) Simple tariffs include tariff equivalents of non ad-valorem. (2) Weighted by 1998 imports.
Source: Milgram J. (2001).

Given the low level of protection currently imposed by the European Union, the FTA agreement is mainly a unilateral removal of Moroccan protection. The average tariff rate is going to decline from 33,7% (initial tariff) to 7,7% (final tariff) by the year 2012 as reported in table 2. By the end of the dismantling period of twelve years, *50% of Moroccan imports from the EU will be entering Morocco under a duty-free regime*[3]. Before the FTA agreement, industrial products are mainly imported from the EU while agricultural products, not covered by the first stage of the agreement, originate more often from the rest of the world (ROW). Although tariff-dismantling process is regional and involves quasi-exclusively industrial products, its effects are more general and cover almost the entire imports from Europe.

Table 2. Moroccan tariffs before and during the dismantling process

	Initial and forthcoming tariffs				Share in imports Mean 93-96		Share of fully liberalized imports			Initial weighted tariffs		
	Initial	**2000**	**2005**	**2012**	**UE**	**ROW**	**2000**	**2005**	**2012**	**UE**	**ROW**	**TOT**
Agriculture	44,1	43,9	43,4	43,4	38,9	61,1	0,0	0,0	0,0	38,6	35,3	36,6
Extractive	23,8	15,0	1,5	0,0	3,6	96,5	0,5	3,4	3,6	20,0	17,5	17,6
Energy	23,8	17,6	1,7	0,0	51,4	48,6	0,0	3,0	51,4	22,7	19,2	21,0
Food	68,2	66,5	62,0	56,9	33,2	66,8	1,0	2,7	9,1	70,3	69,1	69,5
Textiles, clothing, leather	44,0	43,3	28,9	0,0	71,9	28,1	0,0	16,3	71,9	38,4	27,4	35,3
Others manufactures	38,1	32,7	15,7	0,1	71,0	29,0	1,2	16,9	71,0	37,3	31,4	35,6
Metal, electric	20,4	13,7	5,3	0,0	74,0	26,0	29,8	44,8	74,0	19,7	18,1	19,3
Chemistry	26,8	21,3	7,5	0,0	71,1	28,9	1,3	32,3	71,1	26,9	20,9	25,1
Total	**33,7**	**29,2**	**18,2**	**7,2**	**56,5**	**43,5**	**11,0**	**23,5**	**50,4**	**28,7**	**28,5**	**28,6**

Source: TRAINS 98, CNUCED. The tariffs used are those of 1996. The structure of imports refers to the mean of imports from 93 to 96.

Finally, consumption goods are expected to be liberalized at a slower pace, postponing the impact on domestic output to the end of the transition period[4]. However, for some products such as electrical appliances and transport material for which domestic demand is large and local production is insufficient, the dismantling takes place during the first stage. Large trade imbalances in these sectors are expected by the end of the transition period.

[3] Authors' computation from table 2.
[4] Only some food products (cakes and sweets) are concerned by tariff dismantling.

1.2. Currency area criteria and Moroccan exchange rate regime

According to the literature, there are several criteria to assess the appropriateness for a given country of a nominal anchorage to another country's currency. The trade share with the country to which it intends to peg is high, the shocks it faces are similar to those facing the country to which it pegs, the involvement with international capital markets is low; the country is willing to give up monetary independence for its partner's monetary credibility; its fiscal policy is flexible and sustainable, its labor market is flexible, and finally it has high international reserves.

On the basis of these criteria one may investigate to what extent a nominal anchorage of the Dirham to the Euro is an appropriate exchange rate policy for Morocco. This paper focuses on the first three criteria; the others are beyond its scope.

The Euro zone is the major trading partner of Morocco and the major source of service revenues (tourism, workers' remittances and FDI). In 1998, for instance, roughly 60% of Moroccan trade took place with the EU.

Under FTA, trade with Europe is expected to increase, and integration of European financial markets is expected to lower borrowing costs, which may offer Morocco more attractive financing opportunities in Europe. All these considerations motivate a limited variability of the Moroccan currency vis-à-vis the Euro.

