THE ANALYSIS OF UKRAINIAN TRADE FLOWS WITH EU AND SES COUNTRIES. TRADE COSTS AND INSTITUTIONAL INFLUANCE

by

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Abstract

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Ukraine is country which is now on its way of development and recognition from the world's economic community. Having finally become an independent state, in 1991Ukrainian economy was still dependent from the countries of the former USSR. The trade patterns were still tied to those countries and only in recent years the tendency has significantly changed. Nowadays, Ukrainian trade flows are mostly divided between European Union countries and the countries of Single Economic Space. Therefore, Ukraine, as a transition country, came to the point when it should choose the direction of its integration.

Some influential studies tried to justify the necessity for a clear Ukrainian trade position along with impossibility of cooperation between those two integration vectors. However, other studies regard these vectors as complementary (see, Yevdokimov and Molchanov, 2005). This study does not cover in depth all points of interest that arise as result. However, it covers the most influencing factor that determines economic integration – international trade. Analyzing the

dynamics of Ukrainian trade patterns for the period of 1999-2006 including institutions involved the study tries to estimate, on the basis of a gravity model, the current trade gradients as well as institutional impact on international trade in Ukraine. It also aims to measure the impact of the potential acceptance of Ukraine as full EU member. The model develops a completely new idea: to test the importance of the difference between CIF and FOB (CIF-FOB) accounting standards which is viewed as costs of trade (direct & indirect). Therefore, this study aims to analyze the influence of the integration process in Ukraine on the costs of international trade.

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GLOSSARY

SES	Single Economic Space (Russia, Ukraine, Byelorussia, Kazakhstan);
WTO	World Trade Organization;
EU27	countries of European Union;
EU15	countries of European Union (first wave)[1];
EU12	countries of European Union (second wave)[1];
EBRD	European Bank of Reconstruction and Development;
CIS	Commonwealth of Independent States;
CMEA	Council for Mutual Economic Assistance;
FOB	(Incoterms 2000) free on board;
CIF	(Incoterms 2000) cost, insurance and freight;
FTA	Free Trade Area;
PPP	Price Purchasing Parity;

[1] See Appendix B4 for full description.

C h a p t e r 1

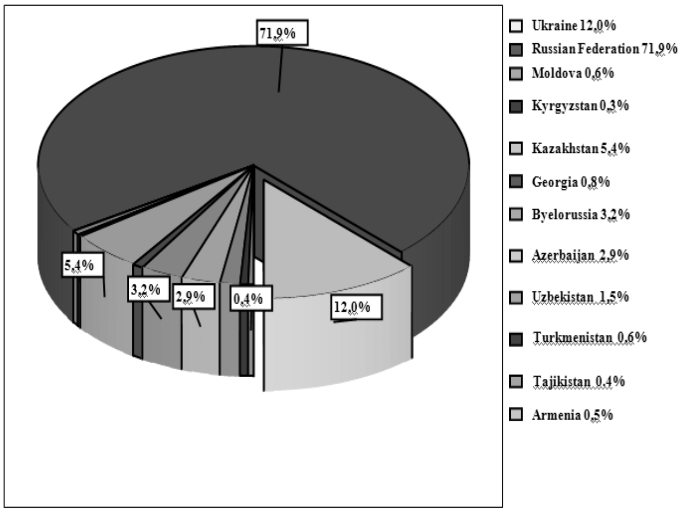
INTRODUCTION

"Don't waste time learning "tricks of the trade". Instead, learn the trade"

James Bennis

International trade is increasingly becoming an integrator of countries with different economic systems into the world's global economy. It shapes a country's production and consumption patterns, results in specialization and division of labor, promote economic growth and development. That is why a speedy integration of the Ukrainian economy into the world economy through international trade is a priority issue at present and nearest future. Amongst other things, such integration includes accession in the European Union (EU).

Fig.1.1: The volume of CIS countries in overall EU trade with CIS, 2004, %



Facts show that at the end of the 1990th, the original European Union (EU15) became one of the Ukraine's major trading partners.[2] Since that time, the volume of trade between Ukraine and the EU increased by 50%. At the same time, the trade with countries of the Commonwealth of Independent States (CIS) decreased significantly. Currently, Ukraine is one of the top three countries of CIS in terms of exports to EU, and along with Russia has the highest relative volume of imports from EU.[3]

Despite that the process of integration into European and world trade flows by Ukraine is still slow. Analysis of geographic distribution of trade flows reflects the dominant role of the former USSR countries in Ukraine's trade patterns. This inertia can be explained by the following two reasons. The first one is associated with slow relocation of the existing trade flows in Europe after the break-up of the socialist system. The second one is associated with slow economic reforms in Ukraine: energy and financial sectors are still highly monopolized; restructuring of the large, previously state-owned enterprises is not finished yet; energy intensive technologies are widespread; low productivity is observed in almost all economic sectors.

