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Economic integration in the EuroMed: current status and review of studies

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ECONOMIC INTEGRATION IN THE EUROMED: CURRENT STATUS AND A REVIEW OF STUDIES¹

NON-TECHNICAL SUMMARY

Since the mid-1990s, south Mediterranean countries (SMCs) have engaged in a process of trade liberalization with the EU, aiming at creating a free trade area in the region by 2020. This process has been pursued in the framework of bilateral association agreements (AAs) between the EU and each of its partners in the MENA (Middle-East and North Africa) region. In a first step, this process of liberalization has been defined to include the removal of trade barriers for industrial goods, and a partial tariff reduction in agricultural and food processing sectors; while a widening of the scope of the agreements to include deeper liberalization in agricultural, agro-food and services sectors, as well as a reduction in non-tariff barriers (NTBs), is currently in negotiation. In parallel, some of the south-Mediterranean countries have been engaged in intra-regional liberalization, essentially through two agreements: the GAFTA (signed in 1997) which creates a free-trade area between members of the Arab League; and the Agadir agreement (signed in 2004), including Morocco, Tunisia, Egypt and Jordan. These agreements entail a gradual implementation of tariff reductions in industrial and agricultural sectors. Finally, some of these countries have engaged in bilateral FTAs among themselves (Turkey-SMCs), with the US (Morocco, Jordan, Israel) and other partners (Canada, Mexico, EFTA).

This article intends to draw a picture of the current status of the liberalization process; and to survey the main results from existing studies of its impact on the economies of the area. An exhaustive list of agreements involving countries of the region with a description of each in terms of coverage, status and agenda has been built; along with an overview of economic flows in the region (goods and services trade flows, investment and transfers).

The first important question is to estimate the ‘trade potential’ of these agreements. Some observers have expressed doubts on the potential of these agreements for the following reasons: concerning intra-regional integration, the low level of trade among countries of the MENA region has long been observed, and attributed both to a low level of trade complementarity, and to structural and institutional impediments to trade. As for integration with the EU, it was noted that since SMCs already benefited from preferential (tariff-free) access to EU markets for their industrial exports, prior to the start of the AAs, these agreements would essentially consist in a non-reciprocal liberalization of their markets to EU exporters, thus offering little prospects for export expansion for these countries. As intra-regional and EuroMed agreements have been in force for several years now, some studies have started to assess their trade impacts, most often using a gravity methodology. These studies generally find a clear and substantial trade expansion effect of intra-regional

¹ This work is a contribution to the study “The Cost of non-Mediterranean” financed by the AFD and the DGT.

agreements, mainly the GAFTA, while implementation of the Agadir agreement is probably too recent for a consistent evaluation. By contrast, Euro-Med agreements are consistently found to have increased export flows from the EU to its partners, but with no significant, or even slightly negative impacts on the exports of SMCs; this seems to confirm predictions made prior to the implementation of these agreements.

Second, assessing the economic impacts of liberalization for south-Mediterranean economies requires going beyond trade flows to examine effects on production by sectors, income (total and its distribution), government revenues, and total welfare. This has been done in several studies using computable general equilibrium (CGE) methodology, which conditional on modeling hypotheses and available data for the economies considered, enables to project the consequences of a change in trade policy for the different sectors. In addition, such models also make it possible to decompose the effects of a liberalization (trade creation and diversion, allocative efficiency, terms of trade, competition effects) to identify the main sources of gains and losses for the economies opening up. Results from this literature are relatively mixed, due to differences in the modeling hypotheses, availability of data for the countries under study, and assumptions on the path of tariff reductions ('scenarios'). However, most attempts to simulate the effects of the implementation of the EU-Med agreements find losses or limited gains for SMCs. In general, the main source of gains for these countries lies in trade creation effects (through access to cheaper imports), but these are compensated by important trade diversion (over-importing from the EU following preferential liberalization) with adverse effects on government revenues. Terms of trade effects are also negative in most scenarios, again a consequence of the asymmetric structure of tariff reductions. The sign of competition effects vary across countries and studies. Note however that such models do not, in general, account for potential competitiveness and productivity gains arising from exposure to foreign competition. Considering the effects across countries, important differences emerge. Tunisia, and to a lesser extent Morocco, stand to gain relatively more from the AAs, the former having an initially more developed industrial base which undergoes positive rationalization effects; while the rest of MENA countries generally experience significant deindustrialization effects and overall losses in welfare (Israel and Turkey being generally less affected due to lower initial protection levels). Considering scenarios of intra-regional liberalization, Tunisia is generally found to exploit its locally comparative advantages in manufacturing while other MENA countries engaged in the process specialize more in agriculture. Finally, we consider a series of issues related to the 'deepening' of the Euro-Med integration process. The removal of non-tariff barriers, and of barriers to trade in services, generally yields large gains for the SMCs through larger trade creation effects and competition effects; however quantifying these barriers and the gains (and costs) from their removal remains a methodological challenge. Conversely, an extension of the agreements to agriculture and agro-food sectors generally finds mixed results depending on assumptions on the form of such an extension; reciprocal tariff reductions are generally found to be the instrument yielding most gains for the MENA economies.

ABSTRACT

This article draws a picture of the current status of the liberalization process in the Euro-Mediterranean region, and reviews existing studies of this process. Economic integration among the South-Med countries (SMCs) has started in the middle 1990s through intra-regional agreements (GAFTA, Agadir Agreement) and bilateral agreements with the EU. Econometric studies using gravity models generally found important trade creation effects for intra-regional trade, but smaller and asymmetric effects from EU-Med agreements, with an increase of export flows from the EU but no increase of flows in the other direction. Simulations with CGE models shows the main sources of gains (trade creation) and of losses (trade diversion, terms of trade) for SMCs. Studies also suggest that a dismantling of non-tariff barriers and of barriers in services trade could yield substantial gains for SMCs. A table with existing agreements and a picture of economic flows in the region can be found in the annex.

JEL Classification: F15, F17, O24, O53, O55.

Key Words: Economic integration, EuroMed, Gravity models, Computable general equilibrium.

INTÉGRATION ÉCONOMIQUE DANS LA RÉGION EURO-MÉDITERRANÉENNE: ÉTAT DES LIEUX
ET REVUE DE LITTÉRATURE²

RÉSUMÉ NON TECHNIQUE

Depuis le milieu des années 1990, les pays du Sud et de l'Est de la Méditerranée (PSEM) se sont engagés dans un processus de libéralisation commerciale graduelle vis-à-vis de leurs partenaires de l'UE. La première phase de ce processus est inscrite dans les accords d'association bilatéraux entre l'UE et chacun de ces pays³. Ces accords comprennent un agenda de démantèlement tarifaire progressif sur les biens industriels, étalé sur une période de 12 ou 15 ans. Ce démantèlement qui a débuté avec l'accord EU-Tunisie en 1995, devrait s'achever vers 2020. Dans un second temps, un élargissement du cadre de ces accords pour y inclure la libéralisation des échanges dans les secteurs agricole, agro-industriel et de services, ainsi que pour réduire les barrières non-tarifaires aux échanges entre les partenaires, est prévu et fait actuellement l'objet de négociations. Parallèlement, certains des PSEM ont engagé un processus d'intégration régionale, sous la forme de deux accords principaux: la zone arabe de libre-échange (ZALE) implémentée sous les auspices de la Ligue arabe et qui inclut les 9 pays arabes considérés ici (Israël et Turquie exceptés); et l'accord d'Agadir, incluant le Maroc, la Tunisie, l'Égypte et la Jordanie. L'élimination des barrières tarifaires pour les biens industriels prévue dans le cadre de la ZALE a démarré en 2005 (certains pays bénéficiant de périodes d'ajustement); pour l'accord d'Agadir le démantèlement a débuté en 2007, l'un des objectifs principaux de cet accord étant de permettre aux pays membres d'exploiter de manière optimale le système de règles d'origine accordé par l'UE à ces pays. Enfin, certains des PSEM ont également signé des accords bilatéraux entre eux (Turquie-PSEM), avec les États-Unis (Maroc, Jordanie, Israël), et avec d'autres pays ou groupes de pays (Canada, Mexique, AELE).

Cette étude dresse un état des lieux du processus d'intégration dans l'Euro-Med, et rassemble les résultats des recherches existantes sur les impacts de ce processus sur les économies des PSEM. Un recensement exhaustif des accords impliquant les pays de cette région a été réalisé, qui permet de récapituler leur état d'avancement (en vigueur ou en cours de négociation) et leurs principales caractéristiques (pays concernés, couverture, agenda de démantèlement). On a ensuite dressé un état des lieux des échanges dans la région, comprenant flux commerciaux, de services, d'investissement et transferts courants, décomposés par origine/destination, et

² Cet article fait partie de l'étude "Le coût de la non-Méditerranée" co-financée par l'AFD et la DGT.

³ Les onze pays considérés dans cette étude sont l'Algérie, le Maroc, la Tunisie, la Lybie, l'Égypte, Israël, les Territoires Palestiniens, la Jordanie, la Syrie, le Liban et la Turquie. Seule la Lybie n'a pas signé d'accord avec l'UE. La Turquie est dans un processus d'adhésion à l'UE et est en union douanière avec l'UE depuis 1996.

structure. Enfin, une synthèse de la littérature récente a été réalisée. Les paragraphes suivants en présentent les principaux résultats.⁴

La première question posée concernant le processus d'intégration régionale est celle de l'effet des accords sur les échanges entre les pays impliqués. *Ex ante*, de nombreux observateurs ont exprimé des réserves sur le « potentiel de commerce » des PSEM entre eux, du fait des similarités des structures de production d'une part, d'infrastructures insuffisamment développées de l'autre. En ce qui concerne l'intégration avec l'UE, on a noté que la plupart des PSEM bénéficiaient déjà d'accès non tarifés aux marchés européens dans les secteurs industriels, dans le cadre d'accords préférentiels datant des années 1970. De ce fait, les accords d'association récents procèdent à une libéralisation « asymétrique », consistant essentiellement en l'ouverture des marchés des PSEM aux exportateurs de l'UE; il était donc à attendre que ces accords aient un impact important sur les exportations de l'UE vers les PSEM, mais un impact faible, à court terme au moins, sur les flux dans l'autre sens.

Les études d'impact sur ces accords sont présentées dans la première section de la revue de littérature; elles utilisent la méthodologie des modèles « gravitaires ». En général, ces études identifient un impact positif, modéré mais significatif des accords intra-régionaux (essentiellement la ZALE), de création de commerce (l'entrée en vigueur de l'accord d'Agadir est un peu trop récente pour une évaluation fiable des effets sur les flux commerciaux). Les estimations les plus fiables se situent entre 16 et 24% pour l'impact (en moyenne sur l'ensemble des pays) de la création de la ZALE sur les flux entre les membres. En revanche, les accords Euro-Med ont augmenté clairement les exportations de l'UE vers les PSEM mais ont eu un impact nul, voire légèrement négatif, sur les exportations des PSEM ; il n'y a donc pas de signe tangible d'un impact positif de ces accords sur la compétitivité des PSEM, via un accès favorisé à des produits intermédiaires et d'équipement. De plus, un effet de « diversion de commerce » (c'est-à-dire que ces pays substituent des importations en provenance de l'UE aux produits précédemment importés d'autres régions, suite à la baisse des droits de douane) est identifié.

La deuxième partie de cette revue est consacrée aux études en équilibre général calculable (CGE), qui construisent un modèle pour les économies des pays étudiés pour fournir des prédictions sur l'impact du processus d'intégration sur l'ensemble de l'économie (importations et exportations, production par secteurs, revenu total, revenus des facteurs, revenus du gouvernement, consommation...). Ces modèles permettent également de décomposer la variation totale de « bien-être » pour les consommateurs d'un pays donné à la suite d'un changement de politique commerciale, et de quantifier les termes de cette variation : création et diversion des flux de commerce, efficience dans l'allocation des ressources, termes de l'échange, effets compétitifs, effets de variété. On peut ainsi identifier les sources de gains et de pertes pour les pays engagés dans la libéralisation. La plupart des simulations réalisées avec ces modèles, prédisent que les PSEM retirent des gains limités, ou des pertes nettes, du

⁴ Le tableau récapitulatif des accords, et l'état des lieux des échanges dans la région se trouvent ici présentés en annexes à la fin du document.

processus de libéralisation Euro-Med, relativement à un scénario de base sans intégration⁵. Les décompositions par sources de variation du bien-être font apparaître des gains importants pour les PSEM dus à la création de commerce, limités par l'effet négatif de la diversion de commerce, du fait des distorsions de prix introduites par la libéralisation préférentielle. Les termes de l'échange varient en général de manière négative pour les PSEM, une conséquence des réductions tarifaires unilatérales. L'ampleur de cet effet varie en fonction des hypothèses retenues. Le signe de l'effet de compétition varie en fonction des pays. Noter cependant que ces modèles ne rendent pas nécessairement en compte des gains potentiels de compétitivité générés par l'ouverture.

La Tunisie, et dans certains cas le Maroc, sont les pays les plus positivement affectés par les accords d'association ; la Tunisie en particulier bénéficie d'une base industrielle relativement développée au départ, qui subit un processus de « rationalisation » positif. Les autres pays de la région subissent, en général, un effet de désindustrialisation suite à l'ouverture de leurs marchés à la concurrence de l'UE, et une perte nette de bien-être⁶. Dans les scénarios de libéralisation intra-régionale (des PSEM entre eux), la Tunisie se spécialise dans des industries relativement avancées tandis que les autres pays de la zone se spécialisent dans l'agriculture et les industries intensives en travail.

Enfin, des études simulant l'effet d'approfondissements possibles de l'intégration Euro-Med, sont présentées dans la dernière partie. Le démantèlement des barrières non-tarifaires, ou celui des barrières au commerce de services, produit en général des gains substantiels pour les PSEM, du fait d'effets de création de commerce plus importants que dans le cas d'un simple démantèlement tarifaire. Dans l'hypothèse d'une libéralisation des services, certaines études prédisent également des effets positifs de compétition, en particulier dans les secteurs domestiques de services à caractère oligopolistique ; cependant l'amplitude réelle de ces effets reste à déterminer. Les scénarios envisageant une extension des accords Euro-Med pour inclure la libéralisation dans les secteurs agricoles obtiennent des résultats mitigés, et des gains limités pour les PSEM dans la majorité des cas ; des différentes formes possibles de libéralisation dans ce secteur, celle d'une réduction tarifaire réciproque apparaît constituer le meilleur instrument.

RÉSUMÉ COURT

Cette étude dresse un état des lieux des processus d'intégration économique dans la région Euro-Méditerranéenne. L'intégration des pays du Sud et de l'Est de la Méditerranée (PSEM)

⁵ Les résultats présentés sont généralement à un horizon de court à moyen terme, entre 10 et 20 ans après le début des démantèlements tarifaires. Ces résultats présentent cependant d'importantes variations d'une étude à l'autre, en fonction des hypothèses de modélisation, données disponibles pour la calibration du modèle, hypothèses concernant l'agenda de réductions tarifaires, choix de l'agrégation des pays et des secteurs retenue dans le modèle, etc.

⁶ Israël et la Turquie sont en général moins significativement affectés, du fait de niveaux de protection initialement plus bas.

est engagée depuis le milieu des années 1990 d'une part avec les accords intra-régionaux (ZALE, Accords d'Agadir), d'autre part au travers d'accords bilatéraux avec l'Union européenne. Les études économétriques réalisées à l'aide de modèles gravitaires trouvent un effet important de création de commerce intra-régional ; mais un impact limité et asymétrique des accords EU-Med, bénéficiant essentiellement aux flux d'exportations en provenance de l'EU. L'utilisation de modèles EGC met en évidence les sources de gains (création de commerce) et de pertes (diversion du commerce, termes de l'échange) pour les PSEM dans ce processus. Les études simulant l'effet d'approfondissements possibles de l'intégration Euro-Med prévoient des gains substantiels pour les PSEM au démantèlement de barrières non-tarifaires et des barrières dans les services. On trouvera en annexe un état des lieux des accords de libre-échange dans la région ainsi que des principaux flux commerciaux et financiers.

Classification JEL : F15, F17, O24, O53, O55.

Mots-clefs : Intégration commerciale, Euro-Méditerranée, modèles de gravité, modèles d'équilibre général calculable.

ECONOMIC INTEGRATION IN THE EUROMED: A REVIEW OF STUDIES

Joachim Jarreau *

INTRODUCTION

Since the mid-1990s, south Mediterranean countries (SMCs) have engaged in a process of trade liberalization with the EU, aiming at creating a free trade area in the region by 2020⁷. This process has been pursued in the framework of bilateral association agreements (AAs) between the EU and each of its partners in the MENA (Middle-East and North Africa) region. In a first step, this process of liberalization has been defined to include the removal of trade barriers for industrial goods, and a partial tariff reduction in agricultural and food processing sectors; while a widening of the scope of the agreements to include deeper liberalization in agricultural, agro-food and services sectors, as well as a reduction in non-tariff barriers (NTBs), is currently in negotiation. In parallel, some of the south-Mediterranean countries have been engaged in intra-regional liberalization, essentially through two agreements: the GAFTA (signed in 1997) which creates a free-trade area between members of the Arab League; and the Agadir agreement (signed in 2004), including Morocco, Tunisia, Egypt and Jordan. These agreements entail a gradual implementation of tariff reductions in industrial and agricultural sectors. Finally, some of these countries have engaged in bilateral FTAs with the US (Morocco, Jordan, Israel) and other partners (Canada, Mexico, EFTA).

This article proposes to review the main questions relative to the expected impacts of this process of liberalization, and to use recent evidence to assess these impacts. The first important question has been to estimate the ‘trade potential’ of these agreements. Some observers have expressed doubts on the potential of these agreements for the following reasons: concerning intra-regional integration, the low level of trade among countries of the MENA region has long been observed, and attributed both to a low level of trade complementarity, and to structural and institutional impediments to trade. As for integration with the EU, it was noted that since SMCs already benefited from preferential (tariff-free) access to EU markets for their industrial exports, prior to the start of the AAs, these agreements would essentially consist in a non-reciprocal liberalization of their markets to EU exporters, thus offering little prospects for export expansion for these countries. As intra-regional and EuroMed agreements have been in force for several years now, some studies have started to assess their trade impacts, most often using a gravity methodology. These studies are presented in the first section. In general, they find a clear and substantial trade

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⁷ The precise date of completion is not known as most agreements are in the process of implementation, and one has not yet entered into force (EU-Syria). The south-Med countries considered in this study are Algeria, Morocco, Tunisia, Libya, Egypt, Israel, the Palestinian territories, Jordan, Syria, Lebanon and Turkey.

expansion effect of intra-regional agreements, mainly the GAFTA, while implementation of the Agadir agreement is probably too recent for a consistent evaluation. By contrast, Euro-Med agreements are consistently found to have increased export flows from the EU to its partners, but with no significant, or even slightly negative impacts on the exports of SMCs; this seems to confirm predictions made prior to the implementation of these agreements.

