

The impact of FTAs on MENA trade in agricultural and industrial products

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This paper analyses the impact of Free Trade Agreements (FTAs) on Middle East and North African Countries (MENA) trade for the period 1994-2010. The analysis distinguishes between industrial and agricultural trade to take into account the different liberalisation schedules. An augmented gravity model is estimated using up-to-date panel data techniques to control for all time-invariant bilateral factors that influence bilateral trade as well as for the so-called multilateral resistance factors. We also control for the endogeneity of the agreements and test for self-selection bias due to the presence of zero trade in our sample. The main findings indicate that North-South-FTAs and South-South-FTAs have a differential impact in terms of increasing trade in MENA countries, with the former being more beneficial in terms of exports for MENA countries, but both showing greater global market integration. We also find that FTAs that include agricultural products, in which MENA countries have a clear comparative advantage, have more favourable effects for these countries than those only including industrial products.

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I. Introduction

The reduction in the number of trade barriers through the implementation of trade agreements is a major step towards trade liberalization. The MENA (Middle East and North African) countries have greatly increased their participation in FTAs (Free Trade Agreements) in the last ten years, both in North-South FTAs and South-South FTAs. But have they really helped to improve trade integration in the region? Ad-valorem tariffs in MENA countries have been reduced in the last 15 years by about 5 percentage points and the openness ratio has risen from 47% in 2000 to 66 in 2008.¹ Exchanges with the European Union (EU) represent more than 60% of total trade for some MENA countries, but have been losing ground in the last years in favour of new emerging partners.

A number of articles have recently analysed the impact of FTAs on MENA trade flows. Most of the studies cover only the late 1990s and early 2000s (Peridy, 2005a, 2005 b; Cieslik and Hagemeyer, 2009) and only two compare different FTAs, including North-South FTAs and South-South FTAs (Abedini and Peridy, 2008; Cieslik and Hagemeyer, 2009). As far as we are aware, there is a lack of studies that specifically differentiate between the effect of the agreements on trade in industrial and agricultural products. The present study adds new insight along these lines. The main aim of this paper is therefore to analyse the impact on trade in agricultural and industrial products of the FTAs which came into force for ten MENA countries during the period from 1994 to 2010. We focus in particular on the effects of recent FTAs that include trade liberalization in agricultural goods and compare the average impact of the agreements on trade, differentiating between import and export flows. To this end, an augmented gravity model is estimated using up-to-date panel data techniques that allow to control for all bilateral factors that influence bilateral trade and are time-invariant (unobserved heterogeneity), as well as for the so-called multilateral resistance factors (the effect of relative prices with respect to all trading partners). We use the methodology recently proposed by Baier and Bergstrand (2007) to control for the endogeneity of the agreements and for multilateral resistance factors.

The main results show that the majority of the FTAs considered increase bilateral trade between the countries involved in the agreement, except for the Euromed agreement, which only increases MENA imports from the EU, but not exports to the EU. We also found that the inclusion of agricultural liberalization in the agreements could mitigate MENA concessions on industrial import liberalization.

¹ FEMISE (2011).

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3 The rest of the paper is organized as follows. Section II describes the FTAs analysed in the
4 paper and revises the related literature. Section III presents the analytical framework.
5 Section IV describes the data and specifies the empirical model. Section V presents the
6 main results and Section VI concludes.
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9 10 **II. Free Trade Agreements in the MENA region**

11 *Overview of the integration processes*

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14 In this sub-section we briefly describe the FTAs recently signed by MENA countries
15 distinguishing between North-South and South-south agreements. As regards North-South
16 FTAs, MENA countries have signed agreements with the EU, EFTA and US. The main
17 trading partner for MENA countries, especially for North African Countries, has been and
18 is the EU. This has been partly due to the geographical proximity and the historical-
19 colonial ties between both areas. The integration process between the South Mediterranean
20 counties (SMC) and the EU started in 1969 with the Preferential Trade Agreements (PTAs)
21 that liberalized industrial exports from Algeria, Morocco and Tunisia to EU countries.
22 Within the framework of the ‘Global Mediterranean Policy’, which started in 1972, bilateral
23 cooperation agreements between the EU and Morocco, Israel, Tunisia, Egypt, Jordan,
24 Lebanon and Syria were signed in 1975. These agreements included non-reciprocal trade
25 preferences liberalizing industrial exports from some MENA countries to Europe.
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30 With the aim of re-launching Euro-Mediterranean integration, the Barcelona Process
31 started in 1995. One of its main goals was to complete a Free Trade Area between the
32 European Union (EU) and each MENA partner involved in the process by 2010². The
33 main vehicle to reach full liberalisation has been the negotiation and enforcement of
34 interim bilateral agreements between each South Mediterranean country and the EU.
35 Within this framework, single interim bilateral agreements have already entered into force
36 for seven countries (see Table A.1 in Appendix).
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41 In addition to the Euromed Agreement, some MENA countries signed separated FTAs
42 with members of the European Free Trade Association (EFTA). The FTAs came into
43 force with Turkey in 1992, Israel in 1993, Morocco in 1999, Jordan in 2002, Tunisia in
44 2005, Lebanon and Egypt in 2007. The coverage of the agreements is similar to the
45 coverage of the Euromed Agreement and includes trade in industrial products, as well as
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57 ² See Montanari (2007) and Femise (2009), for more details about the regional integration process the in Euro-
58 Mediterranean area.
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3 trade in fish and other marine products and processed agriculture and also provisions
4 related to the elimination of other trade barriers.

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6 An additional North-South FTA is that signed by Jordan and the USA³, which came into
7 force in 2001 with the aim of promoting product and service exports between both
8 countries. Each party shall progressively eliminate its customs duties over a period of ten
9 years. Before this agreement, the two countries had signed an agreement for the creation of
10 Qualifying Industrial Zones (QIZ) in 1998, which allowed products to enter the USA duty
11 free if 35% of the appraised value was from Israel, Jordan, Egypt, or the West Bank and
12 Gaza. A similar FTA was signed by the USA and Morocco⁴, which came into force in 2006
13 and has a transition period of 18 years for the USA and 25 years for Morocco. The FTA
14 includes trade liberalization for goods and services. The agreement was signed after the end
15 of the Multi-Fiber Agreement (MFA) on the 1st of January 2005 and was seen by Morocco
16 as an opportunity to diversify its economy.

