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**Euro-Mediterranean Economic Integration:
An Empirical Investigation of Trade Flows.**

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Abstract

Greater trade integration was identified in the Barcelona Conference as the way to promote “peace and shared prosperity” and “sustainable and balanced economic and social development” in the Euro-Mediterranean Area. At the centre of this process, there is the establishment of the Euro-Mediterranean Free Trade Area (EU-MeFTA) by 2010. The main objective of this paper is to investigate the nature and the extent of economic integration between the countries that will form the free trade area and assess the recent trends of trade in the Euro-Mediterranean region. In particular, we use a gravity model specification to identify the presence of trade blocs, monitor their evolution over time and compute bilateral trade potentials for the future partners in the Euro-Mediterranean FTA.

JEL Codes: C33, F10, F15, F59

Keywords: Economic Integration, Trade, Gravity Model

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1. Introduction

The main objective of the Barcelona Declaration - signed in 1995 by 15 EU member states (Austria, Belgium, Denmark, Germany, Spain, Finland, France, Greece, Ireland, Italy, Luxembourg, Netherlands, Portugal, United Kingdom, and Sweden) and by 12 non-EU members from the Mediterranean Sea area (Algeria, Cyprus, Egypt, Israel, Jordan, Lebanon, Malta, Morocco, Syria, Tunisia, Turkey, and the Palestine Authority) - was to begin a process towards “peace and shared prosperity” and “sustainable and balanced economic and social development” in the Euro-Mediterranean Area. Greater trade integration was openly identified as one of the most significant steps to build the Euro-Mediterranean partnership with the goal to establish the Euro-Mediterranean Free Trade Area (EU-MeFTA) by 2010.¹ Since 1995 a number of cooperation treaties have been signed by the EU with its future partners in the free trade area. While Turkey has been in a Custom Union with the EU since 1996, other association agreements have been written with the Palestinian Authority (1997), Tunisia (1998), Israel (2000), Morocco (2000), Jordan (2002), Egypt (2004), Algeria (2005), Lebanon (2006), Syria (under negotiation). Other steps towards more trade integration have been or are being undertaken by non-EU Mediterranean countries. In 2004 the Agadir Agreement established a free trade area between Jordan, Tunisia, Morocco, and Egypt (Lebanon is in negotiations to join), and negotiations for a free trade area between Libya and Lebanon are undergoing. The evidence, however, seems to point towards yet too little levels of trade. In reference to the Middle Eastern and North African countries, for example, Al-Atreash and Yousef (1999) is one of the few papers to use a gravity model representation to assess the extent of trade integration. Their results suggest that trade within the region is lower than what would be predicted from the model, and that, contrary to most of the evidence on trade blocs, that group membership (such as the Gulf Cooperation Council and the Arab Maghreb Union) does not exercise any positive effect on trade between these countries.

Moreover, since the middle of the nineties a number of events have affected the world economy and may have produced effects on the Euro-Mediterranean partnership. First

¹ The European Commission dedicates around 1 billion Euros a year in favour of the Euro-Mediterranean partnership through MEDA, its second biggest external relations programme, and other programmes.

of all, the financial crises of the second part of the nineties have undermined the confidence of international investors towards emerging markets in general.² Secondly, the events following 9/11 have produced particular unsteadiness between Western and Arab countries with negative consequences also for the Middle-East peace process, so important for both dialogue and exchange in the Mediterranean.

The introduction of the European common currency is another pivotal historical event. While the effects of the Euro on its member countries are the subject of intense scrutiny, very little research has been devoted to its effects on the process of Euro-Mediterranean integration. If the common currency is, as expected, trade creating, does this come at the expense of trade with neighbours?

Finally, the enlargement of the EU to the CEECs countries is seen by some commentators as an event that may well lead to greater integration with the Central and Eastern countries in detriment of North-South and South –South integration.³

The main objective of this paper is to perform an empirical investigation of the extent of trade integration between the countries that will form the Free Trade Area in 2010. In particular, we use a gravity model specification in order to estimate the extent of trade within and between specific geo-political blocs identified along the North-North, and North –South and South-South directions. Moreover, we compare actual and potential integration between the EU country members and the South Mediterranean non-EU member countries and monitor their progress over time during the 1980s and up to 2004 with a particular focus on the more recent period. Bearing in mind these considerations, the next section briefly outlines the econometric methodology. Section 3 presents the data employed for the empirical analysis, section 4 discusses the results and section 5 concludes.

2. Econometric Methodology

2.1 The Gravity Model

In this section we provide a short review of the econometric techniques used to estimate the proposed gravity representation of trade flows.⁴ The formulation of the

² See Bayoumi, Fazio, Kumar and MacDonald (2003) for a discussion.

³ In 2003, the European Commission has formulated the European Neighbourhood Policy (ENP) with the objective to start drawing into further integration neighbouring countries of the new and enlarged EU in 2004 and avoid frictions between the new EU and its neighbours. The ENP includes the EU member states Algeria, Armenia, Azerbaijan, Belarus, Egypt, Georgia, Israel, Jordan, Lebanon, Libya, Moldova, Morocco, Syria, Tunisia, Ukraine, and the Palestinian Authority.

gravity model descends from the Newton’s universal law of gravitation, which states that the attraction between two corps is proportional to their mass and inversely proportional to their distance. The most elementary formulation of the model reflects these assumptions:

$$T_{ij} = a \frac{W_i W_j}{d_{ij}},$$

where W_i and W_j denote the weights of country i and j , and d_{ij} is the distance between origin and destination, and a is a simple proportionality constant. In international trade, the most basic representation of the gravity model explains the amount of trade between two countries as increasing in the size of the two economies, measured by their national incomes, and decreasing in their geographical distance, which can be interpreted as a proxy for the cost of transporting goods from origin to destination. Since its first application by Tinbergen (1962), the model has become the “workhorse” of International Economics (Eichengreen and Irwin, 1997) gaining popularity thanks to its applicability to a wide variety of empirical experiments.⁵ In the past, the use of the gravity equation was criticised because of a substantial lack of theoretical foundations.⁶ These criticisms have, however, been cast aside when a number of papers have shown how the gravity equation can be derived from different trade of models.⁷

Empirically, the most common representation of the gravity equation takes the following log-linear form,

$$\log (X_{ijt}) = a_0 + a_t + a_{ij} + \mathbf{B}_{ijt} \mathbf{G}_{ijt} + \varepsilon_{ijt}, \text{ with } t=1, \dots, T, \quad (1)$$

where X_{ijt} is the volume of exports from country i to country j . The intercept is composed by three parts; a_0 is common to all country pairs and all years, a_t is common to all pairs, but year-specific, and a country-pair specific part, a_{ij} . Disturbances ε_{ijt} are assumed normally distributed with zero mean and constant variance across all

⁴ We refer the reader to Harrigan (2002) and Cheung and Wall (2005) for a literature review on gravity and trade.

⁵ For example, to estimate the relationship between trade and growth (see Frankel and Romer, 1999), the importance of currency unions to boost trade (see Rose, 2000)

⁶ In its controversial paper on the effects of currency unions, Andrew Rose (2000) notes ironically that this is one of those cases where attempts have been made to prove that a model works not only in practice, but also in theory.

⁷ See, for example, Anderson (1979), Bergstrand (1985, 1989) and Deardorff (1998).

observations, and pair wise uncorrelated. \mathbf{G}_{ijt} is a matrix of trade determinants. In early specifications, this matrix included only distance and incomes. In later contributions, a number of other country specific factors have been added, becoming standard in empirical applications, such as the countries' population (so called augmented gravity), land areas, and per capita incomes, and country pair variables capturing cultural affinity (common language), geography (common border), political factors (preferential trade agreements, common currency, common coloniser or former colonial relationship).

The intercept and the slopes in equation (1) are restricted to be the same across all country pairs, i.e. $a_{ij}=0$ and $\mathbf{B}_{ijt}=\mathbf{B}_t$, and the model is estimated over a cross-sectional dimension. More recently, however, the gravity model has been estimated using panel data,⁸ by imposing the further restriction of identical slopes across years, i.e. $\mathbf{B}_t=\mathbf{B}$. Hence, equation (1) becomes:

$$\log (X_{ijt}) = a_0 + a_t + \mathbf{B}\mathbf{G}_{ijt} + \varepsilon_{ijt}, \text{ with } t=1, \dots, T, \quad (2)$$

where the intercept is normally allowed to vary over time using dummies for year controls. More recently, a number of papers (see Mátyás, 1997, 1998) have suggested the use of country dummies in order to account for unobserved country components. Anderson and van Wincoop (2003, 2004) in particular have sustained the importance to include *multilateral trade resistance* terms by using two set of dummies, one referring to the country as an exporter and one to refer to the country as an importer.⁹ Hence, we may write equation (2) in the following form:

$$\log (X_{ij}) = a_0 + a_1 Z_i^X + a_2 Z_j^M + \mathbf{B}_1\mathbf{G}_{ij} + \mathbf{B}_2\mathbf{D}_t + \varepsilon_{ij}, \quad (3)$$

where Z_i^X denotes a dummy for the exporting country, and Z_j^M a dummy for the importing country, and \mathbf{D}_t is a matrix of T-1 time dummies. Equation (3) is then generally estimated by OLS.¹⁰

⁸ See, for example, Glick and Rose (2002)

⁹ See Fazio, MacDonald and Melitz, 2005, for a further discussion.

¹⁰ A number of complications arise when zero trade is present in the sample. Tobit rather than OLS estimation is often suggested as a quick solution. Other authors have suggested alternative estimation techniques. Tenreiro and Santos Silva (2003) suggest the use of a Pseudo-Poisson model, Helpman, Melitz and Yeaple (2004) suggest a two step Heckman estimation, dealing with the zero trade issue in the first regression. In our case, all trade is greater than zero. Hence, we rely on the traditional OLS methodology.

In this empirical exercise, we consider equation (3) as the most general specification (we also use equation 2 with time dummies as a preliminary regression, see discussion below) and use it to investigate intra-EU-MeFTA trade. In particular, on the road to the Free Trade Area, it seems important to estimate the extent of overall integration between the future FTA members, but also the extent of trade intra and inter geographical blocs. After all, the Barcelona process has envisaged the building of the Euro-Mediterranean partnership in a number of steps beginning with bilateral and multilateral agreements (such as the Agadir Agreement). Hence, as a first step in our analysis, we try to estimate the geographical patterns of trade within intra-EUMeFTA trade. We divide the sample into three main areas (see the data appendix for a complete listing of countries and groups): the Non Mediterranean coastal countries from the EU (Northern Europe, NE), Mediterranean coastal EU members (Southern Europe, SE), and non-EU Mediterranean Sea coastal countries which will take part to the Free Trade Area (Middle East and North Africa, MENA). The European countries are then grouped into the 15 European Union members who signed the Barcelona Conference Declaration (EU15). Clearly, since these countries have been in an explicit preferential trade agreement for most of the period under observation,¹¹ this dummy is essentially equivalent to the Free Trade Area dummy present in most gravity studies. Furthermore, we try to estimate the extent of inter-bloc trade. i.e. trade for all bilateral pairs belonging to two different blocs (but excluding intra-bloc bilateral trade). This is possible by introducing separate dummies for North European and South European countries trade with the MENA countries. Hence, as a first step we investigate trade blocs by using the above equation (3) specification and progressively adding the trade bloc variables, TB_{ij} :

$$\log (X_{ij}) = a_0 + a_1 Z_i^X + a_2 Z_j^M + \mathbf{B}_1 \mathbf{G}_{ij} + \mathbf{B}_2 \mathbf{D}_t + \delta TB_{ij} + \varepsilon_{ij}, \quad (4)$$

Secondly, we try to estimate whether the patterns of trade between these blocs have been changing over the time period considered by looking at the interaction between trade blocs and the time dummies. Finally, we estimate again the most general version

¹¹ *EC/EEA/EFTA/EU* trade agreements include Belgium, Bel-Lux, Denmark, France, Germany, Ireland, Italy, Luxembourg, Netherlands, UK, Norway, Switzerland, Malta, OCTs (Greenland, New Caledonia, French Polynesia, St. Pierre and Miquelon, Aruba, New Antilles, Falklands, St. Helena which are not considered here); Austria (since 1995), Finland (since 1995), Sweden (since 1995), Greece (since 1981), Portugal (since 1986), Spain (since 1986).

of the gravity model (equation (3)) and use it to derive the trade potential between each country pair.

2.2 Trade Potentials

The estimation of bilateral trade potentials has become a fairly common procedure in the literature in order to investigate the current and future benefits of economic integration.¹² Recently for this purpose the UNCTAD-WTO International Trade Centre has developed the *TradeSim* model (2003), which is largely based on the gravity model discussed above. In this paper, we follow De Benedictis and Vicarelli (2005) and compute the trade potential, π_{ijt} , by taking the ratio between effective trade (real exports of country i to country j) and the specified gravity model estimates.¹³ Then, in order to constrain the trade potential to fall within the $[-1, 1]$ interval we use the following standardisation:

$$\tilde{\Pi}_{ijt} = \frac{\pi_{ijt} - 1}{\pi_{ijt} + 1},$$

so that values above zero will identify greater exports than what would be expected by the empirical model, and values below zero will identify “untapped” export potential. In order to check whether the year 2001 has modified the trade patterns in the EU-MeFTA, we also run an event study analysis by re-estimating and comparing the trade potentials for two sub-periods: 1997-2000 and 2001-2004.

