

Proposing an Index of Domination in an international trade relation: An illustrative analysis for trade activity conducted among the EU and the ENP countries^o

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Abstract

Even though the gravity model provides an intuitive general framework for studying and explaining trade activity, it presents one serious limitation (flaw); it is unable to point out the dominant part in an economic relation. As regards international trade relations, in particular, the detection of the dominant part (i.e. country) is an extremely important task since such type of relations have not only spatial (geographical) dimension but also political implications (which may have an impact on geography). In other words, the feeling of "(not) being the dominant part" has an impact on the trade behavior of the partners involved. The objective of the present paper is to propose an Index of Domination (the DK Index) for the detection of the dominant part (i.e. country) in an international trade relation, aspiring to provide a valuable insight to the empirical international trade literature. The DK Index takes into account the exports (imports) flows of a country under consideration to (from) a partner country and the world as well as the imports (exports) flows of the partner country from (to) the country under consideration and the world, respectively. Taking into account the aforementioned exports and imports flows, the DK Index can point out whether a country under consideration dominates over a partner country, in an international trade relation. Illustratively, the proposed Index is applied to data that concern trade activity conducted among the EU and the ENP countries (the EU-ENP trade).

Key-Words: DK Index of domination, international trade, EU-ENP trade

JEL classifications: C43, F14

Introduction

Newton (1687/1846) formulated (as a sequent of the well-known "apple incident") the "Law of Universal Gravitation" stating that every point (i.e. point-like) mass in the universe attracts every other point mass with a force that is directly proportional to the product of their masses and inversely proportional to the square distance between them (see Box 1)¹. In the field of economics, Tinbergen (1962)² suggested

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¹ Even though the "Law of Universal Gravitation" has been superseded by the "Theory of General Relativity", formulated by Einstein (1916), it continues to be used as an approximation of the gravity effects.

² Prior to the "official" formulation of the gravity model, Ravenstein (1885), Zipf (1946) and Pöyhönen (1963) seem to follow the gravity approach in their studies. The first two studies concern migration, whereas the last one concerns trade.

that the gravitational logic could be applied to international trade flows (see Box 2 and Figure 1). This model (the "gravity model"; in analogy to the "Law of Universal Gravitation") imprints, in empirical manner, the geographical (spatial) view of (international) trade activity.

Box 1: The Law of Universal Gravitation

$$F = G \frac{m_1 m_2}{r^2}$$

F denotes the force between the masses

G is a gravitational constant (see Gilles, 1997)

m_1 denotes the mass of the first point

m_2 denotes the mass of the second point

r denotes the distance between the centers of the masses

Source: Adjustment from Newton (1687/1846)

Box 2: The gravitational logic in the field of economics

$$F_{ij} = G \frac{m_i^\alpha m_j^\beta}{d_{ij}^\theta}$$

i denotes the origin

j denotes the destination

F denotes the flow from origin to destination

G is a gravitational constant (see Gilles, 1997)

d denotes the distance from origin to destination (usually measured center to center)

m_i denotes the size of the origin (usually expressed in terms of population or GDP)

m_j denotes the size of the destination (usually expressed in terms of population or GDP)

α, β, θ are coefficients

Source: Adjustment from Tinbergen (1962)

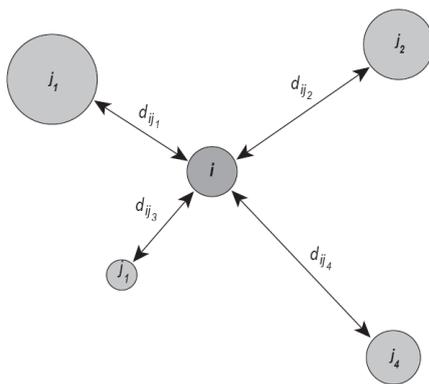


Figure 1: The gravitational logic in the field of economics

Source: Keeble et al. (1981: 212) in Copus (1999: 4)

The gravity model has no theoretical underpinnings (Bergstrand, 1985), even though many theoretical justifications have been proposed (see the literature review provided by Evenett and Keller, 2002 and de Benedictis and Taglioni, 2011). Linnemann (1966) attempted to provide a theoretical basis for the gravity model using the general equilibrium theory (see Walras, 1874/1954) as a benchmark. Analogous attempts have been made, *inter alia*, from Anderson (1979), on the

basis of the Armington assumption (see Armington, 1969), Krugman (1980) and Helpman and Krugman (1985), in an imperfect competition framework (see Dixit and Stiglitz, 1977), Deardorff (1998), in a Heckscher-Ohlin framework (see Heckscher, 1919 and Ohlin, 1933/1966), and Eaton and Kortum (2002), in a Ricardian framework (see Ricardo, 1817).