Analysis of the current state of Ukrainian economy, perspectives of its development, and pre-conditions for intensification of international trade with countries of European Union (EU) and Single Economic Space (SES) is a timely issue. In doing such analysis, one should take into account high level of interdependence of countries with different economic systems as well as strategic economic and geopolitical interests of these countries.

[2] See Appendix A1.

[3] See Appendix A2.

In this regard, the objective of this study is, on the basis of Anderson and van Wincoop (2003) gravity model, to find the most "economically beneficial" outcome for Ukraine in terms of international trade flows, which should become the key issue for integration into the world markets. Finally, the study evaluates Ukrainian perspectives for international trade in the case of full integration into EU.

Furthermore, I suggest the so-called "institutional variables"[4] to be included in the model such as, for example, individual indexes of economic freedom, which will help me out to measure the influence of the existing institutions on trade flows.

In this study, the gravity model of Ukrainian international trade flows is set to answer the following four questions: (i) should Ukraine participate in the SES or should it focus on the EU integration only? (ii) is it possible to lead the multidimensional trade relations without losses? (iii) what is the institutional influence on trade? (iv) how trade costs react on the economic factors within the area of SES and EU?

The novelty of this study is in the way the gravity model is set up and in the implementation of the corrected gravity model by Baldwin and Taglioni (2006). I suggest "the imports from Ukraine"[5] as a dependent variable instead of classical "exports from Ukraine" variable (an ad hoc decision to change classic FOB to CIF accounts and consider the CIF-to-FOB difference). In such a case, not only the size of exports but also transaction costs related to exports such as tariffs,

[4] The complete description and explanation is performed in the next chapters. See also Appendix B1 and Appendix B5.

[5] The term "imports from Ukraine" is definitely my proposition of explanation the export from Ukraine (FOB) in terms of CIF (e.g.: how much Germany has exported from Ukraine), which will include direct and indirect costs.

non-tariff barriers, and others will be taken into account[6]. In other words, on the basis of the corrected Anderson and van Wincoop (2003) gravity model presented in the work of Baldwin and Taglioni (2006), I'm going to answer the above stated questions incorporating the CIF to FOB difference into the model. Many economists argue that some costs related to trade operations (the so-called "iceberg cost") are crucial for trade patterns. Nevertheless, most of empirical work on gravity modeling is based on FOB-export, which does not completely represent the cost structure of international trade. Therefore, I propose to test both CIF and FOB standards to support my proposition. To the best of my knowledge, this is the first gravity model to study a broader picture of international trade flows under the influence of direct and indirect trade barriers and transaction costs related to them in accordance to FOB-to-CIF change. Moreover, this study expands the work performed on Ukrainian trade flows with newly developed models as well as the WTO accession effect, which is still not fully analyzed for the case for Ukraine (some work was done for Russian trade flows by Lissovolik and Lissovolik (2004)).

Theoretically, the use of the proposed innovation is more than obvious. Analyzing standard empirics of the gravity model, it is possible to conclude that the costs needed to support and provide international trade were not included. Therefore, by including these costs, the broader aspects of trade can be analyzed. Empirically, one can expect a high correlation between CIF and FOB standards, but nevertheless the difference between those standards will not be the same for a group of countries. Tariffs, insurance rates, non-tariff costs, and others are different for different countries. Considering the relationship between distance and transportation costs, the question becomes even more relevant. This difference can be also referred to an accounting or other kind of data

[6] See Appendix B2.

imperfectability. Moreover, I suspect to face up even with negative sign in CIF-to-FOB difference for some groups of countries in a case of high corruption level or subsidization of the economy.

Therefore, this study is divided into two big blocks: theoretical and empirical. Firstly, I propose to test the relevance of CIF-to-FOB difference with the simplest gravity model of Ukrainian trade patterns, then, given the results of the test, to model the accession process of Ukraine to EU. As a result, the thesis is organized as follows: Chapter 2 provides a literature review of the international trade gravity model investigations; Chapter 3 describes the methodology I follow with in my study; Chapter 4 reviews data description and sources; Chapter 5 go on the study with empirical analysis; Chapter 6 concludes the study.

Chapter 2

LITERATURE REVIEW

Gravity model is one which was based on the assumption that the volume of bilateral trade flows is proportional to the size of economies, and indirectly proportional to the distance between them. Being similar to the Newtonian Equation of Gravitation, this model was named "Gravity".

The first econometric result, which found out the law of international trade gravity, was discovered in the 1963th.[7] Nevertheless, being discovered just as an econometric relation, a gravity model was a subject of severe criticism for its being out of theory. However, due to high empiric correctness and representative results, it was widely used as an estimation of the international trade flows and, as a fact, it compelled economists to search the theoretical substantiation. There were numerous attempts proceeded to show out the theoretical outflow of gravity equation during the last years, thus it was finally proved only in our days with Anderson and van Wincoop (2003) study.

