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Economic Integration and the two margins of trade: An application to the Euro-Mediterranean agreements

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Abstract

According to trade theory, preferential trade agreements increase international trade through a reduction in artificial trade barriers. In recently developed models with imperfect competition and heterogeneous firms, lower trade costs increase bilateral trade through an increase of the number of exporting firms (the extensive margin of trade) and a rise in the mean value of individual shipments (the intensive margin of trade). In these models, the influence of trade costs on bilateral trade results from a combination of three parameters, which affect both margins: the distance elasticity of transportation costs, the price elasticity and the degree of firm heterogeneity. In this paper, a decomposition of a structural gravity equation derived from Chaney's (2008) model is presented. Using highly disaggregated export data for seven countries (Algeria, Egypt, Jordan, Lebanon, Morocco, Syria and Tunisia) between 1995 and 2008, we estimate the impact of the recently signed trade agreements with the EU on both trade margins and we provide empirical evidence of the validity of the theoretical predictions.

KEYWORDS: Euro-Mediterranean agreements, Trade Integration, intensive and extensive margins.

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1. INTRODUCTION

In 1995 the European Union (EU) and fourteen countries of the Mediterranean basin decided to commit to a deeper economic integration by signing "new generation" integration agreements. This commitment was named the Barcelona Process. Fourteen years later, two of the fourteen countries have already joined the EU (Malta and Cyprus), two are candidates to join the EU (Croatia and Turkey), and a new country, Libya, has joined the process in 2000. Table 1 shows a summary of the trade integration process between the EU and the Euro-Mediterranean countries:

TABLE 1 – Evolution of trade integration in the Euro-Mediterranean region

Country	PTA Med to EU	Commitment to the Barcelona Process	Enforcement of the new Cooperation Agreement	PTA EU to Med
Algeria	1978	1995	2005	2017
Egypt	1978	1995	2004	2016
Israel	-	1995	2000	2012
Jordan	1978	1995	2002	2014
Lebanon	1978	1995	2006	2018
Libya	1978	2000	no	no
Mauritania	1978	1995	no	no
Morocco	1978	1995	2000	2012
PalestinianTerritories	-	1995*	1997*	2001*
Syria	1978	1995	no	no
Tunisia	1978	1995	1998	2008

*The agreement with the Palestinian Authority is a transitory agreement which due to the political situation has not been applied.

The first cooperation agreement including a preferential trade agreement (PTA) between the EU and the Middle East and North Africa (MENA) countries dates from the end of the 70's. The PTA signed was asymmetric since the EU removed the taxes charged on the industrial products originated from the signing countries, however, the signing

countries maintained trade barriers in order to protect their developing industries and to keep revenues from custom duties.

Although trade relations between Mauritania, Libya and Syria and the EU are still today regulated by the agreements signed 30 years ago, other MENA countries have chosen to sign new agreements. These agreements add two main innovations. Firstly, the agreements also open the MENA markets to the EU's products. The signing countries have to relax all the taxes paid on the industrial products originated from the Union in a period of twelve years, the planning for each type of product being precisely stipulated in the agreement. Secondly, rules of origin for the signing countries have been modified. In the precedent agreements these rules were particularly narrow (Hoekman, 1998, Francois et al., 2005) since only products made quite entirely in the signing country or incorporating spare parts from the EU could easily enter free of duty in the EU.

The question of the potential effect of the new series of bilateral Euro-Mediterranean free trade agreements on trade has been particularly controversial. A number of authors (Deardorff et al, 1996; Deardorff, 1999; Hoekman and Konan, 1999, 2005) have underlined that the outcome of these agreements could be negative for the MENA countries in terms of trade, growth and revenue in a short horizon. Their views are based on the lost revenue from import duties that the MENA countries will suffer following the agreement and from the diversion of consumption induced by the inflow of European products.

In the positive side, it can be argued that in a word of global production networks, a country facing less tight rules of origin could see its export capacity increased. Indeed, the new FTAs give the MENA countries the opportunity to increase their exports to the

EU by deploying a Mediterranean production network. They also force industries that were overprotected to become more productive in order to be able to compete with European producers in their home market. Hence, these agreements should contribute to modify the composition of trade between the two shores of the Mediterranean Sea.

This paper aims to provide empirical evidence of the effects of the current Euro-Mediterranean agreements on trade, particularly the effect of the adoption of new rules of origin. In order to do so, the effect of Euro-Mediterranean trade integration is considered by analyzing the effects on both, intensive and extensive margins (Chaney, 2008). We use data on the exports of the MENA countries[1] to the four biggest continental European Countries, Germany, France, Italy and Spain.

This paper is organized as follows. Section 2 presents the theoretical framework and the empirical model. Section 3 presents data and the methodology used. Section 4 presents the main results. Finally, the last section concludes.

[1] We have excluded from our work Israel, the Palestinian Authority, Libya and Mauritania. Israel is excluede due to the differences between this economy compared to the other MENA countries, and the Palestinian Authority, Libya and Mauritania due to lack of data.

2. THE EURO-MED AGREEMENTS

To understand the impact of the Euro-Med process on exports from the Mediterranean countries to the EU, we have to focus first on the evolution over time of the signed agreements. We differentiate between the direct effects resulting from an increase of the EU openness to the Mediterranean products inherent to the process and the indirect effects that could result from an increase in openness of the Mediterranean countries to European products.

Concerning direct effects, as we have already mentioned, industrial products originating from the Mediterranean countries were authorized to enter free of custom duties into the European Union since 1978. Only marginal changes have occurred since then (some provisions concerning the United Kingdom and Ireland in 1978 have for example disappeared). It is mainly in agricultural products that the EU opens its frontiers within the framework of the Barcelona Process. In this paper we focus instead on the effects of changes in the rules of origin adopted as a consequence of the new agreements. The determination of the geographic origin of the products is crucial and could hinder all attempts of real integration. In this sense, the rules of origin (RoO) adopted with the Barcelona process have changed in comparison to the previously existent after 1978. According to these, if a product is wholly obtained or produced completely within one country the product shall be deemed having origin in that country. For a product which has been produced in more than one country the product shall be determined to have origin in the country where the last substantial transformation took place. The EU's most commonly used rule is that a substantial transformation takes place when there is change in the product tariff classification line. An alternative criterion is that the value of the intermediate good originated from outside the FTA has to stay under a certain percentage (often between 40 and 50%) of the value of the final good, or a particular