3. Data

Our data set consists of annual observations from 1980 to 2004 of trade between EUMeFTA (see the data appendix for a full description of data sources and variables transformations). The data on FOB bilateral exports, X_{ij} , are taken from the IMF *Direction of Trade Statistics* (DTS, 2006).¹⁴ They are expressed in US dollars and converted into constant dollars using the US Consumer Price Index. Both the GDP and Population series are taken from the IMF *International Financial Statistics* (2006). The GDP series have been converted into US dollars and divided by the US

¹² See Babetskii, Babetskaia-Kukharchuk, and Raiser (2003)

¹³ Clearly, given that fitted values are in logs, we take their exponential value.

¹⁴ In order to account for potential data discrepancies in the direction in which trade is reported and to average the CIF costs, we use the average of the X_{ij} and M_{ji} directions.

consumer price index. Land areas are taken from the World Development Indicators (2003) of the World Bank. The computation of distance relies on the arc-geometry formula between the two most populous cities. In the general model, where we include a large set of conditioning variables, a set of dummies serve to identify whether two trading partners use the same currency, whether they have been in a colonial relationship post-1945, whether they speak the same language. This last variable is obtained from Melitz (2004),¹⁵ who calculates a continuous indicator with values going from 0 to 1 rather than a 0-1 dummy.¹⁶ Landlocked/Island are two variables taking a value of one if one of the countries in the pair is landlocked/Island and two when both are. A summary of the statistics and the correlation matrix are in tables 9 and 10.

4. Results

4.1 Trade Blocs

We use as a preliminary benchmark model the general version of the gravity model with all of the traditional gravity variable (time dummies included) - but without the Anderson and van Wincoop (AvW, 2003) multilateral trade resistance terms - and start to progressively include our trade bloc dummies (see the data appendix for the full list). The results from these regressions are presented in table 1. In order to check the specification, we report in the first column the basic model without bloc dummies. All of the estimates are statistically significant and correctly signed, providing support for our gravity model specification. Adding the EU15 dummy - almost equivalent here to the traditional FTA dummy - yields the expected large effect of free trade areas on bilateral trade. In columns 2 and 3 the EU15 dummy is broken into a dummy for the Northern and Central countries and one for the Southern ones. Interestingly, only the NE dummy remains statistically significant and positive, indicating that most of the trade creating effect of the EU is felt in Central and Northern Europe. The EU Mediterranean coastal countries do not seem to trade more than average. Table 1 shows similar results in column 5 for the intra MENA trade, which is always

¹⁵ I am greatly indebted to Jacques Melitz for making available for this paper his data and formulas to compute the language variable.

¹⁶ Given the dominance of European countries in our dataset, we use the Melitz's Open Circuit Communication variable.

significant and below average. Column 8 reports on the inclusion of both the EU15 and the MENA dummies, summarising and confirming the above results. Column 9 regression controls for intra-EU15 trade, intra-MENA trade, North-South trade (NEMENA), and South-South trade (SEMENA). Again, the only statistically significant dummies are the ones of European trade (positive) and MENA (negative) trade. No significant effect can be detected for the North-South and the South-South trade.

In the regressions reported in table 2, we repeat the same analysis but now control for *multilateral trade resistance* (AvW, 2003). Again, inspection of column 1 validates our gravity specification, except for the lost significance of the log product land areas. This, however, is not too surprising given that the multilateral trade resistance terms capture most of the time invariant country characteristics. As before, in columns 2 to 9 we have progressively included the bloc dummies. Similarly, some of the variables with lower time variability lose their significance, depending on the introduction of a particular bloc dummy. The introduction of the country dummies has also modified the significance and/or sign of some of the dummy coefficients. Clearly, there must be some form of interaction between the country dummies and association to a particular trade bloc, which is in itself a trade resistance factor. However, in the most complete specification presented in column 9 the punch line is the same as in table 1: the EU15 trade more than average, the MENA countries trade less and, importantly, North-South and South-South trade are not significantly above or below the rest of the sample.

4.2 Time effects

As discussed in the introduction, a number of events may have recently affected trade between the Euro-Mediterranean countries. Particularly interesting, therefore, is the time analysis of the trade relationships in the region. Table 3 presents a first set of regressions for a quick and dirty assessment of the overall impact of the introduction of the Euro on the EU-MeFTA trade. Column 2 of the table shows the results of interacting the Common Currency dummy with the year effects. These results seem to suggest that in each year EMU has had an increasing effect on trade.¹⁷ There is a small negative effect (a slow down in the increase in trade) in 2001, but overall the increase is steady and always statistically significant at the 1% confidence level.

¹⁷ In the rounds of 140% (i.e. $100 \cdot (e^{0.35} - 1)$).

In order to investigate the patterns of trade over time, we run a set of regressions where we add to the most general representation (with multilateral trade resistance and time dummies) a set of dummies, which interact the trade blocs with the time effects. This specification allows us to extract the time patterns over and above the general effect of time (e.g. globalisation) on the same bloc and the other blocs. Given that we are mostly interested in the changes of each particular bloc trade over time, we do not report the full set of regressions, but simply plot the dummy variables estimates with the respective confidence intervals. The results presented in figures 1 to 4 portrait a clear picture. Intra-MENA trade has been increasing from negative to significantly positive values at the beginning of the nineties. Henceforth, it has stayed stable until 2001, when it experienced a large drop to the point of insignificance. Intra-EU trade on the other hand has been increasing since the mid of the eighties to remain stable till the end of the period. Figures 3 and 4 show an interesting pattern. South-South trade has undergone a decrease from the beginning of the period till the end of the eighties. Then it has started to pick up and has become positive, though insignificant, since the mid of the nineties and onwards (interestingly, after the Barcelona Conference). Just like South-South trade, North-South trade has been decreasing since the beginning of the eighties. This trend is, however, unmodified by the Barcelona Process post 1995. This last evidence seems to point towards the possible development of trade blocs within the future Free Trade Area, with the Mediterranean countries probably benefiting more from the trade liberalisation than the Northern and Central European ones.

4.3 Trade Potentials

The final step in our analysis involves the estimation of trade potentials, as described in section 2. These are computed by taking the ratio between effective and fitted values of trade. This ratio is then standardised in the $[-1, 1]$ interval. For this purpose, we use again the most general representation of the gravity model (with multilateral trade resistance and time dummies) and obtain from the regression the fitted trade. Table 4 shows, for the full sample period, that the model predicts in more cases less trade than actual. However, there is a large portion of the sample where trade potential is below zero. In order to gauge the impact of events at the beginning of the new century, we have also re-estimated the trade potentials for two sub-periods: the four years before and after 2001 (see table 5 for the resulting percentages of cases below and above trade potential pre and post 2001). In table 6, we report on the number of

cases when trade potential has improved or worsened in the second period (2001-2004). These numbers are quiet telling. The only evidence of improvement can be detected for Northern Europe (64 cases against 46). Southern European trade has split cases (15). North-South, South-South and MENA trade has worsened in the majority of cases, with intra-MENA trade being the worse performer. In table 7, we report evidence of cases when trade was below and moved above trade potential and vice versa. The numbers are quiet similar with a slight tendency for improvement, which we can confidently impute to intra-EU trade.

Finally, Figures 5 to 28 present the standardised trade potential index over time for each country over the full period, giving a full picture of the trade patterns in the future EU-MeFTA. Overall, the figures seem to confirm some of the results already highlighted in the previous analysis with respect to the considerations pertaining to the regional trade bloc patterns. Interestingly, with respect to the most recent events not all countries experience a worsening of the trade potential index after 2001 and both trade creating and trade diverting trends can be detected between the countries in sample.

5. Conclusions

Trade integration is an important step to build peace and share prosperity in the Euro-Mediterranean region. A few years away from the institution of the Euro-Mediterranean Free Trade Area (EU-MeFTA), we have intended to run an empirical investigation into the nature of trade between the future FTA members. In particular, we have used a gravity model specification to identify and monitor the existence of trade blocs in different geographical directions. The evidence presented seems to suggest that within the future FTA, EU trade is above the average (with a predominance of North European trade), Southern Mediterranean trade is still below average, and there is little North-South (i.e. Centre and North European and Southern European trade with the Southern Mediterranean). By monitoring these blocs over time, we find that the Southern Mediterranean trade has been showing a positive trend since the beginning of the nineties, but also a large drop post 2001. On the other hand European trade seems to have increased steadily since the mid eighties and stabilised later in the nineties. Interestingly, a divergent pattern can be detected between Southern Europe-Southern Mediterranean trade (falling until the mid eighties and

recovering afterwards, especially post Barcelona Conference) and Northern Europe – Southern Mediterranean trade (falling steadily for the full period). We have also performed an event study analysis of trade potentials before and after 2001. Our results seem to confirm that the only improvements in trade integration occurred post 2001 pertain to the EU countries. On the other hand, the Southern Mediterranean countries seem to have worsened their trade potential after 2001.

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DATA APPENDIX

The dataset includes all the future members of the Euro-Mediterranean free trade area. The Palestinian Authority and Lebanon were excluded because of the lack of data.

15 EU member states in 1995:

Austria (122, NE), Belgium (124, NE), Denmark (128 NE), Germany (134, NE), Spain (184, SE), Finland (172, NE), France (132, SE), Greece (174, SE), Ireland (178, NE), Italy (136, SE), Luxembourg (137, NE), Netherlands (138, NE), Portugal (182, NE), United Kingdom (112, NE), Sweden (144, NE)

10 governments from the wider Mediterranean region:

Algeria (612, NA), Cyprus (432, SE), Egypt (469, NA), Israel (436, ME), Jordan (439, ME), Malta (181, SE), Morocco (686, NA), Syria (463, ME), Tunisia (744, NA) and Turkey (186, ME)

Geographical Blocs in EU-MeFTA

Northern Europe (NE): Austria, Belgium, Denmark, Germany, Finland, Ireland, Luxembourg, Netherlands, Portugal, UK, Sweden

Southern Europe (SE): Spain, France, Greece, Italy, Malta, Cyprus

Middle East North Africa (MENA): Algeria, Egypt, Morocco, Tunisia, Israel, Jordan, Syria, Turkey

NEMENA: Northern Europe (NE) and Middle East North Africa (MENA) with intra-trade excluded

SEMENA: Southern Europe (NE) and Middle East North Africa (MENA), with intra-trade excluded

Variables Definitions

X_{ij} : Average between Bilateral Exports Fob of country i to country j and Imports cif of country j from country i (Source: IMF Directions of Trade Statistics, DOTS 2006), expressed in US\$ and scaled by the US Consumer Price Index (CPI), taken from the IMF International Financial Statistics (2006) line 64

Distance_{ij}: Great circle distances are calculated using the arc-geometry formula on the latitude and longitude coordinates of the most populous city.

Y: Gross Domestic Product of country in current US\$ divided by the US CPI series. Both series are taken from the IMF International Financial Statistics (2006)

Population: Population taken from the IMF International Financial Statistics (2006)

Common Language: See Melitz (2004)

Ex-Colonial Relationship (Source: CIA World Factbook 2005)

France, Algeria, Morocco, and Tunisia; **Italy** and Libya; **United Kingdom**, Cyprus, and Malta (in bold the ex-colonizers).