Second, assessing the economic impacts of liberalization for south-Mediterranean economies requires going beyond trade flows to examine effects on production by sectors, income (total and its distribution), government revenues, and total welfare. This has been done in several studies using computable general equilibrium (CGE) methodology, which conditional on modeling hypotheses and available data for the economies considered, enables to project the consequences of a change in trade policy for the different sectors. In addition, such models also make it possible to decompose the effects of a liberalization (trade creation and diversion, allocative efficiency, terms of trade, competition effects) to identify the main sources of gains and losses for the economies opening up. Results from this literature are relatively mixed, due to differences in the modeling hypotheses, availability of data for the countries under study, and assumptions on the path of tariff reductions ('scenarios'). However, most attempts to simulate the effects of the implementation of the EU-Med agreements find losses or limited gains for SMCs. In general, the main source of gains for these countries lies in trade creation effects (through access to cheaper imports), but these are compensated by important trade diversion (over-importing from the EU following preferential liberalization) with adverse effects on government revenues. Terms of trade effects are also negative in most scenarios, again a consequence of the asymmetric structure of tariff reductions. The sign of competition effects vary across countries and studies; note however that not all such models account for potential competitiveness gains arising from exposure to foreign competition. Considering the effects across countries, important differences emerge. Tunisia, and to a lesser extent Morocco, stand to gain relatively more from the AAs, the former having an initially more developed industrial base which undergoes positive rationalization effects; while the rest of MENA countries generally experience significant deindustrialization effects and overall losses in welfare (Israel and Turkey being generally less affected due to lower initial protection levels). Considering scenarios of intra-regional liberalization, Tunisia is generally found to exploit its locally comparative advantages in manufacturing while other MENA countries engaged in the process specialize more in agriculture. Finally, we consider a series of issues related to the 'deepening' of the Euro-Med integration process. The removal of non-tariff barriers, and of barriers to trade in services, generally yields large gains for the SMCs through larger trade creation effects and competition effects; however quantifying these barriers and the gains (and costs) from their removal remains a methodological challenge. Conversely, an extension of the agreements to agriculture and agro-food sectors generally finds mixed results depending on assumptions on the form of such an extension; reciprocal tariff reductions are generally found to be the instrument yielding most gains for the MENA economies.

1. TRADE POTENTIAL AND TRADE EFFECTS OF LIBERALIZATION: GRAVITY STUDIES

1.1. Intra-regional integration: measuring trade potential and evaluating the impact of the regional trade agreements in the MENA region.

Integration among countries of the MENA region has long been characterized by a series of failed attempts. It is not until the mid 1990s that actual implementation of regional preferential trade policy was brought to reality, and this occurred within the framework of two main agreements: the GAFTA (greater Arab free trade area, sometimes called Pan-Arab; signed in 1997) and the Agadir agreement (signed in 2004, including Morocco, Tunisia, Egypt, Jordan; see section 1 for detailed information about these agreements). We will therefore focus on studies of these two agreements, starting with 'ex-ante' studies aimed at estimating the 'trade potential' which these agreements could be expected to realize; we will then review some 'ex-post' studies which have been possible since the implementation of these agreements.

1.1.1. Ex-ante evaluations: measuring trade potential in the MENA region

In the 1990s, many authors observed that the level of intra-regional trade in the MENA region appeared to be low, as compared to other regions similar in terms of geographical, historical and cultural proximity. Gravity models have been used to quantify the extent of this “missing trade”. Such models make it possible to estimate the “trade potential” between the countries of interest, that is, the level of trade predicted given the countries’ characteristics (see box 1 next page on estimation methodologies for gravity models). By comparing this level to the actual level of trade, one can infer whether the countries are actually trading less with each other than countries with similar characteristics in the world do. In addition, as such models relate the level of observed trade flows between countries to country-level determinants (all variables affecting a country’s capacity to trade, e.g. infrastructure, administrative costs, multilateral level of protection) and to bilateral determinants (trade costs between countries), they make it possible to identify the respective contributions of these factors to the observed level of trade, and to make projections about the trade creation that would result from a reduction in trade impediments.

One of the first attempts to quantify this missing trade in the region was done in Al-Atrash and Yousef (2000): focusing on intra-Arab trade, these authors used trade data for 61 countries (18 Arab countries plus 43 others) over the 1995-97 period to estimate a gravity model with a Tobit estimator. Their estimates indicate that intra-arab trade was in that period about 15% lower than predicted by the model. However, the reliability of their estimates appears limited by the small time and country extension of their sample, as well as by the failure to control for structural determinants at the country level (fixed-effects). Similar limitations apply to a more recent article by Nugent, Miniesi and Yousef (2004), which used a dataset spanning the 1970-1992 period. Here, the authors estimated the trade potential of an intra-MENA trade agreement and found that a ‘full-fledged’ FTA in MENA would increase intra-MENA trade by 47 to 122%.

Box 1. On the estimation of gravity models The so-called gravity equation has represented a preferred method for trade economists to study the determinants of international trade flows, dating back to Tinbergen (1962) and Anderson (1979). Until recently using this equation has most often consisted in explaining observed trade flows by measures of the GDP of each partner, of distance between them, and of a extendable list of additional determinants at the country or bilateral level which could impact trade flows: these could include various measures of cultural or historical ties between countries; factor endowments, production structures, of each countries, and measures of the similarity or complementarity of these between the two countries; barriers to trade such as tariffs, non-tariff barriers; countries' level of infrastructure development, information systems, corruption levels, etc. Thus the general form of the estimated equation has been:

$$\ln x_{ij} = \alpha \ln(Y_i Y_j) + \beta \ln d_{ij} + \gamma \ln \tau_{ij} + \epsilon_{ij}$$

where x_{ij} is the value of exports from i to j , Y_i is the GDP of country i , d_{ij} is the distance between them, τ_{ij} is bilateral transport costs, which can include a constant and a time-varying component.

One caveat of this specification lies in the assumption of a direct impact of bilateral trade costs on bilateral trade flows, whereas the derivation of the theoretical gravity equation (Anderson 1979; Anderson and van Wincoop, 2003) makes apparent that country-specific price indices determine trade flows jointly with bilateral determinants such as trade costs. In other words, only *relative* trade costs matter for the determination of trade flows, which is quite natural if one thinks that a reduction in e.g. tariffs does not have the same impact if the importer is reducing unilaterally the tariffs applied to all its trade partners, or if it is granting a preferential market access to one partner while maintaining high barriers on other flows.

Therefore, measures of the overall trade cost faced by a country on *all* its imports – so-called multilateral resistance to trade - must be included in the estimation in order to consistently estimate the impact of variables affecting trade costs, such as trade agreements and reductions in trade barriers. This amounts to controlling for the proximity of a country to other markets, or its “multilateral resistance to trade”, when estimating how a shock on this country's trade costs with a specific partner (e.g. a bilateral trade agreement) has affected its trade flows with this partner. This concern is of particular importance for Med countries, which between 1995 and 2010 have engaged

simultaneously in several trade agreements (intra-regional, with the EU, with third countries such as the US); thus the impact of these different agreements must be carefully identified. In addition, the ease with which these countries trade with the world is affected by country-specific variables such as infrastructure and administrative costs, some of them are likely to have varied in this period. This also needs to be controlled for. The inclusion of country fixed-effects enables to control for the time-constant component of multilateral resistance; this is done in most studies reviewed here. However, this method is only satisfactory to the extent that new regional agreements do not affect a country's multilateral resistance significantly, as this indirect effect is not identified in this type of specification. To further control for the time-varying term, several methods are possible, such as computing trade-based price indices for countries, including an index of trade openness as control, etc. Controlling for the other trade agreements implying the countries studied (e.g., EuroMed agreements) seems also necessary to avoid wrongly attributing trade creation/diversion effects.

Because of differences in the group of countries under study, the datasets used, and the methodologies for estimation, results from these two studies are not directly comparable. They do offer evidence of a substantial “potential for trade” existing among countries of the MENA region in the 1990s, prior to the implementation of the two main free trade agreements involving countries of the region, the GAFTA and the Agadir agreement. One should note however that their models do not include a measure of the existing level of trade protection in MENA countries. Therefore, these estimates do not measure the contribution of protection levels to the “missing trade” among these countries, and they only offer a gross estimate of the corresponding “trade potential”⁸.

A study by **Péridy (2005)** offered an ex-ante evaluation of the potential for trade creation of the Agadir agreement, using data for exports from the 4 members (Morocco, Tunisia, Egypt, and Jordan) plus Algeria, to 42 partner countries, spanning the 1975-2001 period⁹. This study can be seen as more reliable as it bases its estimation on a sound theoretical background (Anderson and Van Wincoop 2003), and includes country fixed-effects, so that individual countries' resistance to trade is taken into account when estimating the impact of bilateral variables. In addition, this study also includes an index of trade complementarity as

8 In these models the trade potential is based on the estimated coefficient on an FTA dummy.

9 The Agadir agreement entered into force in 2007.

determinant of bilateral trade¹⁰, intended to evaluate the share of intra-MENA low level of trade that can be attributed to the high similarity of specialization structures of these countries, rather than trade barriers per se. Results show that lack of trade complementarity (i.e., trade similarity) is indeed an important factor limiting trade flows among MENA countries (the index attracts a significant elasticity of trade flows of 4.5). But note that this index is likely to be endogenous with respect to trade agreements, as well as to trade flows themselves. As no solution is adopted to extract an exogenous component of trade structures, results in this respect are doubtful. The study also estimates separately border effects for intra-MENA trade, and for trade between MENA and non-MENA countries, and finds a higher value for the former (5.7 compared to 3.3 in average to all countries), showing that, keeping distance, country size, and other determinants equal, MENA countries trade more easily with partners outside their region than among themselves. This confirms the existence of a significant deficit of trade integration in the region. The estimation of trade potentials for the 5 MENA countries under study indicate that actual/potential trade ratios for intra-regional trade are not often far from 1, and in some cases above 1 (in particular for Algeria's exports)¹¹. Thus, the study leads to the conclusion that the low level of intra-MENA trade can be attributed for the most part to trade costs, as captured by border effects. However the low level of trade complementarity among these countries indicates that the potential for trade creation following a reduction of trade costs (e.g. implementation of regional agreements) may be limited.

1.1.2. Ex-post evaluations of intra-MENA trade agreements

As the two main trade agreements internal to the MENA region were implemented in 1998 and 2007 (GAFTA and Agadir agreement respectively), some recent studies have been able to make ex-post evaluations of these agreements.

Abedini and Peridy (2006) estimate trade creation resulting from GAFTA implementation, based on a panel of trade data for 21 members of the agreement plus 35 reference countries over the 1988-2005 period. As in the article previously quoted, the specification of the gravity model is based on a theoretical foundation (based on Anderson Van Wincoop 2003), and

¹⁰ This index is defined as: $ITC_{ij} = 1 - \frac{\sum_k \left| \frac{M_i^k}{M_j} - \frac{X_i^k}{X_j} \right|}{2}$, for 2 countries i (exporter) and j (importer), k denoting categories of goods. The index is comprised between 0 and 1; it reaches 1 if the structure of imports of one country is perfectly matching the export structure of the other; it diminishes when the discrepancy between the two structures increases.

¹¹ In this study trade potentials are computed based on residuals from estimation (so-called in-sample estimation), thus the figures obtained are not directly comparable with those from previous studies. Note also that the agreements implemented between some of the countries considered and the EU in the period under study (Tunisia, Morocco) are not taken into account in the estimation, thus creating an omitted variables risk on intra-Mena trade determinants if trade diversion occurs.

estimated using fixed-effects, Hausman-Taylor, and GMM estimators in order to allow for persistence of trade flows (inclusion of lagged values as regressors). In this study, multilateral trade resistance terms are accounted for using exporter and importer fixed-effects; a composite index of trade openness is also included to proxy for the time-varying component of multilateral resistance.

In addition, proxies for the development of information infrastructure at the bilateral level (number of telephone lines), and the quality of law and contract enforcement at the country level, are included¹². Overall, the authors find that an increase of intra-Arab trade flows of 16% to 24% can be attributed to the GAFTA, depending on the estimation methods. This effect appears robust and consistent across estimates.

However, a number of important aspects of intra-Arab integration are not taken into account in this study. Most importantly, the gradual implementation of the GAFTA (extending from 1997 to 2005), as well as the exclusion of a number of products and sectors (e.g., agriculture) in the agreement, are not taken into account in the estimation. The reduction of barriers in the EU in the textile sector (multifiber agreements) is also an important factor likely to have affected EU-Med trade and therefore, intra-Med trade as well. Note that these limitations are shared by most gravity studies, in which the existence or implementation of a regional trade agreement is most often taken into account with a simple dummy variable, so that the actual level of protection prior to the agreements; the coverage of the agreements, in terms of products, and the exceptions at the product and sector level; and also, the time schedule of tariff reductions (over several years in most agreements) are being ignored in the estimation. Overall, results of this study should be seen as estimates as the gross impact of the GAFTA on trade flows between its members¹³; they do indicate substantial trade creation.

A recent **report by the CASE/CEPS (CASE 2009, part 4)** proposes a gravity-based joint estimation of the trade effects of the intra-regional trade agreements in the Mediterranean region (GAFTA and Agadir agreements) and of the EU-Med agreements, based on trade data for 100 countries over the 1970-2008 period. In this study, country-pair fixed-effects are included in the estimation, which reduces the omitted variables risk due to unobserved pairwise characteristics. All such characteristics, including distance, borders, common language (usually included in gravity models) but also less easily observable determinants (such as historical links and transport infrastructure) are thus accounted for by these fixed effects.

However some of the results found by this study, about the impact of the EU-Med agreements, are quite surprising, as will be discussed below; which casts doubt on the reliability of the estimation procedure.

¹² These two variables attract positive significant coefficients. But no indication is given in the article concerning the level or evolution of their values for Med countries, thus their impact on intra-Med trade is not estimated.

¹³ Assuming that no simultaneous was responsible for the rise in trade flows between these countries.

Concerning the estimation of GAFTA and Agadir trade impacts, this exercise finds a high and significant trade creation effect from the implementation of the GAFTA¹⁴: a coefficient of 0.76, indicating that trade between members of this agreement more than doubled in average (an increase of 113%), compared to what it would have been in the absence of the agreement. This signals a quite impressive improvement in integration; this result should be viewed with caution, bearing in mind that, as with most gravity studies, risk of endogeneity of the trade agreement variable (e.g. simultaneity and omitted variables issues) is not entirely ruled out¹⁵. Results concerning possible trade diversion effects of the agreement are difficult to interpret, as the estimates indicate a positive impact on imports from non-members, but a negative impact on exports to non-members (a study of individual effects on country would appear necessary to disentangle these impacts).

By contrast, the implementation of the Agadir agreement is found to have had no significant trade creation effect among its members. The exercise finds a positive impact of the agreement on exports of members to non-members, possibly a reflection of the role of the agreement in facilitating the use of EU rules of origin by the members (a possibility not discussed by the authors). In any case, one must bear in mind that the dataset used only includes a few years after the implementation of the agreement (2007).

In both cases, one should also note that some of the caveats pointed in the previous study also apply to this one: in particular, the gradual implementation of the GAFTA is not taken into account; and the exclusion of specific products and sectors, likely to have lead to different impacts of the agreement on member countries, depending on their respective structures of specialization, is also ignored.

1.2. Assessments of the E U-Med association agreements (AAs).

Given the timeline of implementation of the association agreements between the EU and the Mediterranean countries¹⁶, it has become possible, using recent trade data, to estimate the trade impacts of these agreements. Several studies have done this, which we review here. Although some variations appear in the results obtained across studies, due to differences in estimation methods, data coverage, etc., they essentially concur on finding that an increase in EU export flows to Med countries following entry into force of the AAs; while impacts on

¹⁴ Note that the limitation emphasized above also applies to this study, as GAFTA and Agadir agreements are modeled with simple binary variables. The authors do not mention how the gradual tariff reduction between 1998 and 2005 for GAFTA was modeled; the choice of countries considered part of the agreement is also not presented (only 17 countries mentioned as members).

¹⁵ In particular, in this study possible evolutions of the country's production structures are not taken into account. In addition, the estimated coefficient is an average of the effect of GAFTA for all member country pairs, possibly reflecting contrasted evolutions in bilateral trade links.

¹⁶ Implementation of these agreements has now started for all countries but Syria; however full tariff reductions are not yet realized.

Med countries' exports appear generally non significant. This is a natural consequence of the 'asymmetric' aspect of this trade liberalization, where tariffs were essentially removed on entry to Med countries' markets, while these countries' exports did not see any improvement in access to EU markets. This highlights the importance of allowing for this dissymmetry in the estimations, which is done in some but not all of the studies reviewed below. Therefore, from the point of view of Med countries, potential gains from these agreements could have stemmed from two sources: access to cheaper EU imports, which could have improved productivity of local producers and their competitiveness on export markets; and broader Rules of origin, which could have helped them exploit specialization gains more effectively. The absence of strong evidence of any positive impact on the export performance for Med countries suggests that these effects must have been rather limited, or that they were offset by negative competition effects.

Hagemejer and Ciselik (2009) use a standard gravity model to estimate, ex-post, the trade impacts of the EU-Med association agreements. Their model includes individual and country-pair fixed-effects; they also include GDP per capita of partners as a proxy for capital-labor ratios, in order to account for factor proportions. They also attempt to record all trade agreements involving any of the 7 MENA countries studied (Libya, Syria, Palestinian territories and Lebanon not included), over their sample period (1980-2004). Their estimates indicate that, on average, EU-Med agreements did increase significantly trade flows from the EU toward Mediterranean partners, but had a non-significant, or even negative, impact on flows in the opposite direction¹⁷. This result is confirmed when estimating the model for each country separately: it then appears that the AAs brought an increase in imports from the EU for most of the countries considered¹⁸. On the contrary, exports of these countries to the EU were either non significantly, or negatively impacted (for Israel and Turkey). One caveat of this study, which is to be found in other studies as well, is an imprecise measurement of the starting date and period of implementation of the agreements¹⁹. Despite this, the study provides evidence of the asymmetric impact of the EU-Med agreements.

Ruiz and Villarubia (2007) propose to estimate a gravity model using country-year fixed effects in order to control for multilateral resistance terms (while most studies use only country, time-invariant fixed effects). As they acknowledge, this method presents the advantage of fully controlling for all country-level time-varying variables, most importantly the multilateral resistance terms identified in the theoretical derivation to the gravity model. However, the caveat is that one can then only estimate impacts of bilateral variables (e.g., trade agreements) on bilateral trade *shares*, not on trade levels; this is because total trade of a

¹⁷ The authors provide no explanation for this negative impact.

¹⁸ Except for Israel, Egypt, and Jordan; for the last two this could be related to the authors' choice of the starting year for these agreements; knowing that the start of the implementation did not coincide with the main tariff reductions.

¹⁹ These agreements are modelled with a simple binary variable incrementing at the date of entry into force; which is equivalent to assuming that tariff were entirely removed at that date.

country is fully captured by its fixed effect²⁰. Their dataset covers 102 countries over the 1976-2005 period.

In order to make comparisons, the authors also perform estimations with the more current method of using only country fixed-effects. With this method, the implemented Euro-Med agreements are found to have had a negative impact (though not significant in all cases) on intra-agreement trade flows; while some evidence of trade creation outside the agreements (i.e., between a member and a non-member) appears. However, when adding country-year fixed effects, the impact of these agreements on trade between members becomes non-significant. The authors do not propose an interpretation for this change in the results, which suggests that the omission of country-time varying variables creates a downward bias in the estimate of the impact of AAs, attributing them a wrong negative impact. What seems clear is that, given the asymmetric character of these agreements, distinguishing between the impact on Med exports to the EU and Med imports from the EU seems necessary to understand the value of the overall estimate; a test not carried on by the authors.

Bensassi et al. (2010) go into further detail to estimate the impact of EU-Med agreements on trade, focusing on exports of MENA countries to EU markets, and distinguishing between effects at the intensive (value of shipments) and extensive (number of trading firms/products traded) margins of trade. These agreements could also have had positive effects on exports from MENA countries through two main channels: changes in the rules of origin for exports to EU markets (diagonal cumulation) facilitating a more efficient division of production processes between EU partners; and access to cheaper intermediates from the EU, which could positively impact the competitiveness of exporters in MENA. Running estimates of a sector-level gravity equation for exports from 7 MENA countries to 4 EU economies, over the 1995-2007 period, they do find a positive impact of implemented EU-MED FTAs on exports of Mediterranean countries. This impact appears to go mainly through an impact on the intensive margin (increasing average value of shipments), while the impact on the extensive margin (number of products exported, within a given sector) is non-significant. This result appears consistent with a low level of differentiation of most of the products exported by these countries. The authors then take on focusing on the specific impact of changes in the Rules of Origin granted to MENA countries, distinguishing between the possibility of diagonal cumulation with other MENA countries, and the access to the Pan-Euro Med system, in which cumulation is made possible with other EU partners as well (see box 2 next page for detailed explanations on the system of rules of origin). Doing this confirms a positive impact on exports of the widening of the system of rules of origin: on average for all 7 countries

²⁰ This study estimates the following equation: $\ln x_{eit} = \beta_0 + \beta_1 t_{eit} + d_{et} + d_{it} + \varepsilon_{eit}$, where x_{eit} is bilateral trade value between countries I and e , t_{eit} comprises variables affecting trade costs (distance, trade agreements, etc.), and d_{et} and d_{it} are time-varying fixed effects for each country; these fixed-effects capture the effect of any country-specific variable on trade flows, including income, multilateral resistance, infrastructure, etc. However, this specification can only identify impacts on trade shares, not on volumes; one way to see this is to observe that one could estimate the same equation but replace x_{eit} by $\frac{x_{eit}}{X_{et}}$, the share of country I in country e 's total exports. The term $\ln X_{et}$ could then be absorbed into the fixed-effect d_{et} , thus the same coefficients β would obtain.

considered, access to the diagonal system of cumulation is found to have brought a 12.5% increase of bilateral export value, while entry into the Pan-EuroMed system adds a 10.3% increase.