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18 Another North-South FTA came into force in 1997 between Israel and Canada. The
19 agreement eliminates tariffs on all industrial products manufactured in both countries and
20 also on a limited number of agricultural and fisheries products.

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22 Moving to the South-South FTAs, Turkey has signed a number of FTAs with MENA
23 countries. The content of the agreements is also quite similar to the content of the
24 Euromed framework, though with minor differences, one being that each country has
25 different transition periods to complete full liberalisation.⁵ This shift in foreign policy in
26 Turkey shows the new role that Turkey aims to play in Mediterranean relations, starting
27 with ambitious trade integration plans in the region (Balcer, 2013).

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29 Apart from the bilateral agreements with Turkey, other varieties of South-South integration
30 attempts have failed and efforts on behalf of the MENA countries have not been sufficient
31 to develop successful arrangements⁶. In particular, Arab regional integration began in the
32 1950s after the creation of the Arab Common Market and under a number of treaties,
33 conventions and councils, which had no impact and were unable to increase intra-regional
34 trade. For this reason, a new attempt was made in 1964 with the signing of "The Arab
35 Common Market Agreement", which sought to create a free trade area through the
36 establishment of a common external tariff. Once again, this initiative failed to pave the way
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54 ³ See Ruebner (2000), Rosen (2004), Nugent and Abdel-Latif (2010) and Awad (2011), for more detail of the FTA and
QIZ between Jordan and US.

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56 ⁴ See Hufbauer and Brunel (2009) chapter 8, and Abdelmalki (2011) for more detail of the FTA between Morocco and
US.

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58 ⁵ See Table A.1 in the Appendix for more details about the liberalisation process of each agreement.

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60 ⁶ See Romagnoli, and Mengoni (2009) and FEMISE (2005; 2006; 2008; 2009) for a historical review of the MENA
integration.

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3 to further integration in the region, Broude (2009). Other attempts were "The Gulf
4 Cooperation Council (GCC) "in 1981 and "The Arab Maghreb Union". It was only in the
5
6 1990s, when Arab countries entered a new phase of South-South integration highlighting
7
8 two relevant agreements, the Great Arab Free Trade Area (GAFTA) and the Agadir
9 Agreement.

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11 The GAFTA agreement was signed in 1997 by 14 Arab countries in order to create a free
12 trade area among its members, with a gradual 10% annual reduction in tariffs and taxes
13 between 1998 and 2007, so they will be totally eliminated in ten years. But with the aim of
14 accelerating integration in the region, the Social Council of the Arab League announced full
15 liberalisation by 2005.⁷

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17 Within this context of Pan-Arab integration, Egypt, Jordan, Morocco and Tunisia signed
18 the Agadir agreement in Rabat in 2004 to promote trade integration parallel to other
19 projects.⁸ The Agadir agreement entered into force in 2006. The agreement establishes a
20 free trade area and adopts the Pan-Euro-Med Rules of Origin, which allow the use of
21 standardized inputs for the production of final goods from any country in the EU, EFTA
22 or the signatories of the Agadir agreement itself to benefit from the exemption of tariffs
23 with the EU. The agreement aims at providing full liberalisation of trade in industrial goods
24 and agricultural products.

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26 In addition, Israel concluded an FTA with Mexico that came into force in 2000 for
27 industrial and some agricultural products. Both parties agreed to eliminate customs duties
28 for a list of products and, at the beginning of the following year, for the rest of products,
29 completing full liberalisation in 2005. Finally, Jordan signed an FTA with Singapore in
30 2004, including industrial and agricultural goods. The agreement eliminates tariffs for
31 imports from Jordan to Singapore since 2005, while tariffs for imports from Singapore are
32 progressively reduced over a timeframe of 5 to 10 years.

33 34 35 36 37 38 39 40 41 42 43 44 *Impact on trade of MENA integration processes*

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46 After describing the main integration processes in which MENA countries are involved,
47 the central question that emerges is to what extent these processes have been successful in
48 promoting trade and economic integration. While most of the research published focuses
49 on other regions like the European Union, North America, Latin America and more
50 recently Asia, relatively few studies have turned their attention to the impact of FTAs on
51 MENA trade flows.
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58 ⁷ See Zarrouk (2000) and Zorob (2008) for more details about the GAFTA agreement.

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60 ⁸ See Wippel (2005) and Abedini and Peridy (2008) for more detail about the Agadir agreement.

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Kepaptsoglou *et al.* (2010) review empirical studies in the last 10 years that use gravity model specifications to analyse the impact of FTAs on international trade flows. In the literature that examines trade integration effects on MENA trade flows using gravity models, some studies exclusively focus on North-South integration, namely Peridy (2005a), Ruiz and Villarubia (2007), Bergstrand *et al.* (2011) and Montalbano and Nenci (2012), some others include also South-South integration agreements (Peridi, 2005b; Abedini and Peridy, 2008; Cieslik and Hagemeyer, 2009). Overall, most of them only cover the late 1990s and early 2000s and analyse the impact of FTAs on exports alone using total values, not taking into account the nature of the agreements.