production process is used to transform the product. The main novelty introduced by the new agreements is the so-called diagonal cumulation, which is one of the three main types of cumulation. The other two forms are bilateral and full cumulation. Bilateral cumulation means that two countries within the agreement can use without any limits materials coming from each other. All PTAs allow for bilateral cumulation. Diagonal cumulation means that materials originated from a third country also linked by an agreement to one of the signing countries could be used without any limits by the other signing country. If Spain has for example an FTA with Iceland and signs an FTA with Morocco which includes the possibility of diagonal cumulation between Iceland and Morocco, intermediate products from Iceland used as intermediates in a Moroccan good will be consider as originating from Morocco. Finally, full cumulation allows intermediate processing to be split in any way between the parties to the PTA provided that when added together all inputs used are sufficient to fulfill the rule of origin (Augier, Gasiorek and Lai-Tong, 2005; Karray 2003). Full cumulation is currently operated by the European Economic Area (EEA) and between the Community and Algeria, Morocco and Tunisia. Table 2 shows how the rules concerning the cumulation possibilities have evolved over time for the Mediterranean countries. As can be seen in the last column of Table 2, after the adoption of the Pan-European cumulation System in 1997 a system of Pan-Euro-Mediterranean cumulation of origin is being created. This new system amends protocols on rules of origin annexed to the various agreements (IP/05/1256). As noted by Augier et al. (2005) “moving to a system of diagonal cumulation of origin widens the possible source of intermediate suppliers to all those countries which are part of that system”. The exporters of the Mediterranean countries could use intermediate goods from more efficient partners inside the agreement of from

the rest of the world[2]. Consequently exports from the Mediterranean countries to EU should increase.

[2] As one of the Med countries could use intermediate goods from one of his partner in the agreement as it is its own goods it let more "space" for using intermediate goods from the rest of the world.

TABLE 2 – Evolution of the Cooperation Agreements

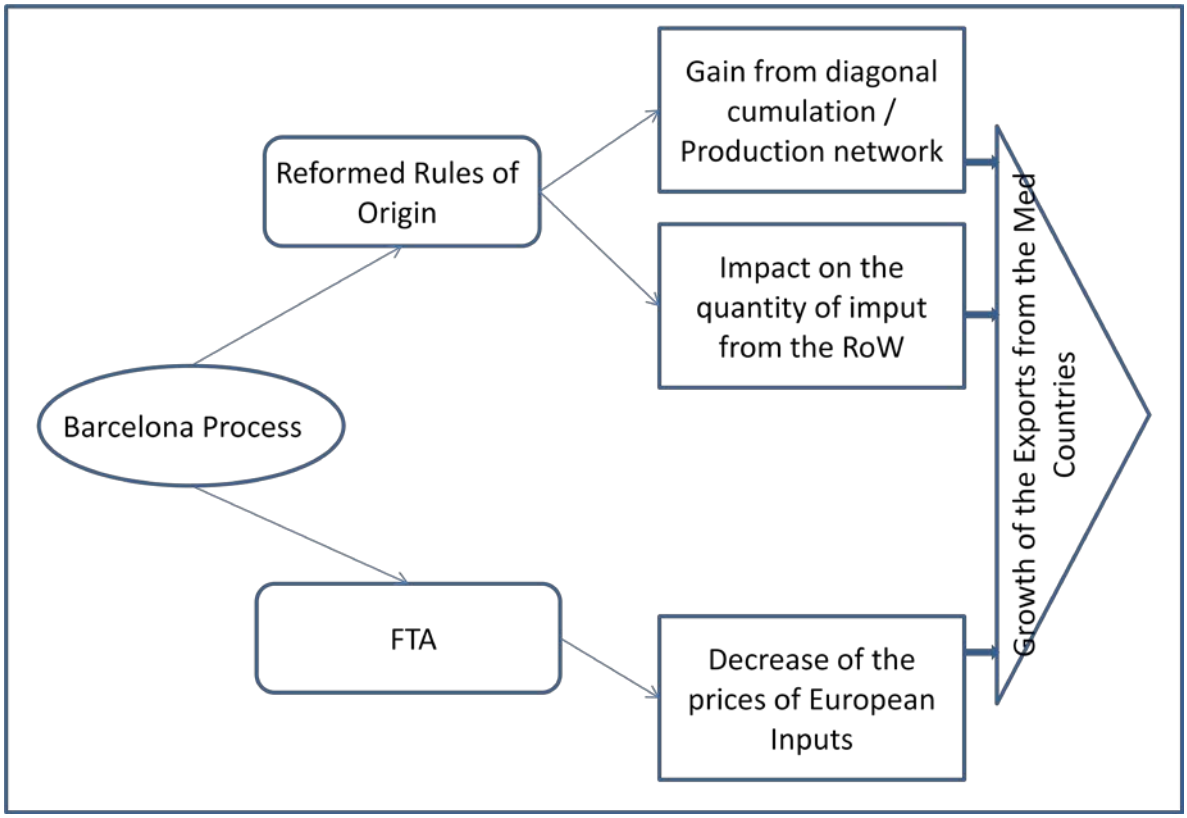
Country	Cooperation Agreement of 1978	New Cooperation Agreements 1998-2006	Pan EuroMed Rules of Origin
Algeria	Bilateral Cumulation 01.11.1978	Diagonal Cumulation with Tunisia and Morocco for materials and working 01.09.2005	Diagonal Cumulation with EFTA Countries for materials and other EuroMed Partners/ Diagonal Cumulation with Tunisia and Morocco for materials and working. 1.11.2007
Egypt	Bilateral Cumulation 01.11.1978	Diagonal Cumulation with other EuroMed Partners for materials 01.06.2004	Diagonal Cumulation with EFTA Countries for materials and other EuroMed Partners 1.03.2006
Jordan	Bilateral Cumulation 01.11.1978	Bilateral Cumulation 15.05.2002	Diagonal Cumulation with EFTA Countries for materials and other EuroMed Partners 1.07.2006
Lebanon	Bilateral Cumulation 01.11.1978	Diagonal Cumulation with other EuroMed Partners for materials 30.05.2006	-
Morocco	Bilateral Cumulation 01.11.1978	Diagonal Cumulation with Algeria and Tunisia for materials and working 18.03.2000	Diagonal Cumulation with EFTA Countries for materials and other EuroMed Partners/ Diagonal Cumulation with Algeria and Tunisia for materials and working. 1.12.2005
Syria	Bilateral Cumulation 01.11.1978	-	-
Tunisia	Bilateral Cumulation 01.11.1978	Diagonal Cumulation with Algeria and Morocco for materials and working 30.03.1998	Diagonal Cumulation with EFTA Countries for materials and other EuroMed Partners/ Diagonal Cumulation with Algeria and Morocco for materials and working. 1.08.2006

Finally, the Barcelona Process encourages the Mediterranean countries to further integrate the service sectors (transport and finance sector for example) and to homogenize their procedures (standardization, metrology, quality controls, and conformity assessment) with the EU members. This measures should decreases the transactions cost between the EU and its partners, however few progresses seems to have been done in these domains (European Commission Reports on Neighboring 2004, 2005,2008). We will notice mainly the signature of open sky agreement between the EU and Morocco in 2007.