The gravity model provides an intuitive general framework for studying and explaining trade activity. Indeed, the gravity model provides "some of the clearest and more robust empirical findings in economics" (Leamer and Levinsohn, 1995, p. 1384) being able to "identify extreme cases of artificial barriers to trade, the role of distance and the effects of membership in various customs union and trade preference groups" (Taplin, 1967, p. 442). Being an expression of proximity and (potential) accessibility (connectivity), the gravity model is considered to be something like a workhorse in empirical international trade literature (Deardorff, 1998 and Baldwin and Taglioni, 2006; see the survey of the recent empirical literature provided by Kepaptsoglou et al., 2010).

However, without detracting, in any sense, the overall contribution of the gravity modeling framework, it should be noted that it presents one serious limitation (flaw); it is unable to point out the dominant part in an economic relation. But why such a limitation is a serious one? As regards international trade relations, in particular, why is it important to know the dominant part? The answer to the questions stated above is clear-cut: In international trade relations the detection of the dominant part (i.e. country) is an extremely important task since such type of relations have not only spatial (geographical) dimension but also political implications (which may have an impact on geography). In other words, the feeling of "(not) being the dominant part" has an impact on the trade behavior of the partners involved. That's why the limitation of the gravity models is, indeed, a serious one.

The objective of the present paper is to propose an Index of Domination (hereinafter: the DK Index³) for the detection of the dominant part (i.e. country) in an international trade relation, aspiring to provide a valuable insight to the empirical international trade literature. The DK Index takes into account the exports (imports) flows of a country under consideration to (from) a partner country and the world as well as the imports (exports) flows of the partner country from (to) the country under consideration and the world, respectively. Taking into account the aforementioned exports and imports flows, the DK Index can point out whether a country under consideration dominates over a partner country, in an international trade relation.

The structure of the paper is as follows: Section 1 is introductory and states the objective of the paper. Section 2 presents the DK Index. Section 3 offers an illustrative analysis, applying the proposed DK Index to data that concern trade activity conducted among the EU and its neighboring (ENP⁴) countries (hereinafter: the EU-ENP trade). Section 4 concludes.

³ The name of the Index comes from the English word "domination" and the synonymous Greek word "κυριαρχία" ("kyriarxia").

⁴ The ENP, launched in 2004, is a unified EU policy framework towards the EU neighboring countries (the ENP countries). The objective of the ENP is to strengthen the prosperity, stability and security of the (enlarged) EU countries and the ENP countries (see Wesselink and Boschma, 2012 for an overview of the ENP). For details about the relations between the EU and the

Presentation of the DK Index

The seminal contributions of Nyusten and Dacey (1961 and 1968)⁵ provide the methodological basis for the detection (demarcation) of the dominant spatial (economic) units in a trade relation⁶, stating that a spatial unit under consideration is dominated by a partner spatial unit when: (a) its maximum outflow is directed towards the partner country, and (b) the total inflows of the partner country are greater than its own total inflows. Depending on the conditions exist, the countries are divided into dominant (i.e. dominate over all countries), dominated (i.e. dominated by all countries) and intermediate (i.e. dominate over some countries and dominated by some other countries).

Grasland (2011), in the framework of the EuroBroadMap research project⁷, adjusts the aforementioned methodology to the international trade relations, trying to detect dominant countries (separately for exports and imports flows). Searching for possible variations of the initial methodology (i.e. "relaxing" or changing (slightly) the initial criteria), Grasland (2011, p. 6) supports that "it is not possible to define *a priori* the best mathematical solution; it is rather the comparison of results that matter, and not the research of an "ideal" solution". Though realistic, this position is somehow problematic since it "emits" rather mixed "signals"...

The proposed DK Index, drawing, mainly, its origin from the contribution made by Grasland (2011), aspires to provide a new perspective to the empirical international trade literature. The DK index is estimated separately for exports and imports flows⁸, taking into account the exports (imports) flows of a country under consideration to (from) a partner country and the world as well as the imports (exports) flows of the partner country from (to) the country under consideration and the world, respectively. Depending on the conditions exist, it is possible for a country under consideration to dominate over a partner country, to be dominated by a partner country or to retain a neutral relation with a partner country (i.e. neither to dominate over nor to be dominated by a partner country), in an international trade relation.