One of the first, but weak, theoretical formulation of gravity model was described in the studies of Tinbergen (1962) and Anderson (1979). Unfortunately, the aforementioned theoretical models were able to explain gravity model only partially. For example, Anderson (1979) was explaining the gravity model on the basis of Cobb-Douglas production function with strict assumption of GDP coefficients' elasticity being equal to one. Afterwards Helpman and Krugman (1985) offered the version of gravity model which was explained within the theory of monopolistic competition, market structure and volume of trade

interrelations. In the theoretical formulation of Bergstrand (1985, 1989) the gravity model is supported by Hecsher-Olin theorem.

Deardorff (1998) was the first who has performed the most complete review of the literature on this theme, having finally underlined the results of the researches and relevance of the theories. Moreover, Evenett and Keller (1998) have compared and tested the gravity models based on different approaches in accordance with Deardorff's (1998) directions. This study was the final one of the first phase of the gravity model evolution and gave the further push for researches.

The second phase has started with Maurel's (1998) study, which finally concluded the detailed analysis of Helpman's, Helpman-Krugman's, and Anderson's models, while extended the model to new economic postulates. This model was partly based on a New Economic Geography theory. Otherwise, the other group of theorists considers it as a first work of the NEG theory. The last of the second phase is assumed to be gravity models developed by Redding and Venables (2000). It became the most usable one up till 2003 and served a lot for the future gravity model development.

In spite of variety of theoretical gravity model's foundations, most of them were complex and were based on the great bundle of assumptions. The most complete and argued gravity model was considered a model of Anderson and van Wincoop (2003), which started the third phase of gravity modeling. The model was designed in the same way as "traditional" one with implementation of the "multilateral resistance" variable and its theoretical explanation.

As it was denoted by Anderson and van Wincoop (2003), the "multilateral resistance" variable for the pair of trading regions is an average between regions'

[7] P. Poyhönen (1963) described one of the first empiric dependence in gravity models.

barriers in the trade patterns with the rest of the world (Fixed/Random Effect Models are commonly used). With increase of such barriers' influence, the regions will highly aim to trade with each other. The consequences of non-including the "multilateral resistance" variable into the model were illustrated by the McCallum's paradox (1995)[8] in the last articles of Anderson. His work compares the forecasted results of the previously estimated models (McCallum's) without "multilateral resistance" and Anderson and van Wincoop (2003) model coinciding with real world evidence.

The importance of "multilateral resistance" variable was also testified in the studies of Subramanian and Wei (2003). Authors approved that unplugging the "multilateral resistance" variable in the Rose's (2002) model gives wrong results of trade agreements' influence. According to the Rose's paper, the trade agreements between countries do not cause significant influence on the bilateral trade. Furthermore, Subramanian and Wei (2003) showed that the relation between variables "international trade agreements", "export and "import" were found to be positive and statistically significant[9].

Many authors were testing the influence of WTO accession on trade intensification with gravity models. The research works were done according to different approaches and for different countries, potential members of WTO. Otherwise, this actual problem (WTO/EU accession) was not fully explored in Ukraine, though there were some research works based on gravity models performed for Ukrainian economy. The research of Dean, Eremenko and Mankovska (2002) concluding the insignificant improvement of trade flows after WTO accession, which in fact denies my foresights. This result was introduced by the exception of the "multilateral resistance" variable and quite simplified model

[8] J. McCallum's article, published in 1995 in American Economic Review, is cited in works belonging to New Economic Geography theory, as illustration of the phenomenon which was named "home bias".

regressed with OLS (due to Baldwin and Taglioni (2006) the work follows the "golden error"). The model was also explained by only one controlling dummy variable (trade index) that actually cannot cover the weighted influence necessary for normal gravity estimation. Say, Lissovolik and Lissovolik (2004) in their work, which examined the Russian optimal vector of integration policy (WTO/EU accession), criticized the Dean's approach in case of "their model did not explicitly include a WTO-related variable but rather posited inferences from an assumed link between measurable trade restrictions and trade flows."

Another considerable research is the work of Kurganov (2006), which estimates the gravity of transition countries' trade relations, but it does not completely describe the consequences of the integration process. Nevertheless, one can use this work as a test of different econometrical approaches in gravity modeling. Therefore, I see it reasonable to perform gradual estimation of Ukrainian possibilities in EU integration with the newest model described in Baldwin and Taglioni (2006) work and concentrate mainly on Ukrainian trade flows and consequences of integration processes. Moreover, to perform an innovation in form of CIF-to-FOB difference for estimation the costs related to trade.

[9] Fixed/Random Effect Models perform the most comfortable interpretation of the "multilateral resistance"

Chapter 3

METHODOLOGY

1. Theoretical Framework. *Anderson and van Wincoop Model.*

The study of Anderson and van Wincoop (2003) starts from discussing a commonly estimated gravity model, which they present in the form:

$$x_{ij} = \alpha_1 y_i + \alpha_2 y_j + \sum_{m=1}^{M} \beta_m \ln(z_{ij}^m) + \varepsilon_{ij}, \qquad (3.1)$$

where:

- x_{ij} is the log of exports from i to j;
- y_i and y_j are the log of GDP of the exporter (i) and importer (j);
- z_{ij}^m ($m = 1,\ldots,M$) is a set of factors which are related to trade barriers.