In regard to the indirect effects with the Barcelona Process and the entry into force of FTA agreements between the EU and the Mediterranean countries, the European products will have duty free access to the south and east Mediterranean markets after a twelve years period during which the custom duties are progressively abolished. This change is expected to have an impact on the imports of the Mediterranean countries. As trade barriers applied to intermediate goods from the European Union in these countries are reduced and those intermediates became less expensive, final goods produced by Maghreb and Mashrek exporters could also be sold at lower prices. Consequently, the end of customs duties at the frontier of the south and east Mediterranean markets could imply an increase in exports of these countries due to the lower costs of imported inputs.

Figure 1 shows the main expected effects of the Barcelona Process on exports from the south and east Mediterranean countries.

FIGURE 1. The Barcelona Process



Note: RoW stands for Rest of the World (meaning all the countries outside the Barcelona Process)

In the empirical part of the paper we aim to estimate the overall impact of the Barcelona Process. To do so we measure if the exports of the south and east Mediterranean countries have increase due to the entry into force of the cooperation agreements. We are particularly interested in the way the Barcelona Process could create trade, that is to say we investigate if the process will impact the exports through the creation of new trade (more varieties exported) or trough the exploitation of previously existent comparative advantages (increase in the average quantity exported of the existing flows). Next, we aim to specifically disentangle whether those liberalization effects are due to a change in the rules of origin (direct effect) or to the liberalization of imported inputs from the EU.

3. HETEROGENEOUS FIRMS AND THE TWO MARGINS OF TRADE

A major concern in the traditional literature on the formation of free trade agreements (FTAs) has been whether these areas generate welfare gains for the individual countries that engage in these processes. Since the 1950s (Viner 1950), many authors have contributed to this debate, especially in the 1990s when studies based on the gravity model proliferated (Frankel et al. 1995, 1996, 1998; Soloaga and Winters, 2001). Indeed, the effect of FTAs on trade has been commonly analysed using a gravity model of trade, with the dependent variable being the aggregate value of trade between two countries and modelling the agreements with dummy variables. Some recent studies for aggregated trade are Carrère (2006), Magee (2008) and Martínez-Zarzoso, Nowak-Lehmann and Horsewood (2009). Most of these recent papers rely on a model that assumes iceberg trade costs[3] and symmetric firms. In this setting, consumers buy positive quantities of all varieties and aggregated trade values react to trade cost reductions in exactly the same way as firm-level quantities and.

The theoretical models used to generate the gravity equation usually assume homogeneous firms within a country and consumer love of variety. These two assumptions imply that all products are traded to all destinations. However, empirical observation indicates that few firms export and exporting firms commonly sell in a limited number of countries. This empirical fact has led to the development of the so-called new-new trade theories based on firm heterogeneity in productivity and fixed cost of exporting (Melitz, 2003). These new theories predict the existence of a productivity threshold for each country that firms have to exceed in order to become exporters. As a result two margins of trade emerge: the extensive margin (the set of exporters or set of

[3] Iceberg trade costs mean that for each good that is exported a certain fraction melts away during the trip as if an iceberg were shipped across the ocean.

products exported) and the intensive margin (the size of its exports). Chaney (2008) shows that a higher elasticity of substitution makes the intensive margin more sensitive to changes in trade barriers, whereas it makes the extensive margin less sensitive. The reasoning is as follows: when goods are highly differentiated (the elasticity of substitution is low), the demand for each individual variety is relatively insensitive to changes in trade costs and, then, trade barriers have little impact on the intensive margin of trade. Otherwise, as trade barriers decrease, some firms with a low productivity level are able to enter into the markets and, hence, when goods are highly differentiated, these new entrants are relatively large compared to the firms that are already exporting. Therefore, the extensive margin is strongly affected by trade barriers when the elasticity of substitution is low. The reverse holds when the elasticity of substitution is high.

In this context we can express the quantity of a variety from origin country i to destination country j (q_{ij}) as

$$q_{ij} = E_j \left(\frac{\left(p_i t_{ij}\right)^{-\sigma}}{\tilde{P}_j} \right) \qquad (1)$$

where E_j denotes country j's total expenditure on the differentiated product, ($p_i t_{ij}$) is the price of product i at destination j, p_i varies across destinations due to positive iceberg transport costs, t_{ij}. $\tilde{P}_j = \sum_i \left(p_i t_{ij}\right)^{(1-\sigma)}$ is a price index and σ is the elasticity of substitution, which is constant across varieties[4] (CES).[5]

Since the quantity traded of each variety is in most cases not observable, adding two assumptions: a) all varieties in the origin are symmetric and b) the destinations will consume all the varieties in equal quantity, allows multiplying the quantity per variety

[4] Varieties refer to different products that are substitutes in consumption.
[5] The constant elasticity of substitution (CES) assumption is made in order to obtain a simple model that is easily derived and with testable implications.

(q_{ij}) by prices (p_i) and by the number of varieties (n_i) to obtain total trade values. The outcome is

$$T_{ij} = n_i p_i q_{ij} = E_j n_i \left(\frac{p_i \left(p_i t_{ij} \right)^{-\sigma}}{\tilde{P}_j} \right) \quad (2)$$

In equation (2) the quantity per variety is the only component of T_{ij} that has bilateral variation. Following Hillberry and Hummels (2008), we are able to examine each of the components of total trade values in a more flexible way since not only data on quantities are available, but also prices and the range of products vary across origin and destinations. Therefore we need to relax some of the assumptions made above. Prices may vary across destinations, if the elasticity of substitution is not constant or if transport costs are not iceberg costs (Hummels and Skiba, 2004). Consequently for a given year t, we can assume:

$$T_{ij} = n_{ij} p_{ij} q_{ij} \quad (3)$$

At least three reasons have been suggested in the literature to explain why the range of trade products might vary with trade cost. First, goods produced in different locations (origin and destination) can be homogeneous. In this case, if production costs in origin and destination are very similar or the trade costs are sufficiently large, these goods will not be traded. Additionally, the higher transport costs are, the more likely products are to be non-traded goods. Second, if goods are differentiated by country of origin, each country producing a different variety has to incur in a fixed cost to sell the product in each destination country. Therefore, not all the varieties will be shipped to each destination and the number of varieties traded will depend negatively on the magnitude of trade costs. Finally, not all varieties are consumer goods. Intermediate inputs that are used in the production of final goods would only be exported to destination j if country j

produces the final good. Due to "just in time" production processes intermediates are more likely to be traded over short distances. We focus on the first and second explanations and assume that both, the number of varieties and the quantity traded are negatively affected by trade costs.