European Monetary Union (since 1999)

Austria, Belgium, Germany, Spain, Finland, France, Greece (since 2000), Ireland, Italy, Luxembourg, Netherlands, Portugal

Table 1 –Regressions Without Country Dummies

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
log(Dij)	-1.13*** (0.105)	-0.74*** (0.093)	-1.16*** (0.104)	-0.81*** (0.092)	-1.27*** (0.096)	-1.11*** (0.112)	-1.16*** (0.102)	-0.91*** (0.080)	-0.89*** (0.084)
log(Yi*Yj)	0.247*** (0.017)	0.245*** (0.015)	0.267*** (0.018)	0.065*** (0.019)	0.196*** (0.017)	0.246*** (0.020)	0.263*** (0.017)	-0.018 (0.017)	-0.015 (0.019)
log(POPi*POPj)	0.775*** (0.073)	0.865*** (0.061)	0.756*** (0.072)	0.978*** (0.060)	0.809*** (0.068)	0.774*** (0.075)	0.781*** (0.068)	1.049*** (0.054)	1.056*** (0.057)
log(Ai*Aj)	- 0.306*** (0.052)	- 0.250*** (0.050)	- 0.297*** (0.052)	- 0.277*** (0.048)	- 0.266*** (0.051)	- 0.314*** (0.053)	- 0.293*** (0.050)	- 0.230*** (0.046)	- 0.240*** (0.049)
Landlocked	- 0.590*** (0.183)	- 0.733*** (0.160)	- 0.584*** (0.184)	- 0.558*** (0.153)	- 0.580*** (0.180)	- 0.530*** (0.184)	- 0.705*** (0.182)	- 0.590*** (0.144)	- 0.600*** (0.147)
Island	-0.655** (0.258)	0.262 (0.258)	-0.524* (0.285)	- 1.408*** (0.219)	- 0.806*** (0.259)	- 0.804*** (0.269)	-0.532** (0.249)	- 1.586*** (0.213)	- 1.638*** (0.237)
Colonial Rel	1.516*** (0.306)	1.459*** (0.262)	1.476*** (0.301)	1.393*** (0.239)	1.241*** (0.326)	1.472*** (0.318)	2.071*** (0.298)	1.042*** (0.227)	1.094*** (0.253)
Currency Union	0.759*** (0.139)								
Language	0.409* (0.218)	0.512*** (0.181)	0.435** (0.219)	0.510*** (0.180)	0.479** (0.202)	0.419* (0.218)	0.417** (0.202)	0.597*** (0.159)	0.609*** (0.158)
NE		2.109*** (0.138)							
SE			-0.476 (0.298)						
Intra EU15				2.353*** (0.142)				2.489*** (0.134)	2.142*** (0.363)
MENA					- 1.801*** (0.233)			- 2.176*** (0.216)	- 2.490*** (0.394)
NEMENA						-0.196 (0.183)			-0.332 (0.375)
SEMENA							- 1.364*** (0.147)		-0.430 (0.364)
Time Dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country Dummies	No	No	No	No	No	No	No	No	No
Observations	13328	13328	13328	13328	13328	13328	13328	13328	13328
R ²	0.67	0.73	0.67	0.75	0.69	0.67	0.69	0.78	0.78

In parentheses robust standard errors corrected for clustering by country pair; Constant and Year dummies are omitted;
* significant at 10%; ** significant at 5%; *** significant at 1%

Table 2 –Regressions with Country Dummies

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
log(Dij)	-0.87***	-0.77***	-0.89***	-0.82***	-0.82***	-0.77***	-0.89***	-0.82***	-0.80***
	(0.064)	(0.072)	(0.064)	(0.066)	(0.066)	(0.072)	(0.064)	(0.066)	(0.074)
log(Yi*Yj)	0.427***	0.418***	0.415***	0.419***	0.419***	0.419***	0.415***	0.419***	0.419***
	(0.072)	(0.073)	(0.073)	(0.073)	(0.073)	(0.072)	(0.073)	(0.073)	(0.072)
log(POPi*POPj)	0.497*	0.303	0.298	0.238	0.238	0.270	0.304	0.238	0.245
	(0.269)	(0.258)	(0.258)	(0.260)	(0.260)	(0.258)	(0.258)	(0.260)	(0.260)
log(Ai*Aj)	-0.144	0.081	0.611***	-0.119	0.637***	0.621***	-0.039	-0.187**	-0.011
	(0.157)	(0.142)	(0.150)	(0.125)	(0.150)	(0.150)	(0.151)	(0.082)	(0.092)
Landlocked	-	-0.062	1.553**	-	1.360*	1.576**	-	-	-
	1.302***			1.177***			1.270***	1.597***	1.630***
	(0.324)	(0.376)	(0.782)	(0.373)	(0.785)	(0.784)	(0.329)	(0.334)	(0.334)
Island	0.144	1.466***	4.381***	-	4.236***	4.313***	-0.169	-	-
	(0.492)	(0.520)	(1.028)	1.834***	(1.037)	(1.040)	(0.476)	2.403***	2.443***
				(0.573)				(0.375)	(0.353)
Colonial Rel.	1.182***	1.128***	1.251***	1.260***	1.260***	1.104***	1.179***	1.260***	1.151***
	(0.152)	(0.157)	(0.156)	(0.146)	(0.146)	(0.151)	(0.161)	(0.146)	(0.152)
Common Currency	0.355***								
	(0.080)								
Language	0.655***	0.634***	0.630***	0.619***	0.619***	0.645***	0.648***	0.619***	0.616***
	(0.140)	(0.141)	(0.137)	(0.136)	(0.136)	(0.144)	(0.141)	(0.136)	(0.140)
NE		0.627***							
		(0.122)							
SE			0.317*						
			(0.163)						
EU15				0.712***				1.227***	2.533***
				(0.202)				(0.263)	(0.465)
MENA					0.712***			-0.515	-
					(0.202)			(0.340)	(0.504)
NEMENA						-			0.058
						0.434***			
						(0.105)			(0.305)
SEMENA							0.023		0.381
							(0.112)		(0.295)
Observations	13328	13328	13328	13328	13328	13328	13328	13328	13328
R ²	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88

In parentheses robust standard errors corrected for clustering by country pair; Constant, Country and Year dummies are omitted;

* significant at 10%; ** significant at 5%; *** significant at 1%

Table 3 –European Monetary Union Effect

	(1)	(2)
log(Dij)	-0.878***	-0.878***
	(0.064)	(0.064)
log(Yi*Yj)	0.427***	0.428***
	(0.072)	(0.072)
log(POPi*POPj)	0.497*	0.497*
	(0.269)	(0.269)
log(Ai*Aj)	-0.144	0.511***
	(0.157)	(0.154)
Landlocked	-1.302***	2.026**
	(0.324)	(0.801)
Island	0.144	5.106***
	(0.492)	(1.055)
Colonial Rel.	1.182***	1.182***
	(0.152)	(0.152)
Common Currency	0.355***	
	(0.080)	
Language	0.655***	0.655***
	(0.140)	(0.140)
CU in 1999		0.395***
		(0.077)
CU in 2000		0.341***
		(0.080)
CU in 2001		0.391***
		(0.084)
CU in 2002		0.303***
		(0.085)
CU in 2003		0.365***
		(0.086)
CU in 2004		0.333***
		(0.091)
Time Dummies	Yes	Yes
Country Dummies	Yes	Yes
Observations	13328	13328
R ²	0.88	0.88

In parentheses robust standard errors corrected for clustering by country pair; Constant, Country and Year dummies are omitted;

* significant at 10%; ** significant at 5%; *** significant at 1

Table 4 – Standardised Trade Potential - Percentages

	Full Sample	Southern Europe	Northern Europe	Northern Europe – Middle East North Africa	Southern Europe – Middle East North Africa	EU15	Middle East North Africa
STP<0	42.36	39.60	37.88	44.22	37.91	47.95	19.77
STP>0	57.64	60.40	62.12	55.78	62.09	55.78	80.23
Total	100	100	100	100	100		100

Table 5

	1997-2000		2001-2004	
	Count	Frequency	Count	Frequency
Below STP	281	43.63	278	43.17
Above STP	363	56.37	366	56.83

Table 6 – Have improved trade potential in 2001-2004 compared to 1997-2000

	Southern Europe	Northern Europe	Northern Europe – Middle East North Africa	Southern Europe – Middle East North Africa	EU15	Middle East North Africa
STP _{T2} <STP _{T1}	15	46	108	56	117	53
STP _{T2} >STP _{T1}	15	64	90	34	155	13
Better+/Worse-	=	+	-	-	+	-

Table 7 – Have moved above or below zero

Were below STP – Have moved above STP	35
Were above STP – Have moved below STP	32

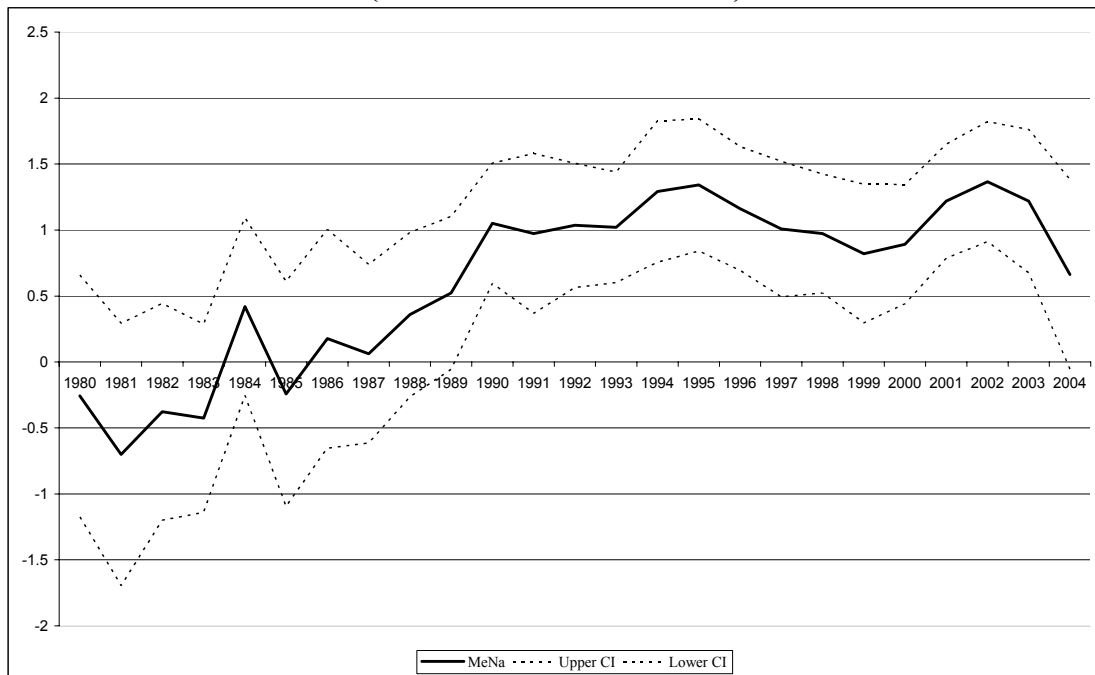
Table 9 – Summary Statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
Log(X_{ij})	14911	.1268472	2.860126	-10.09184	6.60988
Log(D_{ij})	15052	7.416827	.7173027	4.444693	8.321572
Log(Y_i*Y_j)	13425	35.21556	4.589626	24.07486	50.06238
Log(P_i*P_j)	15052	18.60851	1.946866	11.98403	22.51562
Log(A_iA_j)	15052	23.23384	2.583052	13.61361	28.49429
Landlocked	15052	.1068961	.3124128	0	2
Island	15052	.158185	.373919	0	2
Colonial Rel	15052	.0232527	.1507101	0	1
Language	15052	.1131411	.3167757	0	1
Currency Union	15052	.051156	.2203231	0	1

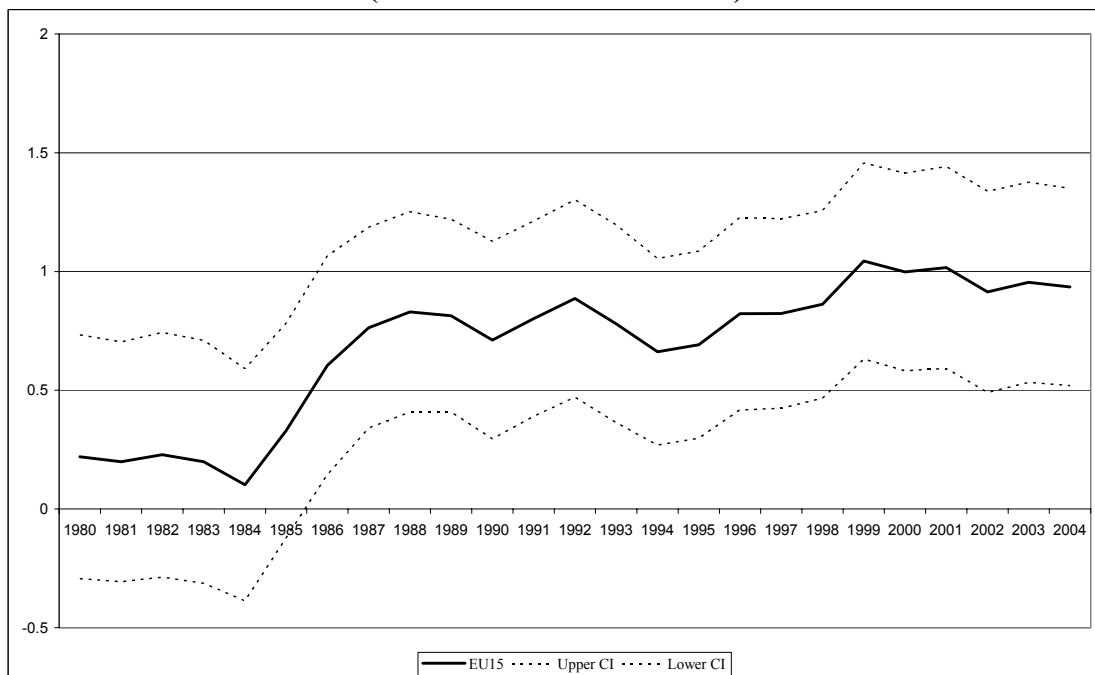
Table 10 – Correlation Matrix

	Log(D_{ij})	Log(Y_i*Y_j)	Log(P_i*P_j)	Log(A_iA_j)	LL	Island	COL	L
Log(D_{ij})	1							
Log(Y_i*Y_j)	-0.164	1						
Log(P_i*P_j)	-0.069	0.531	1					
Log(A_iA_j)	0.068	0.309	0.829	1				
Landlocked (LL)	-0.10	0.105	-0.186	-0.164	1			
Island	0.027	-0.431	-0.662	-0.690	-0.073	1		
Colonial Rel (COL)	0.072	-0.055	0.062	0.039	-0.056	0.052	1	
Language (L)	-0.207	-0.05	-0.155	-0.167	0.244	-0.010	0.246	1
Currency Union	-0.146	0.3	0.027	-0.025	0.173	-0.107	-0.039	0.086