As it was discussed in the previous chapter, the equation (3.1) is not grounded in theory. For the theory development, Anderson and van Wincoop (2003) uses the modified theoretical approach of monopolistic competition. They define the set $\{Y_i^k, E_i^k\}$ as the value of production and expenditure in country i for product of some class k. The procedure of the model needs the following assumptions:

(i) the set $\{Y_i^k, E_i^k\}$ is *separable*[10] from the allocation of trade flows in the world;

(ii) the varieties across the countries are the same and can be described with the CES[11] function;

(iii) trade costs and quantity are proportional.

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variable. The recent studies have concluded the relevance of such substitution.

[10] Trade separability from in-country and out-country consumption. See Anderson and van Wincoop (2003)

[11] Constant Elasticity of Scale (CES describes the homothetic preferences and homogeneity of demand)

The model defines the export from country *i* to *j* (within the separation onto class *k*) in the form:

$$X_{ij}^{k} = \left(\frac{p_{ij}^{k}}{P_{j}^{k}} \right)^{1-\sigma_k} E_{j}^{k}, \tag{3.2}$$

where:

- σ_k is the elasticity of substitution among the *k*;
- p_{ij}^{k} is the price set by country *i* for export to country *j*;
- P_{j}^{k} is the CES price index, which can be expressed in the form:

$$P_{j}^{k} = \left(\sum_{i} (p_{ij}^{k})^{1-\sigma_k} \right)^{\frac{1}{(1-\sigma_k)}}, \tag{3.3}$$

Imposing assumption (iii) it is appropriate to present: $p_{ij}^{k} = p_{i}^{k} t_{ij}^{k}$, where, p_{i}^{k} is the price received by producer for the product *k*; and t_{ij}^{k} is the indirect costs of trade.

The market clearing condition was taken from the previous Anderson's studies:

$$Y_{i}^{k} = \sum_{j} X_{ij}^{k}, \forall i, \forall k, \tag{3.4}$$

Solving for p_{i}^{k} with respect to market clearing condition and, thereafter, substituting it into (3.2) and (3.3) Anderson and van Wincoop have found the result:

$$X_{ij}^{k} = \frac{E_{j}^{k} Y_{i}^{k}}{Y^{k}} \left(\frac{t_{ij}^{k}}{P_{j}^{k} \Pi_{i}^{k}} \right)^{1-\sigma_k}, \tag{3.5}$$

$$(\Pi_{i}^{k})^{1-\sigma_k} = \sum_{j} \left(\frac{t_{ij}^{k}}{P_{j}^{k}} \right)^{1-\sigma_k} \frac{E_{j}^{k}}{Y^{k}}, \tag{3.6}$$

$$(P_{j}^{k})^{1-\sigma_k} = \sum_{i} \left(\frac{t_{ij}^{k}}{\Pi_{i}^{k}} \right)^{1-\sigma_k} \frac{Y_{i}^{k}}{Y^{k}}, \tag{3.7}$$

where:

- Y^k is world output of product k;

- P_i^k and Π_i^k can be easily transformed into the function of trade barriers for the set$\{Y_i^k, E_i^k\}$;

Thus, trade depends on trade barriers and the defined set$\{Y_i^k, E_i^k\}$. On the basis of conditional general equilibrium, as Anderson and van Wincoop report, one can utilize trade flows and set of countries' features to make conclusions about trade barriers.

To simplify the problem, Anderson and van Wincoop assume a one-sector economy, while dropping the subscript k. Now, the gravity equation can be written as:

$$X_{ij} = \frac{Y_i Y_j}{Y_w}\left(\frac{t_{ij}}{P_j \Pi_i}\right)^{1-\sigma}, \tag{3.8}$$

$$\Pi_i^{1-\sigma} = \sum_j P_j^{1-\sigma} \theta_j t_{ij}^{1-\sigma} \quad \forall j, \tag{3.9}$$

$$P_j^{1-\sigma} = \sum_i \Pi_i^{1-\sigma} \theta_i t_{ij}^{1-\sigma} \quad \forall j, \tag{3.10}$$

where:

- Y_i and Y_j are GDP levels for exporting (i) and importing (j) countries;
- Y_w is world GDP;
- θ_i is the income share of country i;
- $E_i = Y_i$, while expenditures are equal to output in one-sector economy;
- Π_i and P_j are "multilateral resistance" variables.

According to symmetry of trade costs $t_{ij} = t_{ji}$, thus it aims to simplify the system to Π_i and P_j.