The methodology we use to decompose aggregate value of trade into its various components is based on Hillberry and Hummels (2008). Unique shipments are indexed by s and the total value of shipments from country i to country j is given by

$$T_{ij} = \sum_{s=1}^{N_{ij}} P_{ij}^{s} Q_{ij}^{s} \tag{4}$$

where N_{ij} is the number of unique shipments (extensive margin of trade) and $\overline{PQ}_{ij}$ is the average value per shipment (the intensive margin). Hence, total trade value is decomposed first into extensive and intensive margin

$$T_{ij} = N_{ij} \overline{PQ}_{ij} \tag{5}$$

where $\overline{PQ}_{ij} = \frac{\left(\sum_{s=1}^{N_{ij}} P_{ij}^{s} Q_{ij}^{s}\right)}{N_{ij}}$

Since there can be multiple unique shipments within an origin-destination country pair, the number of shipments can be further decomposed into the number of distinct SITC products shipped, N_{ij}^{k}, and the number of average shipments between a country of origin and a destination country, N_{ij}^{F}. $N_{ij}^{F}>1$ means that we observe more than 1 unique shipment per commodity travelling from country i to country j.

$$N_{ij} = N_{ij}^{k} N_{ij}^{F} \tag{6}$$

The average value per shipment can also be further decomposed into average price and average quantity per shipment:

$$\overline{PQ}_{ij} = \frac{\left(\sum_{s=1}^{N_{ij}} P_{ij}^{s} Q_{ij}^{s}\right)\left(\sum_{s=1}^{N_{ij}} Q_{ij}\right)}{\sum_{s=1}^{N_{ij}} Q_{ij}} \frac{}{N_{ij}} = \overline{P}_{ij}\overline{Q}_{ij} \tag{7}$$

By substituting equations (6) and (7) into (5) we can decompose total trade between two countries into four different components:

$$T_{ij} = N_{ij}^{k} N_{ij}^{F} \overline{P}_{ij}\overline{Q}_{ij} \tag{8}$$

The quantity measure is tons for all commodities. Using a common unit allows us to aggregate over different products and compare prices (import unit values) across all commodities.

We now have two decomposition levels. The first is given by equation (5) and decomposes total trade value into the range of products traded and the average value per product. The second, given by equation (8), decomposes these two components into another two each: the number of distinct SITC goods shipped, the number of average shipments between a country of origin and a destination country, and average price and average quantity, respectively. Taking logs for the first and second level decompositions and adding the time dimension, t we obtain:

$$\ln T_{ijt} = \ln N_{ijt} + \ln \overline{PQ}_{ijt} \tag{9}$$

$$\ln T_{ijt} = \ln N_{ijt}^{k} + \ln N_{ijt}^{F} + \ln \overline{P}_{ijt} + \ln \overline{Q}_{ijt} \tag{10}$$

Next we analyse how each of the components of equation (10) co-vary with distance and with other trade-related costs. The variable of interest is trade cost reductions induced by trade liberalisation between the European Union and the Maghreb countries

considered. Before specifying the empirical model, we state a number of hypotheses that are based on recent theories of international trade under imperfect competition and heterogeneous firms. Melitz (2003) introduced firm heterogeneity in a general equilibrium model of international trade. Chaney (2008) extended Melitz's model to multiple countries with asymmetric trade barriers and derives three predictions for aggregated trade. The first prediction states that for aggregated bilateral trade flows his model predicts that the elasticity of exports with respect to trade barriers is larger than in the absence of firm heterogeneity and larger than the elasticity for each individual firm. A reduction of variable cost has two effects. First, it increases the size of exports of each exporter and second, it allows new firms to enter the market. Therefore, the extensive margin amplifies the impact of variable costs.

In more homogeneous sectors, aggregated exports are very sensitive to changes in transportation costs because many firms enter and exit when variable costs change. The elasticity of exports with respect to variable costs does not depend on the elasticity of substitution between goods. However, the elasticity of exports with respect to fixed costs is negatively related to the elasticity of substitution. This is in contrast with models with a representative firm, according to which the elasticity of exports with respect to transport costs equals the elasticity of substitution minus one.

Further, with respect to the two margins of trade, Chaney (2008) shows that in the presence of firm heterogeneity, the extensive margin and the intensive margin are affected in different directions by the elasticity of substitution. The impact of trade barriers is strong in the intensive margin for high elasticities of substitution (homogeneous products), whereas the impact is mild on the extensive margin. The author proves that the dampening effect on the extensive margin dominates the magnifying effect on the intensive margin.

We are interested in knowing whether these predictions hold for trade flows in the Mediterranean region. In order to test some of the abovementioned predictions, the estimating equation takes the following form:

$$\ln X_{ijkt} = \alpha_i + \beta_j + \alpha_1 \ln GDP_{it} + \alpha_2 \ln GPD_{jt} + \alpha_3 \ln POP_{it} + \alpha_4 \ln POP_{jt} + \alpha_5 \ln D_{ij} + \alpha_6 CA_{ijt} + \alpha_7 Colony + \gamma_k + \lambda_t + \varepsilon_{ijkt} \quad (11)$$

where γ_k and λ_t are industry (at two digit level) and year fixed effects and α_i and β_j are importer and exporter fixed effects. ε_{ijkt} is an error term and $\ln(X_{ijkt})$ is in turn the log of the average value per shipment (intensive margin), and the log of the range of shipments (extensive margin), as described in equation (9). GDP_{it} and GDP_{jt} denote Gross Domestic Product of the importer and the exporter country in year t, respectively and POP_{ij} and POP_{jt} denote the respective populations. D_{ij} is the geographical distance between the trading-countries' capitals and FTA_{ijt} denote Free Trade Agreements dummies that take the value of one when both countries have implemented a cooperation agreement in year t, zero otherwise. As an extension, the change in the agreements over the rules of origin, the quantity of intermediate products originating from the European Union and from the Rest of the World could be included instead of the FTA dummies to account for the transmission channels of the free trade agreements. Finally, colony is a dummy that takes the value of one when the trading partner had a colonial relationship in the past, zero otherwise.

Since OLS is linear, the coefficient on total imports will be equal to the sum of the coefficients on the two margins. A further decomposition can be done, using each of the components in equation (10) as dependent variable in equation (11).

4. DATA, SOURCES AND VARIABLES

The main data source is Eurostat. We use the external trade detailed database which covers both extra- and intra-EU trade. In particular, extra-EU trade statistics provide data for the trade in goods between the MENA countries and four Member States (France, Italy, Germany and Spain). The products are classified according to the Standard International Trade Classification (SITC) codes at the SITC 5-digit level. Only manufactured products are taken into consideration (categories 5 to 8). Income and population data are taken from the World Development Indicators Database 2008 and distance and colonial links from CEPII. Table 3 provides a summary of the data and sources used in this paper.

TABLE 3 – Variable descriptions and sources of data.