Concerning exports flows (see Box 3), in particular, a country under consideration dominates over a partner country (DKXD) when: (a) the percentage share of its exports to the partner country in relation to its total exports is lower than a specified threshold, and (b) the percentage share of the corresponding partner country imports' to its total imports is greater than a specified threshold. In contrast, a country under consideration is dominated by a partner country (DKXd) when: (a) the percentage share of its exports to the partner country in relation to its total exports is greater than a specified threshold, and (b) the percentage share of the corresponding partner country imports' to its total imports is lower than a specified

ENP countries, see FP7-SSH-2010.2.2-1, SEARCH: **Sharing Knowledge Assets: Interregionally Cohesive Neighborhoods.**

⁵ Popularized by Taaffe and Gauthier (1973).

⁶ Even though the focus of the studies is on telephone calls.

⁷ For details, see FP7-SHS-2007-1, EuroBroadMap: Visions of Europe in the World.

⁸ The DK Index can, also, be estimated for a particular sector (i.e. taking into consideration the sectoral exports and imports flows). The estimation of the DK Index at the sectoral level can provide more detailed results as regards the trade relation between the countries involved.

threshold. The relation between a country under consideration and a partner country is neutral in any other case.

Concerning imports flows (see Box 4), in particular, a country under consideration dominates over a partner country (DKMD) when: (a) the percentage share of its imports from the partner country in relation to its total imports is lower than a specified threshold, and (b) the percentage share of the corresponding partner country exports' to its total exports is greater than a specified threshold. In contrast, a country under consideration is dominated by a partner country (DKMd) when: (a) the percentage share of its imports from the partner country in relation to its total imports is greater than a specified threshold, and (b) the percentage share of the corresponding partner country exports' to its total exports is lower than a specified threshold. The relation between a country under consideration and a partner country is neutral in any other case.

There is a twofold underlying rationale for the suggestion of the DK Index. In particular, when the trade relation (association) with a partner country is not strong enough (i.e. the exports (imports) share to (from) a partner country is lower than a specified threshold), then: a) it is "easier" for a country under consideration to change trade partner, and b) there is a "lighter" impact on the country under consideration when the partner country decides to change trade partner or when the partner country is not able to retain the same level of trade activity (i.e. during a recession).⁹

Of course, at this point it has to be stated that the specification of the threshold is a totally subjective issue. It depends on the perception of each country with respect to its trade policy (and on issues having to do with international economic relations (conditions), in general). Thus, it is likely for both countries to consider themselves (not) dominant in a bilateral international trade relation. In any case, as it is already mentioned, the feeling of "(not) being the dominant part" has an impact on the trade behavior of the partners involved.

Box 3: The DK Index: Exports' domination conditions

$$DKXD_{c-p,t} : \frac{XV_{c-p,t}}{XV_{c-w,t}} < XV^* \ \& \ \frac{MV_{p-c,t}}{MV_{p-w,t}} > MV^* \quad \text{or}$$

$$DKXd_{c-p,t} : \frac{XV_{c-p,t}}{XV_{c-w,t}} > XV^* \ \& \ \frac{MV_{p-c,t}}{MV_{p-w,t}} < MV^*$$

XV denotes exports values
 MV denotes imports values
 XV^* is a threshold for exports values
 MV^* is a threshold for imports values
 c denotes country under consideration
 p denotes a partner country
 w denotes the world economy
 t denotes the year under consideration

⁹ Of course, when there is a special type of trade relation (such as a customs union relation or a relation of most favored nation), it is "less easy" for a country under consideration to change trade partner. Moreover, the impact on the country under consideration when the partner country decides to change trade partner is "less light". However, even when there is such type of trade relation, the rationale for the suggestion of the DK Index still holds.