However, Moroccan export structure is little diversified and its trade with the EU is typical of North-South relationship with a high concentration of Moroccan exports on cloths and textiles (one third) and agricultural products (one fifth). This lack of output and export diversification is likely to weaken the ability of Moroccan economy to absorb external shocks, and may increase its vulnerability to any potential asymmetric shocks with Europe. Under such circumstances, a nominal anchorage to the Euro reduces the possibility of using the exchange rate to buffer against external shocks.

The implementation of a FTA between the EU and Morocco will mainly consist in a unilateral dismantling of Moroccan trade barriers that can first result in trade balance

worsening. A fixed nominal exchange rate of the Dirham vis-à-vis the Euro would lead to a real appreciation of the Dirham and hence would harm Moroccan competitiveness. But this situation could not be sustainable since the external debt burden would cause high fiscal pressures already initiated by the dismantling. The choice of the anchoring currency seems to depend also on the currencies in which Moroccan debt is labeled.

Trade liberalization is expected to generate large efficiency gains in production due to the cost reduction of intermediate goods and the intensification of competition in Europe. However, transition and adjustment costs may also be important. A relatively flexible exchange rate regime could be desirable given its ability to offset or at least minimize the expected static losses.

An extension of OCA theory shows that the criteria may be met partly endogenously (Frankel and Rose 1998). In particular, the participation in a currency area or simply the adoption of a nominal anchorage may enhance trade relationships by reducing transaction costs and exchange rate risk. This intensification of trade, in turn, affects the nature and hence the degree of synchronization of business cycles.

If the elimination of exchange rate volatility among partners leads to higher specialization, it very likely that the shocks will be more asymmetric, and country-specific (Krugman [1993]). A flexible exchange rate regime allows large adverse shocks to be more easily absorbed while the costs associated with the collapse of a hard peg may be very large[5].

However, if the removal of exchange rate volatility results in an intensification of intra-industry trade and shocks dominated by demand shocks, the cycles and expected to be more synchronized and highly correlated among countries. In such case, it is less costly to give up monetary independence and may be risky, for credibility reasons[6], to run an independent monetary policy.

[5] Tornell and Velsco (1999): show that the difference between fixed a flexible regimes is in the inter-temporal distribution of the costs. Flexible rates allow the effects of unsound policies to manifest themselves immediately through movements in the exchange rate and relative price adjustment while fixed rates allow postponing them.
[6] If credibility cannot be built at home, then it can be imported by fixing the exchange rate to a hard-money country.

2. Potential effects of the FTA on trade and industrial specialization in Morocco

The assessment of expected costs and benefits of the FTA with EU has generated a vast empirical literature. Overall, the agreements are expected to be beneficial in the long run, but there will be costs in the short to medium term. Abed George (1998), focuses on the revenue impact of the agreements, he considers that this impact depends on the initial share of imports taxes in total tax revenue, the import demand response to tariff reductions, the share of imports from the EU in total imports, and the strength of elasticities of substitution between imports from the EU and from third countries (as indication of the potential for trade diversion) as well as between all import-competing goods and services produced domestically (as an indicator of the potential for erosion of the domestic tax base).

Havrylyshyn O. (1997) provides a comprehensive overview of the challenges that face policy makers in southern Mediterranean region and points out that the agreements need to be complemented by structural reforms. Ghesquiere H. (1998) corroborates this view and argues that the benefits could be substantial, but only if accompanied by an extension of trade liberalization to services and agriculture, an improvement of the environment to stimulate foreign direct investment, and an appropriate fiscal and exchange rate policies.

Using a growth accounting framework, Rutherford et al. (1995) estimated the overall welfare gains for the Moroccan economy in a range of 1.5% to 2% in annual GDP once the agreement is fully implemented. The authors do not include in their estimation other beneficial impacts such as the rate at which best practices and technologies from abroad are going to be absorbed in the economy as a result of wider openness.