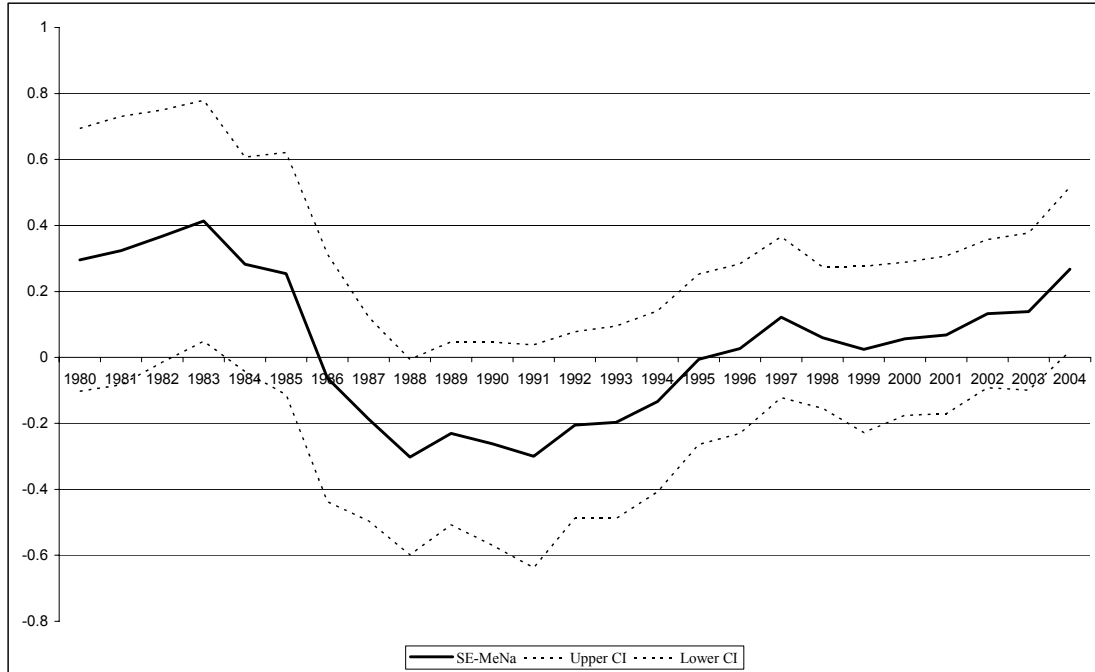
**Figure 1 – Intra-MENA Trade
(Estimated Time Dummies)**



**Figure 2 – Intra EU15 Trade
(Estimated Time Dummies)**



**Figure 3 – Trade between Southern Europe and MENA
(Estimated Time Dummies)**



**Figure 4 – Trade between Northern Europe and MENA
(Estimated Time Dummies)**

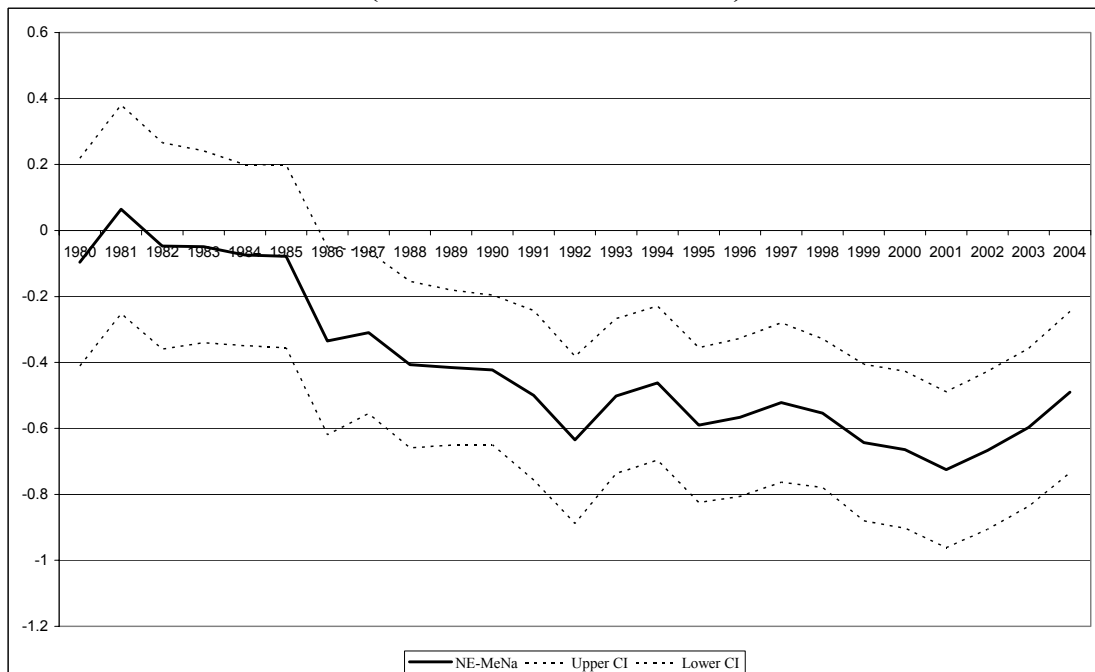
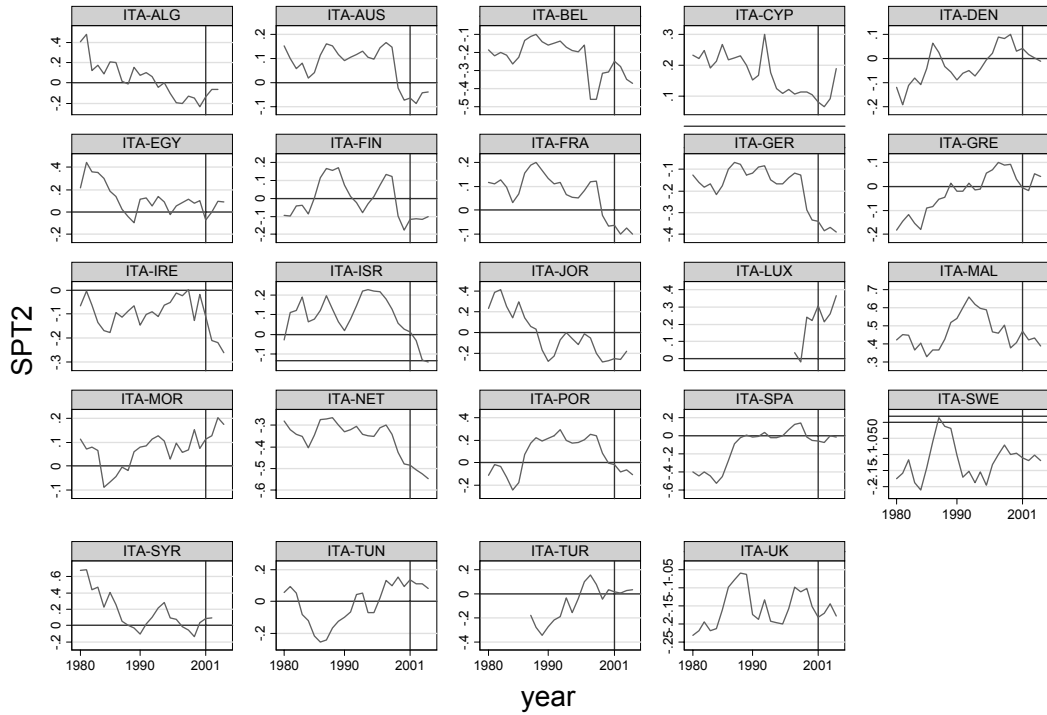
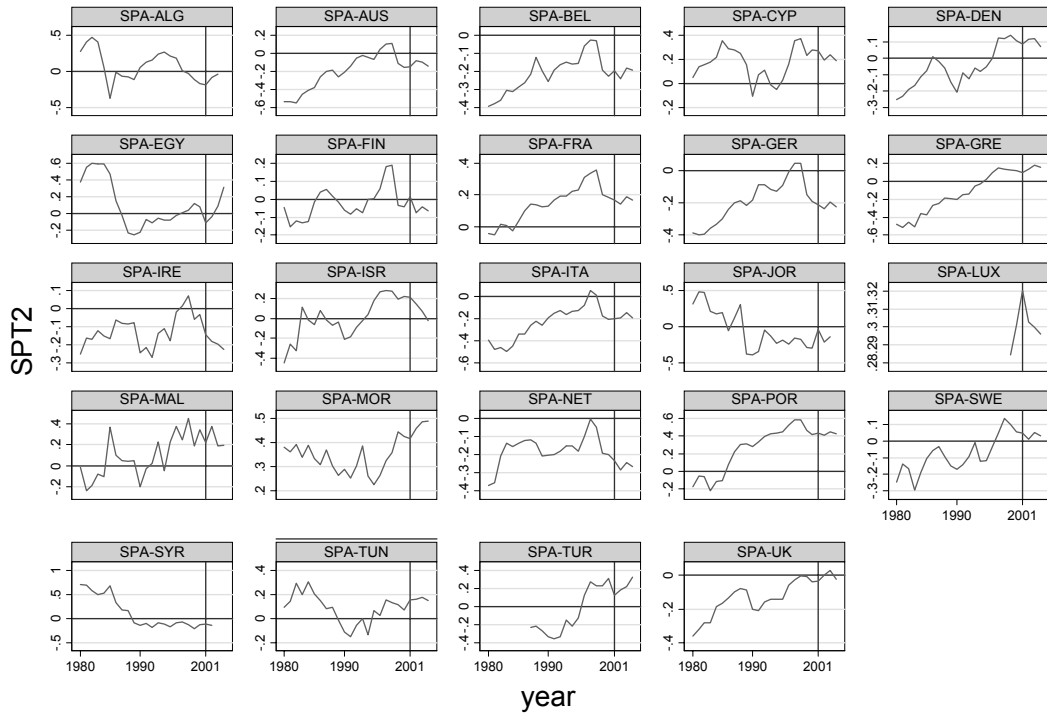


