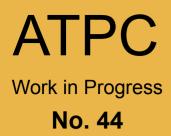# The Cost of non-Maghreb: Achieving the Gains from Economic Integration

Ben Hammouda, Hakim and Oulmane, Nassim and Bchir, Hédi and Sadni Jallab, Mustapha

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Abstract

The purpose of this paper is to estimate the impact of the integration of Maghreb countries into a free trade area on the main macroeconomic aggregates. By using the MIRAGE model and MacMap database, we tested different scenarios to estimate the gains or the potential losses of various plans of trade integration (Free trade area for the Maghreb countries, Custom Union between Maghreb countries, Maghreban Common Market). Our study suggests that the overall gains from liberalizing trade in goods (and removing various regulatory non-tariff barriers in the process) could reach at least USD 350 million. The increase in revenue through increases in production and wages would positively affect welfare levels for Maghreb consumers. The dynamic gains from liberalizing trade in goods can outstrip the static gains, with productivity improvements as the main driver. Our analysis shows that the creation of a common market is probably the most interesting and efficient option for the Maghreb countries.

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I.   Introduction

One of the paradoxes of the past few years lies in the coexistence of two dynamics: 1. The signature of the final Act of Marrakech and the creation of the World Trade Organization (WTO); and 2. The return of regional agreements as the instrument of trade expansion.

This apparently dichotomous situation is well perceived by WTO Members which, in the Memorandum of Understanding on the interpretation of Article 24 of the General Agreement on Tariffs and Trade (GATT, 1949) report on the increasing number of customs unions and free trade areas and the contribution these have made to the expansion of world trade.

The Arab Maghreb Union (AMU) was established by the Treaty of Marrakech signed in February 1989 between Algeria, Libya, Morocco, Mauritania and Tunisia. The AMU aims to organize an economically integrated space in the Maghreb region and to set up common policies "in all domains".

However, the AMU has not yet realized theirs planned objective of commercial integration. The Treaty of Marrakech had planned for the completion of the following stages before unification in the year 2000:

- A free trade area (before the end of 1992), allowing for the nearly unlimited circulation of goods;
- A customs union (before the end of 1995); and
- A common market (before 2000).

During this period, the countries of the Maghreb were active in both multilateral liberalization at the WTO, and in bilateral agreements with non-Maghreb commercial partners. Therefore, the question of the necessity of intensifying regional integration becomes increasingly relevant. It is not a question of favouring regional integration against participation in the multilateral trading system. Rather, the interdependence between these two imperatives should be taken into account. Regional integration can complement the multilateral system, playing an essential role in improving the international competitiveness of the North Africa region, diversifying exports and reducing of external vulnerability.

The countries of this region are aware of the benefits of more open economies. They have established Association Agreements with the European Union and have concluded trading agreements among themselves. But at present, these agreements are not being fully exploited. Bilateral trade among the three central Maghreb countries accounts for a tiny fraction (less than 2 percent) of each country's total trade and remains well below their potential. Their fragmented markets also serve as an incentive for European and other foreign investors to relocate their operations to Europe to benefit from economies of scale and to export to each country under the separate bilateral trade agreements with Europe.

The economies of Algeria, Morocco and Tunisia share many features. Agriculture is important in all three countries; the state dominates the economy to varying degrees; and external trade regimes generally remain quite restrictive, despite more open trade with the European Union. The greatest structural difference between the three lies in the fact that Algeria is predominantly a hydrocarbon-exporting country, while Morocco and Tunisia enjoy more diversified economies.

The slow progress in opening the Maghreb economies to multilateral trade and investment is a key obstacle to achieving higher growth rates and reducing high unemployment. The markets of the Maghreb countries are relatively small and fragmented, and their best chance for development lies in openness and integration. In practice, restrictive trade regimes and cumbersome investment regulations have discouraged domestic private investment and attracted only limited amounts of foreign direct investment outside the oil sector. Throughout the region, economic growth has remained below its potential, while unemployment is still much too high, and poverty remains pervasive.

The region has considerable potential to expand trade and investment links with the rest of the world, although this has yet to be realized. During the 1990s, while world trade grew at almost 8 percent, Middle East and North African (MENA) trade grew at only 3 percent. Over the same period, the region attracted a negligible share of foreign direct investment. Quantitative analyses suggest that non-oil exports are one-third, and manufacturing sector imports are three-quarters the level that would otherwise be expected given the region's location and income. Similarly, the potential to increase foreign direct investment is four to five times higher than actual inflows recorded during the 1990s. This suggests that there are major constraints on the economies that need to be addressed.

The purpose of this paper is to estimate the impact of integration of Maghreb countries into a free trade area on the main macroeconomic aggregates. This article includes five sections. After an introductory section, the second section presents the state of trade between the Maghreb countries as well as intra-Maghreb tariff protection. The third section explores the model used and presents the various tested scenarios. The fourth section presents the effects of the various scenarios of liberalization on the North African economies as well as the main economic impacts. The last section concludes this paper.

II. State of the protection and intra-Maghreb trade

II.1 Weaknesses of intra-Maghreb trade

Regional integration agreements (RIAs) have proliferated in the MENA region in recent years, with Algeria, Egypt, Israel, Jordan, Lebanon, Morocco, the Palestinian Authority, Syria and Tunisia having signed bilateral integration agreements with the EU and Jordan and Morocco having signed a free trade agreement with the United States. Arab countries have entered into the Pan-Arab Free Trade Agreement (PAFTA), following numerous attempts to foster intra-regional integration in recent decades. PAFTA, which counts 21 countries as signatories, replaced the 1982 Agreement for the Facilitation and Promotion of Intra-Arab Trade. Other recent examples of plurilateral agreements include the AMU, as discussed above, and the Unified Economic Agreement between the Countries of the GCC (UEA-GCC), signed in 2001 by Bahrain, Kuwait, Oman, Qatar, Saudi Arabia, and the United Arab Emirates.

The two most substantive types of integration agreements are those between individual MENA countries and the EU (Euro-Med agreements), and the intra-regional pan-Arab agreements. From the experience of these agreements, we can conclude the following:

- The Euro-Med agreements have not increased the trade share of the southern Mediterranean partner countries in EU markets. Reasons for this include a narrow scope and coverage due to restrictions on trade in agriculture, services, and labour; the lack of harmonization of standards; and the stringent rules of origin for some manufactured goods that have high export potential, such as textiles and clothing.
- Intra-regional agreements have not stimulated pan-Arab trade. They have been limited in their effectiveness by restrictions similar to those in the current Euro-Med agreements. Trade integration has also been minimal because the region has economies with similar production and export structures and thus fewer opportunities for trade with each other.

Within the MENA, levels of regional trade remain small despite several bilateral agreements. In 2001, intra-regional trade concerned less than 6 percent of total trade[1]. With the weakness of intra-regional trade in mind, foreign ministers from Morocco, Tunisia, Egypt and Jordan concluded detailed discussions on the creation of a free trade area in Agadir on 8 May, 2001 to establish, according to a common statement, "a strong economic space in the prospect of the terms of year 2010 connected to the institution of an Euro-Mediterranean free trade area".

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1   See Oulmane and Ripoll-Bresson (2002).

The picture is even more bleak within the Maghreb region. The tables below indicate that in 2001, intra-Maghreb trade represented a tiny portion of the total trade of these countries. For example, trade between Tunisia the rest of North Africa stood at only 3 percent in that year.

Table 1: Bilateral exports (US millions, 2001)

Exporters		Morocco	Tunisia	Rest of NA	Rest of World	EU25	Total
Destination	Morocco	0	49	109	4205	6808	11171
	Tunisia	43	0	348	2203	6534	9129
	Rest NA	229	321	111	15322	22175	38158
	ROW	4378	2318	20384	3094137	1039872	4161089
	EU25	7156	7322	17454	1045934	1600223	2678088
	Total	11806	10010	38406	4161801	2675612	6897635

Source: GTAP database, version 6

The evidence on the lack of regional economic integration among the Maghreb countries is extensive and well documented. The weakness in trade flows could be partially explained by the prevalence of relatively high tariff barriers between Maghreb countries and by the nearly identical specialization in products which limits the potential for exports.

The level of trade integration among MENA countries is lower than in other intra-regional groupings: intra-regional exports among Arab countries were just over 8 percent of total exports in 2003, compared with 20 percent for ASEAN (Association of Southeast Asian Nations) and 23 percent for MERCOSUR (Mercado Común del Sur, made up of Argentina, Brazil, and Uruguay). There has been no upward trend in intra-regional trade among MENA countries, following an increase in the early 1980s. The foreign trade of the Arab countries also remains limited, representing 2.7 percent of world trade which is similar to the share of Arab countries in world income. This is even lower for Maghreb countries, representing roughly 1.3 percent of world income.

Indeed, the trade performance of the Maghreb is comparable to that of Sub-Saharan Africa. Total non-energy exports from the Arab world stood at USD 80 billion in 2003, which is roughly the same of Finland's exports (which has a population of 6 million as compared to nearly 310 million for Arab countries). Not including energy exports of the oil producing countries, which reflects the volatility of

oil prices, the growth of imports and exports has been sluggish in the Arab countries which is consistent with their low overall economic growth rates.

One reason for the low level of intra-Maghreb trade could lie in the fact that the region includes economies with similar production and export structures and thus with low potential for trade. Trade complementarity among countries can be measured quantitatively by indexes that reflect the extent to which goods exported by one country are imported by another.

Fawzy (2003) reports that such complementarity indexes show low values for Maghreb countries relative to other groupings, such as the European Community and NAFTA. The small size of the Maghreb economies could account for low levels of trade within the region. This is undoubtedly part of the explanation, but quantitative studies suggest that even when size is controlled, the level of intra-regional trade below potential. This suggests that the various integration efforts in the region have not overcome other barriers to intra-regional trade, including high tariff rates and non-tariff barriers, high transaction costs, and the dominance of the public sector in Maghreb economies. As noted earlier, the cost of compliance with non-tariff-related measures in various Maghreb countries can be as high as 10 percent of the value of the items imported. Furthermore, the private sector, which often plays a leading role in integration efforts, is likely to be less effective in the MENA region due to the dominance of the public sector. For example, MENA countries have the lowest ratios of private fixed investment to total fixed investment compared with the three other trade blocs mentioned above, and the lowest ratios of FDI to GDP.