Peridy (2005a) analyses the impact of regional arrangements between the EU and seven Mediterranean countries for the period 1975-2001. He employs a gravity equation and uses different model estimators (Fixed effects, Random Effects, Hausman-Taylor and a dynamic estimation with GMM). His main findings indicate that the regional agreement between the EU and MENA countries has a positive and significant impact on exports from MENA countries to the European Union in all estimations, with trade creation estimated at around 20%-27% for the static specifications and 36% in the dynamic version. Peridy (2005b) focuses on the effects of the Agadir agreement, analysing the impact of the regional trade agreement between 5 MENA countries and between those and the EU from 1975 to 2001. His results show that despite the fact that the Agadir Agreement reduced trade barriers, the high border effects and lack of complementarities meant that the countries involved in the Agadir agreement obtained a limited benefit in terms of higher trade flows. Abedini and Peridy (2008) measured the impact that the GAFTA agreement has had on exports of 15 member countries from 1988 to 2005, obtaining a positive and significant correlation in all estimates. They estimated a trade creation effect of around 16-24%. Their study also evaluated the impact of the Association Agreements (AAs) with the European Union and the new Euromed agreement, obtaining a positive and significant effect for the AAs with the EU and a negative effect for the Euromed agreement. Cieslik and Hagemeyer (2009) also analyse both North-South and South-South FTAs using an augmented gravity model to estimate FTA effects on imports and exports for seven MENA countries between 1980-2004. Similar to Peridy (2005a), they include county pair-specific effects and time-specific effects and present different specifications to check for robustness, including OLS, two-way fixed effects and first differences. According to their findings, the EU-Association Agreement with MENA countries has a positive and significant effect on MENA imports from the EU, but does not help to increase MENA

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3 exports to the EU. In the case of FTAs with the US, they find a positive and significant
4 effect on imports and exports, whereas the parameter estimates for Arab FTAs are mostly
5 not statistically significant. Individual effects for each MENA country are also estimated,
6 showing mixed results. Bergstrand *et al.* (2011) study the impact of six trade agreements for
7 the European Union, including the FTA between the EU and Jordan, Morocco and
8 Tunisia. They used a gravity model for bilateral trade flows among 176 pairs of countries
9 for the period 1966-2008. Their results show that the FTAs have only improved exports
10 from the EU to Tunisia and Morocco, but not in the opposite direction.

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16 Our analysis is closely related to Cieslik and Hagemeyer (2009) but with three important
17 improvements. First, we include more recent years in the analysis and consider new FTAs
18 which have come into force until 2010, excluding the years after the Arab spring
19 revolution, initiated in 2011. Second, we differentiate between trade in industrial and
20 agricultural products and estimate the effect of the agreements separately, which is
21 reasonable given the remarkable differences in terms of trade liberalisation for these two
22 types of products. Finally, we control for both the endogeneity of the trade agreement
23 variable and multilateral resistance terms, as suggested by Baier and Bergstrand (2007).
24 Previous studies fail to control for multilateral resistance that is time variant.
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31 **III. Analytical framework**

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34 The gravity model of trade, which is one of the most well accepted models used to explain
35 bilateral trade flows (Anderson and Wincoop, 2003; Baier and Bergstrand, 2007), has been
36 selected as the analytical framework in this paper. As reported in the previous section, it
37 has been extensively used to estimate the impact of trade policy actions on bilateral trade
38 flows.
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42 The basic model states that trade between two countries (T) is proportional to the product
43 of their economies, which can be measured using their respective Gross Domestic
44 Products (Y), and inversely proportional to the distance between them (D), which is
45 considered as a proxy for trade costs. In a panel data framework including the time
46 dimension the traditional model is specified as,
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$$51 \quad T_{ijt} = \gamma_0 \frac{Y_{it}Y_{jt}}{D_{ij}} \quad (1)$$

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56 Anderson and van Wincoop (2003) recommend estimating a theoretically based gravity
57 model accounting for 'multilateral trade resistance'. Economic theory leads to an
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expenditure share sometimes named structural gravity, which is derived from well justified theoretical foundations,

$$T_{ijt} = \frac{Y_{it}Y_{jt}}{Y_t} \left(\frac{D_{ij}}{\theta_{it}\pi_{jt}} \right)^{1-\sigma} \quad (2)$$

where σ denotes the constant elasticity of substitution between varieties ($\sigma > 1$) and θ_{it}, π_{jt} represent multilateral resistance terms that act as time-varying common exporter and importer country shifters. One way to control for these terms empirically is to add time-varying, directional, country-specific dummies to the model specification, because bilateral trade flows depend on bilateral trade costs relative to multilateral trade costs.

This model has been augmented with other variables that may potentially affect trade between countries. More specifically, common language, colonial ties, common border and trade agreements are used as proxies for familiarity, information and reduction in artificial trade barriers. Typically, the gravity equation is specified in logarithmic linear form and is estimated using cross-section or panel data. According to the most recent literature, the use of panel data is highly recommended to control for the unobserved heterogeneity of various sources, the endogeneity of the FTAs and for multilateral resistance factors.

An important issue is that trade policy is not strictly exogenous and consequently any analyses of the effects of free trade agreements using the gravity equation can suffer from endogeneity bias, as pointed out by Baier and Bergstrand (2007). These authors recommend the use of panel data regression techniques and the inclusion of bilateral fixed effects (dyadic fixed effects) to capture unobservable time-invariant bilateral factors that can affect trade flows. They also include exporter-and-time and importer-and-time fixed effects to capture unobservable time-varying ‘multilateral price/resistance’ terms of the exporter and importer countries.

The model that corrects for endogeneity bias and controls for multilateral resistance is given by,

$$\ln T_{ijt} = \beta_0 + \beta_1 FTA_{ijt} + \delta_{ij} + \theta_{it} + \pi_{jt} + \mu_{ijt} \quad (3)$$

where δ_{ij} denotes dyadic fixed effects, specified as dummy variables for each bilateral relationship and θ_{it}, π_{jt} are exporter-and-time and importer-and-time fixed effects. The inclusion of these fixed effects implies that we are not able to identify income and distance

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3 effects, but the target variable FTA_{ijt} , which denotes free trade agreements and varies
4 bilaterally and over time will be correctly identified.
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6 7 **IV. Empirical application**