Most likely, the difference in the results found by this study, with results from the previous one, is to be attributed to differences in the estimation sample. Bensassi et al. (2010) use a restricted sample with only 7 MENA countries and 4 EU partner countries. This increases the risk of omitted variables, as an important share of trade of the countries under study, as well as events affecting their trade (e.g. parallel trade agreements) are being ignored. Moreover, the definition of the 'counterfactual' with respect to which the impact of the trade agreement is estimated, is affected evidently by such a restriction of the sample. This is probably explaining the positive impacts found in this study²¹.

²¹ Péridy (2005) is another impact study of Euro-Med partnership, which, however, is focused on measuring the trade impact of preferences granted by the EEC to med countries in the 1970s and 1980s, and not on the specific impact of the more recent Association agreements. For this reason we do not report its results here.

Box 2. Rules of Origin in the Euro-Med partnerships

In any trade agreement, rules of origin are necessary to define what is considered the production location of a good whose production chain is spread over more than one country. This is needed to determine the conditions under which exporters sourcing inputs from non-members can benefit from preferential trading policies.

The framework of the cooperation agreements signed between Europe and Med countries in the 1970s included simple bilateral cumulation, meaning partner countries could use without limits inputs from each other partner of the agreement. Then, the new agreements signed in the late 1990s and 2000s (Association agreements), starting with Tunisia in 1998, generally extended the definition of rules of origin to diagonal cumulation with other EuroMed countries: this meant that, for example, from 1998 on Tunisian exporters could also source from Algeria and Morocco without limits and still have their products considered as made in Tunisia when entering EU markets. The last step extension to the RoO system consisted in the inclusion of Euro-Med partners into the 'Pan-EuroMed system' (2006-2007) which meant that these countries could also benefit from diagonal cumulation with other EU partner countries as well, such as EFTA countries.

In theory, restrictive rules of origin may have limiting or distortive effects on trade liberalization: they can cause trade suppression between members and non-members of the FTA (if exporters choose to source domestically rather than from non-members) or trade diversion (if exporters switch their intermediates sourcing from non-members to members of the agreements). They can also limit trade creation between members, because if too restrictive they prevent exporters to benefit from preferential access to the partner's markets. Therefore, when assessing the impact of a change in the RoO, one needs to look at the evolution of intra-FTA trade as well as trade flows between members and non-members.

Augier, Gasiorek and Lai-Tong (2004) is another study focusing on the impact of changes in rules of origin (RoO) in EU-Med trade flows. It proposes an evaluation of the 'pan-European system of diagonal cumulation' which was introduced in 1997, and then

progressively extended to include the Barcelona group of countries²². This study asks whether the new rules for diagonal cumulation helped increase trade flows through a reduction of distortions. It focuses on the textile sector, because of its importance for south-Mediterranean countries, and because rules of origin applied to it have often been quoted as especially restrictive. The authors use a sectoral gravity model to estimate if the absence of cumulative rules of origin has limited trade flows between partners of the EU. However, the evidence presented is not very compelling, partly because of data limitations. The regressions are estimated on a cross-section of countries for two years (1995 and 1999); thus, the dynamic effect of the introduction of the diagonal cumulation cannot be estimated. In addition, the two years under study are prior to the inclusion of Med countries to the Pan-EU diagonal system; therefore, the impact for these countries is not assessed. For other pan-EU countries (EFTA countries and future EU members at the time), the results seem to indicate a significant 'missing trade' between non-cumulating countries (about 70% of observed trade); however these estimates should be treated with caution given the estimation method²³. Overall, these results seem to indicate that diagonal cumulation is important to enable Euro-Med bilateral agreements to provide their full benefits. It seems, however, that a more precise estimation of their impacts for Med countries' exports would require more adapted data, as well as a careful identification strategy.

Finally, **Benhammouda et al. (2007)** is a country case study which does not perform gravity analysis but instead, a detailed analysis of trade patterns (mostly imports) of Tunisia following the implementation of its AA with the EU. This study shows that any increase in Tunisian imports following the agreement was limited to the 'List 1' products – those for which complete tariff dismantling was agreed immediately after the entry into force of the agreement (this list includes equipment goods and inputs). This highlights the need to take account of the precise gradual phasing of tariff reductions when assessing the trade impacts of these agreements, which is generally not done in most gravity studies. In addition, this study also provides evidence that significant trade diversion occurred for imports of these List 1 products: comparing growth rates of imports from EU and non-EU partners, it shows that List 1 imports from EU grew 2.3% faster after implementation of the AA, while non-EU imports of the same products decelerated by 6.4%. This provides evidence of a shift in sourcing of inputs and equipment by Tunisian producers, with a negative effect on Tunisian tariff revenues. For other categories of products there is no evidence of any increase of imports. To explain this, in addition to the gradual aspect of tariff dismantling mentioned above, the authors also point to the possibility of substitution of indirect domestic taxes (VAT and consumption taxes) to tariffs, designed to compensate tariff revenues losses, and which could have had limited trade creation effects. They support this point with data on revenues from VAT and consumption taxes on imports, showing a clear substitution effect. This is an interesting point which is generally not evoked in most studies.

²² Turkey was included in 1999.

²³ In particular, the treatment of rules of origin with a dummy variable; endogeneity of this variable is also an issue.

To summarize this section, results overall point to a clear trade creation effect of the Association agreements which impacted mostly EU exports to Med markets. Results in terms of the potential benefits or adverse effects of these agreements for exporters in Med countries are less clear-cut. The consensus would seem to be in favor of a non-significant, or slightly negative impact. More detailed and precise work, distinguishing between countries, and sectors, seems necessary to assess this more robustly, for several reasons: the impact of increased competition with EU exporters on local industries is likely to have varied importantly across countries with the productivity and maturity of these industries; the impact also varies by sector in particular because of the gradual implementation of tariff reductions, which meant that not all tariffs were dismantled at the year of signing of the agreements; finally, indirect positive effects, through access to cheaper imports and/or rules of origin, should also vary across sectors.

2. GENERAL EQUILIBRIUM STUDIES (CGE)

While gravity models can be useful to estimate the trade creation resulting from trade agreements and reductions in trade costs, and to compare levels of intra-regional trade with those observed among similar groups of countries, CGE modeling can be used for prospective purposes, to foresee how trade agreements are likely to impact production structures in each country, in particular at the sector level; and also, to compare the effects of different channels for trade costs reduction (e.g. trade agreements versus unilateral changes in trade and transport costs; and ‘deep’ versus ‘shallow’ agreements, etc.). It also makes possible to identify the sources of gains/losses from liberalization, by decomposing welfare variation into terms of trade effects, changes in allocation efficiency, and possibly other sources of variation depending on modeling hypotheses. In the case of the MENA region, an important limitation of such studies stems from the limited availability of data, which causes the vast majority of existing studies to be focused on a few countries for which these data are available²⁴.

2.1. Studies of intra-Med integration in CGE.

Bchir et al. (2007) studies possible scenarios for integration among Maghreb countries. Their model focuses on Tunisia and Morocco, the rest of countries of the MENA being aggregated into two “Rest of North Africa” and “Rest of Middle East” regions²⁵. They use the ‘Mirage’ static CGE model²⁶, with assumption of imperfect competition in non-agricultural sectors. The

²⁴ CGE simulations require the use of social accounting matrices (SAM) for a reference year for all countries included in the model, for calibration of the model. Such data are made available for many world countries by the GTAP project, which serves as source for most studies reviewed here. However data from this source only include Morocco, Tunisia, Egypt and Turkey as individual countries, the rest being included in region aggregates; see <https://www.gtap.agecon.purdue.edu/databases/> for details on the country and sector aggregation defined in this base.

²⁵ This article is motivated by the prospect of the AMU trade agreement, for which negotiations have not lead to implementation yet (see section 2).

²⁶ In this model a dynamic scenario is solved as a sequence of static equilibria; see Bchir (2002) for details on this model.

calibration of their model is based on 2001 data for social accounting (GTAP, see <https://www.gtap.agecon.purdue.edu/databases/>) and for tariffs (MacMap database; see Bouët et al. (2008)). Note that most of tariff reductions implemented under the GAFTA and Agadir agreements are thus not taken into account in these 2001 tariff levels. The baseline scenario, which is a statu quo on these 2001 tariff levels, is thus essentially simulating a non-implementation of these two trade agreements.

The study examines successively 3 scenarios for liberalization of trade in goods: a FTA among Maghreb countries; a custom union between Maghreb countries (adding a common external tariff – taken as the minimum tariff applied/faced by Tunisia, Morocco and Egypt in 2001); and finally, a Maghreb common market defined in the sense of Smith and Venables (1991), assuming that firms (in imperfect competition) have the same markup in all countries inside the CM. In each case, implementation is assumed to start in 2008.

In the FTA scenario, Tunisia appears as obtaining the highest gains from the integration process, in terms of trade balance, and of GDP. Trade flows intensify among Maghreb countries, and the more so for Tunisia's exports (+150% toward Morocco, +124% toward the Rest of North Africa region, by 2015). This trade creation among North African partners is accompanied by a small trade diversion with third country partners, impacting most notably Sub-Saharan exports to Maghreb countries (-7% toward Tunisia). At the sector level, the liberalization leads to a reorganization of production among NA countries, with Tunisia specializing in agro-food products and some high value-added industries (*Chemical, Rubber, Plastic prods* and *Motor vehicles and parts*), while Morocco increases its production in agricultural products (*Cereal grains nee. Crops nee and animals*), and in textile wearing apparel, leather products and industries with low added value. This results in a relatively higher increase of real wages for skilled than for unskilled workers in Tunisia, while the opposite occurs in Morocco. Overall, gains in welfare are much higher for Tunisia (271 million \$ in equivalent variation) than for Morocco (32 million).

The Custom Union scenario yields similar results in terms of intra-Maghreb trade. Main differences with the former case appear in trade with third countries, as this scenario adds to the elimination of intra-regional tariffs the implementation of a common external tariff applied *and* faced by Maghreb countries²⁷. This common tariff level is assumed to be set at the minimum value applied and faced by Tunisia, Morocco and Egypt in 2001. In effect, this hypothesis is equivalent to a liberalization of trade in goods for Morocco and RoNA with the EU, as the EU-Tunisia partnership was substantially advanced in 2001. This explains probably why the most important impacts in this scenario are found for Morocco's trade with the EU, which increases sharply both ways. As a result, the distribution of gains from trade are more evenly distributed between Tunisia and Morocco (+345 m\$ and +230 m\$ respectively), than in the FTA case.

²⁷ The authors do not provide explanation for this hypothesis which is not an evident one (a custom union implies the equalization of applied external tariffs, but tariffs faced by the members abroad could a priori remain different).

Overall, this study sheds light on the likely impacts of a liberalization process limited to the Maghreb area, testing different scenarios varying in “depth” of integration. Noteworthy are the different impacts that such a process is predicted to have on sector reallocation in Tunisia and Morocco. However, one should bear in mind that the scenarios considered present important discrepancies with the actual integration process currently under way; most importantly, the EU-Med integration process which is taking place in parallel with intra-Med integration since the late 1990s, is largely ignored. Accounting for it would likely alter the results in particular in terms of trade diversion, and of sector reallocation in Maghreb countries.

Dennis (2006) provides an attempt to quantify the potential gains from improvements in trade facilitation in the region, beyond reductions in tariff trade barriers. Trade ‘facilitation’ encompasses reductions in all forms of direct and indirect trade costs beyond custom duties, such as delays in custom clearance, documentary requirements, public sector corruption, transshipment regulation, visa restrictions, etc. Such costs have been found to be high in the MENA region. Hence, the question of the potential gains from trade facilitation is especially important in this region. This study adopts a recently developed methodology to incorporate trade facilitation in a CGE model by assuming an indirect (iceberg) trade costs component in addition to a direct cost modeled as a tax²⁸. This feature is added to the standard GTAP model, which is a static model with assumptions of perfect competition and constant returns to scale (see Hertel 1997). Estimation of these two components is based on a survey in Zarrouk (2003) who finds total (indirect and direct) trade costs of 10.6% of goods value.

As in the previous study, this one distinguishes only Tunisia and Morocco as countries, the rest being included in regional aggregates. Calibration of the model is based on 2001 data (GTAP 6 database, providing applied tariff data for 43 commodity sectors and 87 regions).

Two scenarios are studied. One assumes the implementation of a free trade area in MENA only (similar to the GAFTA), while the second adds trade liberalization with the EU as well. The MENA FTA is assumed to encompass abolition of all tariffs (including agriculture), while the EU-MENA FTA is assumed to abolish all tariffs for non-agricultural goods, and to reduce those for agricultural goods by 50% (the cut is made at the GTAP level of commodity aggregation, that is 43 commodity sectors; no mention is made of the treatment of quotas, and of preference and binding margins). The creation of a MENA FTA is found to have a positive but limited impact on income and welfare for Tunisia and Morocco (0.21 and 0.03% increase in GDP respectively). Both countries experience a relatively higher increase in skilled wages than in unskilled wages, reflecting their specialization in skill-intensive products relative to the rest of the region. Higher positive impacts on welfare for these countries are found in the ‘GAFTA + EU’ scenario (adding liberalization with EU), resulting from increased exports. Unskilled wages are in this case increasing more than skilled wages. Note however, that this scenario is assuming a substantive liberalization of agricultural goods, which is not yet

²⁸ Here direct costs are transaction costs. Indirect costs include costs from delays in custom clearance, custom procedures, etc. See Fox (2003) and OECD (2003).

included in the existing version of the EU-Med agreements; therefore, impacts in terms of specialization and gains from trade for MENA countries are likely to differ importantly.

For each scenario, a version adding trade facilitation is then tested. Impacts of trade liberalization are amplified in this case; in the MENA FTA case, welfare gains are doubling for Tunisia and tripling for Morocco, compared to the simple tariff reduction case. The source of the magnitude of this effect remains unclear²⁹. Reductions in indirect trade transaction costs are found to have a higher impact on welfare than those in direct costs. The reason for this is also unclear. Overall these results point to the substantive gains that could be reached from addressing issues such as custom procedures, port congestion, and ameliorating transport services.

Bouët (2005) is also using the ‘Mirage’ model to propose a comparison of a ‘South-South’ versus a ‘South-North’ liberalization option for the southern Mediterranean countries³⁰. Tariff data at the hs-6 product level are taken from the Macmap database (Bouët et al. 2008); these data account for tariff quotas (provide ad-valorem equivalents), and preference margins. A first scenario assumes full tariff elimination (including agriculture) among South Med countries (Tunisia, Morocco, Turkey and a region grouping the rest of countries). In the second scenario each South-Med country liberalizes its trade with the EU. In addition, a multilateral liberalization scenario is also tested. We discuss here the south-Med liberalization scenario, while the EU-Med liberalization scenario will be evoked in the next section.

In the South-South liberalization scenario, Turkey appears as obtaining most of the gains (+3.8% in welfare): a south-Med FTA enables this country to exploit its comparative advantage in textile and apparel (its exports in this sector increase by more than 9%). Tunisia is less positively impacted, with a 1.8% increase in welfare due to an improvement of trade balance compensating a deterioration in terms of trade. Finally, Morocco is negatively impacted (-0.33% in welfare); this is in part due to its higher initial protection level, while its market access in other SM countries improves moderately. Morocco is out-competed by Tunisia and Turkey in the textile and apparel industries. Note that results of this scenario for SM countries are significantly impacted by the hypothesis that Turkey is included in the ‘south-south’ agreement; however, existing agreements among south-med countries do not include this country.

Overall, these studies provide a relatively consistent picture. The MENA region has gains to reap from regional integration, but these gains are to be distributed quite unevenly, as specialization patterns differ across countries. When liberalization occurs in the Maghreb region, Tunisia stands to gain most by specializing in high-end industries and increasing its trade balance substantially. Morocco and the rest of the NA region have more comparative advantage in labor-intensive industry and agriculture. However, in such scenarios of intra-

²⁹ In particular no comparison of the level of tariffs versus non-tariff costs is given.

³⁰ See Bchir et al. (2002) for details on the model, which is static and is here used with assumptions of perfect and imperfect competition in some sectors (the list is not provided).

regional integration, gains from trade remain limited compared to a case of liberalization with the EU, where more complementarities are to be exploited. Non-tariff trade costs are also a source of limitation of gains from standard trade liberalization in this region.

2.2. CGE studies of EU-Mediterranean integration.

Augier and Gasiorek (2003) is an original contribution to the CGE modeling of integration in the EuroMed region. First, it is one of a few studies to incorporate Israel, Jordan and Syria (the latter two as a country group), in addition to Egypt, Morocco, Tunisia and Turkey, as separate entities in the model (rather than as part of regional aggregates), thus providing useful insights on specific effects in these countries. To do this they build a model comprising 10 countries (7 south-Med countries, one south-EU region, one rest-of-EU region, one rest-of-World region); 11 sectors (10 industry aggregated sectors, treated as imperfectly competitive, plus 1 composite produced in perfect competition); and 3 factors (capital, manual and non-manual labor). Calibration of the model was made taking 1995 as base year, using Comtrade and Unido data for trade and production. Data on elasticities, returns to scale and numbers of firms were taken from the literature. Tariff data were taken from 'Trains' database, and aggregated into the sectors defined in the model. Data on factor shares were taken from the 'Chronos' database for EU countries, and interpolated for other countries in the model. Second, it proposes a simulation of the EU-Med integration process based on the actual phasing of tariff reductions as planned by the association agreements (AAs) (based on information available at the time of the study). Third, the authors perform a careful decomposition of the welfare impacts of trade liberalization, distinguishing trade creation and diversion effects, competition effects, and terms of trade effects, which sheds light on the potential sources of benefits and negative impacts to be expected from the integration process for south Med countries (see box 3 next page about the decomposition of welfare effects from trade liberalization).

Box 3. Decomposing welfare effects

A decomposition of welfare effects of a change in trade policy (a unilateral reduction in domestic barriers) has been proposed by Baldwin and Venables (1995), using a very general form which can be applied to perfect competition as well as imperfect competition models. Assuming an indirect utility function of the form $V(p + t, n, E)$ where p is a vector of producer prices, t of tariffs or tariff equivalents of barriers, n is number of firms, and E is total consumption spending, a total differentiation of the utility function yields the following decomposition :

$$dW \equiv \frac{dV}{V_E} = \alpha t \cdot dm - m \cdot d[t - \alpha t] - m \cdot dp + [(p + t) - AC] \cdot dx - n \cdot dx \cdot [AC - MC] + dn \cdot \frac{V_N}{V_E}$$

where m is for imports, X is the vector of production, AC and MC are average cost and marginal cost, and α is the share of the price wedge between border and domestic prices which is captured domestically (=1 for tariffs).

The first three terms represent welfare impact of liberalization from perfect competition effects. The first term is welfare change from a change *in* import volumes subject to the wedge created by barriers: it is positive for an increase in imports (trade creation), negative if trade diversion dominates. The second is the losses in non-domestically captured protection rents; it is zero in the case of tariffs (as tariff revenues finally accrue to domestic households). The third term is the terms of trade effect (recall that unilateral liberalization is considered here, thus world prices are unchanged under the small economy assumption). The second three terms give impacts arising from imperfect competition. The first of these is the profit effect, the variation in profits from changes in industry output. Under an assumption of free entry this term goes to zero. Next is the competition effect, from variations in production in sectors with prices above marginal cost. The last term is the variety effect, representing the variation in consumer welfare from changes the number of available varieties.