To summarize: the Maghreb countries are not well integrated either on an international or a regional basis. Although some evidence suggests that there is undertrading at the regional level as compared to some benchmarks such as the gravity model, the lack of regional integration is a reflection of the lack of globalization (Achy, 2006). Across a broad variety of indicators, trade in goods and services, capital flows, and to a lesser extent labour flows, the Maghreb countries are relatively less integrated than countries with similar levels of development and per capita income.

Table 2: Total Arab External Trade

Country	Total Arab External Trade of World Trade (%)			Total Intra-Arab Trade of Total External Trade (%)		
Year	2000	2001	2002	1999	2000	2001
Algeria	1.57	1.61	1.59	1.87	2	2.17
Egypt	1.44	0.86	1.26	5.95	6.58	5.62
Libya	0.86	0.79	0.75	3.56	3.45	3.15
Mauritania	0.06	0.06	0.07	0.13	0.12	0.2
Morocco	1.05	0.92	1.06	3.4	3.23	5.29
Tunisia	0.75	0.83	0.8	3.84	3.87	3.88
Sudan	0.16	0.19	0.2	1.75	1.54	1.66

Source: Published WTO data

II.2   Intra-Maghreb protection

As can be seen in table 3, intra-Maghreb protection remains relatively high. Protection levels remain higher for agricultural products than for manufacturing since the Euro-Mediterranean free trade area contributed to a decrease in manufacturing tariffs. A comparative analysis of the protection levels of Maghreb countries shows that between these countries, we can identify at least two models of protection.

The first model, the "Tunisian model", is characterized by high protection levels in agriculture when compared with manufacturing. Tunisia has high protection rates towards cereals and vegetables, as well as weak technological products coming from Morocco. It applies particularly higher tariffs for the rest of the Maghreb, notably for oil (114.5 percent), vegetables (66.9 percent) and the cereal agriculture (45.4 percent). Concerning the rest of North Africa, the protection towards the rest of the Maghreb is relatively less high, especially towards Morocco. The highest average applied tariff concerns the textile and clothing industry from Tunisia.

The second model, the "Moroccan model", is characterized by more pronounced protection in manufacturing. Morocco applies rates exceeding 20 percent on average for agriculture, natural resources, agro-industry, and textile and clothing products coming from Tunisia. Rates are also relatively high in the manufacturing sectors and high technology industries. Moroccan protection exceeds 20 percent towards the rest of North Africa in cereals, textiles and clothing and the middle technology industries.

This dichotomy could easily be explained by the structure of each economy. Both models are driven by the comparative advantage and political needs of each of the Maghreb economies to protect their most sensitive sectors.

Table 3. Initial bilateral tariff protection between Maghreb countries and European Union

Applied tariffs by:	TUNISIA			MOROCCO			RNA			
On exports from:	EU25	MOR	RNA	EU25	RNA	TUN	EU25	MOR	RNA	TUN
Agricultural sectors										
Paddy rice	27.00		13.50	96.66	49.41		14.19		5.66	
Wheat	88.20			29.41			3.25			
Cereal grains nec	59.68		13.20	23.03	5.74	9.45	5.93		6.50	5.33
Vegetables. Fruit. Nuts	120.91	66.77	80.54	33.88	21.13	24.96	22.36	5.69	20.06	21.21
Other agricultural products	10.53	30.40	91.88	11.26	8.30	20.90	5.58	2.79	15.88	10.40
Plant-based fibers	0.00		0.00	0.00	1.25	1.24	4.38		3.69	3.06
Crops nec	53.07	37.30	33.10	20.12	17.32	14.40	15.95	4.33	16.89	12.89
Animal	45.70	21.10	20.93	57.96	4.46	11.79	12.94	2.80	5.77	6.37
Fishing	39.08	21.50	22.83	38.41	14.60	24.85	21.70	6.02	17.22	9.74
Agro food industries										
Meat	98.30	23.84	52.06	81.15	51.75	59.55	30.27	1.78	29.01	29.92
Vegetable oils and fats	42.03	31.31	33.56	15.61	11.15	14.67	17.13	2.89	21.25	13.13
Dairy products	61.27	66.08	65.06	69.44	33.64	49.85	13.03	5.28	22.72	15.24
Processed rice	26.98		13.40	155.81	77.32	45.00	14.18		5.62	7.03
Sugar	17.86	10.00	10.07	36.53	8.70	20.49	15.91	7.95	14.83	15.20
Food products nec	57.56	37.19	30.27	30.45	21.88	26.75	21.40	5.40	22.12	14.80
Beverages and tobacco	38.83	18.60	21.03	21.68	14.52	18.39	26.33	10.94	24.96	27.48
Non Agro food industries										
Coal. Oil. Gas. Minerals nec	14.79	10.32	5.18	7.79	0.69	12.16	13.82	4.42	13.49	8.18
Textiles	14.53	17.82	9.54	32.42	14.31	19.19	23.73	15.80	13.64	22.38
Wearing apparel	21.13	21.50	25.03	39.84	20.90	25.00	29.66	24.27	25.63	32.83
Leather products	15.54	18.07	21.40	39.70	14.36	20.72	23.75	7.07	13.42	14.46
Paper products. Publishing	17.32	11.22	15.22	32.43	20.27	24.31	17.07	2.92	15.35	17.25
Petroleum. Coal products	3.96	4.16	1.14	26.00	0.39	15.11	11.79	3.31	7.69	8.81
Chemical. Rubber. Plastic prods	5.14	13.35	12.36	18.27	8.37	10.69	13.44	3.24	11.65	10.03

Applied tariffs by:	TUNISIA			MOROCCO			RNA			
On exports from:	EU25	MOR	RNA	EU25	RNA	TUN	EU25	MOR	RNA	TUN
Metals	10.39	12.61	16.98	19.33	6.46	18.43	17.47	4.11	10.15	13.93
Motor vehicles and parts	10.38	14.25	14.86	25.65	10.48	15.09	37.13	6.30	20.88	23.31
Transport equipment nec	4.12	16.28	10.03	0.88	4.65	4.84	7.71	4.51	3.38	6.34
Electronic equipment	5.59	9.96	15.65	0.22	3.45	4.66	11.87	2.64	23.83	13.30
Other industrial products	7.29	14.18	11.20	9.44	9.16	13.37	12.31	5.85	12.34	14.26

Sources: Authors from MacMAP

Globally, countries from the Maghreb apply strong protections between them in cereals, agriculture and oil (in the case of Tunisia). Intra-Maghreb industrial protection is especially present in the textile and clothing industries, medium technology industries, and, to a lesser extent, the agro-industry.

This disappointing report calls regularly to the economic operators as well as to the policy -makers of the region. In contrast to the AMU, the European Common Market, launched by the Treaty of Rome in 1958, included the establishment of a free trade zone between European countries. This agreement had a double objective:

• To increase economic prosperity; and
• To contribute to a stronger union between countries.

However, the incapacity of the European Common Market to reach excepted results resulted in the establishment of the European Community in themed-1980s to more completely and effectively address the objective of trade liberalization under the framework of an internal market. Formulated in the famous EU Commission White Book of June 1985, and registered in the Treaty by the Single European Act of 1986, the internal market:

• Consists in creating "a space without internal borders in which the free circulation of goods, persons, services and capital is assured"; and
• Includes a modification of the legislative framework to facilitate the integration process.

Failure to realize the objectives of the Common Market came at a considerable economic cost. This cost, which is traditionally called the "cost of non-Europe", was the object of a very detailed study by the Commission (the "Cecchini report") presented in March 1988. The authors of the study estimated the loss to be around 4.25 percent, and could reach 6.5 percent of the Community's GDP.

III   Towards deeper regional integration in the Maghreb region

III.1   Rationale for a General Equilibrium Methodology

Trade policy analysis largely involves analyzing implications of trade policy instruments on the production structure in economies at the national and global level. Trade policy instruments such as tariffs and quotas have direct and indirect effects on the relative price of commodities produced in a given country. As the mix of goods and services produced change, the demand for factors of production also change. Consequently, in any given economy, it is difficult to conceive a situation where the change in trade policy would affect only one sector. Due to the forward and backward linkages and their related strengths existing in a particular economy, the result is always one in which the relative mix of sectoral outputs change. This, by extension, affects the relative mix of the different factors of production in the different sectors.

The country-level effects on output mix and demands for factors of production can, in the context of international trade, be extended to the global economy. Changes in relative prices of outputs and inputs resulting in a given country's change in trade policy are transmitted to the industries and input markets of other economies that the country trades with. Therefore, for trade policy analysis to be meaningful and for robust results to be produced, the interactions that prevail among different sectors as a result of a change in a given or group of countries' trade policy instruments must be taken into account. The general equilibrium methodology provides an analytical framework that allows these inter- and intra-sectoral changes in output mix, and by extension the demand for different factors of production, to be captured.

Kehoe and Kehoe (1994) succinctly capture the purpose of general equilibrium models. General equilibrium models are abstractions that are complex enough to capture the essential features of the economy, yet simple enough to be tractable. These models are more popular than their partial equilibrium counterparts as they stress the interactions among different sectors. However, they are not perfect, especially the static models. They fail to take account of the dynamic effects that accompany changes taking place in a given economy as a result of policy change. The MIRAGE model falls into this class of general equilibrium models. MIRAGE is a multi-region computable general equilibrium (CGE) model designed for comparative-static analysis of trade policy issues (Adams et al. 1997). It can be used to capture effects on output mix, factor usage, trade effects and resultant welfare distribution between countries as a result of changing trade policies at the country, bilateral, regional and multilateral levels. Since the MIRAGE model emphasises resource reallocation across economic sectors, it is a good

instrument for identifying the winning and losing countries and sectors resulting from policy changes involving the trade aspects of FTAs.