Dependent Variables	Description	Source
X_{ij} : Exports from i to j	Nominal X	Eurostat
N_{ij} : Extensive Margin	Number of type of products exported from i t j	Eurostat
AV_{ij} : Intensive Margin	Average Value of the products exported from i to j	Eurostat
AQ_{ij} : Average Quantity	Average Quantity of the products exported from i to j	Eurostat
AP_{ij} : Average Price	Average Price of the products exported from i to j	Eurostat

Independent Variables	Description	Source
Y_i : Exporter's income	Exporter's GDP, PPP (current $)	WDI
Y_j : Importer's income	Importer's GDP, PPP (current $)	WDI
FTA dummy	Dummy variable = 1 if the trading partners have an FTA, 0 otherwise	European Commission
D_cumulation	Dummy variable = 1 if the RoO allow diagonal cumulation with the other MENA countries	European Commission
Pan_EuroMed_RoO	Dummy variable = 1 if the countries have adopted Pan EuroMed RoO	European Commission
$Input\_EU_i$	Import value of machinery from four European Economies (current $)	OECD
$Input\_RoW_i$	Import value of machinery from the Rest of the World (current $)	OECD
$Dist_{ij}$: Distance	Distances between country capitals of trading partners (km)	CEPII
$Colony_{ij}$:	Dummy variable = 1 if the trading partners had colonial links in the past, 0 otherwise	CEPII

The extensive and intensive margin, average price and average quantity of products exported from the MENA to France, Italy, Germany and Spain over the period 1995-2007 are calculated by using export values and export quantities. Among our independent variables Input_EU and Input_RoW are used as proxies for intermediate inputs coming from the main countries of the European Union (France, Germany, Italy, Spain and the United Kingdom) or alternatively, from the main producers of the Rest of the World (Japan, South Korea, Honk Kong, USA). The source for these tow variables is the OECD database on exports and in particular we use exports from the main

countries of the European Union and the Rest of the world to each Mediterranean country of Nuclear Reactors, Boilers, machinery (Section 84 of the harmonized system commodity classification).

5. MAIN RESULTS

1. The economic impact of the neighboring policy

Tables 4 and 5 show the results for total trade and for each margin of trade obtained when exporter, importer and sectoral effects are jointly considered and specified as random, and year and industry effects are controlled for with dummy variables. The choice of this specification is justified since a Hausman test indicates that the individual effects are uncorrelated with the error term.

The dependent variable in Column (1) is the logarithm of the total value exported from the MENA to the four importing European countries. In Column (2) and (3) the dependent variable is each of the components of Equation (9) respectively, that is, the extensive and the intensive margin. In Column (4) and (5) the dependent is the two last components of equation (10), that represent the decomposition of the intensive margin into average quantity and average price, respectively.

First we estimate the effects for all seven countries, only for Morocco, Tunisia and Algeria

Results in Table 4 show that our variable of interest, the implementation of Free Trade Agreements between the MENA countries and the EU, has a positive and significant effect on the intensive margin and a very slight negative effect on the extensive margin. The average effect of the FTAs between MENA countries and the EU is positive and statistically significant for total trade (column 1) and also for the intensive margin (column 3) and for the average quantity exported (column 4), whereas it is negative but

only significant at 10 percent level for the extensive margin. Turning to the second level decomposition of equation (10), the first component of average value per shipment (columns 4 - Table 4), average quantities shipped are higher after the FTA entered into force, whereas the FTA variable is not significant when the average price component is used as dependent variable.

With respect to the additional explanatory variables, we obtained the expected positive and statistically significant effect for the GDP of the importing and exporting countries. Geographical distance presents a negative and significant coefficient, except for the average price, which shows a positive distance coefficient (this result has also been obtained in results for a sample of Latin American countries, see Martínez-Zarzoso and Wilmsmeier, 2009; Hillberry and Hummels, 2008). The decomposition of the influence of distance on trade shows a greater effect on the intensive margin (column 3 - Table 4), for all industrial products. About 29% of the distance effect on trade works through the extensive margin (i.e. 0.427/(1.044+0.427)); 71% of the increase in disaggregate trade flows comes from larger average shipments. Previous research finds the opposite picture, with the extensive margin being more important than the intensive margin (Hillberry and Hummels, 2008; Mayer and Ottaviano, 2008). Our results are very different to Mayer and Ottaviano (2008), who analyze French and Belgian individual export flows and show that 75% of the distance effect on trade comes from the extensive margin.

Finally, sharing colonial links and language fosters exports from MENA countries to the EU; 43% of the increase in disaggregate trade flows comes from the extensive margin (a wider variety of products traded), whereas 57% of the increase in disaggregate trade flows comes from larger average shipments.

TABLE 4 - Main estimation results for all countries and sectors

	X_{ij}	N_{ij}	AV_{ij}	AQ_{ij}	AP_{ij}
lgdpi_euro	1.264***	0.287***	0.779***	0.658***	0.241**
	8.278	5.812	5.985	4.047	2.27
lgdpe_euro	0.290***	0.084***	0.228** *	0.114	-0.002
	3.398	2.763	3.234	1.207	-0.028
Ld	-1.507***	-0.427***	-1.044***	-1.491***	0.414***
	-9.85	-6.978	-8.765	-8.811	4.005
FTA	0.081*	-0.025*	0.113***	0.08*	-0.015
	1.819	-1.744	2.854	1.649	-0.451
Colony	1.273***	0.568***	0.743***	0.564**	0.085
	7.018	7.392	5.418	2.793	0.651
Constant	-19.087***	-5.489***	-8.936**	-5.81	-3.26
	-4.106	-3.498	-2.296	-1.188	-1.023
R-squared	0.092	0.081	0.06	0.041	0.003
r2_o	0.1274876	0.0970905	0.094264	0.0609608	0.0298642
N	11480	11496	11480	10917	10917
Rmse	1.320634	0.4120877	1.191463	1.392733	0.9288741

Notes: ***, **, *, indicate significance at 1%, 5% and 10%, respectively. T-statistics are in brackets. The dependent variable is the natural logarithm of exports in value (current US$). Income (Y) and distance (Dist) are also in natural logarithms. The estimation uses White's heteroscedasticity-consistent standard errors. Tval denotes total trade, Extm denotes extensive margin, Intm denotes intensive margin, Avq denotes average quantity and avp denotes average price.

Our first results consistently show that the new FTA agreements signed between the MENA countries and the European Union have fostered export of these countries to some of their main European partners. Furthermore, we find that this increase in exports has been channeled by an increase of the intensive margin of trade. The MENA countries export more of the products they already exported in the past. This fact is in line with what we know of the industrial structure of these countries and with the explanation proposed by Chaney (2008) concerning how reductions in trade costs influence the two margins of trade. MENA are mainly producers of goods with low technological content, which are highly substitutable on the international market. In this

case, Chaney (2008) states that the main impact of a decrease in trade barriers will be through the intensive margin.

Next, we estimate the effects only for Maghreb countries: Morocco, Tunisia and Algeria. The main reason is that these countries have full cumulation.