Figure 5 – Trade Potential for Italy



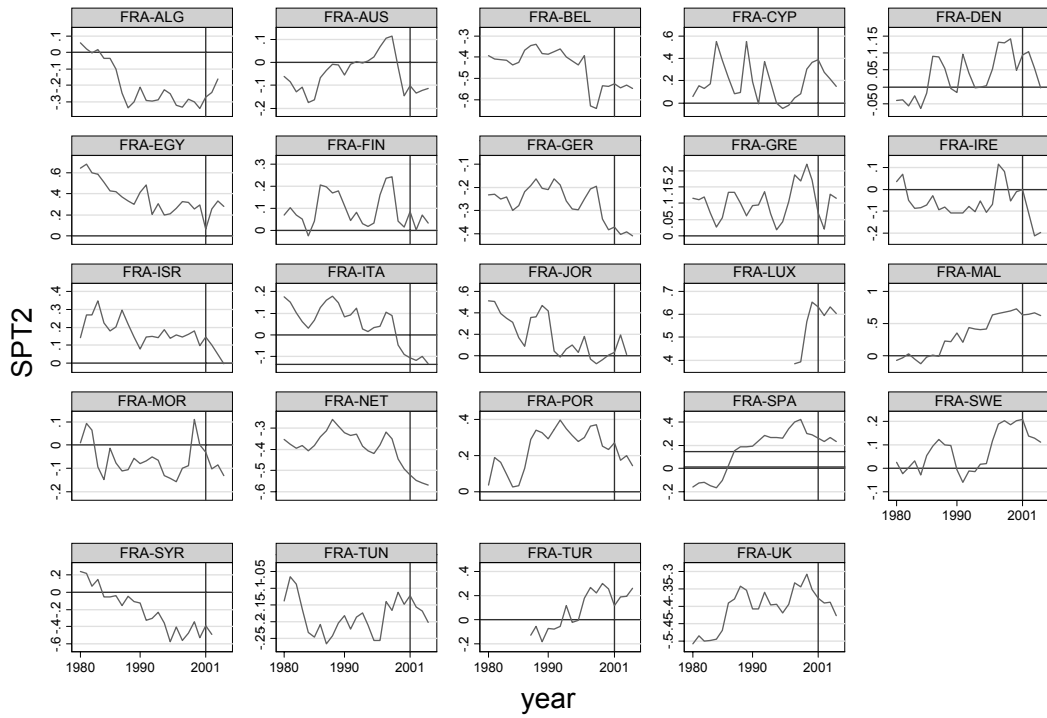
Graphs by Pair

Figure 6 – Trade Potential for Spain



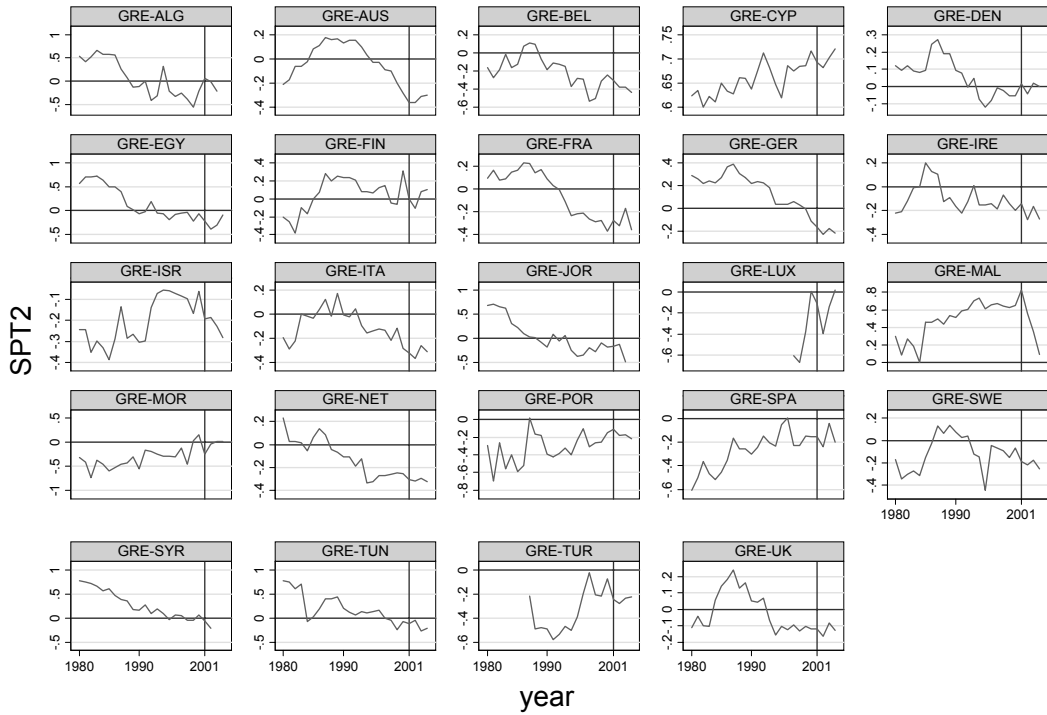
Graphs by Pair

Figure 7 – Trade Potential for France



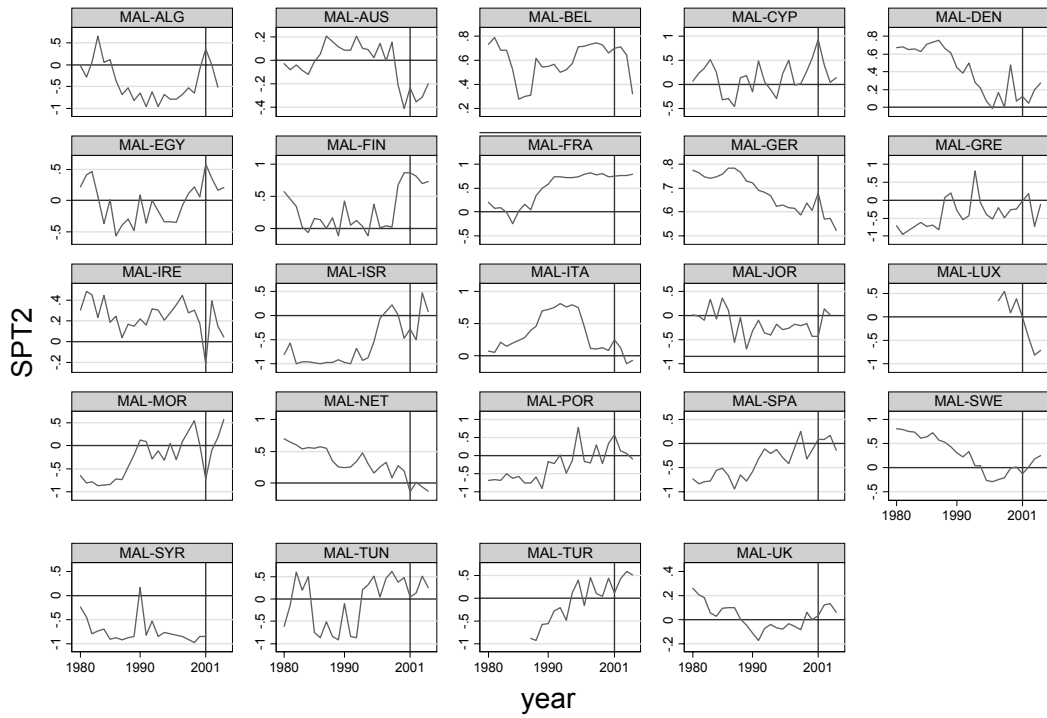
Graphs by Pair

Figure 8 – Trade Potential for Greece



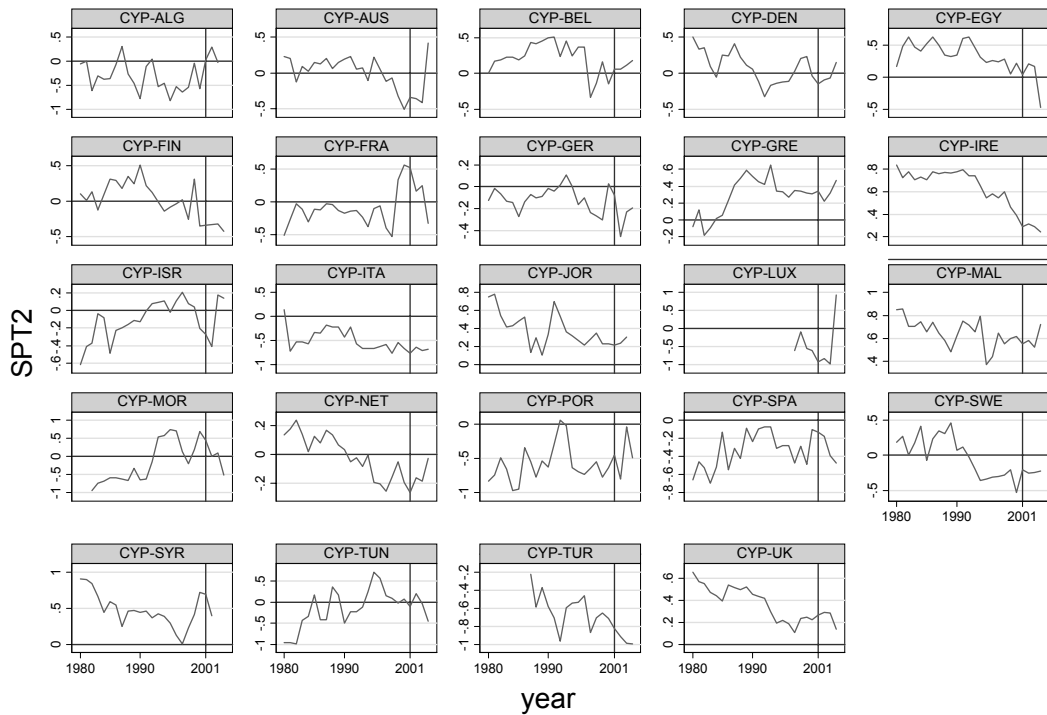
Graphs by Pair

Figure 9 – Trade Potential for Malta



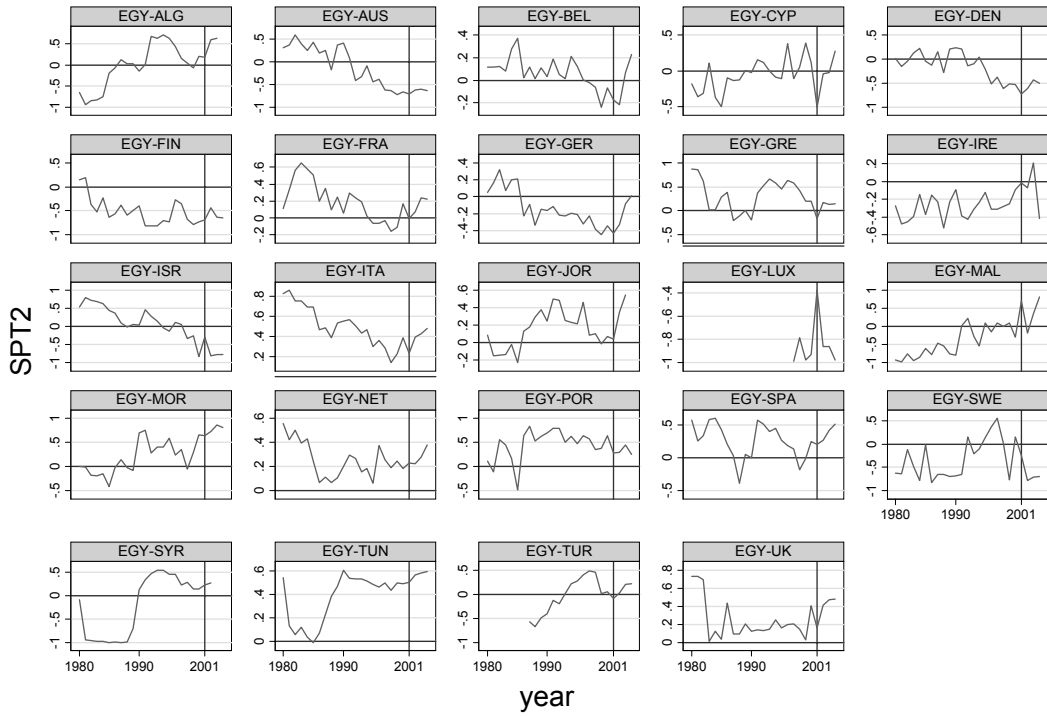
Graphs by Pair

Figure 10 – Trade Potential for Cyprus



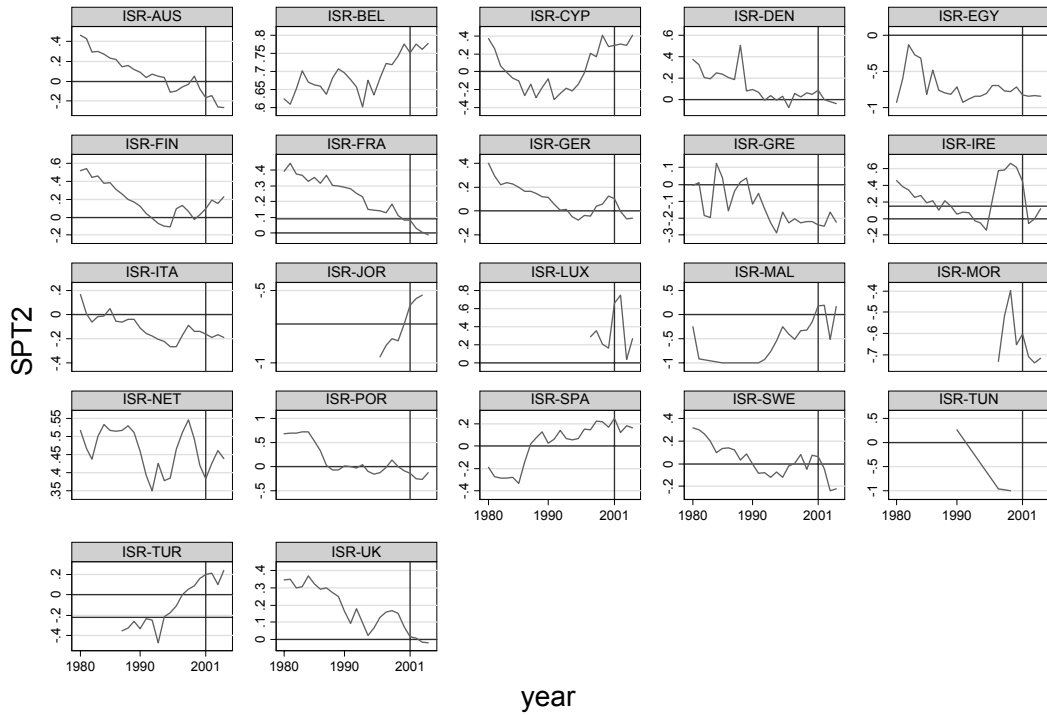