Simulations of the tariff reductions process induced by the AAs yield the following results. Tunisia and Morocco stand to gain most, in welfare terms, from the process of integration (8.9

and 5.4% respectively in equivalent variation, as a share of base GDP³¹), while gains are small for Egypt, and negligible for Israel and Turkey³²; Jordan and Syria (as a group) incur a small loss. The decomposition of the sources of welfare variation shows that trade creation is the most important source of gain for these countries, followed by the competition effect. In other words, access to cheaper imports, and the reduction of price markups previously applied by domestic firms, should represent two strong arguments in favor of integration with the EU for these countries (recall that the EuroMed agreements consist in an asymmetric liberalization whereby tariffs on EU exports to Med countries are reduced; therefore there is no change in market access for Med countries' exports taking place). Note, however, that this increased competition also results in a strong decline in manufacturing production (more than 50% decrease for Tunisia, Morocco and Egypt). When looking at factor prices, one finds, unsurprisingly, that this translates in these countries into a fall in manual labor wages (intensively employed in manufacturing) relative to non-manual wages. In addition, this seems to point toward large deindustrialization effects for these countries in such an imperfect competition framework, as a result of integration with the EU; which could potentially have negative long-term consequences on growth and welfare (an aspect not accounted for in the static framework of this study)³³.

Trade diversion causes some losses mainly for Tunisia, Morocco and Egypt, meaning that preferential liberalization with the EU causes these countries to import goods from the EU for which the EU is not the lower cost supplier. Countries also face substantial welfare losses from the variety effect, by which the total number of industrial varieties available to consumers declines. Finally terms of trade effects are small for most countries.

In a second set of scenarios, the authors attempt to account for two additional aspects of the liberalization process: trade-induced technology changes, and reductions in non-tariff barriers. Unfortunately, information on the scale of these two factors was not available to the authors; therefore, they had to make assumptions relative to these aspects, making results subject to caution³⁴. In these scenarios, higher gains are obtained for all Med countries (most markedly for Tunisia, Morocco, Egypt, and Jordan-Syria), arising mainly from trade creation and trade costs effects. Contrary to the previous scenarios, manufacturing production is now increasing in all countries, a result of the technological leap allowed to domestic firms; while the competition effect is smaller than before. Consequently, impacts on factor prices are highly different from the previous case: the relative depreciation of manual wages does not occur anymore, and is reversed in the cases of Tunisia and Morocco. Overall, these results indicate the important role that domestic-EU productivity gaps, and potential technological transfers, are to play in determining the outcome of the EUMed integration process for south Med countries.

³¹ Figures quoted correspond to long-term effects, taken at the end of the 13-year phasing period.

³² Due to lower initial tariff levels for Israel and Turkey.

³³ This issue is not addressed by the authors.

³⁴ Productivity changes, by country and industry, are assumed proportional to tariff reductions. Non-tariff barriers are modeled as a 10% equivalent tariff.

Finally, simulations of the gradual process of tariff reductions in the EUMed agreements shows most Med countries experiencing a small welfare loss in the first period of the implementation (4-6 years), before positive effects start to dominate for Tunisia, Morocco and Egypt. This is to be explained by the main source of benefits, trade creation, which amplifies when tariff reductions coverage widens. Note, however, that the exact schedule of reductions as planned by the agreements has not been precisely identified by the authors³⁵; some small differences in product classifications/exceptions could cause important disparities in welfare effects.

This paper emphasizes the importance of technology transfers and trade-induced productivity gains in determining the outcome of trade liberalization for the MENA countries. One related paper has attempted to quantify the extent of these technical changes more precisely: **Evans et al. (2006)** use data at firm-level for Morocco and Egypt to produce econometric estimates of productivity elasticities of trade openness, by sector. In a second step they simulate the impacts of bilateral liberalization EU-Morocco and EU-Egypt, incorporating trade-induced productivity growth in the exercise. They show (unsurprisingly) that adding this hypothesis significantly modifies the impact of trade liberalization; while in a baseline scenario with simple tariff reductions, Morocco and Egypt are adversely impacted in terms of GDP and skilled labor income, adding TFP gains yields increases in GDP. These results are obtained with estimated elasticities of domestic firms' TFP with respect to the share of traded products of the order of 0.4³⁶. This study also emphasizes that gains are much more limited for Egypt than for Morocco, because of high trade diversion resulting from reduction of initially high rates of protection.

Elbehri and Hertel (2004) is a study focused on Morocco, where the effects of a preferential, bilateral liberalization process with the EU are assessed, then compared with those from a multilateral liberalization scenario for this country. The model incorporates imperfect competition (scale economies); the relevance of this hypothesis is reinforced by the fact that numerous industries in Morocco exhibit high concentration and evidence of collusion behavior (World Bank 1994). Firm-level data from the Moroccan manufacturing census are used to calibrate industry markups.

The model is a modified version of the GTAP static model, incorporating scale economies. 3 regions are included: Morocco, EU, and a Rest of World aggregate. Constant returns to scale and perfect competition are assumed in the agriculture and service sectors, while manufacturing sectors are modeled with an oligopolistic structure. Tariff structure is based on a 1996 database, thus tariff elimination is based on tariff levels prior to the implementation of the EU-Morocco FTA (which started in 2000). The scenario is constructed as similar to the

³⁵ Tariff reductions for all countries are assumed to follow the same schedule as for Morocco; all products are grouped into rapid, medium, and slow tariff elimination categories.

³⁶ Elasticity estimates are taken from Gasiorek et al. (2005) and Gasiorek et al. (2006). These studies do not address endogeneity in the productivity-trade relationship. The method used for transposing these firm-level based econometric estimates into the CGE framework is not presented in detail.

actual agreement, taking into account exceptions in manufactured food products in particular; income transfers from the EU to Morocco, compensating Morocco for the unilateral tariff reduction occurring under the agreement³⁷, are also included, based on observed annual transfers over the 1997-2004 period.

Implementation of the agreement with the EU yields a significant loss in welfare for Morocco (-190 USD million in equivalent variation, in the no-entry closure), due mainly to cuts in output per firm in sectors with increasing returns to scale, and to decreasing terms of trade. Output per firm is falling in almost all manufacturing sectors, characterized by increasing returns; this contributes -314 USD million to total welfare variation. In addition, the positive impact of increased imports on welfare does not compensate the fall in export prices needed to compensate this import surge (the positive welfare effect from trade creation is limited by the trade diversion effect whereby EU imports are substituted to imports from the RoW region). When firm entry and exit is allowed, the negative scale effect is mitigated, as so-called industry 'rationalization' occurs; this results in an overall positive impact on welfare for Morocco; however this impact is mainly due to the income transfer from the EU. Finally, if real wage rigidity is assumed (for unskilled labor), the agreement results in lower aggregate demand for labor (-8.4%), leading to a sharp increase in unemployment.

At the sector level, in this EU-Morocco FTA scenario output is falling in most of manufacturing sectors, with a few exceptions such as vegetables oils, apparel and light manufacturing. This is because market shares losses of Moroccan firms on their domestic market are not compensated by gains on export markets due to the real depreciation which follows liberalization.

Overall, in this scenario, projected efficiency gains from industry rationalization and resource reallocation are not enough to compensate the terms of trade losses incurred by the country in the process of unilateral tariff reduction with the EU³⁸.

Feraboli (2004) simulates the effects of the EU-Jordan FTA with a dynamic, single-country CGE model based on a framework developed by Devarajan and Go (1998); it assumed perfect competition in all sectors. The article also carries a comparative study of the bilateral agreement with a multilateral, non-discriminatory option for liberalization. Calibration of the model is based on a 2002 Jordan SAM and an 2002-updated I-O table; it includes 8 goods

³⁷ Morocco enjoyed duty-free access to the EU market for manufactures prior to the agreement.

³⁸ Differences in modeling hypotheses and data are likely to explain the differences between the results from this study and those from the previously quoted Augier and Gasiorek (2003) study for Morocco, which found positive welfare impacts of liberalization with EU for Morocco. Part of it comes from a different modeling of oligopolies in industry (no firm-entry/exit in Elbehri and Hertel 2004); when this assumption is relaxed, results from both studies become qualitatively similar. One important difference remains the terms-of-trade effect, which is negative in both papers but much more so in Elberhi and Hertel (2004). One possible reason for this is a difference in macroeconomic closure of the model.

sectors, and 1 sector of services. Constant returns to scale and perfect competition are assumed in all sectors.

The bilateral FTA scenario takes into account the schedule for gradual tariff reductions as well as the exceptions in this agreement (in particular in agricultural goods and manufactures containing agro products). The fiscal impact of the agreement is also explicitly modeled, with the inclusion of government transfers to households as an endogenous variable which adjusts according to changes in fiscal revenues. As the net effect of the agreement on government revenue is negative, transfers are found to decrease continuously during the implementation period³⁹.

In this model, since perfect competition is assumed, the net impact of liberalization on welfare simply depends on the relative importance of the increase in household consumption, resulting from lower price indices (through cheaper imports), and of the decrease due to reduced government transfers. Overall, the simulations yield a slightly positive impact on welfare (+0.057% in inter-temporal utility; note that this result is not directly comparable to those from static models); however, it is found that consumption decreases in the short run, but increases in the long run (private consumption overcomes baseline level after 5 years). Positive impacts are found on investment, capital stock and real wage; however, these impacts are larger in the hypothesis of a multilateral, non-discriminatory liberalization scenario, with a 0.13% increase in inter-temporal welfare. This is due to the avoidance of losses in efficiency and in revenues from trade diversion, which does not take place in the case of multilateral liberalization. Unfortunately, sector effects are not discussed in this article.

Gaitan and Lucke (2007) is one of the rare studies providing a model for the Syrian economy. It is also an interesting example of a CGE study focused on the question of non-tariff barriers (NTBs), proposing a quantitative comparison of a liberalization limited to tariffs versus encompassing NTBs (for this reason we will also discuss it in the next section). This choice is justified given that in Syria, most of the existing protection is in the form of NTBs. A former study by Chemingui and Dessus (2008) evaluates that NTBs in Syria add a 22.1% premium on world prices on average, while tariffs account for 8.2%.

The model is a dynamic one also based on Devarajan and Go (1988). Two aspects are added in order to account for specificities of the Syrian economy: a constraint on foreign borrowing (with the capital stock serving as collateral), and a non-competitive domestic financial sector, with government firms enjoying easier access to credit than private ones (this is modeled as an interest premium for private firms). Calibration of the model is based on a Syrian SAM computed by Chemingui and Dessus (2008) and on NTB estimates from the same source⁴⁰. The study runs a simulation assuming implementation of the Association agreement with the

³⁹ Government is assumed to run a balanced budget.

⁴⁰ In this study, estimates of NTB equivalents are based on price gap measures: the equivalent is taken as the percentage gap between world price inclusive of shipping costs and tariffs and the domestic price for a given imported good: $t = 100 \cdot (P_D - P_W) / P_W$. These equivalents are computed for 18 commodities. The weighted average of NTB equivalents is 22%, compared to 8.2% for tariffs. See next section for details on these estimates.

EU according to the text of the agreement (which has been agreed, but not yet signed); this text stipulates gradual abolition of tariffs and immediate abolition of NTBs upon entry into force.

Overall, this simulation finds a positive impact of the agreement on aggregates, welfare (+0.33%), GDP (+13.7%), consumption (+9.2%), and investment (+15.1%). Factor incomes also increase, particularly wages which benefit from capital stock growth. At the sector level, the authors find positive impacts on production for all but one manufacturing sector, while the short-run effect on agriculture is negative (-1.4%). This seems to be due to cheaper inputs for industry, which improve profitability in these sectors relative to agriculture, causing a shift of factors toward industry. (Note however that no comparison is made of this scenario with a status quo, no agreement scenario; thus, all variations are computed as relative to the first year value of variables, not to a baseline scenario as in previously quoted studies).

This scenario of trade liberalization with EU is then decomposed into two components, consisting of the removal of tariffs only, or of NTBs only. Interestingly, it appears that the major part of the gains in all aggregates are due to NTB removal (+9.9% for GDP, against +1.6% in the tariff-only case). In addition to the higher tariff equivalent level of NTBs as compared to tariffs for many goods, this is due to the different structure of tariffs and NTBs, a feature shared by many other Med countries with import-substitution histories: tariffs are high in consumption goods and for some domestic industries, and low for intermediates and capital goods; whereas NTBs do not follow the same structure, and their tariff equivalent is thus often much higher on intermediates/capital goods, than the existing tariff. Thus, a removal of NTBs is much more beneficial for profitability in manufacturing sectors.

These results provide a case for supporting NTB reduction through technical help and reform of institutions. However, as noted by the authors, the removal of NTBs, in Syria, and in other south Med countries as well, is likely to be much more difficult to implement than tariff removal. The presence of rents associated to some of these barriers is one element making this difficult politically. They see in the MEDA program incorporated into the framework of the Association agreements an element for institution-building which could help reduce some of these costs.

In addition to this simulation of the EU-Syria agreement, this study also proposes to simulate the impact of two other scenarios: a so-called “WTO” scenario, in which the consequence of Syria’s entry into the WTO are hypothesized; and a “MFN” scenario. The former assumes full ‘tariffication’ of all NTBs; the dismantling of agricultural barriers based on the Agricultural Goods Agreement for Developing Countries; and a 50% reduction in non-agricultural tariffs. The latter is assuming adoption of a MFN principle by Syria, based on the statu quo tariff structure (i.e. ignoring future reductions under preferential trade agreements). It is designed to compare the effects of a non-discriminatory trade policy for Syria with those from preferential liberalization with the EU and/or with its Mediterranean partners.

The adoption of an MFN rule, as assumed, appears to have limited positive effects on aggregates (0.2% on welfare, +1.4% on GDP, 25-year horizon). This scenario is actually

assuming only a uniformization of protection levels, without a real process of liberalization; the positive volume of trade effect is thus very limited. Of more interest is the WTO scenario. Comparing it with the preferential partnership with the EU, the authors show that this WTO entry would dominate preferential liberalization in terms of welfare (+1.35% over 25 years), but would lead to lower increases in GDP. This is essentially due to trade diversion effects in the preferential case. Looking at import structures shows that the preferential policy with the EU creates a highly inefficient import structure.

This first set of studies, though not fully comparable with each other, makes it possible to identify the main characteristics of the evolution of south-Mediterranean economies under a preferential trade partnership with the EU. These can be summarized as follows:

The main source of gains for these economies generally stems from the trade creation effect, that is, the increase in imports following the reduction of their perceived price. This effect is competing with trade diversion, which is important here because of the highly discriminatory nature of the trade policy resulting from implementation of the AAs. However, it is in most studies smaller than the trade creation effect, in part due to the already high EU import shares in Med countries prior to the AAs⁴¹.

Increased competition is the next important source of gains from liberalization, through reduced markups in domestic oligopolistic sectors (in models with imperfect competition). The scale of this effect varies with hypotheses made on these markups.

Increased variety, and terms of trade, are two other sources of welfare variation (positive and negative, respectively) which vary according to modeling hypotheses.

In terms of sector reallocation effects, most studies predict that the Association agreements should have deindustrialization effects on south-Med countries; even for the economies with relative advantages in industry within the MENA region, such as Tunisia, or Morocco.

It should be reminded that most studies do not account for potential impacts of liberalization on productivity in opening economies (as factor productivity is generally following an exogenous trajectory in these models), which if occurring could modify substantially the overall effects of liberalization.

When comparing scenarios of preferential liberalization with the EU, with a hypothetical multilateral tariff dismantling for these economies (assuming the adoption of an MFN tariff structure of some sort), most studies find that negative trade diversion effects are limited by such a policy, enhancing efficiency in production structures.

⁴¹ The scale of trade diversion resulting from discriminatory reduction in barriers is generally expected to be lower if preferential reduction occurs with already important trade partners, since these partners are already the lowest-cost suppliers of many imports before the liberalization.

2.3. Extending the Euro-Med liberalization: deep integration, services and agriculture trade liberalization

2.3.1. The issue of deep integration and the removal of non-tariff barriers

An important question regarding EU-Med agreements is the issue of non-tariff barriers (NTB) reduction, and more broadly, of “deep integration”. The term of NTB is used to include a wide array of administrative costs, technical regulations, ‘red tape’, restrictions on competition, and in general, all potential sources of costs on trade beyond tariffs and ‘normal’ transportation costs. Such barriers are generally thought to be significant in particular for Mediterranean countries, so that their reduction appears as a necessary component of any process of liberalization. Indeed, provisions for reducing them are included in the agreements. However implementing these reductions proves difficult, not least because of the difficulties to identify and measure these restrictions in the first place. Therefore the first challenge in quantifying the potential effects of NTB removal is their measurement. In the studies reviewed below, three different methods have been used (for three different countries). The next issues are to decide how to model their effects on trade flows; and to determine how their dismantling is likely to occur (on a unilateral or bilateral basis).

A first method for estimating NTB tariff equivalents is the one used by **Chemingui and Dessus (2008)**; their estimates are then used by Gaitan and Lucke (2007) in the study quoted above. The method consists in measuring the wedge between world prices and domestic prices of goods, subtracting tariff and freight costs to the latter. This has the advantage of being a direct measurement; but it requires the use of extensive information on world prices, domestic prices, tariffs, insurance and freight costs, for all products; product-level estimates must then be aggregated into sector-level tariff equivalents in a consistent manner. Here the authors have used numerous international and Syrian sources to obtain these values. The estimates they obtain for NTBs range from 4.9% (other crude materials) to 329.6% (Tobacco and beverages); these are in most cases significantly higher than the tariffs applied to the same sectors. The effects of removing NTBs for Syria have been presented above in the discussion of Gaitan and Lucke (2007), based on these estimates.

Hoekman and Konan (2001) is one of the first studies attempting to measure the potential gains from broadly defined “deep integration” for MENA countries, taking Egypt as an example. It defines deep integration as the set of policies designed to reduce all costs of trade beyond tariff barriers, including administrative and regulatory costs (“red tape”), but also policies facilitating competition in domestic services sectors. The authors take on comparing the effects of a “shallow” agreement, similar to actual EuroMed agreements in their current form, to those of a hypothetical liberalization process which would encompass deep integration.

As in most studies on this topic, the main difficulty arises with the estimation of existing non-tariff barriers. Such barriers must be quantified, meaning that a tariff equivalent must be attributed to them in order to incorporate them into the model. Moreover, these barriers take a

variety of forms: direct/indirect costs; rent-generating/frictional (i.e., sunk costs); some can be removed on a unilateral basis, others require coordination with partners (such as sanitary regulations). In this study, the authors make some assumptions aiming at incorporating a large array of NTBs into their modeling exercise, based on the collection of sector-specific figures from various sources. For instance, frictional costs associated with customs-related red tape are assumed to value 5% of imports, and removal of these costs happens in a non-discriminatory way; standards-related controls create rent-creating costs of 10%, etc.

The model used in this article is calibrated on 1994 Egyptian data for production and trade. It assumes perfect competition in all sectors. Several scenarios combining different degrees of liberalization of non-discriminatory barriers, removal of standards-related NTBs and custom-clearance costs are then tested and compared to a “shallow integration” case. In the case of shallow integration, trade diversion is found to cause a 0.14% welfare loss with respect to benchmark 1994 levels. By contrast, various deep integration scenarios generate 4 to 20.6% gains in welfare (in variation with respect to initial levels), depending on the scope of barriers removal. In the case of a unilateral reduction of barriers on goods trade by Egypt (including 5% in red tape and 5% in standards-related costs) equivalent tariff, gains are estimated at 4% of real GDP; note that these gains are solely from trade creation effects, as no reciprocal liberalization by Egypt’s trade partners is assumed in this case. Assuming in addition a reciprocal removal of barriers on EU markets amplifies these gains through improved market access (+5.6%)⁴². Finally, adding liberalization in services sectors in Egypt amplifies these gains, notably through an improved export position of Egypt, particularly in MENA countries.