8 9 *Data description*

10 We use bilateral exports and imports from 10 MENA countries⁹ to 61 destinations (see
11 Table A.2 in the Appendix), which represent around 90% of their total trade, bilateral
12 imports have been computed in CIF prices and bilateral exports in FOB prices, both in
13 thousands USA dollars. Exports and imports are from the COMTRADE database for the
14 period 1994-2010¹⁰ using the Standard International Trade Classification (SITC), Revision
15 3. We use sectoral data to estimate the impact of FTAs on agricultural and industrial trade
16 flows separately. In order to obtain agricultural trade flows we took the ‘food’ standard
17 definition from COMTRADE that considers the sum of sections 0, 1, 22 and 4 from the
18 SITC revision 3 classification as total agricultural trade flows and for industrial trade we use
19 the standard definition of ‘manufactures’ from COMTRADE that considers the sum of
20 sections 5,60,61,62,63,64,65,66,67,69,7 and 8 from the SITC revision 3 classification. Table
21 1 presents summary statistics for the variables used.
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32 (Insert Table 1)
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35 As regards FTAs, we consider all FTAs that entered into force for the ten MENA
36 countries during the period and one customs union (Turkey-EU). Among them there are 5
37 North-South agreements: EUROMED, EFTAMED, USAMED, Israel-Canada; Turkey-
38 EU customs union and 5 South-South: AGADIR, GAFTA, Turkey-MED, Jordan-
39 Singapore and Israel-Mexico. The data on FTAs are obtained from the World Trade
40 Organization database (See Table A.1 in the Appendix).
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45 46 *Model specification*

47 The preferred model is a logarithmic version based on Anderson and van Wincoop (2003)
48 proposed by Baier and Bergstrand (2007). We consider a model specification that accounts
49 for both unobservable heterogeneity (time-invariant bilateral) and multilateral resistance,
50 namely importer-and-time and exporter-and-time dummies as proposed by Baier and
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56 ⁹ Algeria, Egypt, Israel, Jordan, Lebanon, Libya, Morocco, Syria, Tunisia and Turkey.

57 ¹⁰ The period has been chosen taking into account the entry into force of the agreements and avoiding having a lot of
58 zeros choosing years before 1994.
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Bergstrand (2007). In this way we are able to control for all time-variant importer (δ_{it}) and exporter (ψ_{jt}) characteristics and for all bilateral time-invariant factors (η_{ij}) that affect bilateral trade between countries. The model specification is given by,

$$\ln T_{ijt} = \beta_0 + \beta_1 EUROMED_{ijt} + \beta_2 EFTAMED_{ijt} + \beta_3 USAMED_{ijt} + \beta_4 TURMED_{ijt} + \beta_5 GAFTA_{ijt} + \beta_6 AGADIR_{ijt} + \beta_7 TUREU_{ijt} + \beta_8 ISRCAN_{ijt} + \beta_9 ISRMEX_{ijt} + \beta_{10} JORS GP_{ijt} + \delta_{ij} + \theta_{it} + \pi_{jt} + \mu_{ijt} \quad (4)$$

where T_{ijt} denotes exports (imports) of manufactured and agricultural products alternatively from country i to country j in year t . The variables $EUROMED_{ijt}$, $EFTAMED_{ijt}$, $USAMED_{ijt}$, $TURMED_{ijt}$, $GAFTA_{ijt}$, $AGADIR_{ijt}$, $TUREU_{ijt}$, $ISRCAN_{ijt}$, $ISRMEX_{ijt}$, and $JORS GP_{ijt}$ are FTA dummy variables which take a value of 1 when the importer i and exporter j are both members of the agreement, starting the year in which it came into force. δ_{ij} is a country-pair fixed effect and θ_{it} and π_{jt} are importer-and-time and exporter-and-time fixed effects¹¹. μ_{ijt} is the error term that is assumed to be iid. The second and third specifications introduce the first and second lags of the FTA variable to take into account possible delayed effects of the agreements.

The next section presents the results of the estimation and discusses the effect that each agreement has had on bilateral trade flows for MENA countries.

V. Main results

The main results are displayed in Tables 2 and 3 for manufactured and agricultural imports and exports, respectively¹², where the first column show results from the first specification, and the rest of columns show results from the second, third and last specification. Both tables present the average treatment effect (ATE) where ATE is the sum of all statistically significant coefficient estimates of each FTA. Results for GAFTA and AGADIR are only estimated using import values because after comparing the export and import values reported by MENA countries we found greater differences between the value of imports at CIF prices and exports valued at FOB prices, imports sometimes recording values that were 300 or 500% higher than export values. These differences cannot be explained by costs, insurance and freight alone, but rather are measurement errors. Therefore, to analyse the effect of intra-Arab agreements in which all the countries reported are also partners, we only use the value of imports among member countries of these agreements. When

¹¹ See Table A.3 in the Appendix for data description.

¹² The model is estimated using dyadic fixed effects after rejecting the null hypothesis of the Hausman test (orthogonality between the regressors and the bilateral unobserved heterogeneity). A complete set of results is available on request from the authors.

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3 discussing the results of a specific FTA, MENA countries or MENA region refers to all
4 MENA countries that are members of the agreement in question, but not all MENA
5 countries included in the study.
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10 (Insert Table 2)

11 Starting by discussion the effects of North-South agreements, the estimates in Table 2
12 indicate that the Euromed FTA has a positive and significant impact on MENA imports
13 from EU countries and negative and significant effect for MENA exports to the EU. Both
14 results are in accordance to those in Cieslik and Hagemeyer (2009), who obtained that the
15 FTA decreases MENA manufactured exports to Europe by 19% (28% in our estimations)
16 and increases MENA imports from Europe by 41% (32.6% in our results)¹³. When we add
17 lagged variables to capture the delayed effect of the FTA, we observe that the average
18 treatment effect remains very similar to the coefficients without lagged variables. Indeed,
19 the lagged variables are not statistically significant in the case of imports.
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26 (Insert Table 3)