III.2.   Overview of the MIRAGE model

This section provides a short description of the MIRAGE model, which was constructed to assess the impact of globalization on individual regions in the global economy. The model is a relatively standard neo-classical model of economic activity and is based on the latest release of the GTAP data set, version 6.0. It is designed for analyzing dynamic scenarios, which are solved as a sequence of static equilibria, with the periods being linked by dynamic variables (population and labour growth, capital accumulation, and productivity). Policy scenarios are compared to a baseline, or business-as-usual, scenario.

The following section briefly describes the dimensions of the model and its main features[2]. The mapping from the GTAP regional and sectoral definitions to the corresponding aggregations defined for the MIRAGE model used in this study is provided in Annex 2.

The table below provides a complete description of the three essential dimensions of the MIRAGE model. Due to the existence of a flexible aggregation facility, the regional and sectoral definitions of the model are easy to modify. The aggregation defined in Annex 2 describes the scope of the MIRAGE model for the current study.

Table 4: Dimension of MIRAGE Model

Index	Description
I	Sectors (see Annex 1 for MIRAGE model dimensions)
r	Regions (see Annex 1 for MIRAGE model dimensions)
t	Time (currently 2001, 2004, 2007, 2010, 2013)

In what follows, we briefly introduce the main characteristics of the model including the modelling of demand, supply, capital, markets clearing and macroeconomic closure, and dynamics.

Demand. The demand side is modelled in each region through a representative agent, whose utility function is intra-temporal, with a fixed share of regional income allocated to savings and the rest being used to purchase final consumption.[3] Below this first-tier Cobb-Douglas function, consumption trade-off across sectors is represented through a LES-CES function. Each sectoral sub-utility function is a nesting of CES functions, comparable to the standard nested Armington – Dixit-Stiglitz function (see e.g. Harrison et al., 1997), with two exceptions: First, domestic products are assumed to benefit from a specific status for consumers, making them less substitutable to foreign products than foreign products

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2   The complete and detailed technical specification of MIRAGE model can be found in Bchir et al (2002)
3   The structure of the demand function is shown in Appendix 6.

between each other; Second, products originating in developing countries and in developed countries are assumed to belong to different quality ranges[4].

Supply. Production makes use of five factors: capital; skilled labour; unskilled labour; land; and natural resources. The first three are generic factors; the last two are specific factors. The production function assumes perfect complementarity between value added and intermediate consumption. The sectoral composition of the intermediate consumption aggregate stems from a CES function. For each sector of origin, the nesting is the same as for final consumption, meaning that the sector bundle has the same structure for final and intermediate consumption. The structure of value-added is intended to take into account the well-documented skill-capital relative complementarity. These two factors are thus bundled separately with a lower elasticity of substitution (0.6), while a higher substitutability (elasticity 1.1) is assumed between this bundle and other factors. Constant returns to scale and perfect competition are assumed to hold in agricultural sectors.

Capital, markets clearing and macroeconomic closure. The capital good is the same whatever the use sector, and capital is assumed to be perfectly mobile across sectors within each region. At the regional-wide level, capital stock is assumed to be constant in the core simulations of this paper. Natural resources are also perfectly immobile and may not be accumulated. Both types of labour (skilled and unskilled), as well as land, are assumed to be perfectly mobile across sectors, while production factors are assumed to be fully employed. As for macroeconomic closure, the current balance is assumed to be exogenous (and equal to its initial value in real terms), while real exchange rates are endogenous.

Dynamics. In a typical recursive dynamic framework, the time path of the model is solved as a sequence of static equilibria in each year. In other words, the solution in any given year is not a function of forward-looking variables, though it may be an explicit function of past variables, though known and therefore exogenous. While there are drawbacks in the recursive dynamic framework, particularly in the modelling of savings and investment behaviour, its one key advantage is that it is much easier to set up and solve. (Van der Mensbrugghe, 1998) There are several backward linkages linking one period to another, covering population growth, productivity increases and capital accumulation. Most of these linkages can be resolved outside of the modelling framework, or in other words, in between solution periods. One exception is the capital accumulation function. Before running any policy simulations in a dynamic framework, it is often necessary to define a reference, or "business as usual" (BaU) scenario. The BaU scenario makes some assumptions about a broad range of dynamic variables — population and labour supply growth rates, the growth rate of factor productivity, and other exogenous variables. If all productivity variables, including population growth rates, are pre-determined, the growth rate of real GDP is endogenous. However, the path trend in real GDP growth may be unrealistic, or at least

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4   This is motivated by the fact that, following Abd-El-Rahman (1991), several empirical works have shown that, even at the most detailed level of classification (Combined Nomenclature, 10 digits, including more than 10,000 products), unit values differences are able to reveal quality differences (see e.g. Harfi and al. 1997, Fontagné and al., 1998; Greenaway and Torstensson, 2000).

inconsistent with the assumed trend from other studies or prospective outlooks. One way to resolve this dilemma is to make the growth of real GDP exogenous in the reference scenario, and to allow some other variable to pick up the slack. In subsequent simulations, i.e. in simulations with policy shocks, the growth rate of capital and labour productivity are exogenous, and it is the growth of real GDP and the capital-labour ratio which are endogenous.

III.3   The various scenarios tested

We tested different scenarios to estimate the gains or the potential losses of various plans of trade integration.

• **Economic Integration: Some Guidelines from Theory**

Jacob Viner's ground-breaking work on customs unions and related forms of trade integration identified two sets of forces resulting from increased integration: *trade creation* and *trade diversion*. Trade creation occurs when consumers and producers have access to wider markets and a larger variety and/or better quality of products fashioned according to the comparative advantage of each country or countries and benefiting from lower production costs and/or higher quality goods. These are the gains from trade. Trade diversion occurs when, as a result of customs union or trade integration, imports are diverted from lower-cost producers (from the rest of the world) toward the higher-cost products and services of partner country or countries. The countries, viewed jointly, lose if the costs resulting from trade diversion outweigh the benefits from trade creation. This can be further refined to include the quality of goods. The argument of the gains from trade applies if *all* trade barriers are removed. Gains may not apply if partial or discriminatory reductions in trade barriers are effected.

Recent literature has examined dynamic aspects of Regional Economic Integration (REI) and blended-in new theoretical trade aspects including the potential benefits from economies of scale and scope, as well as imperfect competition. REI and cooperation can be a tool for overcoming disadvantages of the small size of the economies making up a Regional Integration Agreement (RIA). With a larger market size, firms can invest and benefit from economies of scale leading to lower costs and allowing for increased product diversification and better product quality.

Furthermore, the removal of trade barriers generates more competition and breaks down monopolies or quasi-monopolistic industrial organization structures. REI may also be the means to overcome the disadvantages of size and border effects by pooling, integrating, and networking infrastructure. RIAs, in particular, can be creators of *regional public goods* that improve trade related logistics, lowering the cost and segregation of trade in goods and services as well as the overall costs of doing business.

- **Three scenarios were tested in this study**

Scenario 1 – Free trade area for the Maghreb countries

The first scenario estimates the effects of an abolition of tariff barriers through the implementation of a free trade area between the Maghreb countries.

Scenario 2 – Custom Union between Maghreb countries

The second scenario examines the implementation of a common external tariff. In addition to creating a free trade area, Maghreb countries would have to adopt a common external tariff and face the same tariffs from their global partners. The common external tariff is defined in this study at the HS6 level and with the entire partner contained in the MacMAP database. This is defined as the minimum tariff applied and faced by the two Maghreb countries that were already WTO members in 2001 (Morocco and Tunisia) and by Egypt, which is part of the GTAP database aggregate "Rest of North Africa" (RNA) but is not part of the Maghreb.

Scenario 3 – Maghreban Common Market

This scenario integrates a common market in the sense of Smith and Venables (1991)[5], in addition to a common external tariff. The hypothesis behind this is that the implementation of a common market is more than a custom union, in the sense that its creation compels firms, which are in imperfect competition, to have the same mark-up in all the regions of the common market. This scenario adds to Scenario 2 the hypothesis that from 2008 all firms (both Maghreb and non-Maghreb) competing in sectors with imperfect competition will adopt the same mark-up in the three Maghreb countries. The expectations from this scenario are that sectors with high returns to scale will better exploit the market size.

III.4   Sectoral and geographical aggregation

The MIRAGE model is used in conjunction with the MacMap database[6]. The base year for this version is 2001 and the version identifies 87 regions, 57 sectors and 5 factors of production.

There are 57 sectors for each individual or composite region (country or aggregate of countries), which have data in the overall MIRAGE database. Not all countries are treated individually in MIRAGE, however the database encompasses each of the economies worldwide in order to ensure overall macroeconomic consistency. These are either treated individually or form part of a regional composite. Unfortunately, few African countries are individually disaggregated in the database; most African countries are treated as part

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5   To assess the impact of the European common market creation in 1992. Bchir and al. (2003) made the same hypothesis to assess the 2005 European enlargement.

6   Bouët (2002) provide a more detailed explanation.

of a regional aggregate. For North Africa however, Morocco and Tunisia are treated individually, while the "Rest of North Africa" aggregate comprises Algeria, Egypt and Libya[7]. In this paper, we consider this aggregate to be a proxy for the rest of the Maghreb. As it represents a limitation, the results for this aggregate have to be interpreted cautiously. The fact that Algeria, Egypt and Libya are in the same aggregate implies that little impact is expected from the integration of the region. Including these three countries in the same aggregate additionally implies that they are considered to be totally integrated, with full factor mobility. This may result in the aggregate RNA seriously under-estimating the integration potential effect on Algeria and Libya.

Bilateral trade data are an important component of the MIRAGE database, since they transmit trade policy and growth-related shocks from one country to another. Bilateral trade is also very relevant to the terms of trade. Global bilateral trade data are drawn from United Nations COMTRADE database, complemented by information on different countries' global trade or with aggregate bilateral trade statistics such as those of IMF, FAO and the World Bank.

Another main component is the protection data set, which can be both explicit and implicit. They are explicit in the sense that tariff revenues or export revenues can be drawn from them, and implicit in that bilateral trade data are available at market rates as well as at the global rates. The MacMaps database provides for each importing country and each producer (by tariff line) a means of determining five ad valorem equivalents corresponding to the five instruments contained in the database, namely, ad valorem customs duties, specific tariffs, prohibitions, tariff quotas and antidumping laws.