DKXD indicates that when these conditions are met, country *C* dominates over country *p* (alternatively, country *p* is dominated by country *C*) in terms of exports

DKXd indicates that when these conditions are met, country *C* is dominated by country *p* (alternatively, country *p* dominates over country *C*) in terms of exports

Source: Author's elaboration

Box 4: The DK Index: Imports' domination conditions

$$DKMD_{c-p,t} : \frac{MV_{c-p,t}}{MV_{c-w,t}} < MV^* \ \& \ \frac{XV_{p-c,t}}{XV_{p-w,t}} > XV^* \quad \text{or}$$

$$DKMd_{c-p,t} : \frac{MV_{c-p,t}}{MV_{c-w,t}} > MV^* \ \& \ \frac{XV_{p-c,t}}{XV_{p-w,t}} < XV^*$$

XV denotes exports values

MV denotes imports values

XV^{*} is a threshold for exports values

MV^{*} is a threshold for imports values

C denotes country under consideration

p denotes a partner country

w denotes the world economy

t denotes the year under consideration

DKMD indicates that when these conditions are met, country *C* dominates over country *p* (alternatively, country *p* is dominated by country *C*) in terms of imports

DKMd indicates that when these conditions are met, country *C* is dominated by country *p* (alternatively, country *p* dominates over country *C*) in terms of imports

Source: Author's elaboration

Detecting the dominant part in the EU-ENP trade relations, using the DK Index: An illustrative analysis

Illustratively, the proposed DK Index is applied to data that concern the EU-ENP¹⁰ trade activity (see Figure 2 for a depiction of the EU-ENP area). Since the ENP countries operate under conditions of "neighborhood Europeanization" (see Axt et al., 2007 and Schimmelfennig, 2012 for a discussion about the "Europeanization" debate), the study of the EU-ENP trade activity is in a position to provide valuable insight to both (economic integration) theory and policy-making. In particular, given the misfit between ENP demands (i.e. demands that do not differ much from those of "accession Europeanization) and ENP rewards (i.e. the possibility of EU membership has been ruled out for the majority of ENP countries) - and the general skepticism about the ENP capacity to transfer EU values and rules to the neighboring countries - deep(er) economic (in particular, trade) integration between the EU and the ENP countries is considered to be a catalyst for the success of the ENP undertaking (for a thorough discussion, see Artelaris et al., 2013).

¹⁰ The ENP framework is proposed - in alphabetical order - to Algeria, Armenia, Azerbaijan, Belarus, Egypt, Georgia, Israel, Jordan, Lebanon, Libya, Moldova, Morocco, Occupied Palestinian Territory (hereinafter: Palestine), Syria, Tunisia and Ukraine. The ENP is a bilateral policy, between the EU and each ENP country.



Figure 2: The EU-ENP area

Source: Author's elaboration

The exercise utilizes trade data derived from the United Nations (UN) COMTRADE database¹¹ and refers to the years 2000 and 2010¹². Trade data refer to the primary and the secondary sector of production.¹³ The requisite - for the interpretation of the DK Index - threshold is set to be at the level of 0.5%¹⁴ and the countries under consideration are the ENP countries, in any EU-ENP country pair (hence, the EU countries are the partner countries). Thus, concerning exports flows, an ENP country dominates over an EU country (DKXd) when: (a) the percentage share of its exports to the EU country in relation to its total exports is lower than 0.5%, and (b) the percentage share of the corresponding EU country imports' to its total imports is greater than 0.5%. In contrast, an ENP country is dominated by an EU country (DKXd) when: (a) the percentage share of its exports to the EU country in relation to its total exports is greater than 0.5%, and (b) the percentage share of the corresponding EU country imports' to its total imports is lower than 0.5%. The relation between an ENP country and an EU country is neutral in any other case. Following the same logic, concerning imports flows, an ENP country dominates over an EU country (DKMd) when: (a) the percentage share of its imports from the EU country in relation to its total imports is lower than 0.5%, and (b) the percentage share of the corresponding EU country exports' to its total exports is greater than 0.5%. In contrast, an ENP country is dominated by an EU country (DKMd) when: (a) the percentage share of its imports from the EU country in relation to its total imports is greater than 0.5%, and (b) the percentage share of the corresponding EU country exports' to its total exports is lower than 0.5%. The relation between an ENP country and an EU country is neutral in any other case.

Studying, for example, the exports flows from Georgia to Greece for the year 2000 - and given the threshold of 0.5% - it emerges that Greece is the dominant country, according to the DK Index. Georgia exports to Greece products that value \$21,009,189. The total (world)

¹¹ See <http://comtrade.un.org/db/> for details.

¹² The results for the years 2001 to 2009 are available upon request.

¹³ Since the present exercise is conducted for illustrative purposes - and due to the lack of space - it is meaningless to estimate the DK Index at the sectoral level.