This paper shows that the FTA between Morocco and European union is likely to accentuate Moroccan specialization in low value added industrial products. We simulate trade barriers dismantling effects vis-à-vis the EU using a computable general equilibrium model. The results are reported in table (3). At the aggregate level, trade liberalization leads to a small decline of output. The expected increase of welfare is also relatively small. These findings are less optimistic than those of previous simulations (Rutherford et al. [1995] among others).

However, our model does not capture the dynamic gains that liberalization might involve such as economies of scale or technological transfers. Moreover, this model does not account

for inter-temporal behavior of agents and does not deal with the effects on agents' anticipations after the announcement of liberalization process. Nevertheless, this framework fits well within a medium term analysis and seems to provide a good starting point to investigate the impact of the implementation of a FTA between Morocco and EU on Moroccan economy.

According to our results, the dismantling of trade barriers is expected to have a higher positive effect on exports that more than compensate the increase in imports (in volume). As a result, trade deficit (in volume) is expected to shrink but not in value due to the exchange rate depreciation. This exchange rate depreciation is a mechanical outcome of trade liberalization since it avoids trade balance to worsen, at least in volume.

Under fixed nominal exchange rate, the adjustment would take place not through nominal exchange rate but through relative prices[7]. Our model doesn't allow examining the consequences of such an option. However, it seems that gains from price-competitiveness are unlikely for Morocco at least in the short-run. In addition, the lack of price-flexibility would delay and complicate any adjustment process.

A relative flexibility of nominal exchange rate is then required in order to support the implementation of the FTA between Morocco and European Union. This is consistent with the finding of Alonso-Gamo et al. (1997) who examine the effect of trade liberalization on the external equilibrium and suggest that some depreciation of exchange rate might be needed to restore equilibrium in the current account. In the absence of the appropriate exchange rate adjustment, the trade deficit would increase, requiring a sizable depreciation or a reversal of liberalization.

We have already underlined that the implementation of a FTA may lead to a reallocation of industrial production toward more specialization. The results show a significant negative effect of trade liberalization on manufactured industries such as metal, mechanical and electrical products. These industries bear directly the effects of tariff dismantling and are expected to experience a significant output decline.

[7] In our model, the consumer price index is constant. This implies that nominal exchange rate fluctuations are equivalent to real exchange rate fluctuations.

Table 3. Impact of the EU–Morocco FTA[8]

	Production	Demand	Labour	Return on capital	Local Demand	Imports	Exports	Imports From the UE	Share in X	Share in M
Metal, mechanic, electric	-5,1	-0,7	-8,8	-6,7	-5,3	3,5	-1,7	10,7	-5,1	0,6
Others manufactured industries	-4,3	-1,0	-8,5	-6,4	-4,5	12,7	-1,6	25,4	-5,0	9,6
Chemicals	1,3	0,1	2,2	4,6	0,6	-0,8	2,3	-0,2	-1,2	-3,6
Energy	0,3	0,9	2,5	4,8	0,1	2,2	3,0	5,5	-0,5	-0,7
Extractive industries	1,7	0,5	5,5	7,9	1,4	-0,4	1,9	6,1	-1,6	-3,2
Textiles, clothing, and leather	1,8	5,0	3,2	5,5	1,1	19,7	3,6	33,1	0,0	16,3
Agriculture	0,1	-0,3	0,3	2,6	-0,2	-1,0	1,9	-1,0	-1,6	-3,8
Food	2,2	1,9	3,5	5,9	2,1	0,5	3,4	0,5	-0,1	-2,4
Tourism	9,8	-0,1	15,7	18,3	5,8	-1,7	10,0		6,2	-4,5
Transport and communications	1,0	0,3	2,0	4,3	0,5	-4,7	3,4		-0,2	-7,4
Others tradable services	2,0	1,2	2,5	4,8	1,7	-2,4	4,0		0,4	-5,1
Financial Services	0,2	0,2	0,7	3,0	0,2	-2,3	1,5		-2,0	-5,0
Building	-5,9	-5,9	-7,4	-5,2						
Trade	-0,8	-0,8	-1,4	0,9						
Others non tradable services	-0,2	-0,2	-0,2	2,1						
Total	***-0,1***	***0,0***			***-0,1***	***2,9***	***3,6***	***9,9***		

Wages	***2,3***
Investment	***-8,8***
GDP	***0,0***
Welfare	***2,6***
Exchange rate (Dirham / foreign currency)	***3,8***
Trade balance (in foreign currency)	***-2,1***

[8] (*) indicates that the sector is covered tariff-dismantling.