For the present study, 87 regions have been aggregated into 10 subregions (including African countries), and 33 sectors have been identified. The sectoral and regional aggregations are posted in the annexes of this paper.

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7   Unfortunately Mauritania is aggregated within the Rest of Sub Sahara.

IV   The results of the simulations

IV- 1 – The effects of a free trade area between Maghreb countries.

To assess the impact of the creation of a free trade area between the Maghreb countries, intra-zone tariffs are removed in the year 2008. First, this choc impacts the bilateral trade flows. Table 5 shows that the creation of such a free trade zone significantly and positively affects intra-Maghreb trade. Exports from Tunisia to Morocco increase by 150 percent, while exports from Tunisia to the Rest of North Africa increase by 124 percent. Exports from Morocco to Tunisia increase by 136 percent, and by 54 percent and to the Rest of North Africa. The Rest of North Africa composite region increases its exports to Morocco by 30 percent, and to Tunisia by 93 percent.

The intensification of intra-Maghreb trade is accompanied by trade diversion from other areas of the world. Third-country partners, especially developing country partners, suffer from a loss in competitiveness in the Maghreb countries and lose a significant part of their market share in this region. Sub-Saharan African countries and China are the most affected regions. For example, Sub-Saharan African countries lose more than 7 percent of their exports to Tunisia. The European Union, which is the most important trading partner in the region, loses between 0.23 percent and 0.87 percent of its exports. These variations are certainly weak, but they have a significant effect due to the large volume of European exports to Maghreb countries.

Table 5: Variation in bilateral trade (from 2008 to 2015, Scenario FTA)

	Importer											
	2008			2010			2012			2015		
Exporters	MOR	RNA	TUN	MOR	RNA	TUN	MOR	RNA	TUN	MOR	RNA	TUN
TUN	144.27	117.63	0.00	147.58	121.68	0.00	149.18	123.56	0.00	150.15	124.75	0.00
MOR	0.00	50.25	135.12	0.00	51.45	135.33	0.00	52.59	135.72	0.00	54.22	136.34
RNA	30.56	73.34	91.22	30.77	72.65	92.56	30.88	71.90	93.29	30.92	70.70	93.86
EU25	-0.29	-0.72	-0.48	-0.28	-0.79	-0.45	-0.26	-0.83	-0.47	-0.23	-0.87	-0.52
USA	-0.08	-0.27	0.95	-0.03	-0.29	1.44	0.01	-0.31	1.68	0.06	-0.32	1.83
Japan	-0.37	-0.60	1.22	-0.35	-0.62	1.49	-0.33	-0.63	1.62	-0.29	-0.62	1.68
ROWDEV	-0.34	-0.48	0.41	-0.29	-0.53	0.71	-0.25	-0.57	0.85	-0.19	-0.61	0.91
SSAHAF	-0.21	-0.12	-7.68	-0.19	-0.19	-7.43	-0.17	-0.21	-7.45	-0.14	-0.22	-7.75
China	-0.21	-0.52	-0.43	-0.16	-0.53	0.02	-0.10	-0.53	0.31	-0.03	-0.53	0.57
ROWDNG	-0.38	-0.83	-2.31	-0.38	-0.92	-2.11	-0.37	-0.96	-2.02	-0.35	-1.00	-1.97

Source: Author's computations from MIRAGE model and MACMAP

The creation of a Maghreb free trade area and the intensification of intra-Maghreb trade positively affect the trade balance of the three regions (table 6). In 2015, Tunisia would improve its trade balance by USD 116 million, Morocco by USD 15 million and the Rest of North Africa by USD 80 million.

Table 6: Variation in the trade balance in millions of USD by region. (Scenario FTA)

Region	2008	2010	2012	2015
TUN	63.6	80.3	95.0	116.2
MOR	6.3	8.8	11.4	15.3
RNA	24.3	42.9	58.8	80.2
EU25	-39.2	-56.8	-72.9	-95.5
USA	-4.4	-12.6	-18.1	-24.8
Japan	-10.4	-12.1	-13.7	-16.2
ROWDEV	-17.2	-21.9	-26.5	-33.5
SSAHAF	-1.4	-1.4	-1.5	-1.8
China	-2.1	-2.0	-2.2	-2.5
ROWDNG	-19.6	-25.2	-30.2	-37.4

Source: Author's computations from MIRAGE model and MACMAP

The free trade area among the Maghreb countries leads to a new geographic division of production. As can be deduced from table 7, a decrease in production in the majority of sectors is accompanied by a parallel increase in production in the same sector in other Maghreb countries. Broadly speaking, Tunisia will specialize in agro-food products and some highly value-added industries (*Chemical. Rubber. Plastic prods* and *Motor vehicles and parts)*, Morocco will increase its production in some agricultural products (*Cereal grains nec, Crops nec and animals*), and in textile wearing apparel, leather products and industries with low added value. The specialization of RNA will be an intermediate case with no major variation between sectors.

Table 7: Variation of the sectoral value Added (Scenario FTA)

	MOROCCO				RNA				TUNISIA			
	2008	2010	2012	2015	2008	2010	2012	2015	2008	2010	2012	2015
Agricultural sectors												
Paddy rice	-3.17	-4.32	-5.08	-5.77	-0.14	-0.16	-0.17	-0.20	1.23	1.15	1.14	1.19
Wheat	-0.07	-0.11	-0.13	-0.15	-0.16	-0.16	-0.16	-0.15	0.62	0.04	-0.18	-0.19
Cereal grains nec	0.03	0.03	0.03	0.03	-0.12	-0.12	-0.11	-0.11	1.75	1.43	1.32	1.31
Vegetables. Fruit. Nuts	-0.31	-0.34	-0.35	-0.34	0.12	0.15	0.17	0.20	-1.16	-1.42	-1.59	-1.77
Other agricultural products	0.38	0.60	0.78	0.97	1.22	1.41	1.54	1.67	-31.01	-33.36	-35.61	-38.60
Plant-based fibers	-0.05	-0.07	-0.08	-0.09	-0.12	-0.11	-0.11	-0.11	-0.36	-0.82	-1.04	-1.13
Crops nec	0.63	0.81	0.92	1.02	0.31	0.46	0.58	0.71	-0.91	-1.92	-2.62	-3.30
Animal	0.03	0.03	0.03	0.03	-0.04	-0.03	-0.02	-0.01	0.70	0.60	0.54	0.48
Fishing	-0.03	-0.03	-0.04	-0.04	-0.01	0.00	0.00	0.01	0.38	0.71	0.90	1.02
Agro food industries												
Meat	-3.19	-4.03	-4.71	-5.44	-0.07	-0.06	-0.05	-0.03	1.20	1.17	1.12	1.03
Vegetable oils and fats	-0.36	-0.38	-0.38	-0.36	-0.52	-0.50	-0.45	-0.38	17.08	21.75	25.41	30.34
Dairy products	0.21	0.17	0.14	0.09	-0.64	-0.65	-0.63	-0.62	19.47	21.08	21.34	21.39
Processed rice	-0.94	-0.95	-0.93	-0.92	1.50	1.97	2.11	2.05	1.57	3.79	5.04	5.95
Sugar	0.00	0.00	0.01	0.02	0.02	0.03	0.04	0.04	1.85	2.24	2.43	2.64
Food products nec	0.39	0.39	0.38	0.38	-0.07	-0.06	-0.05	-0.04	7.43	9.81	10.83	11.46
Beverages and tobacco	0.32	0.50	0.64	0.80	-0.09	-0.09	-0.08	-0.08	0.67	0.81	0.89	0.98
Non Agro food industries												
Coal, Oil, Gas, Minerals nec	-0.12	-0.23	-0.34	-0.48	-0.03	-0.06	-0.07	-0.08	-1.06	-1.97	-2.56	-3.02
Textiles	4.34	6.08	7.14	7.95	-0.22	-0.18	-0.18	-0.19	2.09	2.33	2.57	2.93
Wearing apparel	-0.10	0.08	0.28	0.54	0.02	0.06	0.09	0.14	-1.01	-1.67	-2.16	-2.63
Leather products	0.56	0.81	0.99	1.19	-0.05	-0.06	-0.06	-0.06	-1.37	-3.18	-4.60	-6.12
Paper products. Publishing	0.39	0.39	0.36	0.31	-0.11	-0.18	-0.23	-0.30	5.13	8.06	9.63	10.98
Petroleum. Coal products	-0.02	-0.03	-0.04	-0.04	0.01	0.01	0.01	0.01	0.33	0.36	0.34	0.36
Chemical. Rubber. Plastic prods	-0.41	-0.60	-0.74	-0.89	-0.16	-0.28	-0.39	-0.51	4.75	8.40	10.46	12.10
Metals	-0.08	-0.15	-0.20	-0.25	0.66	0.89	1.00	1.10	5.99	7.94	8.87	9.45
Motor vehicles and parts	0.26	0.32	0.34	0.34	-0.27	-0.32	-0.34	-0.33	5.11	7.43	8.69	9.73
Transport equipment nec	0.79	0.90	0.94	0.95	-0.04	-0.01	0.01	0.02	-0.90	-1.62	-2.01	-2.20
Electronic equipment	-0.16	-0.27	-0.36	-0.46	-0.06	-0.06	-0.04	-0.02	-0.09	-0.33	-0.40	-0.30
Other industrial products	-0.05	-0.10	-0.13	-0.18	-0.09	-0.07	-0.04	0.01	2.03	2.46	2.66	2.90

Source: Author's computations from MIRAGE model and MACMAP

The improvement of the trade balance and the better allocation of resources between regions positively affect GDP of each of the Maghreb countries (table 8). Tunisia, the country that registers the highest improvement in its trade balance, sees the highest increase in GDP (2.5 points in 2015), while the Rest of North Africa composite region registers the lowest improvement in GDP (0.2 points in 2015).

The effects of the free trade area on other regions are negative but not significant due to the small weight of the Maghreb economies.