In sum, this study provides a case for south-Med countries to remove non-tariff barriers, both on a unilateral basis, and within the framework of Association agreements with the EU. However the reliability of the quantitative predictions appears to greatly depend on initial estimates of those non-tariff costs.

In light of this limitation, an alternative approach is to estimate NTBs from observed trade flows, using a gravity model, and then to incorporate these estimates into a CGE model in an ‘iceberg’ trade cost form; this is done in **Philippidis and Sanjuan (2006)** for the case of Morocco. This method has the advantage of providing a more consistent basis for the assumed values of NTBs; one downside being that the exact nature of the barriers (‘red tape’/technical standards, rent-creating/sunk costs...) is not identified. In this paper, the authors employ a residual-based method to estimate the tariff equivalents of NTBs at the sector level⁴³. Their tariff equivalent estimates of NTBs applied on EU exports to Morocco

⁴² Results at sector level are not presented in this paper.

⁴³ Meaning that residuals from a sector-level gravity equation are entirely attributed to non-tariff trade costs: $\ln X_{ij}^A - \ln X_{ij}^P = (1 - \sigma) \ln \tau_{ij}$, where the LHS is the gap between actual and predicted bilateral trade flows, σ is the estimated elasticity of substitution and τ is trade costs. Note that any unobserved factor limiting trade is then attributed to NTBs, which leads to a quite broad definition. Another caveat is that negative values of trade costs can be obtained in some sectors.

range from 0.9% (textiles) to 297% (beverages and tobacco)⁴⁴. They incorporate these estimates into a (GTAP) CGE model with imperfect competition in manufacturing sectors, quite similar to the one used by Elbehri and Hertel (2003, see above). A first scenario examines the effects of a reciprocal liberalization with EU in agricultural and agro-food sectors (this aspect will be treated in the section on agricultural liberalization below). Next, they test the impacts of a removal of NTBs, either in agro-food sectors only, or in all sectors. All these scenarios also include tariff removal in agricultural sectors; therefore it is not easy to isolate the impacts from sole NTB removal. Nonetheless, it is noteworthy that their simulations yield substantial gains from NTB removal in agro-food sectors (+3.3% equivalent variation in real income relative to baseline) or in all sectors (+12.2% EV). Note that reciprocal removal of trade costs by the EU is assumed in all cases. The main sources of gains appear to be from allocative efficiency, and scale effects in manufacturing sectors (in the case of NTB removal in these sectors). An improvement in terms of trade for Morocco is also found, which is also due to the strong assumption of complete removal of NTBs by the EU on Moroccan imports. An important point is that in the hypothesis of a EU reduction of its NTBs with *all* its Mediterranean partners rather than with Morocco alone, these gains would likely be much more moderate. To examine this further, a simulation of NTB reduction within the Euro-Med area as a whole would be necessary.

To summarize results from this literature, the removal of NTBs is generally found to generate important gains for south Mediterranean economies, beyond those obtained from simple tariff removal. The first source of these gains stems from the resulting deeper integration: NTBs act as remaining tariffs, therefore their removal together with tariffs further reduces distortions, amplifying the trade creation and allocative efficiency effects from liberalization. In addition, many of these barriers are more likely to be reduced in a multilateral than in a preferential manner, thereby reducing trade diversion effects. Another potential source of gains could originate in the distribution of these barriers, which contrary to tariffs were generally not designed to protect domestic industries. Finally, in the hypothesis of a reciprocal removal of NTBs in the framework of the EuroMed AAs, South-Med countries appear to reach higher gains from improved market access in the EU. Yet, one needs to keep in mind that the scale of these benefits are highly dependent on initial estimates of tariff equivalents; and that most studies reviewed here assume full removal of the associated costs, without explicitly accounting for possible costs of the reform of institutions, administrations, infrastructure, that would be needed to reach this objective.

⁴⁴ Interestingly, these estimates appear to be broadly comparable, in terms of distribution across sectors, to those obtained by Chemingui and Dessus (2003) for Syria.

2.3.2. Liberalization in services sectors

We now turn to studies examining the impacts of liberalization in services trade for South-Med countries. Assessing the impact of services trade liberalization raises modeling issues somewhat comparable to those of the modeling of NTBs: first, barriers on services trade must be quantified; this raises difficulties due to the diversity of forms of barriers. Moreover this diversity also requires to make assumptions concerning the impact of these barriers on domestic prices. Few studies have done this in the MENA context.

Konan and Maskus (2005) provide an innovative model to quantify the gains from services trade liberalization for developing countries; they apply their model to the case of Tunisia. The base model is a static, single small open-economy model, assuming perfect competition and constant returns in all sectors, except in services sectors where restrictions to entry are modeled as described below⁴⁵. Their study emphasizes in particular the importance of restrictions on foreign investment as a barrier to services trade, as many services need to be provided by foreign enterprises in the country. Therefore, quantifying barriers to services trade requires estimating these restrictions and their impact on potential services provision. They argue that such restrictions and regulations are important in Tunisia (and in other south Mediterranean countries as well), due in particular to state intervention and limited competition in services sectors such as communication, finance, insurance, and distribution. They construct estimates of tariff equivalents for these restrictions⁴⁶, based on industry studies, estimates from the literature, and anecdotal evidence.

Their approach consists in assuming that limited competition caused by entry regulations creates cost inefficiencies, and markups over marginal cost; both generate a price wedge between price and marginal cost. Various service sectors are assumed to present cost inefficiencies, monopoly rents, or both, based on documented evidence from Tunisia; simulation of the removal of barriers consists in reducing one or both of these two price wedges⁴⁷.

Simulations show that welfare gains from removing “cost inefficiency” wedges – equivalent to assuming a technology adoption in services sectors in Tunisia - are much higher (7.7% equivalent variation in real income, relative to baseline) than those obtained from removing monopoly rents (0.33%). This is due to the fact that the former generate pure productivity gains in services sectors, while the latter only consists in a redistribution of the rents. In terms of sector reallocation, both scenarios, as well as the ‘mixed’ one, cause a slight shift of resources from manufacturing and mining to services and agriculture. Capital returns increase

⁴⁵ The calibration of the model is made using SAM and I/O data from the Tunisian Institut national de Statistique. Tariff data are based on 1995 collections and aggregated into 20 non-service sectors (source not indicated).

⁴⁶ Note that services provided by a foreign owned firm resident in a country (mode 3) should not be counted as cross-country service trade; thus this study could be viewed as a study of liberalization in services trade and investment.

⁴⁷ Note that FDI flows are thus not made endogenous in this model: the link between entry restrictions and efficiency and monopoly rents is assumed but not explicitly modeled.

relatively more than labor, a likely reflection of the capital-intensive structure of most services sectors considered.

Comparing results from these ‘investment liberalization’ scenarios to those obtained from a ‘border liberalization’ (that is, a removal of tariffs on cross-border, mode 1 service delivery), shows that investment liberalization generate much higher gains (about 75% of the total welfare gains). This seems a natural consequence of the fact that investment liberalization, as modeled, causes an actual improvement of productivity in domestic services sectors, while border liberalization only reduces the price of services imported from abroad. This also explains that investment liberalization brings a more important sector reallocation, and a much sharper relative appreciation of capital.

Breaking down the liberalization scenario by sector (simulating opening individual services sectors separately) yields interesting results. It shows that highest gains in welfare are obtained from opening up the sectors of transportation, finance, and ‘business, insurance and leasing’. All of these also generate higher relative gains for capital.

Finally, a comparison of liberalization scenarios for goods trade and for services trade shows that services opening yields higher gains (5.3% EV, compared to 1.5% for goods). Goods trade liberalization yields a relative appreciation the labor factor, contrary to services. Note however, that the liberalization of goods trade considered here consists in unilateral, non-discriminatory barrier elimination. It cannot, therefore, be directly compared with simulations from previously quoted studies based on bilateral liberalization in the framework of regional agreements. Combining liberalization in goods and services adds up the welfare gains, yielding a relative appreciation of labor, and a relatively unchanged sector structure of production.

Overall, this innovative study provides a strong case for the opening of services trade, and more importantly investment, in parallel to goods trade liberalization. Interestingly, it shows that higher gains are to be expected from investment liberalization (mode 3) than from cross-border services opening (mode 1). Note however, that these results are conditional on the assumption made in the modeling, that investment liberalization would abolish monopoly rents in services sectors, and cause them to adjust their technology gap. Mixed results from the literature pertaining to technology transfers from foreign invested firms should call for caution about this hypothesis. In addition, one could argue that increasing competition in Tunisian services sectors could be obtained by reducing barriers to domestic entrants, as well as foreign.

A closely related paper is Konan and Kim (2003), which builds two CGE models centered on Tunisia and Egypt respectively, with the aim to assess quantitatively the impact of barriers to services trade on these economies. As in the former study, the authors decompose services liberalization into a border component (reduction of barriers to cross-border – mode 1 – services trade) and an investment component (a reduction of restrictions to foreign entry in domestic services sectors). Concerning the second component, they document numerous forms of regulation and restrictions on factor movements on both countries, which may in

some cases be entirely prohibitive to some forms of services transactions. Non-competitive regimes are found in these countries in e.g. telecommunications, air and maritime transportation, commercial banking and insurance services in Tunisia and Egypt. Similar regulations and restrictions are found in other MENA countries as well. A feature of Tunisia and Egypt is that liberalization reform is under way in both countries, and that both have made GATS commitments in services sectors. Therefore, the study aims at quantifying the impacts of the reduction of barriers at the border and beyond them for these two economies. It is based on constructed SAM for Tunisia and Egypt based on 1995 and 1997 data, respectively. Trade in services, and foreign investment, are modeled using the same methodology developed in Konan and Maskus (2004).

In a first step, the study simulates, for each country, the effects of a liberalization of goods trade with EU, similar to the implementation of the agreements signed with EU by Tunisia and Egypt. This scenario is compared with a 'multilateral liberalization' one, where tariff reduction is implemented on a 'MFN' basis⁴⁸. In the case of Tunisia, the two scenarios of bilateral versus multilateral liberalization do not exhibit strong differences in their impact on aggregates and sector output shares, a fact attributed to the importance of EU as trade partner for this country. Consistently with other studies of goods liberalization for Tunisia, this country is found to exploit its comparative advantage in manufacturing, mainly clothing, following liberalization; in line with previous studies, it appears that this country mostly benefits from cheaper inputs for the development of its light industry, causing a relative appreciation of labor, and an overall improvement in welfare. By contrast, Egypt gains clearly less from liberalization, and even experiences a loss in welfare from bilateral liberalization with EU, due to significant trade diversion⁴⁹. Multilateral liberalization is beneficial, but provides lower gains than for Tunisia. The authors attribute these differences to the more diversified trade structure of Egypt; more importantly, the higher gains from trade accruing to Tunisia are due to the higher openness of this country (export ratio of 0.8, compared to 0.17 for Egypt).

In a second step, the study considers the impact of a liberalization of services trade, decomposed into two components of border liberalization and investment liberalization. In both countries, gains obtained in welfare terms are more substantial for the liberalization of investment (3.6% and 6.9% for Tunisia and Egypt respectively). In both cases, returns on capital increase relatively more than those on labor, contrary to the liberalization in goods trade. But the sectoral composition of output appears relatively unchanged under this scenario, with a moderate increase in the share of services. Rather, it appears that liberalization in services and investment generates substantial productivity gains in sectors of comparative advantage for the countries, reflecting the important role of services as intermediates in production of goods. These gains are more marked in the case of Egypt,

⁴⁸ The precise schedule and coverage of tariff reductions under these two scenarios is not made explicit in the paper. In the presentation of results from simulations, the reference/baseline is also not made clear.

⁴⁹ Note that parallel integration with neighbor countries is not included in the first scenario, thus probably making trade diversion higher than it is to be observed in reality.

particularly in comparison with a simple goods liberalization scenario in which this country stands to gain very little in welfare.

The two companion papers reviewed here build estimates of services barriers for Tunisia and Egypt, and incorporate them in a model in which these barriers are assumed to take two forms: one is equivalent to a tariff applied on cross-border services trade; the other is a restriction on foreign entry in domestic services sectors, which limits competition in these sectors. As these services (transportation, banking, insurance, etc.) enter as significant inputs in a large share of domestic production, their liberalization provides significant gains through lowering their price, even though the share of services in production does not increase substantially. In comparison, reduction of barriers to cross-border services trade provides limited gains. Yet one needs to remark, as Konan and Maskus (2006) do in their conclusion, that the “political economy constraints” on liberalization in domestic services might be difficult given the significant rents accruing to incumbent service providers.

2.3.3. Opening the agriculture and agro-food sectors

Ben Hammouda et al. (2007) estimate the impacts of the Tunisian, Moroccan and Egyptian bilateral agreements with the EU jointly in a CGE model (“Mirage”, see Bchir et al. (2002) and previous occurrences above). Their study focuses on the potential adverse effects of these agreements on the economies of south Med countries, and asks whether the inclusion of agricultural products to the integration process could help rebalance the outcomes. Domestic support measures (output subsidies, capital- and land-based payments) in the form of producer support equivalents (PSE) are taken into account in the model; but the method for modeling these instruments is not indicated in the paper. Based on these estimates, they perform 3 simulations, in addition to a baseline scenario designed to simulate the actual implementation of the agreements as signed. These 3 scenarios each assume a reduction of distortions on EU agricultural markets through one of the three “pillars” of the Agreement on Agriculture: the elimination of export subsidies; a 50% reduction in EU domestic support; and a reduction of the “market access pillar” (that is, tariff barriers in agricultural and food processing sectors), using the formula suggested by the EU in the WTO ministerial conference in Hong Kong (2005).

In the framework of this paper, simulation of the implementation of the Barcelona process as planned generates welfare losses for North African countries, between -0.44% for Morocco and -1.11% for Tunisia. The asymmetric liberalization with EU causes a surge in manufactured imports from EU to these countries, especially in capital-intensive sectors. Consequently, North African countries undergo a resource reallocation towards agriculture (with no scale economies) or labor-intensive industries (mainly Agro-food industries, textile and wearing). Consistently with other studies, the Barcelona process is thus found to have strong reallocation and de-industrialization effects on North-African economies, resulting here in net negative welfare variation for these countries.

The authors then take on asking if a broadening of the agreements' coverage to include agriculture could mitigate the losses for North African economies. The answer, in the framework used by the study, is negative. None of the measures envisaged to reduce distortions in agriculture manages to yield positive welfare effects for North African economies. In the case of export subsidies reduction, the outcome is actually worse (than the reference "Barcelona" scenario); such a policy does lead to an increase in production of south Med countries in the subsidized sectors; however this does not mitigate the higher prices faced by these countries on imports⁵⁰. Elimination of domestic support yields similar results. Finally reduction in tariff barriers in agriculture yields somewhat positive effects for Morocco and Tunisia, increasing their GDP and welfare as compared with the baseline Barcelona scenario. Both countries witness a surge in their agricultural exports. This result seems consistent with the consensus that tariff barriers constitute the most distortive policy on agricultural markets. Overall, this study does not seem to provide a clear indication as to how the Barcelona process could be rebalanced so that more gains accrue to South Med partners. The process appears as harmful for these economies because it causes them to specialize in agriculture and labor-intensive industries. A reduction of tariff barriers on EU agro markets helps them increase their market shares, but without compensating the losses.

Philippidis and Sanjuan (2006) is another study of agricultural liberalization, in the context of the EU-Morocco agreement, which focuses on the hypothesis of tariff removal in agriculture and agro-food industries, to which NTB removal is added in a second step. They employ the GTAP model version 6 and the corresponding database for the benchmark year 2001. They assume imperfect competition in manufacturing sectors. In the aggregation they define 22 sectors and 4 regions (Morocco, EU, US, Rest of World). The baseline scenario incorporates tariff elimination in industrial sectors in the framework of Morocco's agreements with the EU and also with the US. Initial tariff protection rates in agricultural and agro-food sectors shows higher protection on Moroccan markets, with tariffs over 20% in half the sectors. Consistently with the previous study, it finds that liberalization of tariffs in these sectors generate limited gains for Morocco (0.14% in per capita real income gain, relative to baseline). This seems to result from a balance between losses in initially highly protected sectors – such as 'crops' and 'other agriculture' – and production and export expansion in sectors with initial high EU protection or those where Morocco has high export shares (such as 'vegetables fruits and nuts'). Decomposing the effects shows that allocative efficiency is the main source of gain in this scenario (67% of total welfare gain), while terms of trade losses are mitigated by the improvement in Morocco's export position resulting from reciprocal tariff reductions in agro-food sectors. Note that in this model, economies of scale are also assumed in agro-food sectors creating gains from increased output per firm in expanding sectors.

⁵⁰ Note that the scenario considers only a reduction of EU subsidies to its exports to the NA region, not to the rest of the world. Therefore it mainly consists in a rise in import prices for NA countries.

CONCLUSION

This article reviews the main existing studies on the process of liberalization in the Euro-Mediterranean region. This process has taken place since the mid-1990s both at the intra-regional level among south-Mediterranean countries, and between the EU and SMCs in the form of bilateral free trade agreements. Estimating the trade effects of these agreements, using gravity methodology, reveals that intra-regional agreements, mainly the GAFTA, significantly expanded trade in the region, with the most reliable estimates ranging between 16 and 24% in average trade creation effects. This is notable given the doubts concerning the potential for regional integration which emerged prior to their implementation, based on similarities of production structures among these economies as well as on under-developed infrastructure. It also indicates that this agreement achieved significant integration despite remaining exceptions in tariff dismantling schemes. By contrast, studies of Euro-Med agreements find that these agreements increased export flows from the EU to its partners, but with no significant, or even slightly negative impacts on the exports of SMCs, in line with expectations based on the non-reciprocal aspect of tariff reductions taking place in these agreements.

Studies using a CGE methodology find that the process of intra-regional liberalization stands to reinforce the existing structures of specialization among MENA countries; assuming that regional integration does not include Turkey, as is the case for current agreements under implementation, Tunisia is generally found to exploit local comparative advantages in manufacturing and some high value-added sectors, while other MENA countries engaged in the process specialize more in labor-intensive manufacturing and agriculture. Tunisia and Morocco appear to gain most from the process while the effects for other countries are generally less clearly assessed, in part because of data limitations. Concerning the implementation of the EU-Med agreements, most studies find losses or limited gains for SMCs. In general, the main source of gains for these countries is in trade creation effects, but these are compensated by important trade diversion (over-importing from the EU following preferential liberalization). Terms of trade effects are also negative in most scenarios, another consequence of the asymmetric structure of tariff reductions. The sign of competition effects vary across countries and studies. Considering the effects across countries, important differences emerge. Tunisia, and to a lesser extent Morocco, stand to gain relatively more from the AAs, the former having an initially more developed industrial base which undergoes positive rationalization effects; while the rest of MENA countries generally experience significant deindustrialization effects and overall losses in welfare (Israel and Turkey being generally less affected due to lower initial protection levels). Finally, we consider a series of issues related to the 'deepening' of the Euro-Med integration process. The removal of non-tariff barriers, and of barriers to trade in services, generally yields large gains for the SMCs through larger trade creation effects and competition effects; however quantifying these barriers and the gains (and costs) from their removal remains a methodological challenge. Conversely, an extension of the agreements to agriculture and agro-food sectors generally finds mixed results depending on assumptions on the form of such an extension; reciprocal tariff reductions are generally found to be instrument yielding most gains for the MENA economies.

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APPENDIX A: TRADE AND CAPITAL FLOWS IN THE EURO-MEDITERRANEAN REGION:
DESCRIPTIVE STATISTICS

This section provides some statistics in order to draw a general picture of the orders of magnitude, geographical and sectoral composition of trade flows to and from Mediterranean countries, and on their evolution since the start of the Barcelona process. In addition we provide statistics on capital flows (FDI, transfers) to and from these countries. The south-Mediterranean countries (SMCs) which will be considered in this study are the following: Morocco, Algeria, Tunisia, Lybia, Egypt, Israel, the Palestinian Territories (PT), Jordan, Syria, Lebanon, and Turkey. We provide here information about the sources used for computing these statistics.