TABLE 5 - Main results for Maghreb. All Sectors

	X_{ij}	N_{ij}	AV_{ij}	AQ_{ij}	AP_{ij}
lgdpi_euro	1.886***	0.426***	1.376***	1.265***	0.259
	7.599	5.805	6.246	5.004	1.643
lgdpe_euro	-1.802***	-0.551***	-1.177***	-1.086***	-0.084
	-9.796	-9.191	-7.417	-5.122	-0.659
ld	-1.934***	-0.345**	-1.539***	-2.016***	0.440*
	-6.612	-3.05	-6.333	-5.997	2.145
FTA	0.256***	0.032	0.213***	0.218**	-0.034
	3.646	1.444	3.38	2.789	-0.675
Colony	2.089***	0.815***	1.282***	1.026***	0.148
	8.57	8.045	6.57	3.637	0.816
_cons	16.500*	5.262*	11.46	9.684	-2.075
	2.137	2.194	1.683	1.18	-0.405
R-squared	0.134	0.104	0.093	0.06	0.005
r2_o	0.158	0.152	0.099	0.052	0.0436
N	5207	5211	5207	5065	5065
Rmse	1.251025	0.3794191	1.143219	1.313111	0.8562009

Notes: ***, **, *, indicate significance at 1%, 5% and 10%, respectively. T-statistics are in brackets. The dependent variable is the natural logarithm of exports in value (current US$). Income (Y) and distance (Dist) are also in natural logarithms. The estimation uses White's heteroscedasticity-consistent standard errors. Tval denotes total trade, Extm denotes extensive margin, Intm denotes intensive margin, Avq denotes average quantity and avp denotes average price.

These results show that our variable of interest, the creation of a FTA between North African countries and the EU, has a greater effect on the intensive margin than on the extensive margin. The effect of the FTA between North African countries and the EU is positive and statistically significant for total trade (column 1) and also for the intensive margin (column 3) and for the average quantity exported (column 4), whereas it is also positive but only significant at 10 percent level for the intensive margin. The decomposition of the influence of FTA on trade shows that this effect on trade works

through both margins: around 13 % works through the extensive margin and around 87% works through the intensive margin, although the estimated coefficient for the extensive margin is only marginally significant. Turning to the second level decomposition of equation (10) (columns 4 - Table 5), average quantities shipped are higher after the FTA entered into force, whereas the FTA variable is not significant when the average price component is used as dependent variable.

With respect to the additional explanatory variables, we obtained the expected positive and statistically significant effect for the GDP of the importing country, but not for the exporter GDP which is negatively signed and thus indicates that a higher GDP is associated with a decrease in exports to the four European countries considered. We still need to find an explanation for this negative effect. We also estimated the model including population variables (or GDP per capita), but since they are highly correlated with GDPs the coefficients cannot be jointly estimated in a consistent way.

Geographical distance presents a negative and significant coefficient, as with all the exporting countries. The decomposition of the influence of distance on trade shows also a greater effect on the intensive margin (column 3 - Table 5), for all sampled products. About 18% of the distance effect on trade works through the extensive margin (i.e. 0.345/(1.539+0.345)); 82% of the increase in disaggregate trade flows comes from larger average shipments. And finally, the variables sharing colonial links and language present very similar results for this narrower sample of countries; 39% of the increase in disaggregate trade flows comes from the extensive margin (a wider variety of products traded), whereas 61% of the increase in disaggregate trade flows comes from larger average shipments.

The effect of the bilateral FTAs on trade is also estimated for each sector (at one digit-level SITC) and for each exporter. Table 6 shows the main results for the FTA variable for each section of the SITC. The various sectors are not equally impacted by the agreements. The coefficient of the FTA variable is non-significant for the Section 8 (Miscellaneous manufactured articles), whereas it is significant and positive for the intensive margin and the average quantity exported for Section 5 (Chemicals and related products), 6 (Manufactured goods classified chiefly by material) and 7 (Machinery transport equipment). Only for Section 5 the coefficient is significant for the extensive margin. The results are in line with the idea that the main changes induce by the FTA come through the intensive margin of trade. In contrast, the results for each country in Table 7 give a different picture.

TABLE 6 - Main results for each product category. Seven Countries

	X_{ij}	N_{ij}	AV_{ij}	AQ_{ij}	AP_{ij}
Sector					
5 - Chemicals and related products	0.305***	0.088***	0.248**	0.243*	-0.076
	2.836	2.719	2.513	2.002	-1.001
6 - Manufactured goods classified chiefly by material	0.12	-0.023	0.162**	0.183*	0.038
	1.387	-0.813	2.157	1.899	0.711
7 - Machinery and transport equipment	0.160*	0	0.182**	0.210**	-0.056
	1.974	-0.013	2.5	2.504	-0.896
8 - Miscellaneous manufactured articles	-0.043	-0.021	0.019	0.034	0.031
	-0.564	-0.803	0.286	0.426	0.526

Notes: ***, **, *, indicate significance at 1%, 5% and 10%, respectively. T-statistics are in brackets. The dependent variable is the natural logarithm of exports in value (current US$). Income, population and distance are also in natural logarithms. The estimation uses White's heteroscedasticity-consistent standard errors. Tval denotes total trade, extm denotes extensive margin, intm denotes intensive margin, vaq denotes average quantity and avp denotes average price.

The coefficient of the FTA variable is positive and significant for total exports for each country with the only exception of Jordan for which the coefficient is positive but not

significant. It seems that we could divide the MENA countries into two groups: the countries with a significant and positive coefficient for the extensive margin and a non-significant coefficient for the intensive margin (Jordan, Lebanon and Morocco) and the countries with a significant and positive coefficient on the intensive margin of trade and a non-significant coefficient on the extensive margin (Algeria) or with a significant but less important effect on the extensive than on the intensive margin of trade (Egypt and Tunisia).

TABLE 7 - Main results for each country

	X_{ij}	N_{ij}	AV_{ij}	AQ_{ij}	AP_{ij}
Countries					
Algeria	0.942***	0.103	0.797**	0.473	0.311
	2.91	0.891	2.118	1.434	1.425
Egypt	0.739***	0.102*	0.638***	0.540*	-0.382***
	3.949	1.903	3.769	2.061	-3.648
Jordan	0.453	0.309***	0.249	-1.084***	0.174
	1.438	2.721	0.894	-3.014	0.726
Lebanon	0.612*	0.311***	0.251	-0.534	0.413*
	2.014	3.099	0.982	-1.487	2.105
Morocco	0.484**	0.190***	0.24	0.633***	-0.031
	2.469	3.641	1.314	3.309	-0.276
Tunisia	1.272***	0.255***	0.619***	0.404**	0.111
	6.625	5.165	3.599	2.3	1.116

Notes: ***, **, *, indicate significance at 1%, 5% and 10%, respectively. T-statistics are in brackets. The dependent variable is the natural logarithm of exports in value (current US$). Income, population and distance are also in natural logarithms. The estimation uses White's heteroscedasticity-consistent standard errors. Tval denotes total trade, extm denotes extensive margin, intm denotes intensive margin, vaq denotes average quantity and avp denotes average price

2. Disentangling FTA effects

We replace our variable FTA by four different variables designed to take in account particular aspects of the agreement.