Further, Anderson and van Wincoop involve the trade cost function in the common functional form:

$$t_{ij} = \prod_{m=1}^{M} (z_{ij}^{m})^{\gamma_m} , \qquad (3.11)$$

In accordance with this form of trade cost function, most of previous studies allowed the mistake making the assumption that $\tau_{ij} = t_{ij} - 1 = d_{ij}^{\rho}$ (Grossman (1998)). Later, Markusen and Venables (1998) have estimated $\rho \approx 0.3$. Therefore, the distance elasticity is assumed to be constant and equal to $t_{ij} = 0.3\tau_{ij} / (1 + \tau_{ij})$, evaluated at some average τ_{ij}. Nevertheless, the evidence claims not to believe in this functional form, as well as it gives wrong results. It can not capture other "*distances*" which influences the trade flows, such as language, cultural distance, informational distance, etc.

Thus, Anderson and van Wincoop recommend not simplifying the "multilateral resistance" variable. Instead, try to capture as more resistance factors as possible, while another with help of Fixed and Random Effects. Therefore, the final version of Anderson and van Wincoop equation (parameters dropped):

$$x_{ij} = y_i + y_i + \sum_{m=1}^{M} \lambda_m \ln(z_{ij}^{m}) - (1-\sigma)\ln(P_i) - (1-\sigma)\ln(P_j) , \qquad (3.12)$$

where: $x_{ij} = \ln(X_{ij})$, $y_i = \ln(Y_i)$, $y_j = \ln(Y_j)$, and $\lambda_m = (1-\sigma)\gamma_m$.

There are three main methods of gravity model estimation:

(i) The first one is the estimation of gravity model by the method of the Non-linear Least Squares after solving for "multilateral resistance" variable;

(ii) the unbiased estimation of parameter λ_m can be also performed by capturing the "multilateral resistance" variables, $y_i - (1-\sigma)\ln(P_i)$, with region specific dummies or Fixed/Random Effect;

(iii) OLS estimation of price indexes which is not so popular among researches in cause of data for change in price indexes is not directly observable.

In the study I utilize two groups of the fixed/random effects: fixed/random effects for every country-exporter, and fixed/random effects for every pair of countries. The modern literature approves these methods. Moreover, some of the authors (Anderson and van Wincoop (2003), Eaton and Kortum (2002), Rose and van Wincoop (2001), Head and Mayer (2001)) state that these methods are among the best for gravity model estimation.

2. Empirical Framework.

Having finally defined the base for gravity model:

$$x_{ij} = y_i + y_i + \sum_{m=1}^{M} \lambda_m \ln(z_{ij}^m) - (1-\sigma)\ln(P_i) - (1-\sigma)\ln(P_j), \qquad (3.12)$$

let me define and interpret the composite parts of gravity model, which were historically added.

Economic masses of countries y_i and y_j were commonly measured as gross domestic product (GDP) or Gross National Income (GNI). The estimated coefficients are usually close to *1*. However, according to Deardorff (1998), they can acquire values within *0.7* and *1.1*.

Furthermore, there are problem, which can be observed while interpreting $ln(Y_i)$ and $ln(Y_j)$. The reason is that export is a part of GDP (or GNI) of country *i*, and import is a part of GDP (or GNI) of country *j*, thus, there can be suspected a strong correlation between $ln(X_{ij})$, $ln(Y_i)$ and $ln(Y_j)$. Most of the recent studies used to decompose the GDP (or GNI). The most utilizable is a decomposition for GDP (or GNI) per capita (GDPpc or GNIpc) multiplied by the amount of population (POP). Therefore, in this study I will utilize the following decomposition:

$$ln(Y_i) = ln(GDPpc_i) + ln(POP_i); ln(Y_j) = ln(GDPpc_j) + ln(POP_j)$$

GDP (GNI) per capita. It is deemed that countries with higher GDP (or GNI) per capita trade more intensively. Thus, the explanation can be found in a more developed transportation infrastructure (internal roads, ports, air-ports, and etc.) Countries with high economic indicators are usually having the lower custom tariffs. Coefficients calculated for logarithm of GDP (or GNI) per capita are considerably different for either empiric studies varying from *0.2* to *1*.

Distance is almost always measured by the equation of "large circle"[12]. This equation approximates the form of earth to the circle and calculates minimum distance along a surface.

Having a lot of reasons to expect the weak correlation between trade and distance, empirical studies show that distance considerably reduces the potential trade. Following the Feenstra's (1994, 1998) analysis of distance as a part of gravity models, the data analyzed from 1928 to 1995 has represented an average result of distance and trade flows relation at the level of *-0.94*. It can be interpreted as doubling of distance will decrease the trade twice. Nevertheless, Hummels and Levinsohn's (1994) studies have indicated that interrelation between distance and bilateral trade flows is one of the most "exact and the most durable empiric findings in an economy". They have declared that a result for distance is close to -0.6.

Why does distance influences so strongly? Economists offered six main explanations (Hummels and Levinsohn (1994)):

- Distance is the expression of transportation costs. Hummels was arguing that influence of distance can be explained by shipping charges (freight charges and marine insurance).

[12] See Appendix B3.