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28 When we test for strict exogeneity by adding forward FTA values, it is found that changes
29 in $EUMED_{ij,t+1}$ are correlated with actual trade. We consider that it is the expected
30 outcome because despite the absence of trade liberalisation for European exports to the
31 MENA countries before the Euromed FTA, Europe was already the first exporter in the
32 region. As regards MENA industrial exports to EU markets, they had already been
33 liberalized under previous bilateral cooperation agreements at the beginning of the 70s, so
34 the new trade agreement should not be reason to increase MENA industrial exports to the
35 EU. The negative and statistically significant impact that we obtain of the FTA on MENA
36 exports to European markets (left part of Table 2) could be due to the increase in
37 European manufactured imports, specially of machinery and equipment, to local markets
38 after the liberalisation of European imports, and to the stronger competition faced by
39 MENA exporting firms, in particular by dual firms that are mainly selling to the domestic
40 market and have to close down because its sales abroad did not represent an important part
41 of its activities. In this context, some local firms are no longer productive and tend to
42 disappear. This effect is magnified when we included the lagged effect of the agreement,
43 reflecting a higher negative effect two years after the agreement came into force, revealing
44 an adjustment effect. Table 3 does not show any statistical effect for agricultural products,
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¹³ $(e^{-0.336})-1 = -0.285$ and $(e^{-0.282})-1 = 0.326$

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3 consistent with the fact that the FTAs under study do not contemplate trade liberalisation
4 in agricultural goods.
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6 For the EFTAMED agreement, we found a statistically positive impact on MENA
7 manufactured exports. Table 2 shows that this effect appears two years after the agreement
8 came into force. The liberalisation schedule of the agreement is similar to Euromed but
9 with some differences, since MENA exports were duty free when the agreement for
10 industrial products came into force, while EFTA exports were progressively liberalized.
11 Hence, the positive effect obtained for the second lagged value of the FTA could be
12 explained by this progressive liberalization schedule. Similar to what it was found for the
13 Euromed agreement, Table 3 does not show any statistical-significant effect for agricultural
14 products concerning the EFTAMED agreement, also this result is expected, since this FTA
15 does not include elimination of tariffs in agricultural products.
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17 The FTA concluded between the USA and Jordan and later with Morocco have a positive
18 and significant effect on MENA exports. Similar to the effect obtained for the EFTAMED
19 agreement, the second lagged variable of the FTA is statistically significant, meaning the
20 effect appears two years after the FTA came into force. The USA FTA is one of the few
21 FTAs including trade liberalisation for certain agricultural products. Indeed, results in Table
22 3 indicate that this agreement has been very beneficial to USA agricultural products. More
23 specifically, the FTA has increased MENA imports from the USA by 110% and MENA
24 exports to the USA by 55%¹⁴. In this line, Hufbauer and Brunel (2009) show that the FTA
25 has been very beneficial for traditional USA agricultural exports like wheat, corn and
26 oilseeds, but also for other products linked to the FTA, such as livestock feed, dairy
27 products, fruit and vegetables and live animals for breeding and for Morocco exports of
28 Miscellaneous edible products and preparations; Essential oils and resinoids and perfume
29 materials and Fish (not marine mammals), crustaceans, molluscs but trends remain very
30 similar to those before the agreement.
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32 As regards the agreement between Israel and Canada, tariffs on all industrial products
33 manufactured in Canada and Israel as well as on a limited number of agricultural and
34 fisheries products were eliminated when it came into force. The results show that the FTA
35 increased manufactured Israeli exports to Canada by around 23%¹⁵ and Israeli imports by
36 around 64%.
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56 ¹⁴ $(e^{0.743})-1=0.110$ and $(e^{0.439})-1=0.551$

57 ¹⁵ $(e^{0.203})-1=0.644$ and $(e^{0.320})-1=0.377$
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3 Concerning the effects of South-South agreements, in relation to the effect of the FTA
4 between some MENA countries and Turkey, the results in Table 2 for manufactured
5 products show that it has a positive and significant impact on imports from Turkey and a
6 positive but not significant effect on manufactured MENA exports. Customs duties for
7 MENA industrial products were abolished in Turkey with the entry into force of the
8 agreement, but results do not show that the increase in MENA exports in Turkey is caused
9 by the agreement. Differently, results in Table 3 show that MENA agricultural exports to
10 Turkey countries increased by around 89% when the agreement came into force.

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12 Regarding the effect of intra-Arab integration, the GAFTA FTA involves trade
13 liberalisation for all products, including agricultural goods. As observed in Table 2 the
14 estimated coefficient of the second lag is positive and statistically significant indicating that
15 an impact occurs two years after the agreement came into force, reflecting the phased in
16 effect of liberalisation. This result is similar to that obtained by Abedini and Peridy (2008).
17 Concerning agricultural products, we also find that the FTA has a positive impact on
18 agricultural trade (as shown in Table 3). In relation to the Agadir agreement, the results do
19 not show any impact on manufactured or agricultural imports, for this reason results are
20 not included on the ATE row.

21
22 The Israel-Mexico free trade agreement included liberalisation for industrial and
23 agricultural products too. The findings in Tables 2 and 3 show that the FTA concluded
24 between both countries increased Mexican manufactured and agricultural exports and
25 negatively affected Israeli manufactured exports, but had a positive impact on agricultural
26 exports the year after the agreement came into force.