Table 8: Variation of GDP (in volume) by region (Scenario FTA)

Region	2008	2010	2012	2015
TUN	1.870	2.214	2.390	2.515
MOR	0.395	0.417	0.434	0.453
RNA	0.185	0.188	0.192	0.198
EU25	-0.002	-0.003	-0.003	-0.003
USA	-0.003	-0.003	-0.003	-0.003
Japan	-0.001	-0.002	-0.002	-0.002
ROWDEV	-0.001	-0.002	-0.002	-0.002
China	-0.002	-0.002	-0.002	-0.002
SSAHAF	-0.002	-0.002	-0.002	-0.002
ROWDNG	-0.002	-0.002	-0.003	-0.003

Source: Author's computations from MIRAGE model and MACMAP

International trade theories confirm that North-South free trade agreements, which may have positive impacts on the GDP of southern regions, negatively affects intensive, skilled work industries, and therefore the wages of skilled workers. However, a Maghreb free trade agreement, which is a South-South agreement, would improve the growth and wages of both skilled and unskilled workers (table 9).

Table 9: Variation of real wages (Scenario FTA)

Region	Unskilled real wages				Skilled real wages			
	2008	2010	2012	2015	2008	2010	2012	2015
TUN	0.671	0.873	0.953	0.981	0.932	1.244	1.413	1.539
MOR	0.064	0.083	0.099	0.116	0.043	0.049	0.053	0.060
RNA	0.044	0.051	0.056	0.061	-0.009	0.006	0.014	0.020
EU25	-0.001	-0.002	-0.002	-0.002	-0.001	-0.001	-0.002	-0.002
USA	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Japan	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ROWDEV	0.000	-0.001	-0.001	-0.001	0.000	-0.001	-0.001	-0.001
China	0.000	0.000	0.000	0.000	0.000	0.000	0.000	-0.001
ROWDNG	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001
SSAHAF	-0.001	-0.001	-0.001	-0.001	0.001	0.001	0.002	0.002

Source: Author's computations from MIRAGE model and MACMAP

An increase in revenue due to increases in production and wages would positively affect welfare levels for Maghreb consumers. As can be seen in table 10, Tunisia, Morocco and the Rest of North Africa register USD 271 million, USD 32 million and USD 27 million respectively. The assessment of these welfare gains can be seen as a first estimation of the cost of the failure of Maghreb countries to integrate.

Table 10: Welfare equivalent variation (USD million) (Scenario FTA)

Region	2008	2010	2012	2015
TUN	133.7	184.2	222.6	271.4
MOR	15.3	20.1	24.7	32.0
RNA	2.8	11.1	18.0	27.7
EU25	-60.7	-83.5	-100.2	-120.3
USA	-9.2	-13.2	-15.3	-16.8
Japan	-7.4	-9.2	-10.1	-11.1
ROWDEV	-9.5	-14.9	-19.0	-24.3
SSAHAF	-1.3	-0.8	-0.7	-0.9
China	-5.4	-7.6	-9.4	-12.0
ROWDNG	-28.2	-33.3	-38.1	-45.4

Source: Author's computations from MIRAGE model and MACMAP

IV – 2 The effect of the creation of a Custom Union between Maghreb countries

When creating a customs union, Maghreb countries will have to adopt a common tariff policy and face the same tariff levels from partners from the rest of the world. The common tariff is defined in this study at the HS6 level and with all partners contained in the MacMAP database. It is defined as the minimum tariff applied and faced by the three countries that were already WTO members in 2001 (Morocco and Tunisia in the Maghreb, and Egypt in the "Rest of North Africa" composite).

The creation of a customs union does not improve market access by Maghreb countries. Indeed, as all Maghreb countries benefit from almost the same preference on third regions and especially from Europe, the common tariff that they will face will result from these same preferences and will be equal to what they now face (see tables 11 and 12 for the example of Tunisia).

The most important effect of the creation of a customs union is the reduction of tariffs applied by Maghreb countries to exports from third regions. This would contribute to the decrease of the third region partner's heterogeneity (Table 12.) This last point may be important as it could limit the effects of trade diversion.

A decrease in tariffs would affect bilateral trade between Maghreb countries and their other trade partners (either from the Maghreb or third regions). Tunisia, which is furthest along in the Euro-Mediterranean process, benefits from the creation of a common external tariff in order to slightly decrease the preferential access given by the EU on industrial products. This allows the Tunisian economy to diversify its suppliers and limit trade diversions. Table 13 shows that Tunisian imports from the USA and to Japan will increase respectively by 23 percent and 33 percent by 2015, when its imports from the European Union will increase by only 1.5 percent.

Meanwhile, Morocco and RNA will see their imports from Europe increase dramatically due to the implementation of the Tunisian tariff applies to Europe when the Customs Union is established.

Table 11. Tariff faced by Tunisia with and without a customs union

Sectors	EU25		Japan		SSAHAF		USA	
	Common faced Tariffs	Initial faced Tariff	Common faced Tariffs	Initial faced Tariff	Common faced Tariffs	Initial faced Tariff	Common faced Tariffs	Initial faced Tariff
Agricultural sectors								
Paddy rice	0.00	0.00	0.00	0.00	5.01	5.71	2.06	2.46
Wheat								
Cereal grains nec	21.55	21.55	27.61	27.61	13.11	13.11	0.04	0.04
Vegetables. Fruit. Nuts	2.56	3.85	3.56	3.56	7.88	9.77	9.20	9.20
Other agricultural products	0.06	0.06	0.23	0.23	3.72	3.72	0.37	0.37
Plant-based fibers	0.00	0.00	0.00	0.00	8.93	13.08	0.01	0.01
Crops nec	1.72	1.75	0.08	0.08	13.18	13.18	0.84	0.84
Animal	0.04	0.04	8.46	8.46	4.16	4.82	0.02	0.02
Fishing	0.00	0.00	3.54	3.54	2.70	2.70	0.14	0.14
Agro food industries								
Meat	15.24	15.24	2.02	2.02	34.49	34.49	7.81	7.81
Vegetable oils and fats	67.86	74.94	0.01	0.01	10.44	11.09	0.02	0.02
Dairy products	53.92	53.92	93.99	93.99	10.50	10.50	15.20	15.20
Processed rice	144.27	192.13	1449.93	1449.93	3.93	3.93	3.62	3.62
Sugar	88.04	88.04	181.60	181.60	15.75	15.75	25.15	25.15
Food products nec	1.21	1.35	9.09	9.09	28.22	33.10	1.49	1.49
Beverages and tobacco	4.58	4.58	15.60	15.60	27.28	27.48	8.75	8.75
Non Agro food industries								
Coal, Oil, Gas, Minerals nec	0.00	0.00	0.13	0.13	1.67	1.73	0.00	0.00
Textiles	0.00	0.00	7.72	7.72	18.63	20.02	11.07	11.07
Wearing apparel	0.00	0.00	8.90	8.90	24.97	25.94	10.33	10.33
Leather products	0.00	0.00	18.85	18.85	9.28	11.27	9.22	9.22
Paper products. Publishing					1.97	1.97		
Petroleum. Coal products	0.00	0.00	3.54	3.54	5.22	6.06	0.81	0.81
Chemical. Rubber. Plastic prods	0.00	0.00	0.02	0.02	5.41	5.95	0.16	0.16
Metals	0.00	0.00	0.00	0.00	13.51	16.61	0.86	0.86
Motor vehicles and parts	0.00	0.00	0.00	0.00	7.84	8.10	0.11	0.11
Transport equipment nec	0.00	0.00	0.00	0.00	4.49	4.92	1.15	1.15
Electronic equipment	0.00	0.00	0.00	0.00	7.29	8.44	0.10	0.10
Other industrial products	0.00	0.00	0.02	0.02	13.63	17.25	0.08	0.08

Sources: Authors computations from MacMAP

Table 12. Tariffs applied by Tunisia, with and without a Maghreb customs union

	EU25		Japan		SSAHAF		USA	
	Initial applied tariff	Common applied tariff	Initial applied tariff	Common applied tariff	Initial applied tariff	Common applied tariff	Initial applied tariff	Common applied tariff
Agricultural sectors								
Paddy rice	27.00	5.00	27.00	5.00	26.92	4.97	27.00	5.00
Wheat	88.20	1.00	89.30	1.00	89.91	1.00	88.00	1.00
Cereal grains nec	59.68	4.00	32.77	1.81	3.83	0.21	1.70	0.11
Vegetables. Fruit. Nuts	120.91	18.67	143.90	25.78	134.70	21.69	143.52	22.92
Other agricultural products	10.53	1.47	31.23	5.89	21.83	4.24	16.36	1.29
Plant-based fibers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Crops nec	53.07	9.80	49.67	4.90	22.34	2.83	30.46	12.11
Animal	45.70	6.44	31.21	6.31	42.33	6.30	36.79	5.52
Fishing	39.08	16.40	41.79	8.97	42.44	13.61	40.94	16.79
Agro food industries								
Meat	98.30	21.89	73.03	18.35	79.20	13.03	70.52	22.54
Vegetable oils and fats	42.03	5.78	51.82	15.45	55.42	9.49	20.81	5.32
Dairy products	61.27	8.18	51.95	12.64	69.47	11.04	53.09	11.12
Processed rice	26.98	5.00	27.00	5.00	24.55	5.00	26.49	5.00
Sugar	17.86	7.45	18.95	8.73	23.74	4.54	20.68	7.53
Food products nec	57.56	9.56	49.24	16.36	54.19	17.27	59.77	18.22
Beverages and tobacco	38.83	11.63	36.58	18.00	53.71	15.06	35.61	21.57
Non Agro food industries								
Coal, Oil, Gas, Minerals nec	14.79	3.25	20.87	4.51	9.76	4.08	19.55	4.58
Textiles	14.53	13.99	30.33	22.54	20.16	10.82	29.71	21.73
Wearing apparel	21.13	18.39	34.59	29.38	42.33	27.32	42.12	27.16
Leather products	15.54	14.19	35.44	16.11	37.54	20.37	38.36	17.83
Paper products. Publishing	17.32	12.42	33.26	14.78	25.26	11.21	27.86	12.22
Petroleum. Coal products	3.96	3.96	11.12	7.17	3.96	0.74	7.78	6.69
Chemical. Rubber. Plastic prods	5.14	4.17	24.34	10.24	26.58	12.36	24.13	9.86
Metals	10.39	7.01	23.29	11.87	26.60	9.81	27.00	12.00
Motor vehicles and parts	10.38	5.79	24.96	7.57	17.84	5.89	24.83	7.71
Transport equipment nec	4.12	0.35	12.06	2.09	14.82	1.30	15.62	0.43
Electronic equipment	5.59	0.15	20.12	3.56	21.58	3.74	17.40	2.60
Other industrial products	7.29	3.42	16.35	5.55	24.24	9.59	18.76	5.92