- Distance also specifies the shipping time. The probability for perishable goods to be delivered uncrippled can be described by the descending function of time and transportation. This distance property can be described by the followings risks:

(i) a damage or loss of commodities caused by weather or maladministration;

(ii) Spoilage of organic materials;

(iii) Loss of market.

- Synchronization costs. When enterprises combine different materials in a production process, they require timely arrival of these materials. The use of storages is the only way to solve the problem, thus, this approach used to face with the bundle of drawbacks (technological changes, changes of fashion, and others like that).

- Communication costs. The Krugman (1980) argued that "there is an influence of distance on the personal contacts between managers, customers and other determinants of market. In a great deal of things, the trade directly depends on ability to communicate (spread the information), contrary to absence of informal relations."

- Operating costs. Distance can be also close interrelated with the costs for search of trade partners and establishment of trust-net between potential partners.

- "Cultural distance". It can also appear that geographical distances are interrelated with cultural differences. For example, communicational problems could cause the problems in negotiations.

Remoteness. Recently, most of research studies assumed that R_j is constant for all countries and, thus, it was, usually, dropped out from regressions. However, R_j

is an important part of equation, because it counts the bundle of alternatives of importer with the rest of the world. Nevertheless, the fact of "*remoteness*" was just a supposition and from study to study acquired different functional forms.

In the studies of Rose and van Wincoop (2001) and Anderson and van Wincoop (2003), the "*remoteness*" was theoretically defined and explained. According this approach the "*remoteness*" was included into the "multilateral resistance" indexes.

Dummy variables. The gravity equation explains the trade flows quite well while using only the sizes of economies and distances between countries. However, there are a lot of drawbacks in international trade flows which can not be efficiently explained by these variables. The authors used to add other variables with less theoretical ground, although the experience showed that they "work". Farther, I will present the most commonly used ones.

Neighborhood (Home Bias). Nearby countries separate a common border. To test the influence of the border effect the border dummy is proposed to be included for identification of such pairs. The coefficients for such dummies usually lie within the region of *0.5*, concluding that the trade is *50%* higher for the countries with a common border.

Common language. The impedimental effect of distance is operating costs, caused by the impossibility of intercourse and cultural differences. Therefore, countries which share the same or similar language (linguistic group) will aim to trade more intensively. The pair of countries which speak the same language will trade twice or three times more then the countries with completely different languages.

Border Effect. The McCallum's (1995) study of the Canadian provinces' trade flows has proved that a border had a very large influence on international trade,

thus, the typical Canadian province trade *20* times more intensively with other provinces than with the American states of analogical size and remoteness. Since the Free Trade Agreement between Canada and USA was executed, inter-border trade dramatically grew (about *64%*) and the effect of border has diminished, on average, for *8* times.

Free Trade Agreements (FTA). Regional trade agreements can be fully exampled by the European common market and North American agreements of the free trade. For the last 20 years the trade unions have gotten a great interest of researches and became one of primary factors of gravity equation. The research of Rose (2002) has proved that the free trade agreements result in a trebling of trade between partners.

3. Gravity Model Formulation.

Therefore, considering the last improvements and specific purposes of this study, I propose the following functional form of the general gravity model:

$$\ln(X_{ij}) = \alpha_0 + \alpha_1 \ln\left(POP_i\right) + \alpha_2 \ln\left(POP_j\right) + \alpha_3 \ln\left(GDPpc_i\right) + \alpha_4 \left(GDPpc_j\right) +$$

$$+\alpha_5 \ln(DIST_{ij}) + \sum_{n=1}^{N} \beta_n DUMMY_{ij} + \sum_{m=1}^{10} \gamma_m \frac{\left(INST_i + INST_j\right)}{2} + \varepsilon_{ij}$$

where:[13]

- X_{ij} is trade flow from country-exporter *i* to country-importer *j* (in the paper we define it separately: FOB, CIF-FOB;
- POP_i and POP_j is a population of country-exporter *i* and country-importer *j*, respectively;
- $GDPpc_i$ and $GDPpc_j$ is a gross domestic product per capita of country-exporter *i* country-importer *j*;

[13] For complete description see Appendix B1.

- $DIST_{ij}$ is the distance between countries *i* and *j* (distance between the capitals of countries). In the paper I use distance measured after the formula of "*large circle*"[14];
- a_0, a_1,…,β_n, β_m are the regression coefficients;
- ε_{ij} is an error term;
- *DUMMY 1* determines that the trade partners share a common border (land and marine);
- *DUMMY 2* determines a linguistic similarities between trade partners (common linguistic group);
- *DUMMY 3* determines that trade flows are between the countries of EU27[15];
- *DUMMY 4* determines that trade flows are between the countries of EU15[15];
- *DUMMY 5* determines that trade flows are between the countries of EU12[15];
- *DUMMY 6* determines that trade flows are between the countries of EU15 and EU12[15];
- *DUMMY 7* determines that trade flows are between the countries of EU27 and SES[15];
- *DUMMY 8* determines that trade flows are between the countries of SES and SES[15];
- *DUMMY 9* determines that trade flows are between Ukraine and the countries of EU15[15];
- *DUMMY 10* determines that trade flows are between Ukraine and the countries of EU12[15];
- *DUMMY 11* determines that trade flows are between Ukraine and the countries of EU27[15];
- *DUMMY 12* determines that trade flows are between Ukraine and the countries of SES[15];

[14] See Appendix B3.