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28 Finally, the agreement between Jordan and Singapore also includes trade liberalisation for
29 manufactured and agricultural products. In our analysis we found that the agreement
30 decreased MENA manufactured imports from Singapore, but increased agricultural
31 imports. In addition, the FTA has a positive and significant impact on Jordan
32 manufactured exports, but negatively affects agricultural exports. After analysing the list of
33 agricultural products imported by MENA and comparing it to the agricultural products
34 included in the agreement, we found that this increase is due to the reduction in tariffs on
35 agricultural preparations, cereals, spices and palm oil, all of which are included in the FTA.
36 In 2002, the government adopted a "National Strategy for Agricultural Development 2002-
37 2010, where subsidies have been totally lifted and national agricultural products have had
38 to compete with imported goods in the domestic and export markets. These developments
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3 coincided with a decline in the quality and quantity of water available for irrigation, which
4 affected crop productivity and quality of produce and its competitiveness, in quality and
5 price, in domestic and export markets.
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8 Table 4 presents a summary of the results found for North-South and South-South
9 agreements, distinguishing between agricultural and manufactured goods and specifying the
10 agreements that include trade liberalization in agricultural goods.
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13 (Insert Table 4)
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16 The main conclusion is that most North-South FTAs have resulted in increased exports of
17 MENA manufactured products, with the only exception of EUMED, whereas the effect
18 on agricultural exports is also positive and significant but only for the agreements including
19 trade liberalization in agricultural goods (US agreements). For South-South agreements the
20 results are mixed, with some agreements resulting in increasing exports of manufactured
21 goods (GAFTA, Jordan-Singapore and Israel-Canada) and some other showing no-effects
22 (TURMED) or negative effects on MENA exports (Israel-Mexico). Meanwhile, those
23 including tariff elimination in agricultural products have resulted in an increase in trade in
24 those products (TURMED, GAFTA and Israel-Mexico), with the only exception of the
25 Israel-Canada agreement, for which results are mixed. Finally, the custom union established
26 between the UE and Turkey in 1996 show a positive impact for European exports to
27 Turkey.
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30 31 32 33 34 35 36 **VI. Conclusions**

37
38 This paper investigates the impact of FTAs on trade flows for ten MENA countries during
39 the period 1994-2010. We use an augmented gravity model which we estimate using up-to-
40 date panel data techniques that allow us to control for all the factors that influence bilateral
41 trade and which are time-invariant (unobserved heterogeneity), as well as for the so-called
42 multilateral resistance terms. We undertake the analysis distinguish between industrial
43 products and trade in agricultural products.
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49 The results presented show that although North-South-FTA and South-South-FTA have a
50 differential impact on trade in MENA countries, with the former showing more positive
51 effects on MENA's trade than the latter, both types of agreements tend to favour global
52 market integration. Agreements between developed and developing countries include a
53 higher number of WTO provisions, compared with North-North and South-South
54 agreements. Concerning South-South agreements, This pattern might reflect the fact that
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3 developed countries sign agreements with developing countries, which usually have higher
4 barriers to trade, to obtain a deeper level of commitments. In exchange, through a PTA,
5 developing countries secure their access to larger markets (Orefice and Rocha, 2014). We
6 found in general that FTAs that include agricultural products, in which these countries
7 have the greatest comparative advantage and could help to restructure their trade balance,
8 are more desirable for MENA countries than those that only include industrial products.
9 Therefore, MENA countries have to give special attention to the inclusion of agricultural
10 goods when negotiating future agreements. Efforts towards establishing better integration
11 among Arab countries show satisfactory progress. The Great Arab Common Market
12 (GAFTA) in particular has been fruitful to help to increase bilateral trade between Arab
13 countries, while we do not find the same effect in the case of the Agadir agreement,
14 perhaps because it has been implemented only recently and data limitations do not allow us
15 for a consistent evaluation. This turn towards greater Arab integration represents new
16 opportunities for Arab countries to promote dialogue between them and to establish new
17 economic opportunities in the region.
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21 In the case of Euromed integration the results show that the FTA promotes EU exports to
22 MENA countries, but does not have a positive impact on MENA exports to the EU.
23 Despite this fact, Europe is still the most important trading partner of some MENA
24 countries and a reduction in the trade imbalance between the two regions is desirable.
25 While settlement negotiations do not include trade liberalisation in agricultural products,
26 where MENA countries are more competitive, MENA countries need to adjust their
27 industrial policy to be able to profit from tariff reductions in intermediate inputs and in
28 turn to increase their productivity and be more competitive in international markets.
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32 In this context, new partners for MENA countries have emerged as important players in
33 the Mediterranean relationship context, like Turkey, for which an increase in manufactured
34 exports to the MENA region is observed after the FTA was signed. The FTAs signed with
35 the USA (Morocco and Jordan) also promote industrial and agricultural exports to the USA
36 and increase agricultural imports of MENA countries, especially wheat. The results show in
37 general that the inclusion of agricultural products in the liberalisation schedule is more
38 favourable for MENA countries than only including industrial products, as in the case of
39 Euromed or the FTA signed with Turkey.
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Table 1. Summary statistics

Variable	Obs.	Mean	SD	Min.	Max.
TRADE:					
Total	20 400	245 662.9	912 233.0	0	2.23e+07
Manufactures	20 400	195 574.6	794 462.5	0	2.14e+07
Agriculture	20 400	25 780.94	86 372.5	0	2069366

Note: *Total* denotes observations for total trade excluding oil products and fuels, *manufactures* denotes trade in manufactures and *agriculture* denotes trade in agricultural products.