Sources: Authors computations from MacMAP

Table 13: Variation of Maghreb imports (Customs Union Scenario)

	Importer											
	MOROCCO				RNA				TUNISIA			
exporter	2008	2010	2012	2015	2008	2010	2012	2015	2008	2010	2012	2015
TUN	-12.33	69.85	71.35	72.38	17.94	90.09	92.65	94.44	0.00	0.00	0.00	0.00
MOR	0.00	0.00	0.00	0.00	15.49	93.23	104.03	116.20	8.13	115.53	115.51	116.41
RNA	-29.74	-9.45	-8.84	-8.04	25.68	57.67	56.74	55.48	23.56	66.55	68.17	69.37
EU25	22.08	25.41	27.94	30.87	17.43	17.49	17.88	18.14	0.56	0.86	1.21	1.54
USA	8.11	10.20	11.60	13.07	-4.01	-4.08	-3.93	-3.75	22.43	23.67	23.84	23.67
Japan	14.13	15.22	16.23	17.41	-2.37	-1.59	-0.80	-0.05	33.70	34.43	34.15	33.41
ROWDEV	26.72	30.79	33.98	37.43	-2.94	-2.62	-2.14	-1.62	35.34	36.23	36.44	36.37
SSAHAF	23.05	26.01	28.02	30.38	-3.91	-3.69	-3.25	-2.68	13.11	12.15	12.07	11.46
China	-6.79	-5.12	-3.71	-1.98	-2.39	-2.43	-1.92	-1.20	65.06	60.09	59.08	57.19
ROWDNG	26.99	29.06	30.41	31.72	-3.04	-3.52	-3.39	-3.26	34.99	35.20	35.80	36.27

Source: Author's computations from MIRAGE model and MACMAP

The evolution of intra-Maghreb trade does not greatly differ from the free trade area presented in scenario 1. Table 14 shows that Tunisian exports to Morocco increase by 72 percent and 94 percent to RNA. Morocco sees its exports to both Tunisia and RNA increase by 116 percent. RNA sees increases in its internal trade of 57 percent and in its exports to Tunisia of 69 percent.

Compared to a simple FTA, the customs union produces an increase in exports from the Maghreb to third regions. Morocco is the most important beneficiary with exports to Europe increasing by 41 percent, exports to Japan increasing by 10 percent, and exports to the USA up by 12 percent.

Table 14: Variation of Maghreb exports (Customs Union Scenario)

	Exporter											
	MOROCCO				RNA				TUNISIA			
Importer	**2008**	**2010**	**2012**	**2015**	**2008**	**2010**	**2012**	**2015**	**2008**	**2010**	**2012**	**2015**
China	14.78	13.44	12.56	11.45	2.74	3.19	3.43	3.62	10.86	9.91	10.59	11.39
EU25	25.87	31.57	36.29	41.54	9.34	10.30	11.03	11.77	11.11	11.08	11.91	12.88
Japan	13.62	11.79	10.89	10.05	6.52	6.78	6.86	6.89	8.26	5.56	5.10	5.02
MOR	0.00	0.00	0.00	0.00	-29.74	-9.45	-8.84	-8.04	-12.33	69.85	71.35	72.38
RNA	15.49	93.23	104.03	116.20	25.68	57.67	56.74	55.48	17.94	90.09	92.65	94.44
ROWDEV	15.53	14.05	13.23	12.27	7.14	7.78	8.18	8.62	9.58	7.14	6.79	6.84
ROWDNG	19.14	17.42	16.34	14.99	-12.06	-11.73	-11.67	-11.90	11.08	10.95	12.15	13.19
SSAHAF	26.33	26.14	26.33	26.57	9.05	8.87	8.62	8.36	24.07	22.94	23.69	24.17
TUN	8.13	115.53	115.51	116.41	23.56	66.55	68.17	69.37	0.00	0.00	0.00	0.00
USA	13.46	12.85	12.79	12.72	7.20	7.89	8.31	8.77	9.55	7.52	7.10	6.76

Source: Author's computations from MIRAGE model and MACMAP

This trade evolution leads to an improvement of the trade balance for all Maghreb countries (table 15). Compared to the FTA scenario, the improvement is slightly better for Morocco at USD 367 million for the custom union scenario compared to USD 32 million for the FTA.

Table 15: Variation in the trade balance in millions of USD by region. (Customs Union Scenario)

Region	**2008**	**2010**	**2012**	**2015**
TUN	87	151	179	220
MOR	117	200	271	367
RNA	-8	200	322	462
EU25	-125	-156	-160	-169
USA	129	-37	-132	-229
Japan	-54	-79	-99	-128
ROWDEV	-36	-111	-171	-252
SSAHAF	4	3	2	1
China	-58	-54	-45	-31
ROWDNG	-55	-117	-167	-240

Source: Author's computations from MIRAGE model and MACMAP

The new structure of production is presented in table 16, which clearly indicates that there is a specialization effect between the three Maghreb countries. Value added for Morocco increases in some agricultural and agro food sectors (*Other agricultural products* 20 percent, *Meat* 65 percent) and some labour intensive industries such as textiles (320 percent) and *Wearing apparel* (155 percent). On the other hand, RNA sees sharp decreases in its capital-intensive industries due to competition from Tunisia and the developed countries in its domestic markets. Table 16 shows that the level of production from RNA in sectors such as *Electronic equipment* decreases by 21 percent and by 45 percent in *Motor vehicles and parts*

Table 16: Variation of the value added. (Customs Union Scenario)

	MOROCCO				RNA				TUNISIA			
	2008	2010	2012	2015	2008	2010	2012	2015	2008	2010	2012	2015
Agricultural sectors												
Paddy rice	-37.81	-44.89	-50.65	-57.54	5.67	8.07	9.87	11.54	44.45	49.73	50.55	49.90
Wheat	-20.34	-24.89	-28.15	-31.25	-0.03	-0.13	-0.17	-0.22	-50.91	-55.90	-59.25	-63.02
Cereal grains nec	-4.00	-4.73	-5.10	-5.32	-1.43	-1.61	-1.66	-1.68	-6.97	-8.03	-9.25	-10.11
Vegetables. Fruit. Nuts	1.27	0.56	0.33	0.14	-0.35	-0.35	-0.35	-0.34	-7.94	-9.63	-10.87	-12.12
Other agricultural products	5.65	11.63	15.98	20.72	0.43	1.08	1.22	1.37	-18.79	-27.32	-29.63	-32.73
Plant-based fibers	0.77	0.34	0.16	0.03	1.29	1.46	1.57	1.65	7.29	6.24	6.04	6.02
Crops nec	-0.60	-2.73	-4.27	-6.01	-4.78	-5.90	-6.69	-7.25	-11.84	-17.06	-21.04	-25.60
Animal	-1.54	-1.85	-1.99	-2.07	-0.61	-0.68	-0.70	-0.69	-4.47	-5.71	-6.48	-7.11
Fishing	0.93	0.73	0.67	0.64	-0.39	-0.49	-0.51	-0.51	-0.11	-0.28	-0.40	-0.59
Agro food industries												
Meat	69.97	58.88	46.01	28.61	-0.97	-1.12	-1.14	-1.14	-2.55	-3.07	-3.37	-3.48
Vegetable oils and fats	-8.98	-10.78	-11.69	-12.62	-8.98	-10.80	-11.43	-11.65	111.39	192.03	221.96	248.65
Dairy products	-36.28	-38.96	-41.56	-44.54	1.72	1.34	1.34	1.30	-8.53	2.22	2.35	2.27
Processed rice	-71.60	-71.39	-71.14	-71.05	17.58	22.95	23.56	22.92	50.44	89.89	105.97	117.36
Sugar	-2.62	-2.91	-3.11	-3.31	-0.56	-0.56	-0.56	-0.57	-0.29	-0.08	-0.16	-0.22
Food products nec	4.82	4.21	3.59	2.90	-1.39	-1.45	-1.43	-1.40	-0.04	3.53	2.44	0.43
Beverages and tobacco	7.74	13.15	16.89	20.88	-0.90	-1.03	-1.05	-1.04	-0.55	-0.34	-0.36	-0.37
Non Agro food industries												
Coal, Oil, Gas, Miner. nec	-4.22	-7.70	-10.48	-13.80	0.69	1.47	1.99	2.41	-0.32	-1.67	-2.45	-3.16
Textiles	36.00	72.98	92.85	111.20	4.63	5.00	5.48	6.42	8.25	11.03	13.29	16.09
Wearing apparel	27.28	43.54	56.02	68.63	4.20	5.17	5.99	7.54	3.95	3.98	4.84	6.41
Leather products	-4.55	-6.88	-8.73	-10.48	0.21	0.16	0.12	0.12	4.66	7.26	9.48	12.41
Paper products. Publishing	-6.75	-7.76	-8.47	-9.01	0.43	0.43	0.38	0.29	1.03	6.33	8.33	10.29
Petroleum. Coal products	2.39	3.96	4.40	4.62	1.10	1.80	2.12	2.42	1.14	1.11	0.90	0.56
Chemical. Rubber. Plastic prods	2.15	0.97	-0.06	-1.44	-1.66	-2.11	-2.31	-2.42	5.04	10.74	13.48	15.55
Metals	-3.73	-5.56	-6.70	-7.75	-0.86	-0.72	-0.80	-0.87	0.61	4.48	5.05	5.28
Motor vehicles and parts	-9.29	-12.32	-14.32	-15.96	-18.34	-22.49	-24.83	-26.10	0.46	0.94	0.84	0.67
Transport equipment nec	5.06	3.80	2.09	0.15	5.08	5.79	5.50	4.94	1.05	-0.01	-0.46	-0.78
Electronic equipment	11.52	11.00	10.24	8.70	-7.32	-9.75	-11.01	-11.90	-2.66	-5.71	-7.84	-10.16
Other industrial products	1.91	0.78	-0.21	-1.43	-4.08	-5.28	-5.64	-5.66	4.25	6.62	7.24	7.37

Source: Author's computations from MIRAGE model and MACMAP

This new specialization scheme leads to a significant increase in the GDP of Morocco and Tunisia (7.8 percent for Tunisia and 6.2 percent for Morocco). RNA is the only region that registers a decrease in GDP due to reductions in the production in some capital-intensive industries characterized by a high rate of return to scale. We will see in the third scenario that a deeper integration (common market) will have a significant effect on these sectors for RNA. Compared to the FTA scenario, Tunisia and Morocco realize a significant improvement in GDP gain: 7.8 percent of GDP gain in the case of the customs union compared to 2.5 percent in the case of the FTA for Tunisia, and 6.24 percent of GDP gains in the case of the customs union compared to 2.5 percent in the case of the FTA for Morocco. RNA is the only loser in this case.