With regard other manufacturing sectors such as chemical industry, energy, extractive industries, textiles and clothing; tariff dismantling is expected to reduce the cost of imported inputs and impact positively their output. Exports are expected to grow in these sectors, and in particular textiles and clothing sectors. These findings suggest that trade liberalization process would lead to an even higher specialization of Moroccan industry towards traditional sectors (Textiles, clothing, Chemicals) at the extent of some promising sectors such as vehicles, electric and electronic.

The channels through which trade liberalization affects output are not the same among these industries. For textiles and clothing, the access to cheaper inputs boosts imports (20% of increase), and induces a reduction in output price. For the other sectors this substitution mechanism of local output by imports is not significant. As a result, the impact of tariff dismantling on local demand, in these sectors, is negligible.

Others sectors are expected to be affected by the implementation of the FTA although they are not directly covered by the dismantling of tariffs. According to our results, food and agriculture, tourism, transport and communication, financial services belong to this category. The relative price of goods and services produced by these sectors increases which stimulate their output. Domestic demand increases but less than domestic supply, which results in a decline in imports. Exchange rate adjustment explained earlier, sustain this process and contributes to improve current account balance. Our results show that the positive effect on tourism industry is quite strong. Output in this sector is expected to grow by 10% and employment by 16%.

Similarly, the relative price of non-tradable services is also expected to increase (except for building sector). However, this price increase does not arise from higher demand. The demand on domestic trade and non-tradable services are even expected to experience a slight decline. The demand on building dwindles by 6% due to the contraction of investment, the most prominent component of the building demand.

To sum up, tariff-dismantling on industrial products with European union is expected to boost food sector, and non-tradable services that already represent the backbone of the Moroccan value added and output. Tourism is one of the key sectors that are expected to benefit from the liberalization process. Imports of textiles and others manufactured products from the EU

are likely to experience a large increase, which in turn may modify the import structure of Morocco.

This simulation exercise of the potential effects of the implementation of the free trade area between the EU and Morocco using CGEM allows us to draw very useful conclusions on the reallocation of industrial production and its consequences in term of employment and current account balance. The most important insight is that the implementation of a FTA may lead, at the least in the medium term, to a reallocation of industrial production toward an even more specialization in traditional labor-intensive products at the extent of more modern capital-intensive sectors.

These finding seem very worrying since openness and trade liberalization are also known to facilitate technological transfers and productivity improvement. It should be reminded that theses dynamic effects are not fully captured in our model and their omission may have distorted our results. One interpretation of our results is to consider that they represent a baseline hypothesis in which no restructuring effort is undertaken by industrial sector to face the effects of tariff dismantling. Under this assumption, these results may be used to design and assess the appropriate industrial policy to contract the damaging effects of tariff dismantling.

Turning to exchange rate policy, our results show that an exchange rate depreciation of the Dirham may be required to curb the potential effects of trade liberalization on trade balance and current account. The next section implements a model-based approach of real exchange rate equilibrium to determine the equilibrium real exchange rate and assess the degree of overvaluation of Moroccan Dirham.

3. Real exchange rate equilibrium and misalignment

The purpose of this section is to estimate the equilibrium real exchange rate and derive the degree of misalignment for the Dirham. There is a consensus in the literature on the critical importance of the real exchange rate in macroeconomic management in developing countries. In Edwards' and Elbadawi's framework, real exchange rate is defined as the relative price of tradable to non-tradable goods. This definition is more in line with a small open economy that exerts little control on its terms of trade. Edwards' model allows for both real and nominal

factors to play in the short-run, but only real factors, the fundamentals, have an effect on ERER in the long run. In the short run, real exchange rate is affected by macroeconomic policies such as an excess supply of domestic credit, a fiscal deficit or a nominal devaluation. Edwards' empirical evidence shows that inconsistent macroeconomic policies lead to real exchange rate overvaluation and that nominal devaluation can be a prominent tool to hasten the adjustment process towards RER equilibrium[9].