For Peer Review

Table 2. Average treatment effect (ATE) of FTAs for manufactured products

Variable	Manufactures							
	Imp (1)	Imp (2)	Imp (3)	Imp (4)	Exp (1)	Exp (2)	Exp (3)	Exp (4)
EUROMED _{ij,t}	0.282***	0.310***	0.299***	0.131	-0.336***	-0.236*	-0.233*	-0.330***
EUROMED _{ij,t-1}		-0.043	-0.028	-0.010		-0.121	0.043	0.033
EUROMED _{ij,t-2}			-0.026	-0.021			-0.182*	-0.243**
EUROMED _{ij,t+1}				0.218**				0.061
Total ATE	0.282	0.310	0.299	0.218	-0.336	-0.236	-0.415	-0.573
EFTAMED _{ij,t}	0.315	0.056	0.005	0.336	-0.221	-0.333*	-0.288	0.015
EFTAMED _{ij,t-1}		0.341	0.548	0.593		0.193	-0.320	-0.346
EFTAMED _{ij,t-2}			-0.263	-0.272			0.602*	0.631*
EFTAMED _{ij,t+1}				-0.374				-0.332
Total ATE						-0.333	0.602	0.631
USAMED _{ij,t}	0.347	-0.332	-0.370	0.003	1.642	0.796	0.852	0.678***
USAMED _{ij,t-1}		0.726	0.718	0.681		1.038**	0.158	0.154
USAMED _{ij,t-2}			-0.001	0.029			1.053***	1.176***
USAMED _{ij,t+1}				-0.404				0.242
Total ATE						1.038	1.053	1.854
TURMED _{ij,t}	0.387*	0.252*	0.202	0.181	0.163	0.150	0.165	0.184
TURMED _{ij,t-1}		0.1	-0.021	-0.012		0.136	0.112	0.110
TURMED _{ij,t-2}			0.129	0.202			0.052	-0.021
TURMED _{ij,t+1}				0.044				-0.070
Total ATE	0.387	0.252						
GAFTA _{ij,t}	-0.067	-0.126	0.036	-0.017				
GAFTA _{ij,t-1}		0.477*	0.003	0.011				
GAFTA _{ij,t-2}			0.435*	0.434*				
GAFTA _{ij,t+1}				0.103				
Total ATE		0.477	0.435	0.434				
ISRCAN _{ij,t}	0.407***	0.502***	0.497**	0.488**	-0.049	0.192	0.320*	0.310
ISRCAN _{ij,t-1}		-0.132	-0.294*	-0.290*		-0.096	-0.005	0.004
ISRCAN _{ij,t-2}			0.176	0.222			-0.099	-0.136
ISRCAN _{ij,t+1}								
Total ATE	0.407	0.502	0.203	0.198			0.320	
ISMEX _{ij,t}	0.852***	1.617***	1.836***	1.074***	-0.518	-0.306	-0.309	-0.052
ISMEX _{ij,t-1}		-0.862*	-0.372	-0.355		-0.398	-0.433*	-0.432*
ISMEX _{ij,t-2}			-0.541	-0.548*			0.032	0.056
ISMEX _{ij,t+1}				0.986***				-0.391
Total ATE	0.852	0.755	1.836	0.526			-0.433	-0.432
JORSGP _{ij,t}	-0.001	0.024	-0.008	-0.418***	0.197	-0.086	0.068	0.329
JORSGP _{ij,t-1}		-0.008	0.400**	0.417**		0.492*	0.851***	0.857***
JORSGP _{ij,t-2}			-0.513**	-0.479**			-0.461	-0.403
JORSGP _{ij,t+1}				0.454**				-0.301
Total ATE			-0.113	-0.443		0.492	0.851	0.857
TUREU _{ij,t}	0.415**	0.629***	0.559**	0.352	0.388	0.458	0.435	-0.054
TUREU _{ij,t-1}		-0.287*	-0.337	-0.297		0.027	0.128	0.122
TUREU _{ij,t-2}			0.037	0.081			-0.102	-0.116
TUREU _{ij,t+1}				0.266				0.544**
Total ATE	0.415	0.342	0.559					0.544

*ATE is the sum of all statistically significant estimates of each FTA. 'ns' means that coefficients are not significant. (1) are regressions with only FTA (t), (2) are regressions with FTA(t) and FTA(t-1), (3) are regressions with FTA(t) FTA(t-1) and FTA(t-2) and (4) with FTA(t) FTA(t-1) and FTA(t-2) and FTA(t+1)

Table 3. Average treatment effect (ATE) of FTAs for agricultural products

Variable	Agricultural Trade							
	Imp (1)	Imp (2)	Imp (3)	Imp (4)	Exp (1)	Exp (2)	Exp (3)	Exp (4)
EUROMED _{ij,t}	-0.184	-0.267**	-0.250*	-0.373***	-0.219	-0.141	-0.171	-0.130
EUROMED _{ij,t-1}		0.081	0.108	0.121		-0.050	0.078	0.065
EUROMED _{ij,t-2}			-0.042	-0.010			-0.173	-0.123
EUROMED _{ij,t+1}				0.170				-0.023
Total ATE		-0.267	-0.250	-0.373				
EFTAMED _{ij,t}	0.330	0.318	0.258	0.052	-0.046	-0.004	-0.006	-0.128
EFTAMED _{ij,t-1}		0.016	0.221	0.283		-0.123	0.086	0.115
EFTAMED _{ij,t-2}			-0.281	-0.315			-0.239	-0.242
EFTAMED _{ij,t+1}				0.235				0.125
Total ATE								
USAMED _{ij,t}	0.338	0.743***	0.768***	0.496***	0.473	0.133	0.188	0.361
USAMED _{ij,t-1}		-0.422	-0.358	-0.373		0.439**	0.223	0.217
USAMED _{ij,t-2}			-0.060	-0.156			0.275	0.263
USAMED _{ij,t+1}				0.304				-0.187
Total ATE		0.743	0.768	0.496		0.439		
TURMED _{ij,t}	-0.219	-0.277	-0.350*	-0.157	0.505	0.523	0.532	0.641*
TURMED _{ij,t-1}		0.020	-0.050	-0.034		0.024	-0.294	-0.324
TURMED _{ij,t-2}			0.033	0.010			0.501	0.307
TURMED _{ij,t+1}				-0.283				-0.130
Total ATE			-0.350					0.641
GAFTA _{ij,t}	0.561*	-0.233	-0.193	-0.276				
GAFTA _{ij,t-1}		0.817**	-0.088	-0.084				
GAFTA _{ij,t-2}			0.914***	0.919***				
GAFTA _{ij,t+1}				0.115				
Total ATE	0.561	0.817	0.914	0.919				
ISRCAN _{ij,t}	-0.347	-0.967***	-1.780***	-1.798***	-0.710**	-0.215	-0.142	-0.141
ISRCAN _{ij,t-1}		1.193***	1.268***	1.256***		-0.322	-0.149	-0.150
ISRCAN _{ij,t-2}			-0.112	-0.048			-0.184	-0.197
ISRCAN _{ij,t+1}								
Total ATE		0.226	-0.512	-0.542	-0.710			
ISMEX _{ij,t}	-0.450	-0.784	-0.391	-1.024**	0.522	-0.233	-0.410*	-0.417**
ISMEX _{ij,t-1}		0.714*	-0.037	-0.033		0.424	-0.581*	-0.615**
ISMEX _{ij,t-2}			0.826**	0.801**			1.121***	1.106***
ISMEX _{ij,t+1}				0.816				0.039
Total ATE		0.714	0.826	-0.223			0.130	0.074
JORSGP _{ij,t}	1.388***	1.809***	1.784***	0.526*	-2.125***	-0.559	-0.389	0.325
JORSGP _{ij,t-1}		-0.476	-0.370	-0.358		-1.845**	-0.504	-0.496
JORSGP _{ij,t-2}			-0.147	-0.152			-1.679**	-1.324*
JORSGP _{ij,t+1}				1.413***				-0.813**
Total ATE	1.388	1.809	1.784	1.939	-2.125	-1.845	-1.679	-2.137
TUREU _{ij,t}	0.692***	1.220***	1.490***	0.822	-0.164	-0.081	-0.185	-0.283
TUREU _{ij,t-1}		-0.552*	-0.613	-0.682		-0.068	0.02	0.016
TUREU _{ij,t-2}							-0.133	-0.103
TUREU _{ij,t+1}								0.122
Total ATE	0.692	0.668	1.490					