¹⁴ As it is already mentioned, the specification of the threshold is a totally subjective issue. Thus, at least for the purpose of the present paper, there is no need to conduct a sensitivity analysis.

exports of Georgia value \$322,748,681. Thus, the Georgian exports to Greece are the 6.509% of the total exports of Georgia (i.e. above the threshold). Greece imports from Georgia products that value \$21,009,189. The total (world) imports of Greece value \$29,486,860,105. Thus, the Greek imports from Georgia are the 0.071% of the total imports of Greece (i.e. below the threshold). In another example, studying the imports flows of Georgia from Greece for the year 2000 - and given the threshold of 0.5% - it emerges that Greece is, again, the dominant country, according to the DK Index. Georgia imports from Greece products that value \$6,974,742. The total (world) imports of Georgia value \$709,376,226. Thus, the Georgian imports from Greece are the 0.983% of the total imports of Georgia (i.e. above the threshold). Greece exports to Georgia products that value \$6,974,742. The total (world) exports of Greece value \$10,847,422,723. Thus, the Greek exports to Georgia are the 0.064% of the total exports of Greece (i.e. below the threshold). So, in the year 2000, for both exports and imports flows, Greece is the dominant country in the Georgian-Greek trade activity according to the DK Index (and given the threshold of 0.5%). Conducting the same exercise, the dominant country, if there is such (i.e. if the relation is not neutral), in any EU-ENP country pair can be detected. The rough visualization of the results¹⁵ (see Tables 1-4, in the Appendix) indicates that for the vast majority of the EU-ENP country pairs either there is a neutral relation or the EU countries dominate over the ENP countries.

Even though, comparing the findings that refer to the years 2000 and 2010, it appears that there are some changes in the degree of domination between the EU and the ENP countries¹⁶, it seems that, overall, the EU-ENP trade activity reminds of a "hub-and-spoke" system. This means that the EU-ENP trade activity tends to consolidate a spatial pattern of unequal (trade) relations between the EU countries and their neighbors, "reproducing" the well-established "core-periphery" EU spatial pattern of development (see Petrakos, 2008 and Petrakos et al., 2011 for details). Thus, it seems that the neoclassical-type position that the market forces released in the process of economic integration are, overall, beneficial for the least developed economies, leading, thus, to greater cohesion, is difficult to verify. Naturally, such an ascertainment, triggers debate about the invigoration of the ENP undertaking.

Conclusions

The present paper proposes an Index of Domination (the DK Index) for the detection of the dominant part (i.e. country) in an international trade relation, aspiring to provide a new perspective to the empirical international trade literature. Taking into account the exports (imports) flows of a country under consideration to (from) a partner country and the world as well as the imports (exports) flows of the partner country from (to) the country under consideration and the world, respectively, the DK Index can point out whether a country under consideration dominates over a partner country, in an international trade relation. There is a twofold underlying rationale for the suggestion of the DK Index. When the trade relation (association) with a partner country is not strong enough (i.e. the exports (imports) share to (from) a partner country is lower than a specified threshold), then: a) it is "easier" for a country under

¹⁵ See Beauguitte, 2011 and Grasland, 2011 for (more) sophisticated methods for the visualization of the results derived from DK-like indicators.

¹⁶ These changes can be attributed to the trade policies of the EU and the ENP countries as well as to the trade policies of third countries (such as the BRIC countries) (see Pinna, 2013 for details).

consideration to change trade partner, and b) there is a "lighter" impact on the country under consideration when the partner country decides to change trade partner or when the partner country is not able to retain the same level of trade activity (i.e. during a recession).

Applied, illustratively, to data that concern the EU-ENP trade, for the years 2000 and 2010, the DK Index indicates that for the vast majority of the EU-ENP country pairs either there is a neutral relation or the EU countries dominate over the ENP countries. Thus, it seems that, overall, the EU-ENP trade activity reminds of a "hub-and-spoke" system, consolidating a spatial pattern of unequal (trade) relations between the EU countries and their neighbors. The illustrative exercise for the EU-ENP trade makes clear that the DK Index is, indeed, in a position to offer a new perspective to the empirical international trade literature.