Real exchange rate in our empirical framework refers to the real effective exchange rate index computed for each country with respect its European trading partners. So far we have estimated the relationship between real exchange rate and economic fundamentals. To assess the size of misalignment, the aim of the next step is to determine the equilibrium value of real exchange rate (ERER) over the sample period using the long-run parameter estimates and sustainable values of the fundamentals. Real exchange rate misalignment is defined as the percentage difference between the estimated equilibrium RER and the actual values of RER. This definition ensures that a positive (negative) value of misalignment will refer to an overvaluation (under-valuation).

Figure (1) reports the size of misalignment of real exchange rate for the Moroccan Dirham over the period 1985-97 using sustainable values of the fundamentals as computed on the basis of the methodology presented by Achy (2001).

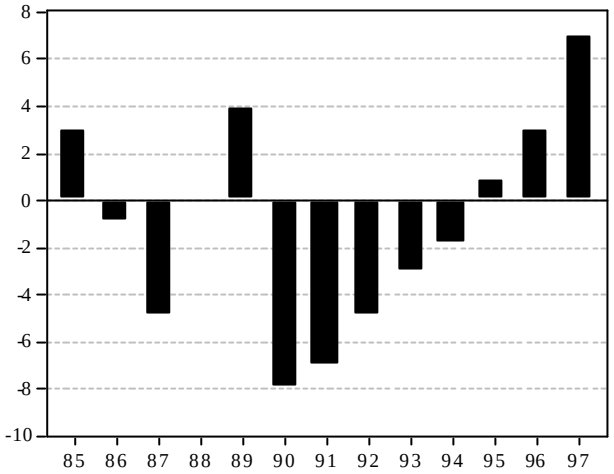
According to our computation, the real exchange rate was undervalued 5 percent in 1987 and exactly valued in 1988. Morocco experienced real growth of 10.4 percent and a current account surplus in 1988 (World Bank 2000). This expansion was short-lived since the economy slowed in the subsequent years and the current account surplus turned into deficit due the worsening in terms of trade. Morocco's real exchange rate appears to be overvalued by 4 percent in 1989, although nominal exchange rate of the DH was officially devalued by 8.9 percent during this year.

In 1990, Moroccan authorities forced a second devaluation of 9.3 percent. By the end of this year, our estimates indicate that Morocco's real exchange rate was undervalued by 8 percent. Although, the under-valuation lasted for several years (1990-94), its effects in promoting

[9] The coefficient of nominal devaluation ranges from 0.47 to 0.7, which means that between 47% and 70% of nominal devaluation is converted into real devaluation in the first year. (Edwards 1989).

exports and FDI and providing incentives to restructuring the industrial sector are questionable. Current account deficit to GDP stood at 2.4 percent in 1994 and 4.7 percent in 1995.

The estimated degree of misalignment of Moroccan Dirham (poitive value indicates an overvaluation of the DH)



Source: Achy, L. (2001)

A steady appreciation took place in the subsequent years partly as a result of Morocco's economic fundamentals worsening owing to the high frequency of drought years. Overall, equilibrium real exchange rate had appreciated by 15 percent between 1990 and 1997, starting from an undervaluation of 8 percent in 1990, and ending by an overvaluation of 7 percent in 1997. If this trend were to continue, policy-makers would need to react either through a nominal devaluation or by adapting exchange rate regime to the new economic and financial context.

4. FTA and Appropriate exchange rate regime for Morocco

The degree of flexibility of an exchange rate regime depends on a number of structural characteristics of the economy, such as the size and the degree of openness of the economy, the degree of economic and financial development, the geographical concentration of trade, the degree of labor mobility, the nature of shocks to the economy and policy preferences.