The extended model is given by

$$\ln X_{ijkt} = \alpha_0 + \alpha_1 \ln GDP_{it} + \alpha_2 \ln GPD_{jt} + \alpha_4 \ln D_{ij} + \alpha_{51} D\_Cumulation_{ijt} + \alpha_{52} PanE\_Cumulation + \\ + \alpha_6 Colony + \alpha_7 MIEU_{it} + \alpha_8 MIRoW_{it} + \gamma_k + \lambda_t + \varepsilon_{ijkt} \\ where\ \varepsilon_{ijkt} = \mu_{ijk} + \nu_{ijkt} \qquad (12)$$

where D_Cumulation takes the value of one when the rules of origin allow diagonal cumulation with the other MENA countries, zero otherwise; Pan-EuroMed_RoO takes the value of one when a country has Pan EuroMed RoO, zero otherwise; $MIEU_{it}$ denotes importer machinery from the EU and $MIRoW_{it}$ denotes importer machinery from the rest of the world. Next, we estimate an extended model for all countries and for each sector. We are not able to estimate the extended model for each country since our variables imported inputs from the EU and from RoW are country specific.

The coefficients for Diagonal cumulation are significant and positive for total trade, the average value of exports and their average quantity. It is negative and significant for the average price. The coefficients for the Pan Euro Med rules of origin are significant and positive for total trade and for the extensive margin (number of goods exported). The coefficient of the variable Inputs from the EU is positive and significant for the average price of the MENA exports and negative and significant for the average quantity of the MENA exports. The coefficient of Inputs from the rest of the world is negative for total trade and also for the number of goods exported.

TABLE 8 –Channels through which trade is impacted

	X_{ij}	N_{ij}	AV_{ij}	AQ_{ij}	AP_{ij}
lgdpi_euro	1.243***	0.287***	0.768***	0.662***	0.233**
	8.188	5.842	5.913	4.069	2.197
lgdpe_euro	0.349***	0.125***	0.227**	0.355***	-0.185**
	3.299	3.462	2.496	3.034	-2.396
Ld	-1.367***	-0.354***	-0.982***	-1.495***	0.473***
	-8.393	-5.599	-7.527	-8.229	4.24
D_cumulation	0.125**	0.008	0.120**	0.208***	-0.112***
	2.629	0.522	2.802	3.986	-3.195
Pan_EuroMed_RoO	0.103*	0.075***	0.027	0.065	-0.052

	1.633	3.731	0.483	0.917	-1.11
linput_eu	0.098	0.044	0.063	-0.244**	0.250***
	1.016	1.415	0.739	-2.296	3.54
linput_row	-0.177**	-0.106***	-0.067	-0.064	-0.027
	-2.801	-5.138	-1.208	-0.919	-0.564
Colony	1.213***	0.534***	0.717***	0.537**	0.077
	6.676	7.016	5.153	2.633	0.584
_cons	-19.635***	-5.951***	-9.111*	-5.496	-3.697
	-4.232	-3.81	-2.336	-1.12	-1.156
R-squared	0.092	0.082	0.06	0.043	0.005
r2_o	0.1329493	0.1076868	0.0961964	0.0603867	0.0313113
N	11480	11496	11480	10917	10917
Rmse	1.322085	0.4123629	1.192141	1.392123	0.9279655

Notes: ***, **, *, indicate significance at 1%, 5% and 10%, respectively. T-statistics are in brackets. The dependent variable is the natural logarithm of exports in value (current US$). Income (Y) and distance (Dist) are also in natural logarithms. The estimation uses White's heteroscedasticity-consistent standard errors. Tval denotes total trade, Extm denotes extensive margin, Intm denotes intensive margin, Avq denotes average quantity and avp denotes average price.

Interestingly, each sector of production present different impacts for each channel (Table 9). For example, the coefficients for Diagonal Cumulation are highly significant and positive for total trade and for the average value and the average quantity of exports for the Section 5 and 6, whereas the coefficients for the Pan Euro Med RoO are mainly significant and positive for total trade and for the extensive margin for section 7 and 8. Coefficients are also significant for the input from the European Union for the same section. The coefficients for the inputs from the RoW are significant and negative mainly for section 8.

These results indicate that the adoption of diagonal cumulation between the MENA countries has an impact on their export to Europe mainly through the intensive margin of trade, and more specifically through the average quantity exported. Strikingly different are the results to cumulate origin with new countries from the north of Europe (Pan Euro Med RoO), for which the main effect on exports comes through the extensive margin. The decreasing price of European input has an interesting effect, for the

sections with lower technological content (sections 5 and 6). The inclusion of European inputs decreases the average quantity of the exports but increase their average price. One could easily imagine that these results could translate an increase of the quality of the goods produced by the MENA due to the integration of more European spare parts. In the sector with the higher technological content, section 7, European inputs have a strong and positive effect on both margins of trade. It is more difficult to interpret the results for the inputs from the rest of the world.

TABLE 9 –Channels through which trade is impacted. Sectoral results

	X_{ij}	N_{ij}	AV_{ij}	AQ_{ij}	AP_{ij}
Sector					
5 - Chemicals and related products					
D_cumulation	0.334***	0.092**	0.262**	0.398***	-0.156**
	2.974	2.617	2.544	3.188	-1.995
Pan_EuroMed_RoO	-0.165	0.117**	-0.275*	-0.351**	0.093
	-1.14	2.403	-2.039	-2.139	0.975
linput_eu	-0.166	0.009	-0.169	-0.607**	0.407**
	-0.706	0.127	-0.807	-2.295	2.763
linput_row	-0.054	-0.022	-0.005	0.008	-0.133
	-0.386	-0.513	-0.037	0.048	-1.574
6 - Manufactured goods classified chiefly by material					
D_cumulation	0.334***	0.062*	0.289***	0.342***	-0.05
	3.57	2.069	3.582	3.318	-0.857
Pan_EuroMed_RoO	0.096	0.07*	0.035	0.127	-0.064
	0.75	1.709	0.311	0.869	-0.769
linput_eu	-0.23	0.116*	-0.325*	-0.596**	0.301**
	-1.205	1.874	-1.932	-2.757	2.595
linput_row	-0.196	-0.188***	-0.009	0.102	-0.150**
	-1.565	-4.615	-0.081	0.782	-2.444
7 - Machinery and transport equipment					
D_cumulation	0.061	0.015	0.06	0.246**	-0.194**
	0.688	0.559	0.749	2.675	-2.883
Pan_EuroMed_RoO	0.217*	0.101**	0.125	0.263*	-0.142
	1.796	2.832	1.151	1.959	-1.456
linput_eu	0.528***	0.149**	0.446***	0.103	0.381**
	3.175	2.748	3.01	0.593	2.901
linput_row	-0.161	-0.102***	-0.081	-0.09	-0.011
	-1.509	-3.026	-0.874	-0.873	-0.141
8 - Miscellaneous manufactured articles					
D_cumulation	0.006	0.024	0.026	0.142*	-0.051
	0.071	0.873	0.361	1.657	-0.799
Pan_EuroMed_RoO	0.288**	0.082**	0.230**	0.215*	0.039
	2.767	2.325	2.532	1.913	0.44
linput_eu	0.497***	0.035	0.525***	0.615***	-0.097
	2.937	0.558	3.624	3.624	-0.775
linput_row	-0.415***	-0.181***	-0.284**	-0.398***	0.051
	-3.857	-4.973	-3.147	-3.581	0.692

Notes: ***, **, *, indicate significance at 1%, 5% and 10%, respectively. T-statistics are in brackets. The dependent variable is the natural logarithm of exports in value (current US$). Income (Y) and distance

(Dist) are also in natural logarithms. The estimation uses White's heteroscedasticity-consistent standard errors. Tval denotes total trade, Extm denotes extensive margin, Intm denotes intensive margin, Avq denotes average quantity and avp denotes average price.