Graphs by Pair

Figure 11 – Trade Potential for Egypt



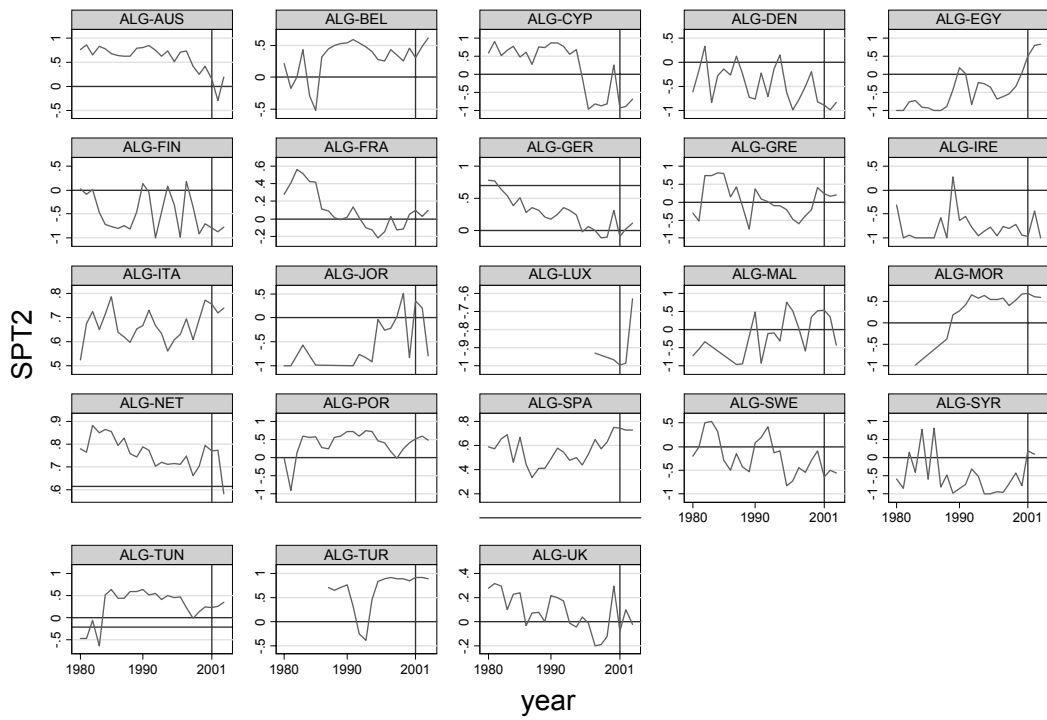
Graphs by Pair

Figure 12 – Trade Potential for Israel



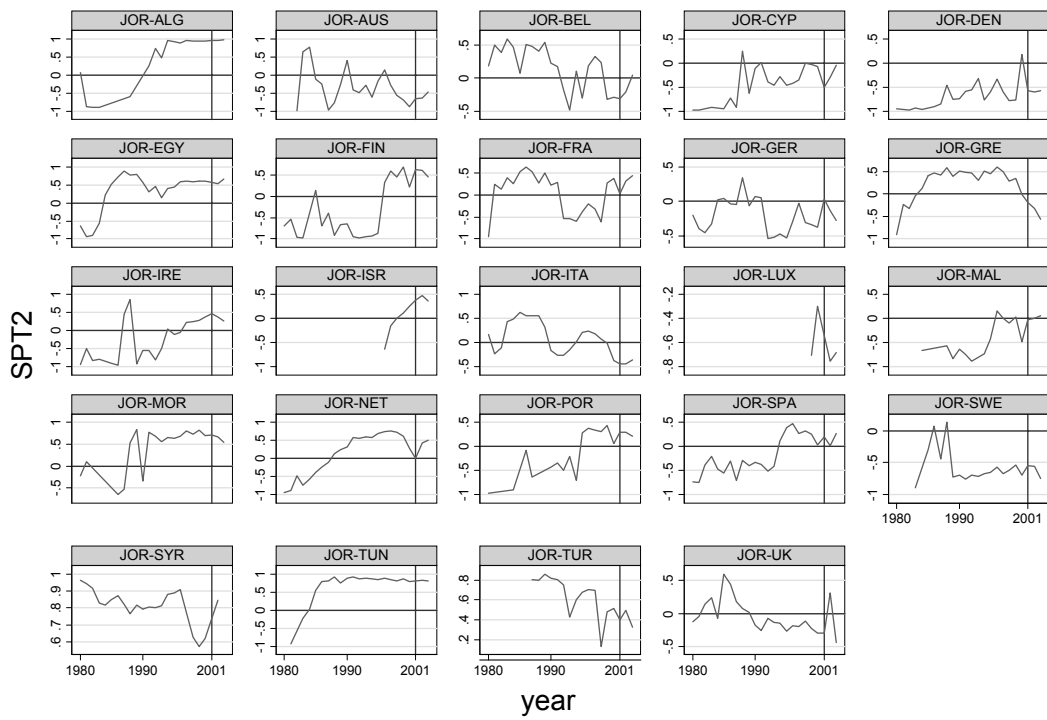
Graphs by Pair

Figure 13 – Trade Potential for Algeria



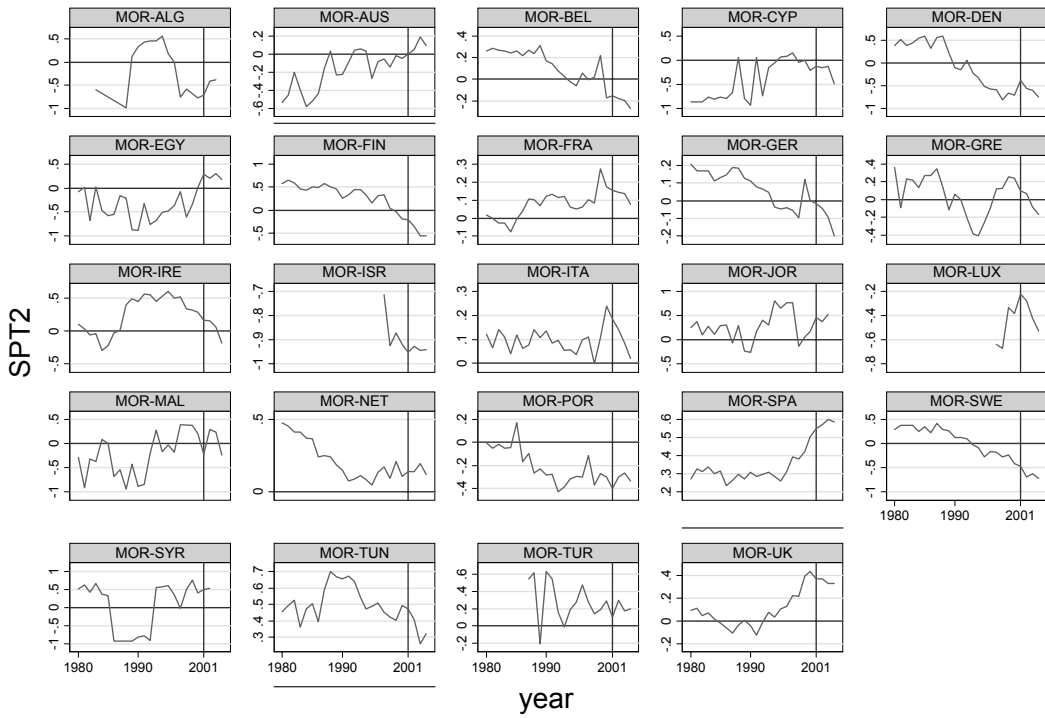
Graphs by Pair

Figure 14 – Trade Potential for Jordan



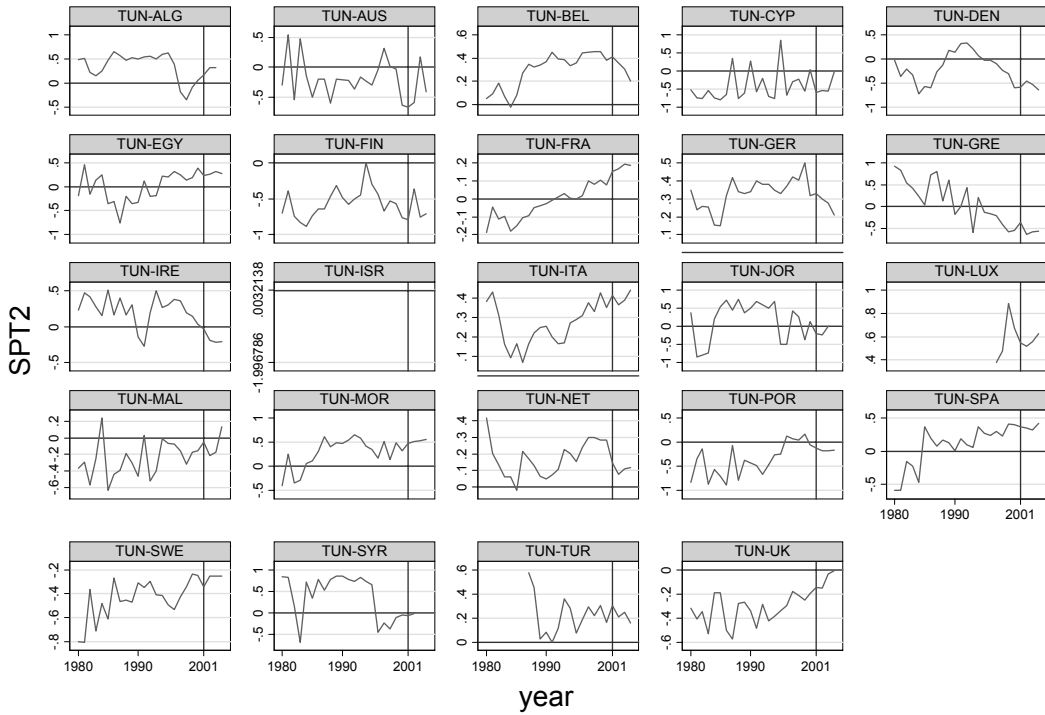
Graphs by Pair

Figure 15 – Trade Potential for Morocco



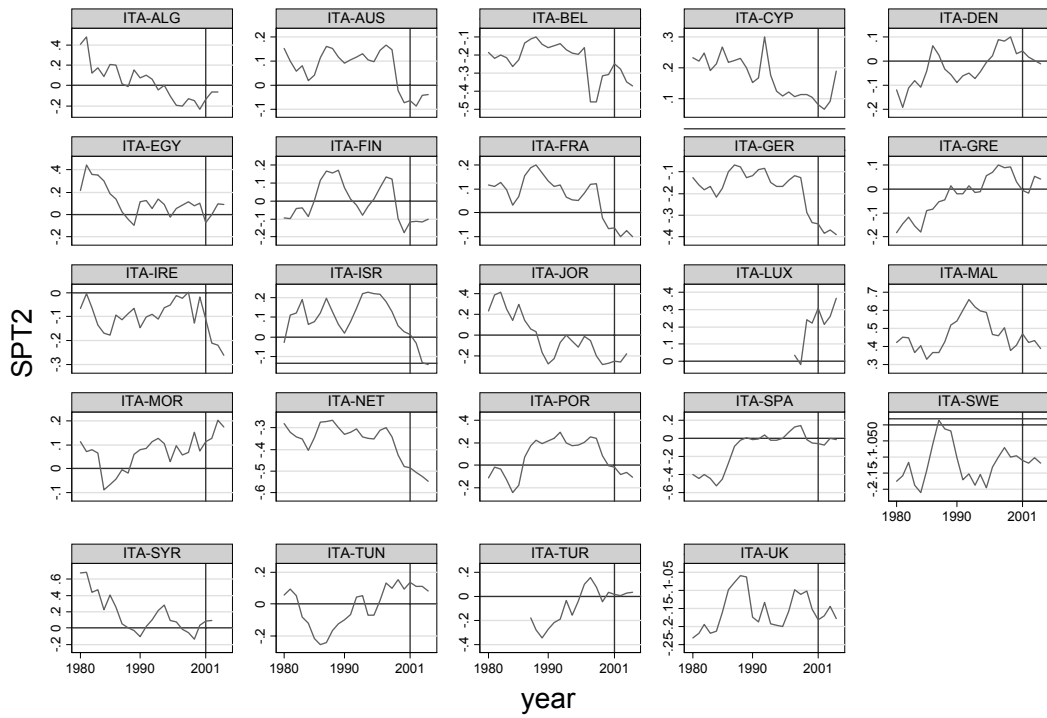
Graphs by Pair

Figure 16 – Trade Potential for Tunisia



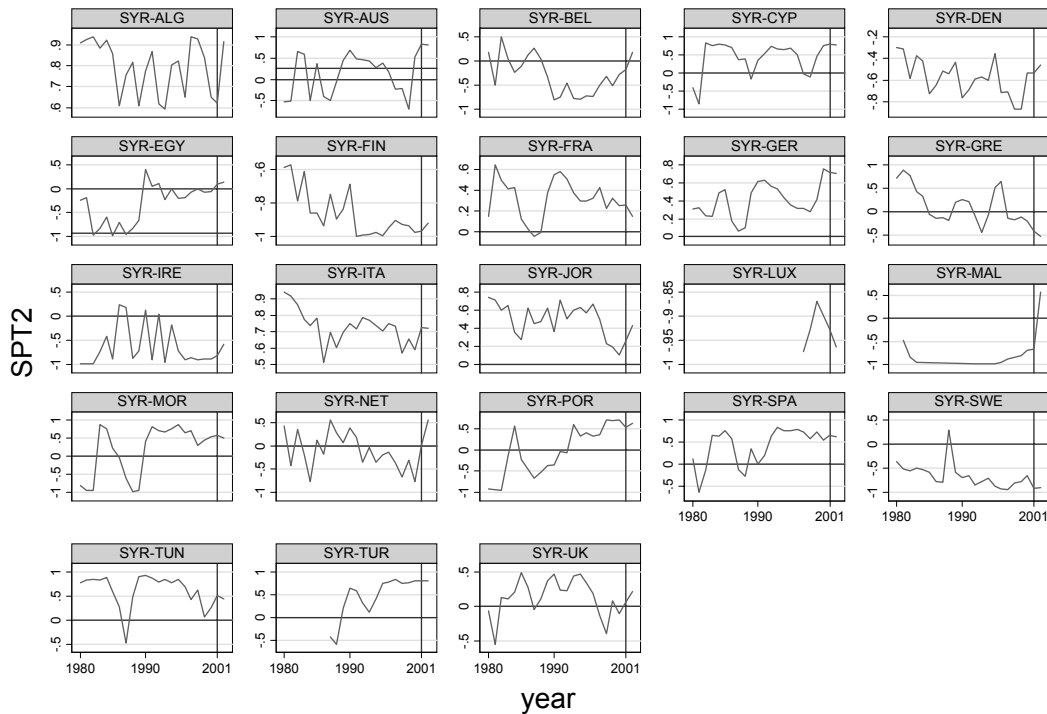