[15] See Appendix B4.

- $INST_i$ and $INST_j$ are institutional variables of countries *i* and *j*. In the paper I include 10 non-aggregated Indexes of Economic Freedom.[16]

The study also estimates the results on the cross-sectional data with pooled OLS, fixed, and random regressions (according to Baldwin and Taglioni (2006) recommendations). Furthermore, for the EU accession effect estimation I refer to the complete EU-pair-countries gravity equation for modeling the Ukraine as a part of EU community.

[16] The non-aggregated indexes of Economic Freedom are described in the Appendix B1 and Appendix B5..

Chapter 4

DATA DESCRIPTION

The data is presented in the form of cross-section. In this study I mainly use the following blocks: (i) the classic gravity panel; (ii) the specific gravity panel; (iii) the institutional panel. The data set covers the period of 1999 – 2006 and describes 31 countries: Austria, Belgium, Belorussia, Bulgaria, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Kazakhstan, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Poland, Portugal, Romania, Russian Federation, Slovakia, Slovenia, Spain, Sweden, Ukraine, and United Kingdom.[17]

The classic gravity panel is represented by classical gravity variables:

- Export in FOB and CIF standards is the main issue of this study. It describes the bilateral trade flows and captures costs related with trade. The data set for export (FOB and CIF) was obtained from the WITS system of World Bank resources. Represented in thousands of US dollars (PPP adjusted).

- CIF-to-FOB difference was calculated on the basis of above described data. This measure captures the value of trade costs (direct and indirect) and is used as a replacement of original Export (FOB) in the main model. I propose to use the following equation to calculate the effect of costs:

$$\text{CIF-to-FOB} = \frac{\text{Export CIF} - \text{Export FOB}}{\text{Export FOB}} \times 100\% .$$

[17] The data description is also described in the Appendix B1-5.

Therefore, with such formulation I will capture the relative change in export prices. Nevertheless, I want to underline, that such functional for should not be taken in logs as original Export, while it is initially presented in percentage form.

- Gross Domestic Product represents the economic activity of the country and in gravity model represents the *"economic mass"* of country. The data was obtained from the sources of World Bank and is measured in US dollars (PPP adjusted).

- Population of the country represents the *"volume of economy"* and in gravity model represents another part of *"economic mass"* of country. The data was obtained from the sources of World Bank and is measured in US dollars (PPP adjusted).

- Distance between countries (mainly from capital to capital) is a main part of the *"economy remoteness"* definition. Herein, the distance was calculated with the help of *"large circle equation"*.[18] The original data were provided by the University of Essex (privatewww.essex.ac.uk/~ksg/data-5.html) and is expressed in kilometers.

Tab 4.1: Summary of classic panel data

		Absolute values				Relative values (logs)			
Variable	**N**	**Avg**	**Min**	**Max**	**S.D**	**Avg**	**Min**	**Max**	**S.D**
Export CIF	7437	2241794	.001	9.48e+07	6822463	12.13157	-6.214608	18.48031	2.72017
Export FOB	7440	2388491	.002	1.06e+08	7420986	12.09398	-6.907755	18.36769	2.720823
CIF-FOB	7440	9.274871	-100	862.8	57.02761				
$GNIpc_i$	7440	15065.93	690	50280	12381.37	9.127437	6.536692	10.82536	1.121714
POP_i	7440	2.26e+07	388000	1.46e+08	3.09e+07	16.04666	12.86876	18.80123	1.46902
$GNIpc_j$	7440	15065.93	690	50280	12381.37	9.127437	6.536692	10.82536	1.121714
POP_j	7440	2.26e+07	388000	1.46e+08	3.09e+07	16.04666	12.86876	18.80123	1.46902
Distance	7440	1663.339	62	6975	1098.626	7.205495	4.127134	8.850087	.6874915

[18] See Appendix B3.

Nevertheless, it is still interesting to have a look on the data summary of CIF-to-FOB difference over the different blocks' trade relations. For this purpose I have separated the trade relations within the blocs.

Tab 4.2: Summary of CIF-to-FOB difference within the trade blocs.