In tables 1 to 10 several decompositions of trade flows involving SMCs, by region of origin/destination and by sector, are provided; these figures were computed using data from the UN service of trade statistics, COMTRADE (United Nations Commodity Trade Statistics Database⁵¹). These data are based on reports by countries to this service. Countries generally report their imports and exports data, so that for each flow 2 sources of information are available; however, the two figures do not perfectly match; one reason is that imports data are recorded as including CIF (Cost, insurance and Freight), while export figures are FOB (Free on board). Other factors for discrepancies include false reporting (intentional or not), errors in product classification, smuggling, etc. Some of these factors should be expected to depend on the reliability of customs services, the level of corruption, the level of tariffs, etc. In addition, some countries do not report their trade data. Thus, in the case of a country pair with one non-reporting country, only one figure is available for trade flows. In the case of two non-reporting countries, no figure is available.

In our case, several countries do not report trade data in some years: Lebanon at the start of the period (it started reporting in 1998), Syria (reports from 2001 to 2007) and Libya throughout the period. The Palestinian Territories reported trade flows in 2007 and 2008. Therefore, for these countries in their non-reporting years, we had to use 'mirror' flows, that is, reports of their trade partners, to infer their trade activity. For the rest of countries, we made the choice of using a country's own declaration to measure its trade structure(exports and imports), in order to use one source for both directions of flows.

When measuring intra-regional trade flows, in table 7 to 10, we present both figures: exporter's and importer's declarations (except for non-reporting countries). This makes apparent that some important discrepancies exist between the sources. If the CIF/FOB aspect was the only cause of difference, then exporter's declarations should be lower than importer's figures; this is often, but not always, the case.

⁵¹ <http://comtrade.un.org/>.

In table 3 to 6, a broad decomposition of trade flows into 3 sectors is used: Agricultural products, Extractive industries and the rest of industrial products. These groupings are defined based on the Harmonized system of product classification (HS) in which trade data are reported; we define the first group to include chapters 1 to 24; extractive industries are chapters 25 to 28⁵²; 'industrial products' include the rest of chapters.

We next present figures on the structure of services trade for SMCs, based on data from the IMF Balance of Payment statistics. These data are reported on a multilateral basis (no data on bilateral flows). Some countries are not reporting data for some years, as indicated in the tables. The IMF Balance of Payment data do not include data for the Palestinian Territories. Note that these data are generally seen as less precise than goods trade data, because of more difficulties in the data collection process⁵³.

Finally, figures on inward transfers and remittances; and on FDI stocks in the country and abroad, are based on the same source (IMF Balance-of-Payment), when available. We compute ratios of these figures to countries's current GDP levels, using the CHELEM database⁵⁴.

⁵² Chapters 25 to 27 define section V, 'Mineral products'; chapter 28 includes "Inorganic Chemicals; Organic or Inorganic Compounds of Precious Metals, of Rare-Earth Metals, of Radioactive Elements or of Isotopes".

⁵³ Among the categories of services in the IMF classification, "travel" services are defined to include all receipts and payments arising from travel of less than one year, and for travel of a year or more for educational or health purposes. It is subdivided into travel for business purposes and travel for personal reasons. "Transportation" services cover receipts and payments of persons and goods by air, water and land, together with supporting services for the various modes of transport. For more details see IMF Balance of Payment manual on <http://www.imf.org/external/data.htm>.

⁵⁴ <http://www.cepii.fr/anglaisgraph/bdd/chelem.htm>

Table 1: Exports/imports by destination, 1995-2008 (million \$).

		1995			2008			Growth rate of total, annual
		EU-27	Med. Countries	World	EU-27	Med. Countries	World	
Algeria	Export	5853	521.9	9356.7	41245.4	5204.4	79297.6	17.90%
		62.60%	5.60%		52.00%	6.60%		
	Import	6334.4	608.6	10782.4	20867.3	2162.6	39474.7	10.50%
		58.70%	5.60%		52.90%	5.50%		
Egypt	Export	1545.2	516.3	3444.1	9274.2	4170.8	26223.8	16.90%
		44.90%	15.00%		35.40%	15.90%		
	Import	4686.4	373.2	11739	14296.7	2712.1	52752.1	12.30%
		39.90%	3.20%		27.10%	5.10%		
Israel	Export	5528.3	222.8	19047.4	17800.8	2061	61337.5	9.40%
		29.00%	1.20%		29.00%	3.40%		
	Import	11561.7	305.9	28344.3	22512.8	2067.7	65170.5	6.60%
		40.80%	1.10%		34.50%	3.20%		
Jordan	Export	156	185.6	1768.8	307.9	1036	7781.8	12.10%
		8.80%	10.50%		4.00%	13.30%		
	Import	1233.9	319.2	3696.4	3529.2	1950.4	16871.6	12.40%
		33.40%	8.60%		20.90%	11.60%		
Lebanon	Export	160.19	99.83	793.14	533.5	744.9	3478.3	12.00%
		20.20%	12.60%		15.30%	21.40%		
	Import	3438.48	264.22	9093.68	5885.7	1640.3	16136.5	4.50%
		37.80%	2.90%		36.50%	10.20%		

Source: Comtrade. Med. countries include Algeria, Egypt, Israel, Jordan, Lebanon, Libya, Morocco, Occupied Palestinian territories, Syria, Tunisia and Turkey.

(Table 1 continued)

Libya	Export	7647.18	763.34	17622.51	47502	1920.55	62793.08	10.30%
		43.40%	4.30%		75.60%	3.10%		
	Import	3037.07	663.98	8148.35	8413.71	3041.17	18132.63	6.30%
		37.30%	8.10%		46.40%	16.80%		
Morocco	Export	2835.9	344.7	4718.9	12032.7	728	20305.7	11.90%
		60.10%	7.30%		59.30%	3.60%		
	Import	4850.4	369.9	8540.5	21913.8	2867.6	42322	13.10%
		56.80%	4.30%		51.80%	6.80%		
Occ. Pal. Terr.	Export	5.3	15.6	28.9	8.1	535.9	558.4	25.60%
	2000	18.30%	54.00%		1.50%	96.00%		
	Import	68.3	44.9	132.7	289.1	2912.3	3568.7	28.80%
		51.50%	33.80%		8.10%	81.60%		
Syria	Export	2347.96	467.37	5986.85	5332.05	1636.55	8296.61	2.50%
		39.20%	7.80%		64.30%	19.70%		
	Import	2083.74	423.21	6332.37	5113.59	2227.76	17021.44	7.90%
		32.90%	6.70%		30.00%	13.10%		
Tunisia	Export	3999.8	502	5474.6	13920.2	1987.6	19320	10.20%
		73.10%	9.20%		72.10%	10.30%		
	Import	5432	633.5	7903	14112	2926.7	24638.4	9.10%
		68.70%	8.00%		57.30%	11.90%		
Turkey	Export	11950.1	1737.6	21598.6	64450.9	10046.3	132002.4	14.90%
		55.30%	8.00%		48.80%	7.60%		
	Import	17127	1608.7	35707.4	74853.2	7558.8	201960.8	14.30%
		48.00%	4.50%		37.10%	3.70%		

Table 2: Sector composition of exports: 1995

destination		EU-27			Med countries			World		
		Agro. Pdots	Extractive industries	Manuf. Pdots	Agro. Pdots	Extractive industries	Manuf. Pdots	Agro. Pdots	Extractive industries	Manuf. Pdots
Algeria	value	29.79	5664.27	158.98	8.78	466.45	46.62	111.29	8973.78	271.61
	share	1%	97%	3%	2%	89%	9%	1%	96%	3%
Egypt		167.99	577.36	799.89	88.25	197.06	230.95	377.23	1326.26	1740.65
		11%	37%	52%	17%	38%	45%	11%	39%	51%
Israel		813.73	268.11	4446.48	14.44	23.46	184.94	1297.49	466.31	17283.63
		15%	5%	80%	6%	11%	83%	7%	2%	91%
Jordan		14.9	31.61	109.54	29.06	48.68	107.83	401.95	233.29	1133.61
		10%	20%	70%	16%	26%	58%	23%	13%	64%
Lebanon		28.65	10.03	116.71	27.32	15.65	56.86	116.71	26.3	385.31
		18%	6%	75%	27%	16%	57%	22%	5%	73%
Libya		3.34	7360.73	282.42	15.17	569.99	178.18	19.33	8499.66	692.31
		0%	96%	4%	2%	75%	23%	0%	92%	8%
Morocco		941.61	387.37	1506.9	49.8	46.74	248.2	1570.12	1106.5	2042.25
		33%	14%	53%	14%	14%	72%	33%	23%	43%
Syria		60.71	1963.4	321.24	109.07	244.77	113.53	323.26	2317.04	528.6
		3%	84%	14%	23%	52%	24%	10%	73%	17%
Tunisia		382.6	522.94	3094.24	80.8	116.65	304.58	542.77	877.93	4053.92
		10%	13%	77%	16%	23%	61%	10%	16%	74%
Turkey		2085.3	563.13	9301.63	422.52	99.45	1215.67	4341.31	994.78	16262.54
		17%	5%	78%	24%	6%	70%	20%	5%	75%
Total MED		4528.62	17348.95	20138.03	845.21	1828.9	2687.36	9101.46	24821.85	44394.43
		11%	41%	48%	16%	34%	50%	12%	32%	57%

–Values in million \$. Source: Comtrade. Figures for Libya and Syria based on partner countries' reported data

Table 3: Sector composition of imports: 1995 (million \$).

Origin		EU-27			Med countries			World		
		Agro. Pdts	Extractive industries	Manuf. Pdts	Agro. Pdts	Extractive industries	Manuf. Pdts	Agro. Pdts	Extractive industries	Manuf. Pdts
Algeria	value	1263.54	181.97	4888.86	98.48	67.25	442.83	3199.34	357.37	7225.73
	share	20%	3%	77%	16%	11%	73%	30%	3%	67%
Egypt	value	835.37	153.49	3697.57	56.17	34.66	282.35	3363.87	431.74	7943.33
	share	18%	3%	79%	15%	9%	76%	29%	4%	68%
Israel	value	894.83	219.92	10446.93	40.58	74.01	191.34	1929.91	2026.88	24387.5
	share	8%	2%	90%	13%	24%	63%	7%	7%	86%
Jordan	value	178.38	20.92	1034.65	103.07	16.29	199.8	772.44	581.78	2342.16
	share	14%	2%	84%	32%	5%	63%	21%	16%	63%
Lebanon	value	616.89	250.8	2477.29	189.12	206.85	159.95	1421.73	580.03	5052.1
	share	18%	7%	74%	34%	37%	29%	20%	8%	72%
Libya	value	651.39	240.59	2116.93	211.16	16.82	435.98	986.09	288.18	3144.85
	share	22%	8%	70%	32%	3%	66%	22%	7%	71%
Morocco	value	848.3	297.1	3705	48.74	150.81	170.36	1701.47	1555.03	5283.98
	share	17%	6%	76%	13%	41%	46%	20%	18%	62%
Syria	value	298	60.8	1711.29	106.12	55.94	261.15	698.74	122.93	2990.1
	share	14%	3%	83%	25%	13%	62%	18%	3%	78%
Tunisia	value	479.74	296.95	4655.27	92.08	375.1	166.31	1007.46	818.59	6076.99
	share	9%	5%	86%	15%	59%	26%	13%	10%	77%
Turkey	value	1013.18	501	15612.79	29.69	1277.47	301.54	2567.14	5312.46	27827.84
	share	6%	3%	91%	2%	79%	19%	7%	15%	78%
Total MED	value	7079.62	2223.54	50346.58	975.21	2275.2	2611.61	17648.19	12074.99	92274.58
	share	12%	4%	84%	17%	39%	45%	14%	10%	76%

Table 4: Sector composition of exports: 2008 (million \$).

destination	EU-27			Med countries			World			
	Agro. Pdts	Extractive	Manuf.	Agro. Pdts	Extractive	Manuf.	Agro. Pdts	Extractive	Manuf.	
Algeria	Value	59.22	40813.44	372.78	27.79	4893.31	283.27	127.48	78369.63	800.48
	Share	0%	99%	1%	1%	94%	5%	0%	99%	1%
Egypt	Value	752.35	4264.76	4257.11	832.97	895.85	2442	3038.98	12613.19	10571.59
	Share	8%	46%	46%	20%	21%	59%	12%	48%	40%
Israel	Value	1328.26	727.49	15745.04	67.37	66.83	1926.83	2116.23	1855.59	57365.66
	Share	7%	4%	88%	3%	3%	93%	3%	3%	94%
Jordan	Value	34.67	91.78	181.44	217.42	64.18	754.41	1053.34	1037.38	5691.04
	Share	11%	30%	59%	21%	6%	73%	14%	13%	73%
Lebanon	Value	74.92	56.62	401.91	97.92	110.97	536.06	446.91	236.78	2794.62
	Share	14%	11%	75%	13%	15%	72%	13%	7%	80%
Libya	Value	8.49	46574.64	915.05	9.2	1458.76	452.58	164.77	60545.76	2078.72
	Share	0%	98%	2%	0%	76%	24%	0%	96%	3%
Morocco	Value	2440.77	2143.36	7448.56	164.43	218.9	344.66	3660.52	6408.61	10236.56
	Share	20%	18%	62%	23%	30%	47%	18%	32%	50%
Occ. Pal. Terr.	Value	2.43	0.09	5.61	94.38	11.8	429.76	105.58	13.05	439.82
	Share	30%	1%	69%	18%	2%	80%	19%	2%	79%
Syria	Value	96.99	4889.05	341.97	293.62	639.49	703.44	647.95	6201.73	1442.89
	Share	2%	92%	6%	18%	39%	43%	8%	75%	17%
Tunisia	Value	942.37	3043.17	9934.64	407.08	436.16	1144.34	1759.1	4802.01	12758.84
	Share	7%	22%	71%	20%	22%	58%	9%	25%	66%
Turkey	Value	4491.54	3425.51	56533.81	914.19	877.95	8254.16	10838.88	11527.06	109636.45
	Share	7%	5%	88%	9%	9%	82%	8%	9%	83%
Total Med	Value	10232.01	106029.91	96137.92	3126.37	9674.2	17271.51	23959.74	183610.79	213816.67
	Share	5%	50%	45%	10%	32%	57%	6%	44%	51%

Table 5: Sector composition of imports: 2008 (million \$).

origin		EU-27			Med countries			World		
		Agro. Pdts	Extractive	Manuf.	Agro. Pdts	Extractive	Manuf.	Agro. Pdts	Extractive	Manuf.
Algeria	Value	3299.26	667.31	16900.72	194.79	78.63	1889.17	8509.5	973.61	29991.6
	Share	16%	3%	81%	9%	4%	87%	22%	2%	76%
Egypt	Value	932.54	707.32	12656.82	203.67	623.39	1885.06	9034.02	7125.7	36592.41
	Share	7%	5%	89%	8%	23%	70%	17%	14%	69%
Israel	Value	1703.01	699.09	20110.66	151.12	213.68	1702.91	4411.55	13786.56	46972.44
	Share	8%	3%	89%	7%	10%	82%	7%	21%	72%
Jordan	Value	384.85	90.02	3054.33	462.62	492.79	994.97	2845.17	3760.33	10266.1
	Share	11%	3%	87%	24%	25%	51%	17%	22%	61%
Lebanon	Value	558.78	1811.42	3515.53	331.27	459.66	849.36	2287.82	4307.72	9540.92
	Share	9%	31%	60%	20%	28%	52%	14%	27%	59%
Libya	Value	834.64	2191.01	5375.53	697.37	209.15	2134.65	2448.23	2671.39	12941.78
	Share	10%	26%	64%	23%	7%	70%	14%	15%	72%
Morocco	Value	1997.9	3612.94	16302.97	180.32	1025.77	1661.45	5151.34	11654.36	25516.26
	Share	9%	16%	74%	6%	36%	58%	12%	28%	60%
Occ. Pal. Terr.	Value	34.77	1.09	253.28	563.64	1556.01	792.68	664.45	1561.33	1342.9
	Share	12%	0%	88%	19%	53%	27%	19%	44%	38%
Syria	Value	458.69	1027.7	3601.31	533.73	365.95	1328.08	3013.73	2485.47	11299.31
	Share	9%	20%	71%	24%	16%	60%	18%	15%	67%
Tunisia	Value	855.66	1364.89	11891.45	110.03	2007.31	809.35	2547.67	5594.35	16496.36
	Share	6%	10%	84%	4%	69%	28%	10%	23%	67%
Turkey	Value	2072.76	4426.66	68353.76	125.05	4651.4	2782.4	8759.46	51313.93	141887.39
	Share	3%	6%	91%	2%	62%	37%	4%	25%	70%
Total Med	Value	13132.86	16599.45	162016.36	3553.61	11683.74	16830.08	49672.94	105234.75	342847.47
	Share	7%	9%	84%	11%	36%	52%	10%	21%	69%

Table 6: Intra-Med trade flows, 1995, in million current \$. Based on exporter country's reports, except for exports from Lebanon, Libya, Syria to their partners: based on partners' declarations. Source Comtrade.

from/to:	Algeria	Egypt	Israel	Jordan	Lebanon	Libya	Morocco	Syria	Tunisia	Turkey
Algeria		5.4		6.9	3.6	2	81.2	0	108.3	314.4
Egypt	31.3		176.3	30.9	43.5	52.9	15.2	56.1	27.5	82.6
Israel		31		0.5			6.9		0.3	184
Jordan	10.9	17			38.9	17	2	63.2	6.1	30.4
Lebanon	3	24.7		42.5			6.8		2.8	20
Libya	2	99.6		17			55.6		203.9	385.2
Morocco	56	4		8.5	6.5	161.5		8.1	53	47.2
Syria	31.1	11.8		78.4			42.3		45.6	258.1
Tunisia	185.5	24.5		1.6	12.4	192.4	26.8	25.2		33.7
Turkey	268.9	245.2	239.5	169.4	159.2	238.2	67.3	270.6	79.3	

Table 7: Intra-Med trade flows, 1995, in million current \$. Based on importer country's reports, except for imports by Lebanon, Libya, Syria. Source Comtrade.

from/to:	Algeria	Egypt	Israel	Jordan	Lebanon	Libya	Morocco	Syria	Tunisia	Turkey
Algeria		7.1		0	3.6	2	111.3	0	179.8	448
Egypt	58.8		45.7	46.2	43.5	52.9	37.2	56.1	30.2	210.6
Israel		23.6								166.6
Jordan	14.4	10.2	2.3		38.9	17	1.4	63.2	5.5	21.4
Lebanon	3	24.7		42.5			6.8		2.8	20
Libya	2	99.6		17			55.6		203.9	385.2
Morocco	51.5	4.2	1.6	7.4	6.5	161.5		8.1	59.7	52.5
Syria	31.1	11.8		78.4			42.3		45.6	258.1
Tunisia	142.8	12.4		0.6	12.4	192.4	32.9	25.2		46.3
Turkey	305	179.6	256.3	127	159.2	238.2	82.3	270.6	105.9	

Table 8: Intra-Med trade flows, 2008, in million current \$. Based on exporter country's reports, except for Libya, Syria. Source Comtrade.

from/to:	Algeria	Egypt	Israel	Jordan	Lebanon	Libya	Morocco	O.P.T.	Syria	Tunisia	Turkey
Algeria		606.9		7.8	17.4	51.8	712.7		28.9	859.1	2,919.70
Egypt	189.2		50.7	719.2	419.2	807.2	340.1	86.5	557.8	220.2	780.7
Israel	0.3	138.9		288.3	0.2	0.3	20.7		0.5	1.9	1,610.00
Jordan	133.1	153.8	166.3		158.2	40.9	13.1	62	246.8	28.7	33
Lebanon	29.5	127.1		119.1		11.1	16		223.6	11.7	206.9
Libya	0.7	260.7		2.2	38		89.3			1,073.70	336.3
Morocco	114	48.5		38.2	31.4	64.4		0.6	44.7	90.6	295.6
O.P.T.	0.8	1	499.4	34.1	0		0		0		0.6
Syria	30.3	306.1	0	344.5	270.9		28.1			17.4	639.2
Tunisia	408.1	128.9	0	16.3	9	871.2	234.2		10.6		309.4
Turkey	1,613.5	1,426.1	1,935.2	460.7	665	1,074	957.8	20.7	1,115	778.1	

Table 9: Intra-Med trade flows, 2008, in million current \$. Based on importer country's reports, except for Libya, Syria. Source Comtrade.

from/to:	Algeria	Egypt	Israel	Jordan	Lebanon	Libya	Morocco	O.P.T.	Syria	Tunisia	Turkey
Algeria		494.8	0.2	0.1	7.3	51.8	981.3		28.9	724.3	3,262.20
Egypt	195.6		132.3	729.9	458.1	807.2	408.9	23.5	557.8	249.6	942.8
Israel		63.9		205.7		0.3		2,767.70	0.5		1,447.90
Jordan	129.9	108	106		106.8	40.9	14.6	52.2	246.8	21.3	25.3
Lebanon	74	171.3		119.4		11.1	25.6		223.6	18.6	178.8
Libya	0.7	260.7		2.2	38		89.3			1,073.70	336.3
Morocco	86.6	38.3	3.9	32.3	43.6	64.4		0.3	44.7	89.5	360.5
O.P.T.	5.4	0.6		34.7	0		0.1		0		0.4
Syria	30.3	306.1	0	344.5	270.9		28.1			17.4	639.2
Tunisia	294.3	93.6	0	44.2	17.1	871.2	243.5	0.1	10.6		365.4
Turkey	1,345.8	1,174.8	1,825.3	437.3	698.5	1,074.3	1,079.0	68.5	1,114.8	732.3	

Table 10: Services imports composition 1995-2008 – values in million \$.