Exchange rate regime in Morocco is fixed and the nominal value of the Dirham is determined Dirham in relation to a basket of major foreign currencies according to the weight of Morocco’s foreign trade partners and the structure of currencies used in external settlements. The exact composition of the basket is kept secret by the central bank. Recently (April 2001)

this composition was modified in order to allow the Euro to have more weight in the determination of Moroccan exchange rate. The large appreciation of the Dirham against the Euro in 2000 seems to indicate that the Euro was under-represented with respect to the real weight of Euro zone in Moroccan economy. The purpose of this section is to examine, in the light of our simulation results, weather a nominal anchorage to the Euro may be appropriate in the perspective of the implementation of the FTA.

With regard to the criteria provided by the literature to assess the opportunity of a nominal anchorage, it appears that Morocco and the EU don't fulfil some crucial conditions. Beyond their very unequal development levels, the implementation of the FTA, and its effects on industrial specialization indicate that the two regions are likely to be exposed to asymmetric shock. A nominal anchorage of the Moroccan currency on the Euro may lead to an appreciation of the DH, already overvalued according to our estimations, and would force Moroccan authorities to opt for restrictive policies in order to curb inflation and avoid devaluation.

Our computations suggest that the implementation of the FTA is expected to result in very small gains in terms of total output unless important restructuring efforts are undertaken. In this context, the exchange rate policy may play a crucial role in proving incentives for exports (Achy and Sekkat 2000). Therefore, a restrictive exchange rate policy may not be appropriate and would increase transition costs of the FTA.

Under the assumption that our results reflect reliably the effects of the implementation of the FTA, trade between Moroccan and Europe is likely to replicate the typical north-south trade. Overall, output in manufacturing sector is expected to decline, more specifically in capital-intensive industries. Our results don't indicate any trend toward more diversification in industrial output. The share of food industry, already high, is expected to become even higher. The unique emerging sector is tourism industry. The future patterns of industrial sector in Morocco don't show any sign of convergence toward an industrialized country, which makes the option of anchorage even less desirable, and increases the risk of asymmetric shocks. From this perspective, it seems that a flexible exchange rate strategy may be more desirable even in the long run.

But on the other hand, EU is the main trading partner of Morocco and the FTA is likely to strengthen trade in goods and services between the two regions. An anchorage on the Euro would reduce price uncertainty on Moroccan imports and provide higher incentives for European investors. Taking these considerations into account should lead to increase the weight of the Euro the determination of Moroccan exchange rate. In our view, a «crawling peg» regime in which Moroccan DH rate is determined by reference to a basket of partners currencies in which the Euro is strongly represented seems to be the most appropriate strategy.

5. Conclusion

The simulation exercise of the potential effects of the implementation of a free trade area between the EU and Morocco using CEGM allows us to draw very useful conclusions on the reallocation of industrial production and its consequences in term of employment and current account balance. The most important insight is that the implementation of a FTA may lead, at the least in the medium term, to a reallocation of industrial production toward an even more specialization in traditional labor-intensive products at the extent of more modern capital-intensive sectors. These potential effects could affect the logic behind the current design of Moroccan exchange rate policy. In particular, the option of anchorage of the DH on the Euro appears less desirable due to high risk of asymmetric shocks.

A certain flexibility of Moroccan exchange rate policy seems to be necessary to restrain the potential effects of trade liberalization on current account, and absorb the asymmetric shocks. In addition, an appropriate management of exchange rate policy may also play a crucial role in proving incentives for exports. However, exchange rate policy does not replace the restructuring process of the industrial sector. Accompanying reforms to create an attractive business environment require deep changes in judicial and administrative practices, a newly defined role for the government, an appropriate incentive scheme for foreign investors, and a stable macroeconomic policy. The success of this process will also require an intra-regional free trade area to minimize the hub and spoke effects.