6. CONCLUSIONS

In this paper, the effect of Euro-Mediterranean agreements on international trade is evaluated by using disaggregated trade data. These agreements should contribute to modified trade patterns between the two shores of the Mediterranean Sea. We apply some of recently developed models of trade (Chaney, 2008) to depict the impact of FTA on the extensive and intensive margins of trade. We focus on exports from MENA countries to the four biggest continental European economies, Germany, France, Italy and Spain.

Our first results seem to confirm a positive and significant effect of the new FTA on the exports of MENA countries to their main European partners. This effect should find its root in the new rules of origin agreed between the two groups of countries. As we have seen the main channel in the transformation of the structure of exports from Algeria, Morocco, and Tunisia to their European counterparts is through the intensive margin. More of the products already exported previously by the Maghreb countries are sent to Europe.

A plausible explanation of the reason why the adoption of new rules of origin have resulted in the increase of trade is that the new rules have allowed the integration of better quality/less expensive intermediate goods in the goods produced by the Maghreb countries consequently enhancing the demand for these goods on the European markets. With our sectoral result we partially confirm this hypothesis, since the effect of an increase in the inputs imported from the EU has a positive effect on MENA's exports of sophisticated manufactured products, with the only exception of chemicals and related

products. This effect is channeled by an increase of the extensive and intensive margins of trade for machinery and transport equipment, by an increase of the extensive margin for manufactured goods classified chiefly by material and by an increase of the intensive margin for miscellaneous manufactured articles. Further research on more disaggregated products is desirable to know whether export diversification is actually a consequence of the change in the rules of origin.

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Table A1. SITC 2 Classification

5 - Chemicals and related products, n.e.s.	
	51 - Organic chemicals
	52 - Inorganic chemicals
	53 - Dyeing, tanning and colouring materials
	54 - Medicinal and pharmaceutical products
	55 - Essential oils and resinoids and perfume materials; toilet, polishing and cleansing preparations
	56 - Fertilizers (other than those of group 272)
	57 - Plastics in primary forms
	58 - Plastics in non-primary forms
	59 - Chemical materials and products, n.e.s.
6 - Manufactured goods classified chiefly by material	
	61 - Leather, leather manufactures, n.e.s., and dressed furskins
	62 - Rubber manufactures, n.e.s.
	63 - Cork and wood manufactures (excluding furniture)
	64 - Paper, paperboard and articles of paper pulp, of paper or of paperboard
	65 - Textile yarn, fabrics, made-up articles, n.e.s., and related products
	66 - Non-metallic mineral manufactures, n.e.s.
	67 - Iron and steel
	68 - Non-ferrous metals
	69 - Manufactures of metals, n.e.s.
7 - Machinery and transport equipment	
	71 - Power-generating machinery and equipment
	72 - Machinery specialized for particular industries
	73 - Metalworking machinery
	74 - General industrial machinery and equipment, n.e.s., and machine parts, n.e.s.
	75 - Office machines and automatic data-processing machines
	76 - Telecommunications and sound-recording and reproducing apparatus and equipment
	77 - Electrical machinery, apparatus and appliances, n.e.s., and electrical parts thereof (including non-electrical counterparts, n.e.s., of electrical household-type equipment)
	78 - Road vehicles (including air-cushion vehicles)
	79 - Other transport equipment
8 - Miscellaneous manufactured articles	
	81 - Prefabricated buildings; sanitary, plumbing, heating and lighting fixtures and fittings, n.e.s.

	82 - Furniture, and parts thereof; bedding, mattresses, mattress supports, cushions and similar stuffed furnishings
	83 - Travel goods, handbags and similar containers
	84 - Articles of apparel and clothing accessories
	85 - Footwear
	87 - Professional, scientific and controlling instruments and apparatus, n.e.s.
	88 - Photographic apparatus, equipment and supplies and optical goods, n.e.s.; watches and clocks
	89 - Miscellaneous manufactured articles, n.e.s.

Source : United Nations, 2009.

Table A.2. Cumulation Rules

Cumulation Rules. Mediterranean Countries	
Algeria (01.09.2005) Euro-Mediterranean Association Agreement, OJ L 265, 10.10.2005	Protocol No 6 OJ L 297 of 15.11.2007 *Bilateral, diagonal and full cumulation*
Tunisia (01.03.1998) Euro-Mediterranean Association Agreement , OJ L 97, 30.03.1998, p.2.	Protocol No 4 OJ L 260 of 21.9.2006 *Bilateral, diagonal and full cumulation*
Morocco (01.03.2000) Euro-Mediterranean Association Agreement, OJ L 70, 18.03.2000, p.2	Protocol No 4 OJ L 336 of 21.12.2005 *Bilateral, diagonal and full cumulation*
Israel (01.06.2000) Euro-Mediterranean Association Agreement , OJ L 147, 21.06.2000, p.3	Protocol No 4 OJ L 20 of 24.1.2006 *Bilateral and diagonal cumulation*
Palestinian Authority of the West Bank and the Gaza Strip (01.07.1997) Euro-Mediterranean Interim Association Agreement , OJ L 187, 16.07.1997, p.3.	Protocol No 3 OJ L 187 of 16.07.1997 *Bilateral cumulation*
Egypt (01.06.2004) Mediterranean Association Agreement, OJ L304 of 30.09.2004, p.39	Protocol No 4 OJ L 73 of 13.3.2006 *Bilateral and diagonal cumulation*
Jordan (01.05.2002) Euro-Mediterranean Association Agreement, OJ L 129, 15.05.2002, p.3.	Protocol No 3 OJ L 209 of 31.7.2006 *Bilateral and diagonal cumulation*
Lebanon (01.03.2003 Interim Agreement) Euro-Mediterranean Association Agreement, OJ L 143, 30.05.2006, p.2.	Protocol No 4 OJ L 143, 30.05.2006, p. 73 *Bilateral cumulation*
Syria (01.07.1977) Cooperation Agreement, OJ L 269, 27.09.1978, p.2.	Protocol No 2 *Bilateral cumulation*

Source:
http://ec.europa.eu/taxation_customs/customs/customs_duties/rules_origin/preferential/article_779_en.htm#paneuro.