Graphs by Pair

Figure 17 – Trade Potential for Turkey



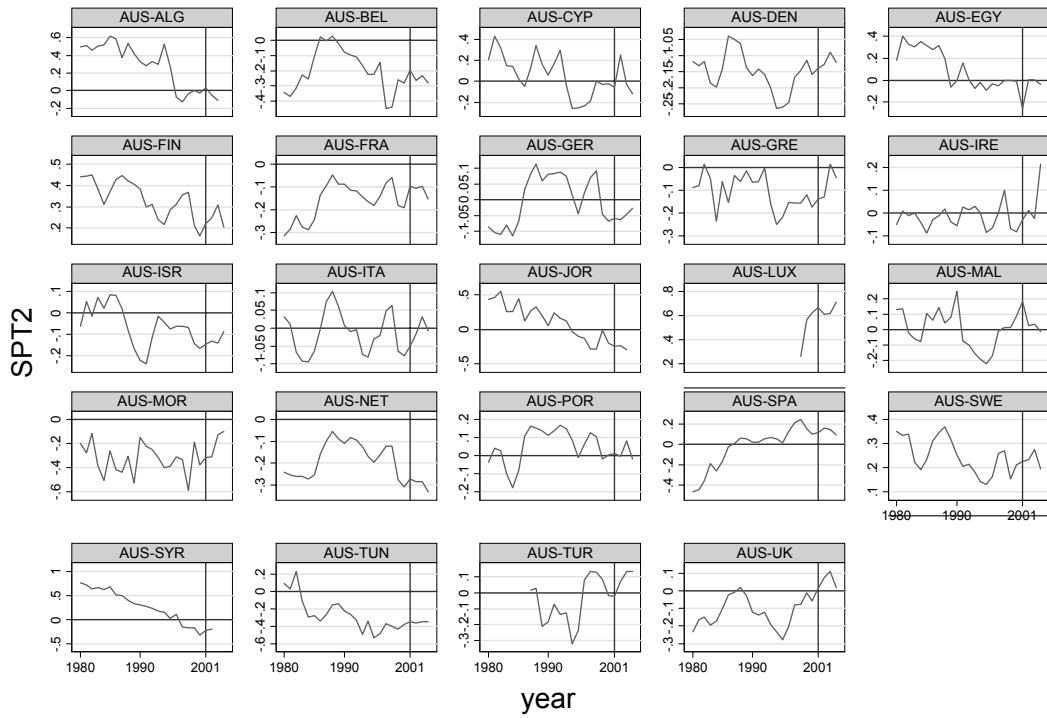
Graphs by Pair

Figure 18 – Trade Potential for Syria



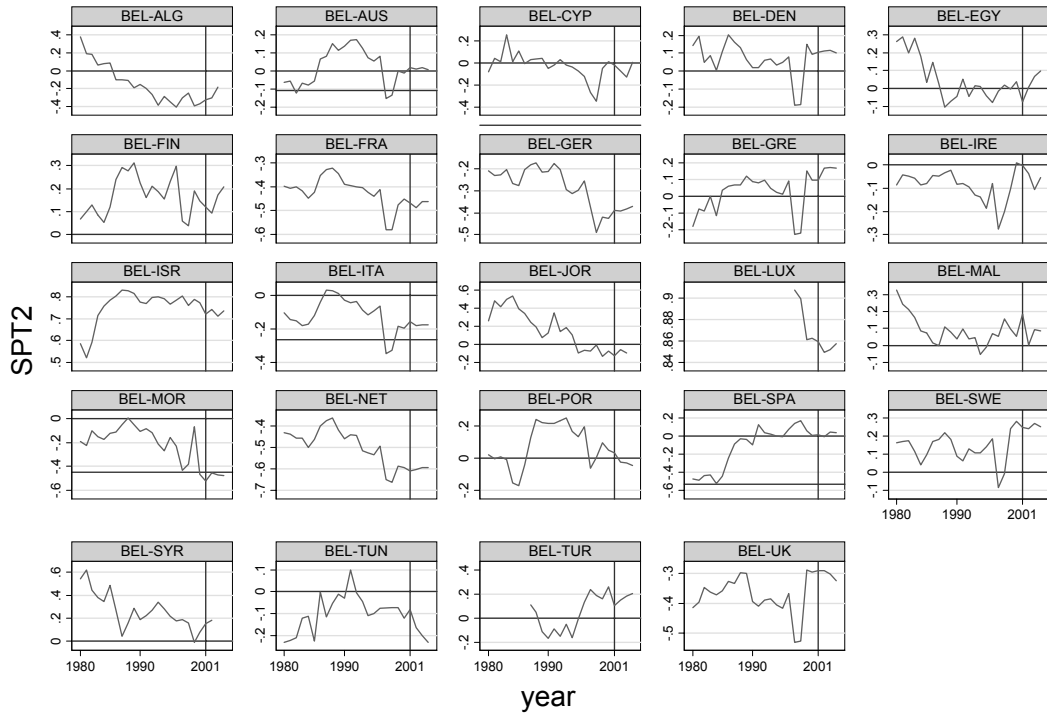
Graphs by Pair

Figure 19 – Trade Potential for Austria



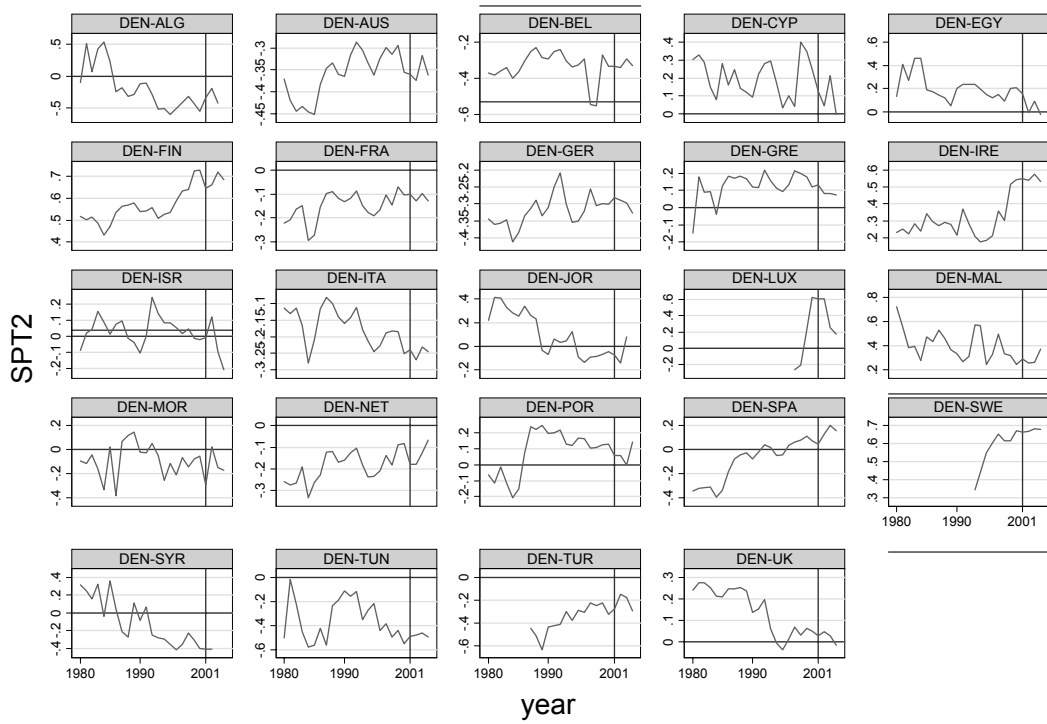
Graphs by Pair

Figure 20 – Trade Potential for Belgium



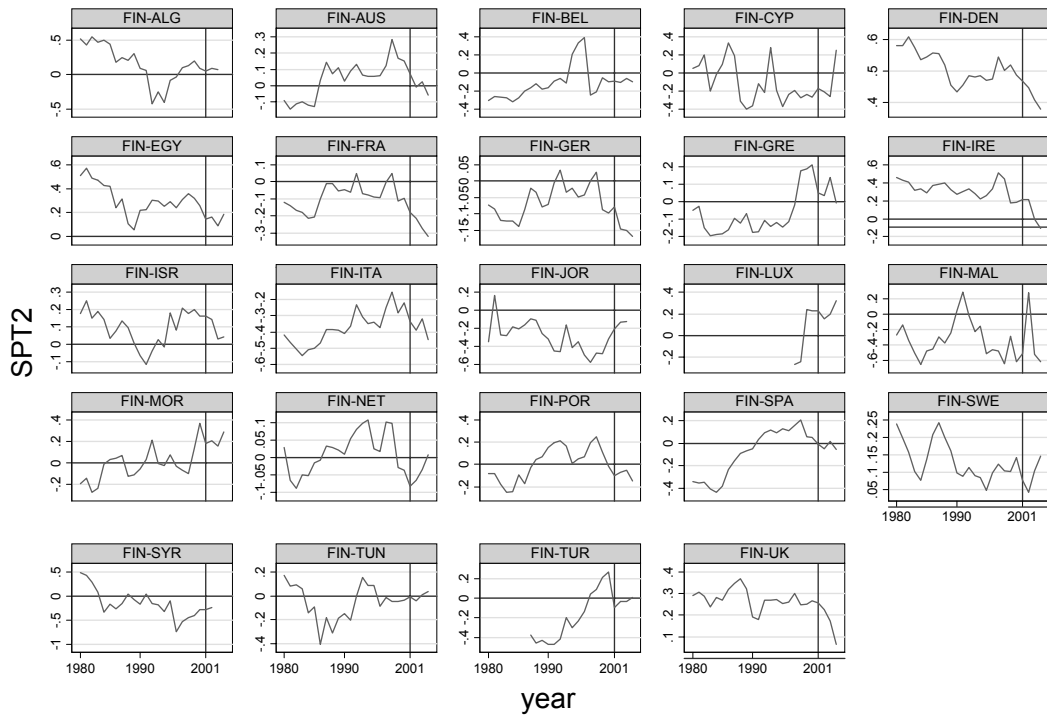
Graphs by Pair

Figure 21 – Trade Potential for Denmark



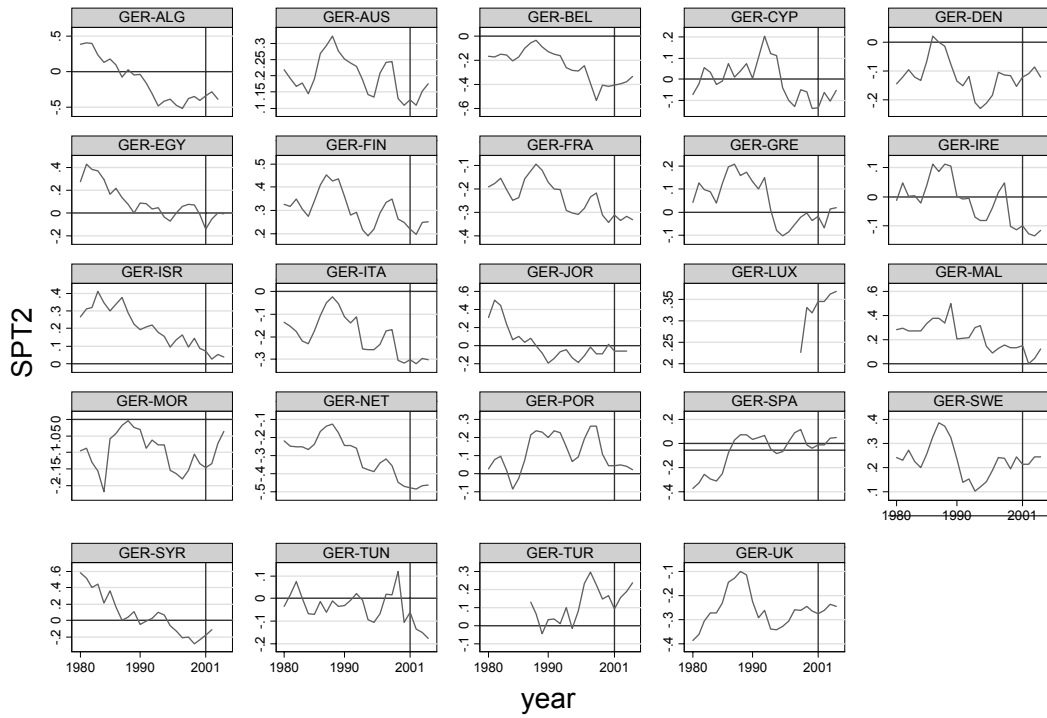
Graphs by Pair

Figure 22 – Trade Potential for Finland