References

1. Abdelkhalek T. (1996) Elasticités de substitution et de transformation et sensibilités prix et revenu. Une analyse sectorielle du commerce extérieur marocain, Direction des études,
2. Abed, G. (1998), ``Trade liberalization and tax reform in the Southern Mediterranean Region", IMF Working Paper WP/98/49.
3. Achy, L., 2001. Equilibrium Exchange Rate and Misalignment In Selected MENA countries. Proceedings of the Second Mediterranean Social and Political Research Meeting, Florence.
4. Achy, L., Sekkat, Kh., 2001. The Impact of European single currency on MENA's export to Europe. FMISE report manuscript. (forthcoming in Review of Development Economics 2003).
5. Alonso-Gamo P.; Fennell S.; Sakr K. (1997) ``Adjusting to New Realities: MENA, The Uruguay Round, and the EU-Mediterranean Initiative" IMF Working Paper WP/97/5.
6. Bénassy-Quéré A., Fontagné L. et Lahrèche-Révil A. (1999) “Exchange Rate Strategies in the Competition for attracting FDI”, Miméo, CEPII.
7. De Melo J. (1988), "Computable General Equilibrium Models for Trade Policy Analysis in Developing countries: A Survey", Journal of Policy Modelling, vol. 10: 4.
8. Dean J. et al. (1994) ``Trade policy reform in developing countries since 1985: a review of the evidence", World Bank discussion paper 267.
9. Decaluwé B., Martens A., et Monette M. (1988), “Macro-closures in Open Economy CGE Models: a Numerical Reappraisal”, International Journal of Development Literature, vol.3, nº2, p 69-90.
10. Edwards S. (1996) “The Determinants of the Choice between Fixed and Flexible Exchange rate regimes”, NBER Working Papers 5756, September.
11. Eken S.; Helbling T.; Mazarei A. (1997) ``Fiscal Policy and Growth in the Middle East and North Africa Region"; IMF Working Paper WP/97/101.
12. Fontagné L. et Freudenberg M. (1999) «Endogenous Symmetry of Shocks in a Monetary Policy», Open Economies Review, 10(3), July.
13. Frankel J. and Rose A. (1998), «The endogeneity of the optimum currency area criteria», The Economic Journal, 108 (49), July, 1009-1026.
14. Frankel J.A. et Wei S.J. (1993) Trade Blocks and Currency Blocs, NBER WP n° 4335.
15. Ghsequiere, H. (1998) ``Impact of EU association agreements on Mediterranean countries" IMF working papers WP/98/116.
16. Havrylyshyn O. (1997), A global Integration strategy for the Mediterranean countries (IMF).
17. Hoekman, B. (1995) ``The WTO, the EU and the Arab World: trade policy priorities and pitfalls", CEPR discussion paper 1226.
18. Krugman P. (1993) «Lessons of Massachusetts for the EMU» in F. Torres and F. Giavazzi (Eds) Adjustment and Growth in the European Monetary Union. Cambridge: Cambridge University Press, pp. 241-260.
19. McKenzie M.D. (1999) «The Impact of Exchange Rate Volatility on International Trade Flows», Journal of Economic Surveys 13(1).
20. Milgram, J. (2001), Does a Free Trade Area between the EU and Morocco strengthen the opportunity of a nominal anchorage of the Dirham on the Euro? Proceedings of the Second Mediterranean Social and Political Research Meeting, Florence.
21. Rutherford T. et Tarr D. (1994) ``L'accord de libre-échange entre le Maroc et la CEE: une évaluation quantitative", Revue d'économie de développement, vol. 2.
22. Shoven J.B. et Whalley J. (1992), Applying General Equilibrium, Cambridge Surveys of Economic Literature, Cambridge University Press.

Appendix
General Features of our Model

This paper uses computable general equilibrium model (CGEM) framework to assess the potential effects of the FTA on Moroccan economy both at the aggregate and sectoral levels. CGE models, unlike partial equilibrium models, capture the interactions throughout the economy in a consistent manner. They allow taking into account the direct and indirect effects of specific policy measures. CGE models are natural extensions of Input-Output (IO) models. By using multi-sectoral version of CGE model, one can address the effects of policy for a range of industries. A CGE model works by using data to describe the economy in a benchmark year, and then by varying one or more elements so as to "shock" the economy and change the values of data items. The benchmark calibration, so that the model replicates the observed economic data, is comparable to the estimation stage in building macroeconomic forecasting models.