Table 17: Variation of GDP (in volume) by region (Customs Union Scenario)

Region	2008	2010	2012	2015
TUN	5.94	7.35	7.65	7.81
MOR	4.54	5.50	5.88	6.24
RNA	-0.48	-0.37	-0.32	-0.27
EU25	0.05	0.05	0.05	0.05
USA	0.02	0.02	0.02	0.01
Japan	0.01	0.01	0.01	0.01
ROWDEV	0.01	0.00	0.00	0.00
SSAHAF	0.02	0.01	0.01	0.01
China	0.00	0.00	0.01	0.01
ROWDNG	0.00	0.00	-0.01	-0.01

Source: Author's computations from MIRAGE model and MACMAP

The reorganization of production affects factor prices and the wages of skilled and unskilled workers. Table 18 shows that contrary to the first scenario, the customs union does not lead to an increase in the wages factor in all Maghreb countries. Tunisia, which will specialize in skilled intensive sectors, will face a larger increase in the wages of skilled workers than in its unskilled labour force. On the other hand, RNA will see the wages of the two categories of workers decrease by nearly1 percent.

Table 18: Dynamic variation of real wages (Customs Union Scenario)

Region	Unskilled real wages				Skilled real wages			
	2008	2010	2012	2015	2008	2010	2012	2015
TUN	-0.191	0.531	0.681	0.747	2.153	2.758	2.900	2.961
MOR	-0.070	0.504	0.818	1.128	1.263	1.596	1.721	1.808
RNA	-1.196	-1.167	-1.133	-1.067	-0.715	-0.788	-0.801	-0.780
EU25	0.034	0.038	0.041	0.045	0.024	0.029	0.033	0.037
USA	0.001	0.001	0.001	0.001	0.001	0.000	-0.001	-0.001
Japan	-0.002	-0.002	-0.002	-0.002	-0.001	-0.002	-0.002	-0.002
ROWDEV	0.002	0.002	0.002	0.002	-0.002	-0.002	-0.002	-0.002
SSAHAF	0.009	0.009	0.010	0.011	0.001	0.001	0.001	0.001
China	-0.007	-0.008	-0.008	-0.008	-0.003	-0.001	0.001	0.002
ROWDNG	-0.002	-0.005	-0.006	-0.007	-0.010	-0.011	-0.012	-0.013

Source: Author's computations from MIRAGE model and MACMAP

The welfare variation that results from this scenario differs between the Maghreb countries. Table 19 shows that Tunisia maintains welfare gains that are slightly above those in the first scenario (USD 271.4 million in the first scenario and USD 354 million in the second scenario), while the Moroccan situation improves remarkably (USD 230 million in this scenario compared to USD 32 million in the first scenario). RNA will undergo a loss in welfare due to a decrease in workers' wages. For RNA, a free trade area is largely preferable to a custom union as its welfare passes from a gain of USD 27 million to a welfare loss of USD 71 million. This is partially due to the adoption of the Common External Tariff (CET) which provides protection designed for the Maghreban WTO members, e.g. Morocco and Tunisia. Even if consumers in the RNA benefit from the new CET, it does not compensate for the decrease in real wages for skilled and unskilled workers.

Table 19: Welfare equivalent variation (USD million) (Customs Union Scenario)

Region	2008	2010	2012	2015
TUN	189	260	295	345
MOR	91	149	185	230
RNA	-589	-633	-666	-716
EU25	850	1029	1184	1390
USA	78	80	90	109
Japan	18	13	11	10
ROWDEV	26	23	22	22
SSAHAF	4	4	4	5
China	-10	-13	-15	-20
ROWDNG	-29	-74	-102	-140

Source: Author's computations from MIRAGE model and MACMAP

IV – 3 - The effect of the creation of a single Market between Maghreb countries

To model the effects of the creation of a common Maghreb market, we adopt the Smith and Venables (1991) and Bchir et al. (2003) hypothesis. While the first paper aimed at assessing the impacts of the creation of the 1992 European Common Market, the second assesses the 2005 European enlargement. These two papers suppose that the effects of the implementation of a common market are greater than those for a customs union, in the sense that a common market compels firms which are in imperfect competition to have the same mark-up in all the regions of the common market.

In this section, we add to the customs union scenario the hypothesis that from 2008 all firms (both Maghreb and non Maghreb) competing in sectors with imperfect competition will adopt the same mark-up in the three Maghreb countries.

When we take into account the unique mark-up hypothesis, the results lead to more accurate specialization. Table 20 demonstrates that the variations of the sectoral value added are more pronounced when compared to the case of a simple customs union. Firms benefit more from increasing return to scale effects when they consider the Maghreb market as a whole rather than as unique domestic markets. This result is particularly important for RNA where high return to scale sectors suffer more under a customs union scenario than under a common market. Even if these sectors continue to reduce their production,

the fact that the number of firms is decreasing means that the remaining firms are better exploiting returns to scale.

The new and more efficient allocation of resources results in a larger GDP gain for the Maghreb countries. As can be seen in table 21, Tunisia registers gains of more than 10 percent of GDP compared to the 7.8 percent obtained in the customs union scenario and 2.5 percent in the FTA scenario. Morocco registers a GDP gain of 8 percent compared to 6 percent in the customs union scenario and 0.4 percent in the FTA scenario. The RNA region registers a GDP gain of 1 percent while losing 0.27 percent in the customs union scenario and seeing quasi-stagnation under an FTA. One should keep in mind that these results for RNA are under-estimated because the RNA aggregate implies that Algeria, Egypt and Libya are completely integrated. One can expect higher results for these countries when a desagregation of RNA is available in the database.

Table 20: Variation of the sectoral value Added (Common Market scenario)

	MOROCCO				RNA				TUNISIA			
	2008	2010	2012	2015	2008	2010	2012	2015	2008	2010	2012	2015
Agricultural sectors												
Paddy rice	-38.74	-45.66	-51.32	-58.10	2.25	3.75	5.17	6.89	39.39	44.29	45.49	45.64
Wheat	-20.97	-25.31	-28.37	-31.10	-0.75	-0.65	-0.46	-0.22	-52.35	-57.17	-60.33	-63.84
Cereal grains nec	-4.26	-4.72	-4.82	-4.71	-1.54	-1.56	-1.46	-1.31	-7.47	-8.50	-9.57	-10.15
Vegetables. Fruit. Nuts	1.32	0.94	0.98	1.09	-0.20	-0.06	0.05	0.18	-8.20	-9.89	-11.01	-12.02
Other agricultural products	3.78	9.24	13.64	18.89	0.04	0.86	1.15	1.48	-19.39	-27.90	-30.19	-33.16
Plant-based fibers	0.78	0.71	0.80	0.94	0.49	0.84	1.12	1.41	6.07	4.93	4.81	5.03
Crops nec	-1.46	-3.08	-4.12	-5.22	-6.62	-7.79	-8.49	-8.73	-13.87	-19.15	-23.11	-27.51
Animal	-1.06	-1.19	-1.17	-1.05	-0.42	-0.38	-0.29	-0.17	-4.56	-5.67	-6.22	-6.48
Fishing	1.27	1.36	1.53	1.74	0.07	0.15	0.23	0.30	0.07	0.06	0.08	0.10
Agro food industries												
Meat	109.57	106.34	93.67	72.34	-1.03	-0.98	-0.83	-0.66	-1.88	-2.26	-2.38	-2.19
Vegetable oils and fats	-5.00	-6.36	-7.05	-7.86	-9.73	-11.15	-11.41	-11.21	96.06	167.23	195.32	222.34
Dairy products	-33.80	-36.26	-38.73	-41.46	2.61	2.54	2.74	2.84	-5.26	6.49	6.62	6.32
Processed rice	-71.94	-71.56	-71.14	-70.82	7.33	12.59	14.28	15.42	43.71	79.79	95.69	108.81
Sugar	-1.87	-1.90	-1.91	-1.90	-1.11	-0.93	-0.77	-0.58	0.57	1.08	1.20	1.33
Food products nec	-0.60	-0.58	-0.57	-0.45	-0.99	-0.89	-0.76	-0.63	-2.27	0.42	-0.57	-1.87
Beverages and tobacco	6.89	11.99	15.78	20.13	-0.76	-0.74	-0.63	-0.52	0.01	0.43	0.57	0.70
Non Agro food industries												
Coal, Oil, Gas, Minerals nec	-6.03	-9.86	-12.70	-15.87	0.03	0.43	0.89	1.51	-1.09	-2.71	-3.44	-3.82
Textiles	33.30	68.76	89.10	109.30	0.89	1.25	1.59	2.15	5.75	7.28	8.95	11.58
Wearing apparel	19.73	33.16	45.01	58.55	2.68	3.61	4.32	5.59	2.22	1.47	1.82	2.96
Leather products	-8.65	-11.68	-13.79	-15.47	-0.51	-0.31	-0.13	0.06	4.38	7.71	11.23	16.72