*ATE is the sum of all statistically significant estimates of each FTA. 'ns' means that coefficients are not significant. (1) are regressions with only FTA (t), (2) are regressions with FTA(t) and FTAt-1, (3) are regressions with FTA(t) FTAt-1 and FTAt-2 and (4) with FTA(t) FTAt-1 and FTAt-2 and FTA(t+1)

Table 4. Summary of FTA effects

FTA type	North-South	
Sector:	Manufactured	Agricultural
EUMED	M(+), X(-)	M(-), X(ns)
EFTAMED	M(ns), X(+)	M(ns), X(ns)
USA-Morocco*	M(ns), X(+)	M(+), X(+)
USA-Jordan*	M(ns), X(+)	M(+), X(+)
EU-Turkey	M(+), X(ns)	M(+), X(ns)
FTA type	South-South	
Sector:	Manufactured	Agricultural
TURMED	M(+), X(ns)	M(-), X(+)
GAFTA*	M(+)	M(+)
AGADIR	M(ns)	M(ns)
Jordan-Singapore*	M(-), X(+)	M(+), X(-)
Israel-Mexico*	M(+), X(-)	M(+), X(+)
Israel-Canada	M(+), X(+)	M(-), X(-)

Note: * Agreements that include trade liberalization in agricultural goods.

Appendix

Table A. 1. List of FTAs and its country members

FTA	Country (i)	Year of entry into force (t)	Full liberalisation	Country (j)
EUMED	Tunisia Israel Morocco Jordan Egypt Algeria Lebanon	1998 2000 2000 2002 2004 2005 2006	12 years after the FTA came into force plus 3 years of derogation beyond the initial transitional period. 4 for Egypt	Since 1995: Belgium, Germany, France, Luxemburg, Italy, Netherlands, United Kingdom, Ireland, Denmark, Greece, Spain, Portugal, Austria, Sweden and Finland. (UE15) Since 2004: Cyprus, Czech Republic, Estonia, Hungary, Lithuania, Latvia, Malta, Poland, Slovak Republic y Slovenia. (UE25) Since 2007: Rumania y Bulgaria (UE27)
EFTAMED	Morocco Jordan Tunisia Lebanon Egypt	1999 2002 2005 2007 2007	12 years after the came into force	Iceland, Liechtenstein, Norway and Switzerland
USAMED*	Jordan Morocco	2001 2006	2010 14 years after the FTA came into force for Morocco and 24 years for USA	United States
TURMED	Israel Tunisia Morocco Egypt Syria	1997 2005 2006 2007 2007	2000 2014 2015 2020 2019	Turkey
GAFTA	Egypt Tunisia Morocco Jordan Libya Lebanon Algeria Syria	1998 1998 1998 1998 1998 1998 1998	Full liberalisation in 2005	Bahrain, Egypt, Arab Emirates, Iraq, Libya, Jordan, Kuwait, Lebanon, Morocco, Oman, Palestine, Qatar, Saudi Arabia, Syria, Sudan, Tunisia, Yemen
ISR*	Israel	1997 2000	1999 2005	Canada Mexico
JORSGP	Jordan	2005	2015	Singapore
AGADIR	Morocco Jordan Egypt Tunisia	2006 2006 2006 2006	2006	Morocco, Jordan, Egypt, Tunisia
TUREU	Turkey	1996	1996	EU27

Note: *An FTA between Israel and USA came into force in 1985, however our period of analysis starts in 1990. Therefore, we cannot estimate the effect of this agreement.

Table A. 2. Country list

Algeria	Finland	Korea, Republic	Russia
Argentina	France	Kuwait	Saudi Arabia
Australia	Germany	Latvia	Singapore
Austria	Greece	Lebanon	Slovakia
Belgium-Luxemburg	Hong Kong	Libya	Slovenia
Brazil	Hungary	Lithuania	Spain
Bulgaria	Iceland	Malta	Sweden
Canada	India	Mexico	Switzerland
Chile	Indonesia	Morocco	Syria
China	Iran	Netherlands	Thailand
Cyprus	Ireland	New Zealand	Tunisia
Czech Republic	Israel	Norway	Turkey
Denmark	Italy	Poland	Ukraine
Egypt	Japan	Portugal	United Arab Emirates
Estonia	Jordan	Romania	United Kingdom
			United States

Table A. 3.Data description

Dependent Variable			
Variables	Description	Measure	Data Source
Imp, Exp (Manufactures)	Manufactured Imports / Exports (SITC.rev3)	In thousands of USA dollars	COMTRADE (United Nations Commodity Trade Statistics Database)
Imp, Exp (Total)	Total imports less fuel (cod.3 SITC rev.3)		
Imp, Exp (Agricultural)	Agricultural exports SITC. rev3 (Product codes: 0, 1, 22 and 4)		
Independent Variable			
FTA _{ij,t}	This variable takes a value of 1 when countries i and j are both member of the agreement (as describe in Table A.1)	Dummy variable	WTO (www.wto.org)