The general specification of the model is very close the model used by De Melo [1988], Roland-Holst et al. [1994], Rutherford and Tarr [1994], and Ecole PARADI [1996]). It is a static model in which competition is assumed to be perfect and focuses on real effects. Production is modelled as factor specific, which seems to be more appropriate for medium term analysis. The benchmark calibration is base on the social accounting matrix (SAM) published by the GREI (1993), and on the basis of price-elasticity of imports and exports estimated by Abdelkhalek (1996). We use the same sectoral breakdown as the SAM (15 sectors, among which 3 are non-tradable services and 4 are tradable-services. (see table 4).

We assume a Cobb-Douglas utility function (elasticity of substitution among goods is constant). Income elasticity for each good is assumed to be one, which means that the relative share of each good in total income is constant. Therefore the consumers demand for each good is a function of its price, consumer income and budget shares. For each tradable good (composite good), consumption demand is divided between imported goods and locally produced goods. We assume imperfect substitutability between the two categories according to Armington hypothesis of differentiation by origin.

Each tradable good is a composite of imported and domestic products. The demand is assumed to be a CES (constant elasticity substitution) function of the two components. As a consequence, import demand depends on the relative price of imported and locally produced goods.

Households disposable income comes from factor revenues (wages and capital return, net transfers non-residents or from the government). Saving rate (assumed to be constant) and disposable income determine consumption budget.

For each sector, the value added is generated using two primary factors (capital and labor). Production technology is described by a Cobb-Douglas function with constant returns to scale. Capital is assumed to be sector-specific. Capital stock foe each sector is considered as exogenous and fixe. Labor demand is determined from cost-minimization behavior of the representative firm. Intermediate goods are viewed as complementary to the value added (Leontief function). The relative share of each intermediate good is also assumed to be fixe.

The production of tradable goods is assumed to be a composite product. Domestic production can be sold either in local market or exported. This composite product is represented by a CET function (Constant Elasticity of transformation).

The government revenue comes from direct and indirect taxes including import taxes (net of export subsidies)[10]. Financial transactions balance vis-à-vis the overseas is added to the government revenue while government consumption is subtracted.

Consistently with "small open economy" assumption, the price of imports and exports are exogenous, which implies that foreign demand and supply are assumed to be infinitely elastic. Exchange rate is flexible. The trade balance can vary but the balance of payments is fixed.

The «closure» of the model is ensured through the "neo-classic" assumption of macro-closure (investment adjusting to saving). Investment distribution among sectors is exogenous, and all the adjustments take place once for all. This means that capital stock in each sector is not affected by any subsequent shock. This heavy assumption implies that our model does not capture the dynamic adjustment process of investment following the tariff dismantling measures. A more realistic model should allow any decline in the cost of imported capital goods due to the dismantling to affect investment decisions and relative sectoral returns. Our objective is to overcome this important weakness in future work.

Table 4. Sectoral elasticities of Exports and Imports

Share in total	Output	Imports	Exports	Price-elasticity of exports	Price-elasticity of imports
Metal, mechanic, electric	5,1	24,5	2,2	0.4	1.1
Others manufactured industries	5,1	5,8	2,1	0.4	1.5
Chemicals	4,8	7,6	14,3	0.3	0.5
Energy	8,8	25,2	2,6	0.8	0.3
Mining industries	3,6	5,6	17,9	0.3	1.1
Textiles, clothing, and leather	6,4	5,6	13,0	0.3	1.5
Agriculture	12,3	9,7	12,3	0.8	0.3
Food	10,8	6,4	7,0	0.4	0.5
Tourism	2,0	2,4	14,3	0.8	1.5
Transport and communications	6,0	0,8	7,7	0.8	1.5
Others tradable services	7,9	6,4	6,5	0.8	1.5
Financial Services	2,0	0,1	0,2	0.8	1.5
Building	7,5				
Trade	8,7				
Others non tradable services	9,0				
Total	100,0	100,0	100,0		

Source: own calculation from GREI (1993).

[10] Others taxes explicitly taken into account are: general income tax, taxes on capital returns, and indirect taxes (VAT).