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Abbreviations

ALG = Algeria
 ARM = Armenia
 AUT = Austria
 AZE = Azerbaijan
 BEL = Belgium
 BLR = Belarus
 BRIC = Brazil, Russia, India, and China
 BUL = Bulgaria
 CYP = Cyprus
 CZE = Czech Republic
 DEN = Denmark
 DK Index = Index of Domination (Kyriarxia) in an international trade relation
 DKMD = a country under consideration dominates over a partner country, concerning imports flows
 DKMd = a country under consideration is dominated by a partner country, concerning imports flows
 DKXD = a country under consideration dominates over a partner country, concerning exports flows
 DKXd = a country under consideration is dominated by a partner country, concerning exports flows
 EGY = Egypt
 ENP = European Neighborhood Policy
 ESP = Spain
 EST = Estonia
 EU = European Union
 FIN = Finland
 FRA = France
 GDP = Gross Domestic Products
 GEO = Georgia
 GER = Germany
 GRE = Greece
 HUN = Hungary
 IRL = Ireland
 ISR = Israel
 ITA = Italy
 JOR = Jordan
 LAT = Latvia
 LEB = Lebanon
 LIB = Libya
 LIT = Lithuania
 LUX = Luxemburg
 MAL = Malta
 MOL = Moldova
 MOR = Morocco
 n/a = not available
 NED = Netherlands
 PAL = Palestine
 POL = Poland
 POR = Portugal
 ROM = Romania
 SLK = Slovakia
 SLN = Slovenia
 SYR = Syria
 SWE = Sweden
 TUN = Tunisia
 UK = United Kingdom
 UKR = Ukraine
 \$ = dollars (of the United States of America)

Appendix

Table 1: Exports' (from the ENP countries to the EU countries) domination conditions (year 2000)

	AUT	BEL	BUL	CZE	CYP	DEN	ESP	EST	FIN	FRA	GER	GRE	HUN	IRL	ITA	LAT	LIT	LUX	MAL	NED	POL	POR	ROM	SLK	SLN	SWE	UK
ALG																											
ARM																											
AZE																											
BLR																											
EGY	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a												
GEO																											
ISR																											
JOR																											
LEB																											
LIB	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a												
MOL																											
MOR	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a												
PAL	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a												
SYR	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a												
TUN																											
UKR	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a												
neutral relation													DKXd country <i>C</i> (i.e. ENP) is dominated by country <i>p</i> (i.e. EU)														

Source: UN COMTRADE Database / Author's Elaboration

Table 2: Exports' (from the ENP countries to the EU countries) domination conditions (year 2010)

	AUT	BEL	BUL	CZE	CYP	DEN	ESP	EST	FIN	FRA	GER	GRE	HUN	IRL	ITA	LAT	LIT	LUX	MAL	NED	POL	POR	ROM	SLK	SLN	SWE	UK
ALG																											
ARM																											
AZE																											
BLR																											
EGY																											
GEO																											
ISR																											
JOR																											
LEB																											
LIB																											
MOL																											
MOR	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a												
PAL	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a												
SYR	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a												
TUN																											
UKR																											
neutral relation													DKXd country <i>C</i> (i.e. ENP) is dominated by country <i>p</i> (i.e. EU)														

Source: UN COMTRADE Database / Author's Elaboration

Table 3: Imports' (from the EU countries to the ENP countries) domination conditions (year 2000)

	AUT	BEL	BUL	CZE	CYP	DEN	ESP	EST	FIN	FRA	GER	GRE	HUN	IRL	ITA	LAT	LIT	LUX	MAL	NED	POL	POR	ROM	SLK	SLN	SWE	UK
ALG																											
ARM																											
AZE																											
BLR																											
EGY	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a													
GEO																											
ISR																											
JOR																											
LEB																											
LIB	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a													
MOL																											
MOR	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a													
PAL	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a													
SYR	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a													
TUN																											
UKR	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a													
neutral relation														DKMd country C (i.e. ENP) is dominated by country p (i.e. EU)													

Source: UN COMTRADE Database / Author's Elaboration

Table 4: Imports' (from the EU countries to the ENP countries) domination conditions (year 2010)

	AUT	BEL	BUL	CZE	CYP	DEN	ESP	EST	FIN	FRA	GER	GRE	HUN	IRL	ITA	LAT	LIT	LUX	MAL	NED	POL	POR	ROM	SLK	SLN	SWE	UK
ALG																											
ARM																											
AZE																											
BLR																											
EGY																											
GEO																											
ISR																											
JOR																											
LEB																											
LIB																											
MOL																											
MOR																											
PAL	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a													
SYR	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a													
TUN																											
UKR																											
neutral relation														DKMd country C (i.e. ENP) is dominated by country p (i.e. EU)													

Source: UN COMTRADE Database / Author's Elaboration