	MOROCCO				RNA				TUNISIA			
	2008	2010	2012	2015	2008	2010	2012	2015	2008	2010	2012	2015
Paper products. Publishing	-5.16	-5.24	-5.42	-5.62	0.52	0.86	1.04	1.10	3.04	10.38	13.33	15.96
Petroleum. Coal products	2.03	3.48	4.03	4.41	0.64	1.02	1.24	1.50	0.98	1.27	1.34	1.30
Chemical. Rubber. Plastic prods	7.14	7.06	6.24	4.51	2.16	2.41	2.26	1.78	16.94	25.40	26.81	25.31
Metals	-3.26	-3.95	-4.32	-4.77	-0.69	-0.22	-0.16	-0.26	-0.29	3.86	4.96	5.53
Motor vehicles and parts	-6.99	-8.64	-9.71	-10.72	-17.55	-21.35	-23.40	-24.48	-1.19	-1.31	-1.34	-0.93
Transport equipment nec	9.24	9.59	8.47	6.59	5.02	6.59	6.73	6.33	-0.90	-2.84	-3.52	-3.70
Electronic equipment	16.92	18.92	19.36	18.60	-1.95	-2.79	-3.43	-4.34	-0.12	-1.78	-2.82	-4.06
Other industrial products	6.84	7.38	7.00	5.72	0.17	0.21	0.09	-0.26	7.50	10.77	11.85	12.26

Source: Author's computations from MIRAGE model and MACMAP

Table 21: Variation of GDP (in volume) by region (Common Market Scenario)

Region	2008	2010	2012	2015
TUN	8.457	9.953	10.174	10.171
MOR	6.402	7.276	7.656	8.039
RNA	1.319	1.279	1.225	1.159
EU25	0.024	0.026	0.029	0.032
USA	0.005	0.009	0.011	0.012
Japan	0.005	0.006	0.006	0.006
ROWDEV	0.002	0.000	0.000	-0.001
SSAHAF	0.015	0.012	0.011	0.010
China	-0.002	0.000	0.001	0.001
ROWDNG	0.001	-0.004	-0.006	-0.009

Source: Author's computations from MIRAGE model and MACMAP

As far as the creation of a common market is concerned, the efficient allocation of factors resulting from 1) the new geographic division of work, and 2) the increasing return of scale have a positive effect on factor prices, and mainly on wages. Table 22 shows that in this scenario, all Maghreb countries face a large increase in real wages for both categories.

Table 22: Variation of real wages (Common Market Scenario)

Region	Unskilled real wages				Skilled real wages			
	2008	2010	2012	2015	2008	2010	2012	2015
TUN	2.447	3.064	3.077	2.941	5.521	6.209	6.309	6.207
MOR	2.277	2.920	3.280	3.605	5.340	6.044	6.392	6.587
RNA	0.483	0.539	0.548	0.519	1.625	1.727	1.750	1.684
EU25	0.020	0.022	0.025	0.029	0.004	0.006	0.009	0.013
USA	0.000	-0.001	-0.001	-0.001	-0.002	-0.004	-0.004	-0.004
Japan	-0.002	-0.002	-0.002	-0.002	-0.002	-0.002	-0.002	-0.002
ROWDEV	0.001	0.000	0.000	0.000	-0.005	-0.007	-0.007	-0.007
SSAHAF	0.005	0.005	0.006	0.007	-0.008	-0.008	-0.008	-0.008
China	-0.008	-0.009	-0.009	-0.009	-0.007	-0.005	-0.003	-0.002
ROWDNG	-0.003	-0.006	-0.007	-0.009	-0.014	-0.017	-0.018	-0.019

Source: Author's computations from MIRAGE model and MACMAP

Finally, table 23 shows that all these developments positively affect the welfare of Maghreb countries. In this scenario, Tunisia, Morocco and RNA face welfare gains that are much higher than the gains registered in the first two scenarios.

Table 23: Welfare equivalent variation (USD million) (Common Market Scenario)

Region	2008	2010	2012	2015
TUN	876	1057	1160	1309
MOR	1053	1245	1395	1605
RNA	1326	1461	1582	1711
EU25	807	1051	1310	1702
USA	104	106	135	193
Japan	-34	-32	-25	-18
ROWDNG	-118	-183	-240	-323
SSAHAF	-3	-3	-2	-2
China	-56	-68	-76	-91
ROWDEV	-2	-8	-7	-4

Source: Author's computations from MIRAGE model and MACMAP

V.   Conclusion

Greater regional economic integration for the Maghreb countries would yield important benefits by creating a regional market of more than 140 million consumers (including Egypt), which is similar in population to many leading trading nations. This would bring efficiency gains and make the region more attractive for foreign investors. And, most importantly, the complementary economic structures of the Maghreb countries would create opportunities for mutually beneficial trade within the region.

The Maghreb region has the opportunity to be a trailblazer for the Middle East and North Africa, as well as other developing countries. Few countries have achieved success without adopting an outward orientation in their policies, and even fewer have achieved sustained growth without establishing strong trading and investment links with their neighbours. The foregoing discussion essentially argues that RIAs aiming at deeper integration are likely to be more effective than the current versions of the Euro-Med and intra-regional agreements.

Deeper integration would entail much greater cooperation to harmonize policies and administrative procedures across a broad range of activities relating to customs operations; health and safety standards; licensing and certification; supervision of financial services; and competition and anti-monopoly legislation, while allowing for much greater openness to trade in services and to the freer flow of labour and capital.

Our study suggests that the overall gains from liberalizing trade in goods (and removing various regulatory non-tariff barriers in the process) could reach at least USD 350 million. The increase in revenue through increases in production and wages positively affects welfare levels for Maghreb consumers. The dynamic gains from liberalizing trade in goods can outstrip the static gains, with productivity improvements as the main driver. Estimating the dynamic benefits involves considerable uncertainty, but our simulations suggest that they can be more than twice the static gains. Factors likely to enhance productivity in tradable goods include:

- Increased investment embodying new technologies, to expand capacity and take advantage of greater export opportunities;
- Transfer of technology and management, which results from greater openness; and
- Greater economies of scale from the increase in production and access to larger markets.

Liberalizing services can enhance these productivity gains. For example, lower-cost telecommunications and networking services, following the liberalization of the Information and Communication Technologies (ICT) sector, are likely to boost connectivity, computer penetration, and the use of ICT business applications.

Our analysis shows that the creation of a common market is probably the best and most efficient option for the Maghreb countries. Furthermore, these results show that the countries of the Maghreb have an economic interest in removing trade barriers which limit regional integration. Our analysis shows that whatever the scenario chosen, it is more expensive and costly for Maghreb countries to maintain trade barriers and restrictions between them.

Additionally, a free trade area is more favourable to the diversification of the North African economies, while favouring a certain diversification among Maghreb countries and improving their welfare. This enhances the argument for coupling the Euro-Med partnership agreement with a Maghreb free trade area and strengthening the supply side capacities of these countries.

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ANNEXES

Sectoral and regional aggregation

This paper focuses on the impacts of different scenarios of bilateral and multilateral liberalization scenarios on North African economies. For this reason a relatively detailed sectoral desegregation is conducted. Indeed, from the GTAP 6, we have isolated all the sectors in order to cover at least 90 percent of exports from the North African region. This computation is based on the GTAP 6 database. By this procedure we have obtained 33 sectors presented in the following table.

Table 1: Sectoral aggregation.

Study sectors	GTAP Sectors
Agricultural sectors	
Paddy rice	Paddy rice
Wheat	Wheat
Cereal grains nec	Cereal grains nec
Vegetables. Fruit. Nuts	Vegetables. Fruit. Nuts
Other agricultural products	Oil seeds, Sugar cane. Sugar beet, Raw milk, Wool. Silk-worm cocoons, Forestry
Plant-based fibers	Plant-based fibers
Crops nec	Crops nec
Animal	Cattle. Sheep. Goats. Horses, Animal products nec
Fishing	Fishing
Agro food industries	
Meat	Meat: cattle. Sheep. Goats. Horse, Meat products nec
Vegetable oils and fats	Vegetable oils and fats
Dairy products	Dairy products
Processed rice	Processed rice
Sugar	Sugar
Food products nec	Food products nec
Beverages and tobacco	Beverages and tobacco products

Study sectors	GTAP Sectors
Non Agro food industries	
Coal, Oil, Gas, Minerals nec	Coal, Oil, Gas, Minerals nec
Textiles	Textiles
Wearing apparel	Wearing apparel
Leather products	Leather products
Paper products. Publishing	Paper products. Publishing
Petroleum. Coal products	Petroleum. Coal products
Chemical. Rubber. Plastic prods	Chemical. Rubber. Plastic prods
Metals	Mineral products nec, Ferrous metals, Metal products, Metals nec
Motor vehicles and parts	Motor vehicles and parts
Transport equipment nec	Transport equipment nec
Electronic equipment	Electronic equipment
Other industrial products	Wood products, Machinery and equipment nec, Manufactures nec

Having such important sectoral aggregation, we have opted for a relatively small regional desegregation. Only the main partners of North African countries are isolated, while the rest of the world is divided into developed and developing regions.

Table 2: Regional aggregation.

Description		GTAP
North Africa		
MOR	Morocco	Morocco
TUN	Tunisia	Tunisia
RNA	Rest of north Africa	Rest of north Africa
Developed region		
EU25	European Union	EU25
USA	USA	USA
Japan	Japan	Japan
ROWDEV	Rest of developed regions	New Zealand, Hong Kong, Korea, Taiwan, Singapore, Canada, Rest of FTAA, Switzerland, Rest of EFTA
Developing region		
China		China
SSAHAF	Sub Saharan Africa	Botswana, South Africa, Rest of South African Customs Union, Malawi, Mozambique, Tanzania, Zambia, Zimbabwe, Rest of SADC, Madagascar, Uganda, Rest of Sub Saharan Africa
ROWDNG	Rest of developing regions	Rest of Oceania, Rest of East Asia, Indonesia, Malaysia, Philippines, Thailand, Vietnam, Rest of Southeast Asia, Bangladesh, India, Sri Lanka, Rest of South Asia, Mexico, Rest of North America, Colombia, Peru, Venezuela, Rest of Andean Pact, Argentina, Brazil, Chile, Uruguay, Rest of South America, Central America, Rest of the Caribbean, Rest of Europe, Albania, Bulgaria, Croatia, Romania, Russian Federation, Rest of Former Soviet Union, Turkey, Rest of Middle East

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