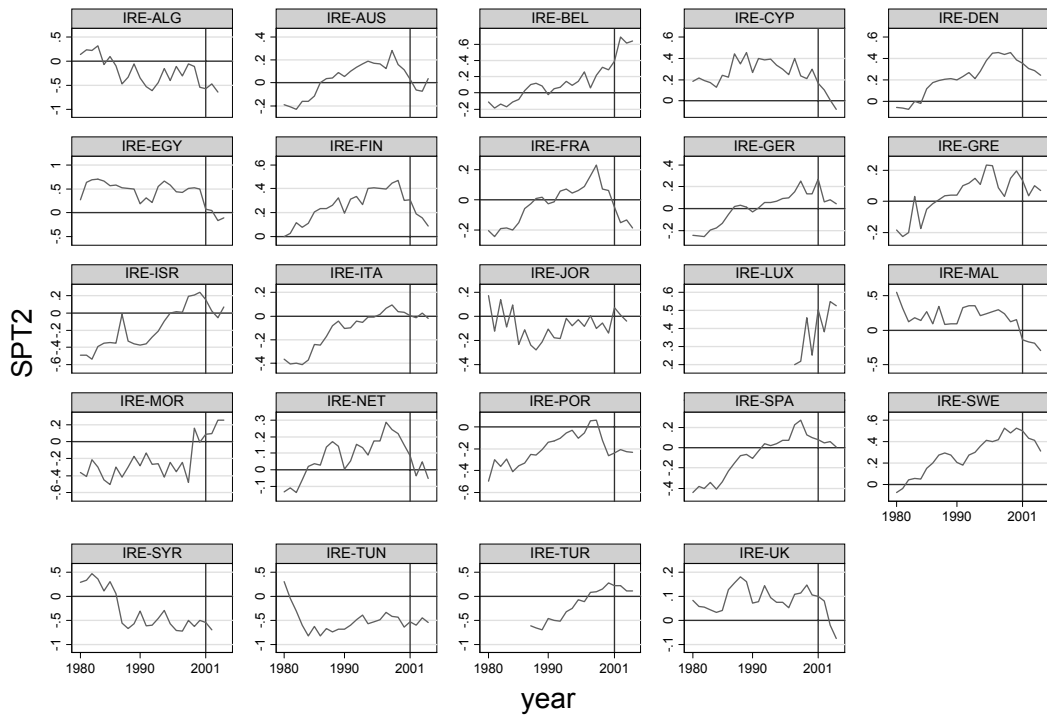
Graphs by Pair

Figure 23 – Trade Potential for Germany



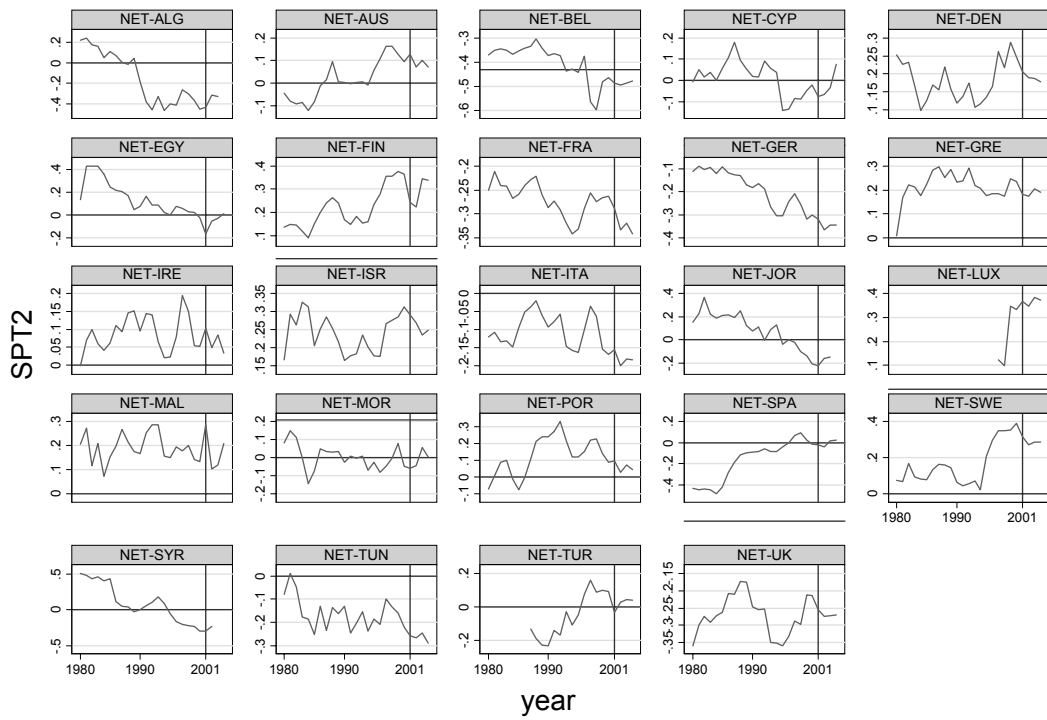
Graphs by Pair

Figure 24 – Trade Potential for Ireland



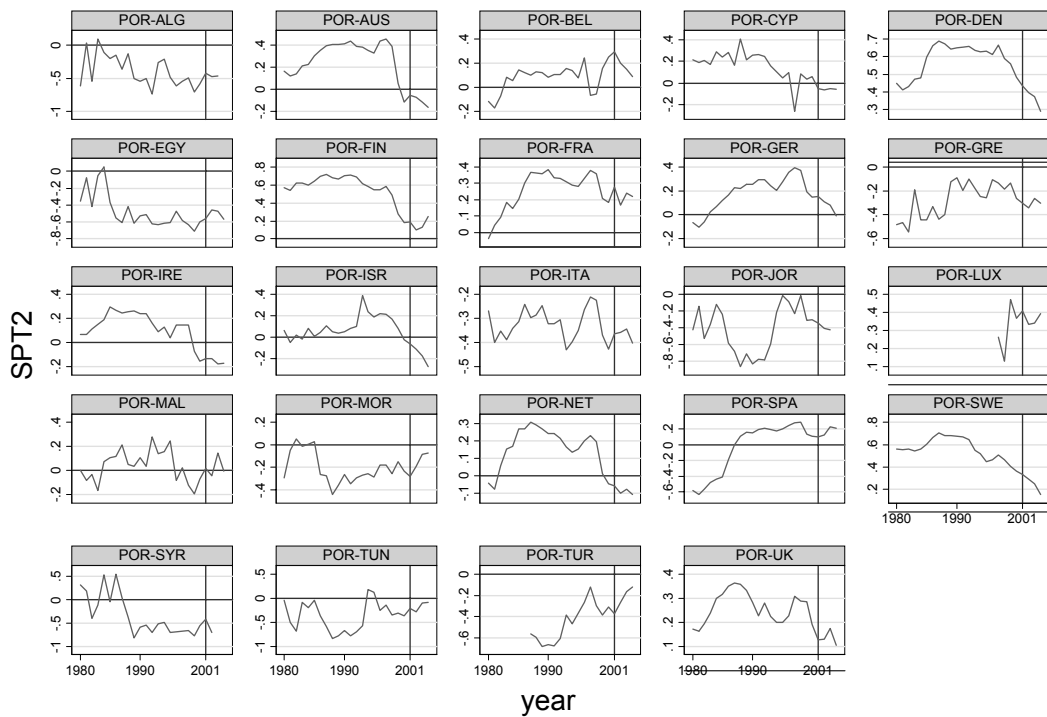
Graphs by Pair

Figure 25 – Trade Potential for Netherlands



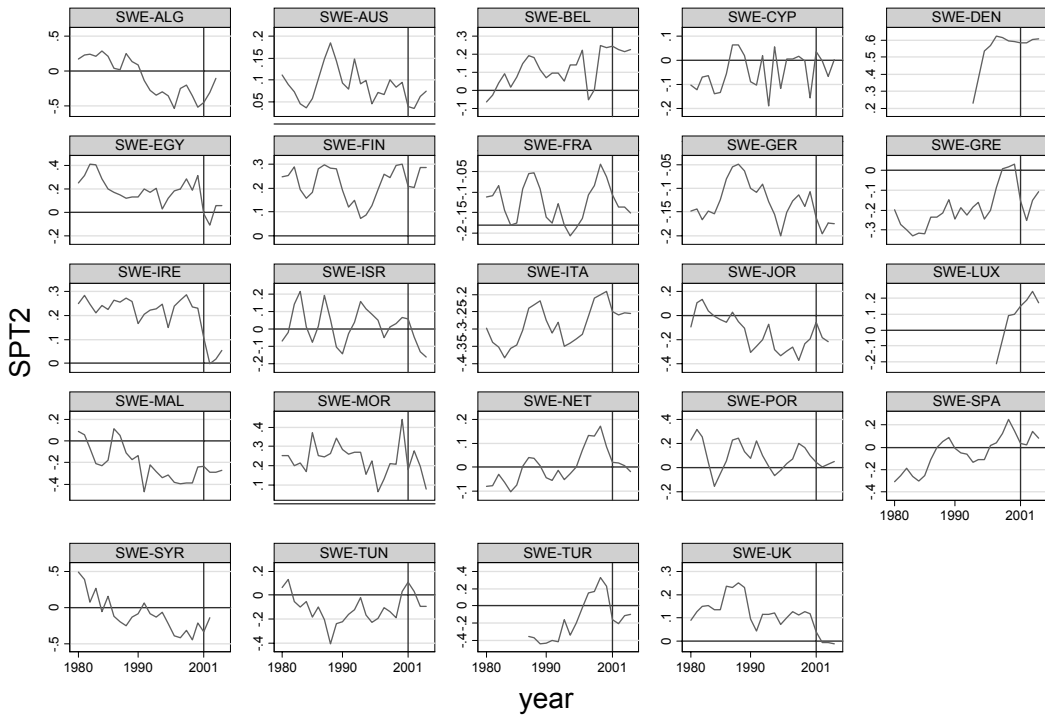
Graphs by Pair

Figure 26 – Trade Potential for Portugal



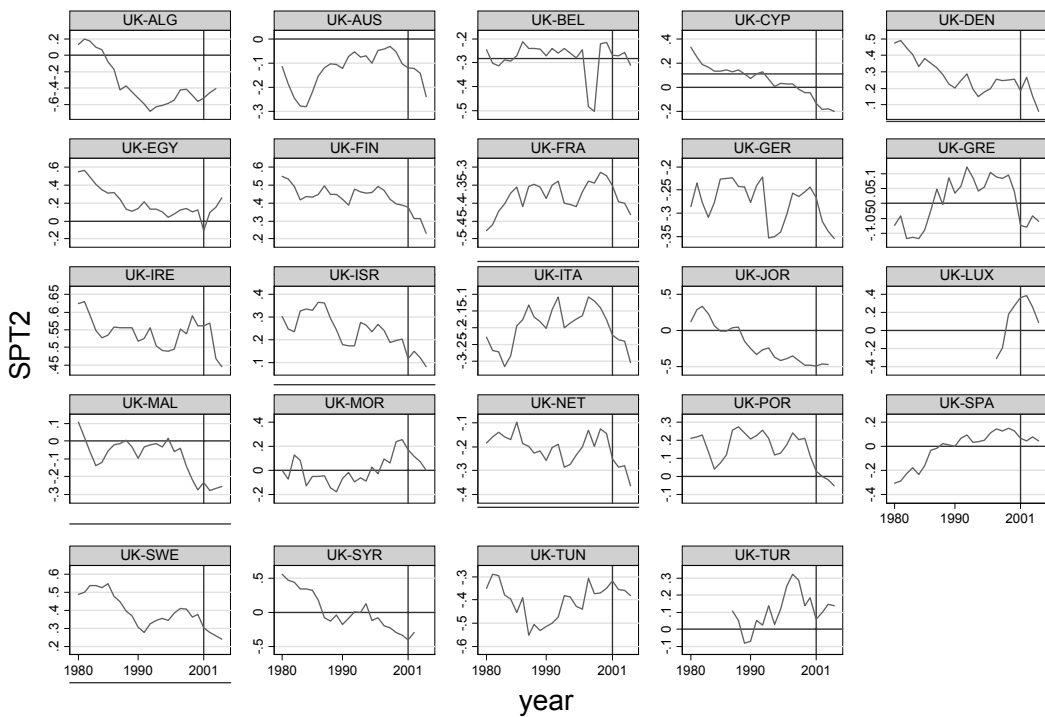
Graphs by Pair

Figure 27 – Trade Potential for Sweden



Graphs by Pair

Figure 28 – Trade Potential for the UK



Graphs by Pair