		Total										
		Transport			Travel		Other services					
		passenger	freight			Comm.	Construct.	Insurance	Financial	Computer info		
Egypt	1995	4873	1582	93	1477	1278	2013	11	....	167	41	1
			32.50%	1.90%	30.30%	26.20%	41.30%	0.20%		3.40%	0.80%	0.00%
	2008	17614.9	7321.4	474.6	6449.2	2915.3	7378.2	785.2	334.7	1583.8	71.7	78.7
			41.60%	2.70%	36.60%	16.60%	41.90%	4.50%	1.90%	9.00%	0.40%	0.40%
Israel	1995	8322.8	3653.4	506.2	1524.7	2119.5	2549.9	315.7	25.1	240.2	....	....
			43.90%	6.10%	18.30%	25.50%	30.60%	3.80%	0.30%	2.90%		
	2008	19909.4	6622.7	1006	2084.8	3439.2	9847.5	282.8	....	465.9	....	....
			33.30%	5.10%	10.50%	17.30%	49.50%	1.40%		2.30%		
Jordan	1995	1614.94	724.074	293.74	332.422	424.62	466.241	....	....	84.7604	....	....
			44.80%	18.20%	20.60%	26.30%	28.90%			5.20%		
	2008	4126.53	2240	136.383	1527.18	1003.6	882.938	....	....	339.31	....	....
			54.30%	3.30%	37.00%	24.30%	21.40%			8.20%		
Lebanon	2002	3354.2	470.92	0.02	470.8	2682	200.5	3.89	0.28	118.11	1.24	0.06
			14.00%	0.00%	14.00%	80.00%	6.00%	0.10%	0.00%	3.50%	0.00%	0.00%
	2008	13463.9	1943.36	732.631	1210.6	3564.22	7956.28	248.98	....	301.195	27.3318	0.381726
			14.40%	5.40%	9.00%	26.50%	59.10%	1.80%		2.20%	0.20%	0.00%
Libya	1995	574.681	308.027	....	298.939	76.2893	190.365	....	....	....	....	....
			53.60%		52.00%	13.30%	33.10%					
	2008	4344.2	1485	62.1	1397.3	1277.3	1581.9	36.4	530.9	242.1	....	....
			34.20%	1.40%	32.20%	29.40%	36.40%	0.80%	12.20%	5.60%		

		Total										
		Transport			Travel		Other services					
		passenger	freight			Comm.	Construct.	Insurance	Financial	Computer info		
Morocco	1995	1889.76	649.865	54.214	595.651	302.216	937.679	13.8169	....	47.5397	....	....
			34.40%	2.90%	31.50%	16.00%	49.60%	0.70%		2.50%		
	2008	6694.29	2646.59	820.083	1826.51	1090.35	2957.35	91.8645	5.65033	134.885	30.7987	35.2528
			39.50%	12.30%	27.30%	16.30%	44.20%	1.40%	0.10%	2.00%	0.50%	0.50%
Syria	1995	1537	777	....	777	498	262	....	....	....	....	....
			50.60%		50.60%	32.40%	17.00%					
	2008	3012.56	1689.07	65	1502.07	645.485	678	25	....	212	60	110
			56.10%	2.20%	49.90%	21.40%	22.50%	0.80%		7.00%	2.00%	3.70%
Tunisia	1995	1352.37	563.574	43.3518	363.732	250.595	538.197	7.40153	174.465	61.327	19.0325	2.11472
			41.70%	3.20%	26.90%	18.50%	39.80%	0.50%	12.90%	4.50%	1.40%	0.20%
	2008	3370.07	1865.53	97.1479	1214.8	458.308	1046.23	32.8696	329.264	191.78	72.8001	20.4522
			55.40%	2.90%	36.00%	13.60%	31.00%	1.00%	9.80%	5.70%	2.20%	0.60%
Turkey	1995	5024	1412	....	1106	911	2701	....	4	42	350	....
			28.10%		22.00%	18.10%	53.80%		0.10%	0.80%	7.00%	
	2008	17875	7927	621	6093	3506	6442	298	172	1436	978	32
		44.30%	3.50%	34.10%	19.60%	36.00%	1.70%	1.00%	8.00%	5.50%		0.20%

Source: IMF Balance of Payment data. Syria: 1995-2007, Lebanon 2002-2008.

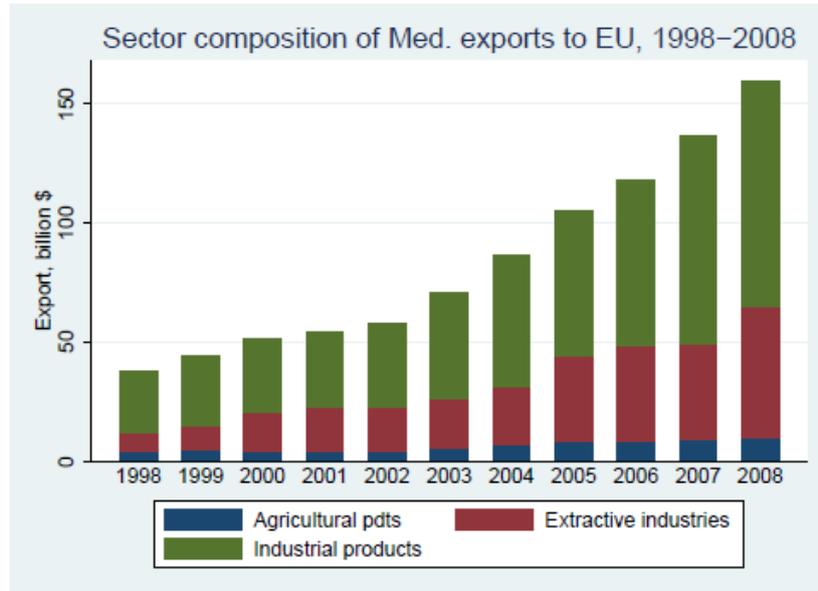
Table 11: Services exports composition 1995-2008 – values in million \$.

		Total										
		Transport			Travel			Other services				
		passenger		freight	Comm.		Construct.	Insurance	Financial	Computer info		
Egypt	1995	8590	3202	270	752	2684	2704	215	1	12	71	1
			37.30%	3.10%	8.80%	31.20%	31.50%	2.50%	0.00%	0.10%	0.80%	0.00%
	2008	24911.9	8160	1118.9	915.1	10984.9	5767	1610.7	1345.1	216.3	269	218.8
			32.80%	4.50%	3.70%	44.10%	23.10%	6.50%	5.40%	0.90%	1.10%	0.90%
Israel	1995	7952.6	2012.4	497.8	1208.9	2992.5	2947.7	427.6	41.4	17.5	....	....
			25.30%	6.30%	15.20%	37.60%	37.10%	5.40%	0.50%	0.20%		
	2008	24084	5167.5	751	3763.8	4056.4	14860.1	275	818.7	23.5	....	6851.5
			21.50%	3.10%	15.60%	16.80%	61.70%	1.10%	3.40%	0.10%		28.40%
Jordan	1995	1709.17	418.77	313.03	1.44	660.22	630.19	....	....	....	....	....
			24.50%	18.30%	0.10%	38.60%	36.90%					
	2008	4415.88	835.67	595.57	41.71	2942.56	637.66	....	....	....	....	....
			18.90%	13.50%	0.90%	66.60%	14.40%					
Lebanon	2002	4429.31	0.21	0.01	...	4283.64	145.46	59.8	...	65.22	...	0.01
			0.00%	0.00%		96.70%	3.30%	1.40%		1.50%		0.00%
	2008	18746.2	498.7	498.29	....	6991.37	11256.2	329.43	....	266.35	99.57	....
			2.70%	2.70%		37.30%	60.00%	1.80%		1.40%	0.50%	
Libya	1995	30.61	12.44	1.67	....	2.39	15.78	....	....	....	....	....
			40.60%	5.50%		7.80%	51.60%					

	2008	207.7	117.8	25.2	92.6	74.2	15.7	11.1	....	4.6	....	....
			56.70%	12.10%	44.60%	35.70%	7.60%	5.30%		2.20%		
Morocco	1995	2173.36	410.06	173.41	236.65	1296.33	466.97	54.45	....	27.4	....	....
			18.90%	8.00%	10.90%	59.60%	21.50%	2.50%		1.30%		
	2008	13416.4	2500.11	1664.38	835.73	7220.91	3695.41	640.51	61.12	112.29	40.22	155.6
			18.60%	12.40%	6.20%	53.80%	27.50%	4.80%	0.50%	0.80%	0.30%	1.20%
Syria	1995	1899	237	....	237	1258	404	....	....	....	....	....
			12.50%		12.50%	66.20%	21.30%					
	2007	3861.65	225.75	88	38	2883.5	752.4	117.4	....	40	62	55
			5.80%	2.30%	1.00%	74.70%	19.50%	3.00%		1.00%	1.60%	1.40%
Tunisia	1995	2509.12	598.47	307.69	75.07	1530	380.65	26.43	10.57	15.86	21.15	2.11
			23.90%	12.30%	3.00%	61.00%	15.20%	1.10%	0.40%	0.60%	0.80%	0.10%
	2008	6013.59	1895.24	956.06	659.83	2953.48	1164.88	108.75	297.45	42.45	86.03	35.39
			31.50%	15.90%	11.00%	49.10%	19.40%	1.80%	4.90%	0.70%	1.40%	0.60%
Turkey	1995	14606	1712	....	1426	4957	7937	....	1863	20	201	....
			11.70%		9.80%	33.90%	54.30%		12.80%	0.10%	1.40%	
	2008	34996	7793	3080	2938	21951	5252	725	1146	752	841	13
			22.30%	8.80%	8.40%	62.70%	15.00%	2.10%	3.30%	2.10%	2.40%	0.00%

Source: IMF Balance of Payment data. Syria: 2007, Lebanon 2002-2008.

**Fig. 1: Sector composition of Med. countries' exports to EU, 1998-2008
(Lybia not included)**



**Fig. 2: Sector composition of Med. countries' imports from EU, 1998-2008
(Lybia not included)**

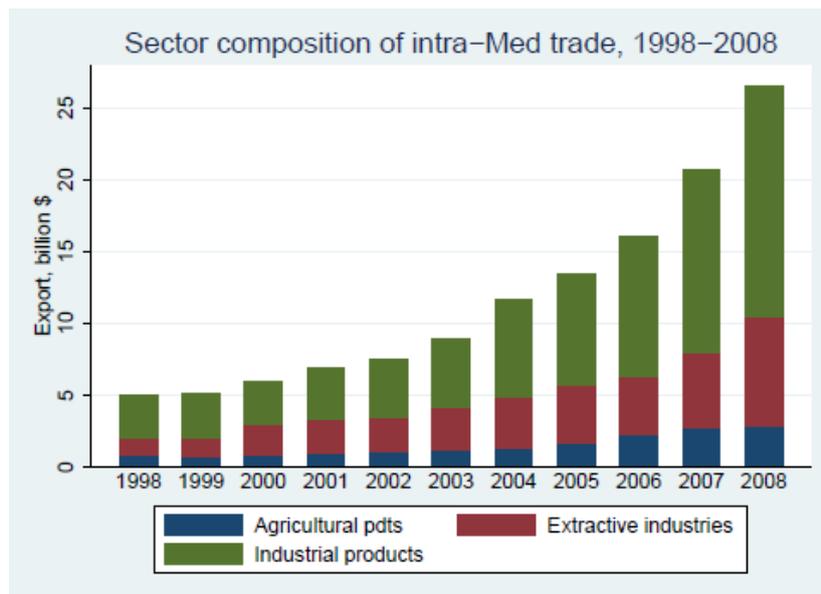


Fig. 3: Sector composition of intra-Med trade, 1998-2008 (Lybia not included)

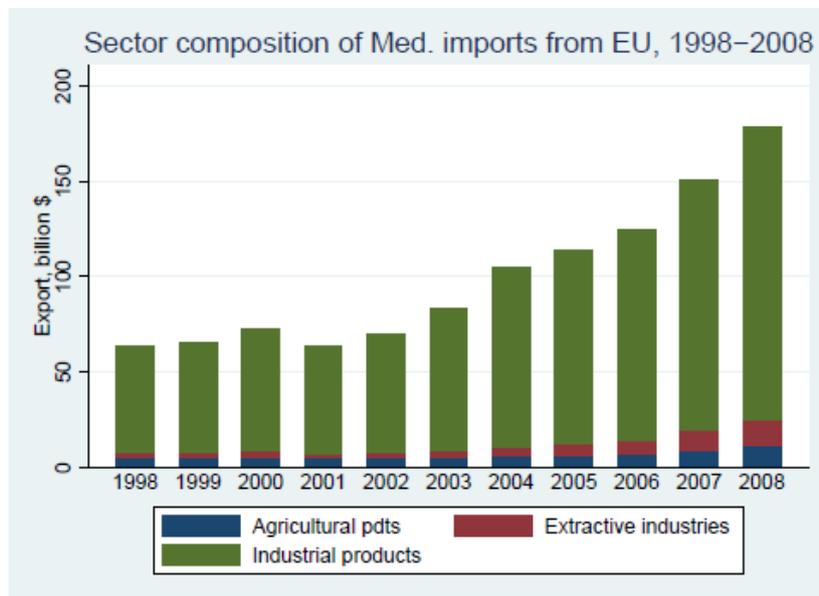
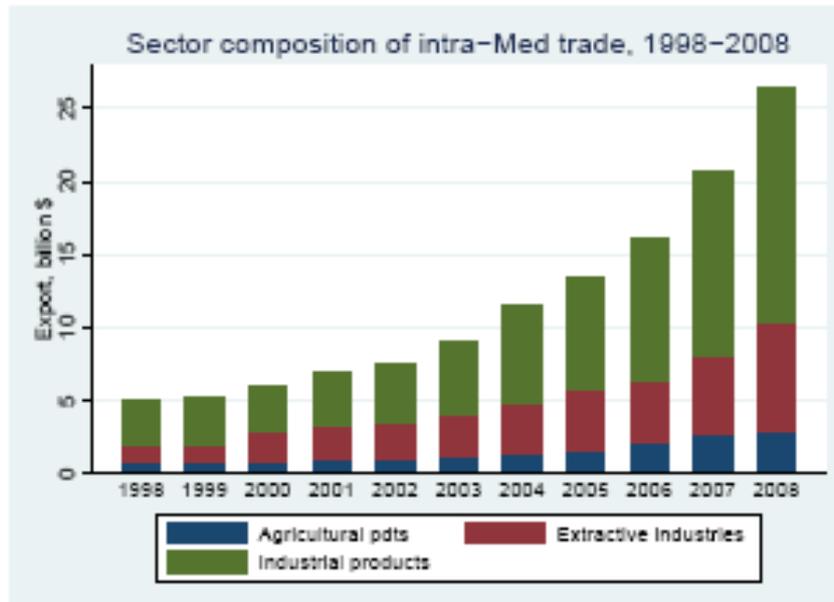


Table 12: Current transfers and remittances received, 1995/2008 – million \$.

		Current transfers	Ratio to GDP	Workers' remittances	Ratio to GDP
Egypt	1995	4284	7.10%	3226	5.40%
	2008	10072	6.30%	8694	5.50%
Israel	1995	5940.4	6.20%	....
	2008	9424.4	4.70%	....
Jordan	1995	1591.75	23.70%	1243.99	18.50%
	2008	4163.18	21.70%	3159.16	16.50%
Lebanon	2008	6069.56	21.90%	5775.1	20.80%
Libya	1995	4.07	0.00%	....
	2008	45.2	0.10%	....
Morocco	1995	2408.36	7.30%	1969.5	6.00%
	2008	8979.51	10.70%	6894.29	8.20%
Syria	1995	610	5.40%	....
	2008	1040	2.00%	1000	1.90%
Tunisia	1995	804.65	4.50%	679.88	3.80%
	2008	1947.99	4.80%	1725.13	4.30%
Turkey	1995	4414	1.90%	3327	1.50%
	2008	2791	0.40%	1431	0.20%

Table 13: Direct investment positions in the country, 2000-2008, million current \$

		2000	2001	2002	2003	2004	2005	2006	2007	2008
Egypt	inward stock	....	....	....	....	23506.3	28881.9	38924.7	50502.8	59997.4
	ratio over GDP					29.80%	32.20%	36.20%	39.40%	37.60%
Israel		22555.7	23165.6	22744.9	28620.6	31396.3	37826	53954.5	62891	64329.5
		18.20%	19.00%	20.30%	24.30%	25.00%	28.40%	37.50%	38.40%	31.90%
Jordan		3135.13	3428.22	3964.04	5004.24	8315.67	13228.8	12713.1	16058.4	....
		37.00%	38.20%	41.40%	49.10%	72.90%	104.90%	90.20%	101.40%	
Morocco		....	....	12130.2	17106.1	19883.1	20751.5	29938.7	38613.3	39388.3
				30.00%	34.30%	35.30%	35.20%	45.80%	52.70%	46.70%
Turkey		19209	19677	18789	33537	38523	71293	95078	153978	70001
		7.20%	10.00%	8.10%	11.10%	9.80%	14.80%	17.90%	23.40%	9.50%

	2000	2001	2002	2003	2004	2005	2006	2007	2008
Tunisia	11544.8	11519.6	13860.7	16238.5	18050.4	16839.7	21831.7	26193.4	29083.4
	59.40%	57.60%	65.90%	65.00%	64.20%	58.10%	70.50%	74.80%	72.30%
Algeria	3497.2	4610.3	5675.3	6309.1	7191	8272.3	10190,27	11851,87	14497,87
	6.40%	8.40%	9.90%	9.30%	8.50%	8.10%	8,8%	8,8%	9,1%

Table 14: Direct investment positions abroad, 2000-2008, million current \$

	2000	2001	2002	2003	2004	2005	2006	2007	2008
Egypt stock, abroad	....	....	....	....	875.3	967.3	1115.7	1780.5	3700.7
ratio over GDP					1.10%	1.10%	1.00%	1.40%	2.30%
Israel	9091.1	9249	10318.6	13096.6	18493.2	23083	39322	49833.4	54382
	7.40%	7.60%	9.20%	11.10%	14.70%	17.30%	27.30%	30.40%	27.00%
Jordan	44.29	70.1	83.92	80.25	286.6	449.65	311.57	359.66	....
	0.50%	0.80%	0.90%	0.80%	2.50%	3.60%	2.20%	2.30%	
Morocco	....	....	453.27	560.24	675.51	665.63	1053.64	1337.14	1813.84
			1.10%	1.10%	1.20%	1.10%	1.60%	1.80%	2.20%
Turkey	3668	4581	5847	6138	7060	8315	8866	12210	13865
	1.40%	2.30%	2.50%	2.00%	1.80%	1.70%	1.70%	1.90%	1.90%
Tunisia	32.48	31.94	36.58	42.79	46.86	52.37	88.58	117.15	154.52
	0.20%	0.20%	0.20%	0.20%	0.20%	0.20%	0.30%	0.30%	0.40%
Algeria	249	258	357.8	372	629.9	652.4	721,4	1016,84	1334,74
	0.50%	0.50%	0.60%	0.50%	0.70%	0.60%	0,6%	0,8%	0,8%

Source: IMF Balance of payment data, except Algeria: UNCTAD. GDP values from CHELEM database

APPENDIX B: TRADE AGREEMENTS IN THE EURO-MEDITERRANEAN REGION

	Coverage	Type of agreement	Date of signature	Date of notification	Date of entry into force	WTO legal cover	Statut	agenda	notes	Member countries
South-South RTAs										
Pan-Arab Free Trade Area (PAFTA)	Goods	FTA	19-Feb. 1997	03-oct.-2006	01-janv.-1998	Article XXIV du GATT	In Force	Gradual reduction of tariffs over 7 years. ⁵⁵	Algeria signed in 2002, joined (implemented) in 2008; Palestine exempted from reduction. ⁵⁶	Algeria; Egypt; Jordan; Lebanon; Libya; Morocco; Palestinian Authority; Syria, Tunisia. ⁵⁷
Agadir agreement	Goods	FTA	Feb 2004	not notified	March 2007		In Force	3/4 year transition period.	Rules of origin in accordance with EU protocol on RoO	Egypt, Jordan, Morocco, Tunisia
Arab Maghreb Union (AMU)	Goods		17-Feb. 1989 (traité)	not notified			In negotiation			Algeria Lybia Mauritania Morocco Tunisia
Protocol OCI (PRETAS) ⁵⁸	Goods	PTA		not notified	05-fev-2010		In Force			Algeria; Jordan; Lebanon; Lybia ⁵⁹

⁵⁵ Full tariff elimination achieved by jan 2005.

⁵⁶ Temporary exceptions allowed during transition period + few permanent exceptions allowed for e.g. sanitary motives.

⁵⁷ +Bahrain; Iraq; Kuwait; Oman; Qatar; Sudan*; United Arab Emirates; Yemen (* expected to join).

⁵⁸ Islamic conference organization. To date, among med countries only Jordan, Syria and Turkey have signed and ratified the protocol.

⁵⁹ Egypt; Morocco; Palestinian authority; Syria; Tunisia; Turkey + 47 members

	Coverage	Type of agreement	Date of signature	Date of notification	Date of entry into force	WTO legal cover	Statut	agenda	notes	Member countries	
Agreements EC-Med countries (Association agreements)											
EC-Syria	Goods	Cooperation agreement. ⁶⁰	18-Jan-77	15-Jul-77	1-Jul-77	GATT Art. XXIV	In Force				
EC-Turkey		Customs Union	6-Mar-95	22-Dec-1995	1-Jan-96		In Force	Full tariff elimination by 1/1/1996. ⁶¹			
EC-Palestinian Authority		FTA	24-Feb-1997	29-May-1997	01-July-1997		In Force	Five years (with exceptions)	Euro-Med Association agreements: gradual dismantling of tariffs on goods over 12 or 15-year periods. ⁶²		
EC-Tunisia		FTA	7-Jul-95	15-janv.-1999	1-Mar-98		In Force	Transition period 12 years			
EC-Morocco		FTA	26-Feb-1996	13-oct.-2000	1-Mar-00		In Force	Transition period 12 years			
EC-Israel		FTA	20-Nov-95	20-Sep-00	1-Jun-00		In Force				
EC-Jordan		FTA	24-Nov-97	17-déc.-2002	1-May-02		In Force	Transition period 12 years			
EC-Lebanon		FTA	17-Jun-02	26-May-2003	1-Mar-03		In Force				
EC-Egypt		FTA	25-Jun-01	3-Sep-04	1-Jun-04		In Force	15 years.			
EC-Algeria		FTA	2002	22-Apr-02	1-Sep-05		In Force	15 years			
Bilateral agreements Med-Med countries:											
Turkey-Israel	Goods	FTA	14-Mar-96	16-April-1998	01-May-1997	GATT Art. XXIV	In Force				
Turkey-Palestinian Authority	Goods	FTA	20-Jul-04	01-sept.-2005	1-Jun-05	GATT Art. XXIV	In Force				
Turkey-Tunisia	Goods	FTA	25-Nov-04	1-Sep-05	1-Jul-05	GATT Art. XXIV	In Force				

⁶⁰ Text of the AA agreed in 2004 but still pending formal approval (decision by the EU Council). Will supersede the EU-Syria Cooperation Agreement of 1977 when it comes into force.

⁶¹ Five years (to 2001) for alignment to the Common Trade Policy.

⁶² Agricultural products and agro-food sectors are subject to special protocols with exceptions. All AAs also include provisions for financial aid for adjustment from EU.

	Coverage	Type of agreement	Date of signature	Date of notification	Date of entry into force	WTO legal cover	Statut	agenda	notes	Member countries
Turkey-Morocco	Goods	FTA	07-April-2004	10-févr.-2006	01-janv.-2006	GATT Art. XXIV	In Force			
Turkey-Syria	Goods	FTA	23-Dec-2004	15-févr.-2007	01-janv.-2007	GATT Art. XXIV	In Force			
Turkey-Egypt	Goods	FTA	27-Dec-2005	05-Oct.-2007	1-Mar-07	Enabling clause	In Force			
<i>Bilateral agreements Med-third countries</i>										
US-Israel	Goods	FTA	22-Apr-1985	13-Sep-85	19-Aug-1985	GATT Art. XXIV				
US-Jordan	Goods & Services	FTA & EIA	24-Oct-00	15-Jan-02	17-Dec-2001	GATT Art. XXIV & GATS V	In Force			
US-Morocco	Goods and Services	FTA & EIA	15-June-2004	30-déc.-2005	01-janv.-2006	GATT Art. XXIV & GATS V	In Force	Transition period 18 years for US tariffs, 24 years for Moroccan tariffs	Gradual tariff elimination on goods with exceptions. ⁶³	
Israel-Canada	Goods	FTA	31-Jul-96	15-Jan-97	1-Jan-97	GATT Art. XXIV	In force			
Israel-Mexico	Goods	FTA	10-April-2000	22-Feb-2001	1-Jul-00	GATT Art. XXIV	In force			
Jordan-Singapore	Goods & Services	FTA & EIA	16-May-2004	7-Jul-06	22-Aug-2005	GATT Art. XXIV & GATS V	In Force			
Jordan-Canada							Early announcement - signed			

⁶³ Gradual elimination of tariffs in agriculture over 18-year period (with exceptions). Provisions for liberalization of trade in services and investment.

	Coverage	Type of agreement	Date of signature	Date of notification	Date of entry into force	WTO legal cover	Statut	agenda	notes	Member countries
EFTA-Turkey	Goods	FTA	10-Dec-1991	6-Mar-92	01-avr.-1992	GATT Art. XXIV	In Force			
EFTA-Israel			17-Sep-92	30-Nov-92	1-Jan-93					
EFTA-Palestinian Authority			30-Nov-98	23-Jul-99	1-Jul-99					
EFTA-Morocco			19-June-1997	20-janv.-2000	01-déc.-1999					
EFTA-Jordan			21-June-2001	17-janv.-2002	01-janv.-2002					
EFTA-Tunisia			17-Dec-2004	3-Jun-05	1-Jun-05					
EFTA-Lebanon			24-June-2004	22-Dec-2006	1-Jan-07					
EFTA-Egypt			27-Jul-07	17-juil.-2007	1-Aug-07					
Turkey-Former Rep of Macedonia	Goods	FTA	7-Sep-99	05-janv.-2001	01-sept.-2000	GATT Art. XXIV	In Force			
Turquie - Bosnie-Herzégovine			3-Jul-02	29-Aug-03	01-juil.-2003					
Turkey-Croatia			13-Mar-02	02-sept.-2003	01-juil.-2003					
Turkey-Albania			22-Dec-2006	9-May-08	1-May-08					
Turkey-Georgia			21-Nov-07	18-févr.-2009	01-nov.-2008					
Turkey-Montenegro	26-Nov-08	12-Mar-10	1-Mar-10							
COMESA (common market for eastern and southern Africa)	Goods	FTA	5-Nov-93	4-May-95	08-déc.-1994	Enabling clause	in force			Egypt; Lybia ⁶⁴

⁶⁴ Burundi; Comoros; Djibouti; DR Congo; **Egypt**; Eritrea; Ethiopia; Kenya; **Lybia**; Madagascar; Malawi; Mauritius; Rwanda; Seychelles; Sudan; Swaziland; Uganda; Zambia; Zimbabwe.

APPENDIX C: Results of CGE studies of integration in the EuroMed region: Summary

	Countries included	Data, calibration and Model	Modelling hypotheses	Scenarios for simulations	Effects			
					Trade	GDP	Welfare	Sector effects
Intra-Med studies								
Bchir et al. (2007)	Tunisia, Morocco, +Rest of ME, Rest of NA, Rest of World (RoW).	GTAP 2001 (SAM), MacMaps 2001 (tariffs) Mirage model	CRS and perfect competition in agriculture sectors.	Maghreb FTA; Custom Union; Common Market.	Trade Balance: Tunisia +116 m\$, Morocco + 15 m\$ (2015)	Tunisia +2.5% Morocco +0.4% (2015)	Tunisia: +271 m\$ EV Morocco: +32 m\$ EV (FTA, 2015)	Tunisia: specialization in agro-food, chemicals. Morocco: specialization in agriculture, textile.
Dennis Allen (2006)	Tunisia, Morocco, +Rest of ME, Rest of NA, EU, RoW.	GTAP 2001 (SAM), MacMaps 2001 (tariffs) GTAP model	Perfect competition, CRS in all sectors.	1. GAFTA (full tariff removal) 2. GAFTA + MENA-EU liberalization; 3. 1+Trade facilitation. 4. 3+Trade facil.	Exports: Tunisia +14.5%, Morocco +1.8%	Tunisia +0.21% Morocco +0.03%	Tunisia: +0.53% Morocco: +0.05% (GAFTA)	
Bouët (2005)	Tunisia, Morocco, Turkey +Rest of Med region, EU, RoW.	GTAP 5, MacMaps 2001, Mirage	Perfect and imperfect competition (sectors not specified)	1. Intra-Med FTA. 2. EU-Med FTA.	Exports: Turkey +13.2%, Morocco +2.88%, Tunisia +13.12%	Turkey +1.79% Tunisia +0.99% Morocco -0.19%	Turkey +3.8% Tunisia +1.8% Morocco -0.33% (intraMed FTA, 15-year)	Turkey: Textiles, cereals Tunisia: Textile, milk, Vehicles.
Studies of EU-Med integration								
Augier and Gasiorek (2003)	Egypt, morocco, Tunisia, Turkey, Israel, Jordan+Syria, EU, RoW.	Own model. Unido 1995, Trains + country data sources.	Imperfect competition (manufacturing sectors).	1. EuroMed FTAs (100% tariff reduction). 2. 1+ trade-induced technical change. 3. MFN reductions.	Terms of trade welfare change (end of period): Tunisia -1.11% Morocco -0.96% Turkey -0.02% Israel +0.06% Egypt -0.48% Jordan-Syria -0.17%	Changes in manufacturing production : Tunisia -68.17%, Morocco -60.9%, Turkey -3.46%, Israel +2.43%, Egypt -53.3%, Jordan-Syria -14.35%	Tunisia: +8.9% (EV relative to base GDP) Morocco +5.4% Turkey +0.02% Israel +0.18% Egypt +1.39% Jordan -Syria -0.16%	

	Countries included	Data, calibration and Model	Modelling hypotheses	Scenarios for simulations	Effects			
					Trade	GDP	Welfare	Sector effects
Elbehri and Hertel (2004)	Morocco, EU, RoW.	GTAP 6, Morocco manufacturing census (markups), 1996 tariff databases, GTAP model	Imperfect competition in industry; CRS in agriculture and services. Real wage rigidity.	EU-Morocco FTA, with/without firm entry	Terms of trade change welfare effect (Morocco): -660m\$		Morocco -190 m\$ (EV, no entry scenario)	Sector output change (Morocco): Light manufacturing +10.4%, Wearing apparel + 7.7%, Motor vehicles -39%, wood pdts -23%
Feraboli (2004)	Jordan, EU, RoW.	2002 Jordan SAM + IO table. Dynamic model based on Devarajan and Go (1998).	CRS and perfect competition in all sectors	Jordan-EU FTA		GDP growth +0.04%	Jordan: +0.057% in inter-temporal utility	
Gaitan Lucke (2007)	Syria, EU, RoW.	Dynamic model based on Devarajan and Go (1998). Syrian SAM (2004); NTB estimates from Chemingui and Dessus (2008).	Constraint on foreign borrowing; non-competitive financial sector.	1. EU-Syria liberalization (tariffs). 2. Tariff + NTB reduction. 3. WTO accession. 4. MFN liberalization.		Syria +13.7%	Syria +0.33% (tariff +NTB reduction scenario, after 25 years)	Syria: Metals, Chemicals, wood products (sectors with highest increase in output)
Hoekman and Konan (2001)	Egypt, EU, RoW.	1994 Egypt production and trade data; authors' estimates of NTBs.	Perfect competition.	1. EU-Egypt AA. 2. 1+NTB removal + increased competition in domestic services sectors	Export to EU volume +4.5% (change relative to initial levels) Imports to EU volume +31.3% Trade creation welfare effect +0.12%		Egypt: +4.1% of GDP (EV relative to initial level)	

	Countries included	Data, calibration and Model	Modelling hypotheses	Scenarios for simulations	Effects			
					Trade	GDP	Welfare	Sector effects
Philippidis Sanjuan (2006)	Morocco, EU, USA, RoW.	GTAP 6 (2001) model and data.	Imperfect competition in manufacturing sectors.	1. EU-Morocco, USA-Morocco FTAs + agriculture and food processing bilateral EU-Morocco tariff removal. 2: 1+ NTB removal in agro-food sectors. 3. Removal of all tariff and NTB trade costs.	Morocco Trade balance: -2.2% (scenario 1, compared to baseline)	Real per capita GDP increase: +3.3% (sc. 2), +12.2% (sc. 3).	Morocco: +0.14% EV (scenario 1 relative to baseline). +3.3% (scenario 2). +12.3% (scenario 3).	Morocco: Agriculture: -210m\$ in trade balance (scenario 1 relative to baseline). Crops: -247m\$. Food products: +387m\$. Meat +155m\$.
Konan and Maskus (2005)	Tunisia, EU, Rest of MENA, RoW.	Own model; Tunisia Input-Output table and SAM. Data for services barriers from various sources.	Imperfect competition in services sectors. Regulation creating markups in domestic services sectors + cost inefficiencies. Perfect competition in goods sectors.	1. Investment barriers liberalization. 2. Removal of border barriers in services trade. 3. Full services liberalization. 4. Goods trade liberalization.			Tunisia: +1.22% EV relative to baseline (scenario 1). +4% (scenario 2). +5.3% (sc. 3). +1.52% (sc. 4).	Services sectors share of GDP: +0.6% (sc. 1), +2.6% (sc. 2), +2.9% (sc. 3), -4% (sc. 4).
BenHammouda et al. (2007)	Tunisia, Morocco, Egypt, EU, RoW.	GTAP 6 (2001), MacMap Tariff data (2001) (with different aggregation methods); Mirage Model.	CRS and perfect competition in agriculture sectors.	1 (baseline) implementation of Tunisia, Morocco and Egypt-Eu FTAs. 2. 1+removal of export subsidies. 3. 1+ 50% reduction in EU domestic support. 4; tariff reduction in agro and food processing sectors.	Tunisia: exports real variation +8.06 (sc. 1, relative to initial level), +7.91 (sc. 2), +8.07 (sc. 3), +8.36(sc. 4). Morocco: +31.48, +30.08, +31.4%, +32.4%.	Tunisia: -0.08% (sc. 1, relative to initial level), -0.46% (sc. 2), -0.16 (sc. 3), +0.16 (sc. 4). Morocco: +1.49%, +1.01%, +1.4%, +1.95%.	Tunisia: -1.11% (sc. 1, EV relative to initial level), -1.32% (sc. 2), -1.17% (sc. 3), -0.97% (sc. 4). Morocco: -0.44%, -0.74%, -0.46%, -0.21%.	

APPENDIX D: SUMMARY OF RESULTS FROM GRAVITY MODEL STUDIES OF INTEGRATION IN THE EUROMED REGION

	Countries included	Period covered	Estimation method	Control variables	Trade agreements modelling	Results
Intra-Med studies						
Ex-ante studies						
Al-Atrash and Yousef (2000)	18 arab countries + 43 others	1995-97 (averages)	Tobit estimation, cross-section	Per capita GDPs - indicator of trade openness	Dummy variables	Intra-arab trade potential 15%. Note: Trade deficit higher for Maghreb , lower for Mashreq countries.
Nugent Miniesi Yousef (2004)	All (Feenstra 1997 trade data)	1970-1992	OLS, one-year cross-sections + pooled	Common colonizer, share currency, bilateral X rate volatility	Dummy variables	+47-122% of intra-MENA trade if MENA full FTA
Péridy (2005)	Agadir members, + Algeria, + 42 partners.	1975-2001	Panel, fixed-effects estimator; random-effects Hausman-Taylor; dynamic Arellano-Bond.	Borders, index of trade complementarity (bilateral); lagged exports (dynamic specification).	Dummy variables	Intra-MENA border effects: 5.7 (3.3 average over countries). Actual/Potential intra-Agadir trade ratios between .8 and 1.2.

Ex-Post studies.						
Abediny and Péridy (2006)	21 GAFTA members + 35 other countries	1988-2005	Panel, fixed-effects estimator; random-effects Hausman-Taylor; dynamic Arellano-Bond.	Bilateral information connectivity (proxy); quality of law (World Bank database); openness to trade index (Economic freedom network database).	Dummy variables	16-24% increase of trade flows following GAFTA implementation
CASE/CEPS 2009 report (part 4)	100 countries (including EU, GAFTA and Agadir members)	1970-2008	Panel fixed-effects estimator.	Controls for many FTAs involving third countries.	3 sets of dummies: both countries FTA members; export from member to non-member; and import of member from non-member.	GAFTA: +76% trade among members (average). Agadir: no significant impact.
EU-Med associations agreements						
Hagemejer and Ciselik (2009)	7 MENA countries (Libya, Syria, PT Lebanon excluded) + 196 partner countries.	1980-2004	Panel fixed-effects (country + country-pair).	Per capita GDPs; regional and bilateral trade agreements.	Dummy variables.	+24-34% on imports from EU; -17-19% on exports.
Bensassi et al. (2009)	7 Mena countries + 4 EU countries (France, Germany, Italy, Spain)	1995-2007	Random effects estimator (sector-level). Decomposition of trade flows into intensive+extensive margins.	Import value of machinery from EU, rest of World.	Dummy variables for FTA + dummy variables for changes in rules of origin (diagonal cumulation+Pan-EUMed system).	+8% on exports to EU.
Ruiz and Villarubia (2007)	102 countries	1976-2005	Country-year fixed effects.	Country-year fixed-effects (controlling for all country-year variables)	3 sets of dummies: both countries FTA members; member to non-member; non-member to-member.	No significant impact of EU-Med agreements on trade flows.

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