		Absolute values			
Blocs' relations	**N**	**Avg**	**Min**	**Max**	**S.D**
EU27 vs. EU27	7440	3.567095	-100	862.8	34.57433
EU15 vs. EU15	7440	-.2660261	-100	190.063	11.80499
EU12 vs. EU12	7440	.9648866	-99.551	687.196	21.52137
EU15 vs. EU12	7440	2.874988	-100	862.8	24.39277
SES vs. EU27	7440	5.514586	-100	681.667	45.70419
SES vs. SES	7440	.193189	15.68	178.11	3.278533

Thus, from this table, it is possible to make some previous conclusions about inter-bloc trade relation. Therefore, the trade flows inside EU15 are to some extent subsidized (-.2660261), concluding, from one hand a high level of internationalization, thus, from another determines the trade relations, which are based on dumping. Also, as could be expected, the trade relations between SES and EU27 experience the high trade costs, while in-block trade is mostly costless (.193189). Moreover, the trade between new and old EU members is quite stringed (2.874988).

The specific gravity panel consists of the bundle of dummies. It is mainly use ether to fulfill the *"multilateral resistance"* or for study purposes. Herein, there two dummies of *"multilateral resistance"* index: (i) common border dummy; (ii) linguistic dummy. Others are the bloc separation dummies and Ukraine trade deterministic dummies.

Tab 4.3: Summary of specific panel data.

		Absolute values			
Dummies	**N**	**Avg**	**Min**	**Max**	**S.D**
Common border	7440	.1430108	0	1	.3501073
Linguistic dummy	7440	.1602151	0	1	.36683
EU27 vs. EU27	7440	.7548387	0	1	.4302117
EU15 vs. EU15	7440	.2258065	0	1	.4181404
EU12 vs. EU12	7440	.1419355	0	1	.3490074
EU15 vs. EU12	7440	.3860215	0	1	.4868683
Ukraine vs. EU15	7440	.0322581	0	1	.1766966
Ukraine vs. EU12	7440	.0236559	0	1	.1519849
Ukraine vs. EU27	7440	.055914	0	1	.229771
Ukraine vs. SES	7440	.0064516	0	1	.0800678
SES vs. EU27	7440	.2322581	0	1	.4223011
SES vs. SES	7440	.0129032	0	1	.1128647

The institutional panel is presented by the Index of Economic Freedom. The host of index it the Heritage Foundation (www.heritage.org). Herein, I involve the institutional variables for fulfilling the remoteness controlling (*"multilateral resistance"*) and for capturing the influence of institutional factors on international within previously defined blocs. The scale of the Index is from 0 to 100, with rank equal to 100 for completely "free economics". The full description of non-aggregated indexes can be found in Appendix B1 and Appendix B5.

Tab 4.4: Summary of institutional panel data.

		Absolute values			
Indexes	**N**	**Avg**	**Min**	**Max**	**S.D**
Business Freedom	7440	54.57661	10	96.1	17.10974
Trade Freedom	7440	72.9629	41.9	100	9.447549
Fiscal Freedom	7440	73.3004	50.3	94.4	10.33336
Freedom from Government	7440	51.4	3.9	90.3	16.32695
Monetary Freedom	7440	76.65081	0	93.9	16.59415
Investment Freedom	7440	65.24194	10	90	17.45913
Financial Freedom	7440	64.19355	30	90	19.0554

Property Rights	7440	67.09677	30	90	21.65765
Freedom from Corruption	7440	58.49194	0	100	24.22205
Labor Freedom	1860	1860	45.4	83.9	9.750703

Therefore, having summarized the data which is going to be utilized in the gravity model, it is reasonable to switch the attention to the empiric results of the study, which are described in the next chapter.

Chapter 5

EMPIRICAL ANALYSIS

1. Analysis Description.

This study starts from the testing of pooled, fixed or random effect regression for the 31 countries. This gives the overall number of 7440 observations, which is rather good identification of having a lot of degrees of freedom, thus, the estimates should be highly precise ones. For simplification, I have divided the empirical analysis for three dimensions:

The first dimension was mentioned in the methodological part of the study. According to Anderson and van Wincoop's (2003), the gravity model, which is estimated with the help of fixed /random effect, must capture the individual (for every country-exporter) and pair (pair of countries trade partners) indexes.[19]
In the study they are defined as:

- IND Individual: define the country-exporter;
- PWS Pairwise: for the pair of countries, trade partners;

The second dimension of this study is given the different gravity model specifications. This separation will helps me to answer the questions stated at the beginning of the study. Thus, on the basis of general gravity equation defined in the Methodology part I will determine the equations of interest.

[19] See Anderson and van Wincoop (2003).

The general gravity equation:

$$\ln(X_{ij}) = \alpha_0 + \alpha_1 \ln\left(POP_i\right) + \alpha_2 \ln\left(POP_j\right) + \alpha_3 \ln\left(GDPpc_i\right) + \alpha_4 \left(GDPpc_j\right) +$$

$$+\alpha_5 \ln(DIST_{ij}) + \sum_{n=1}^{N} \beta_n DUMMY_{ij} + \sum_{m=1}^{10} \gamma_m \frac{\left(INST_i + INST_j\right)}{2} + \varepsilon_{ij}$$

Model 1: in-bloc trade

$$\ln(X_{ij}) = \alpha_0 + \alpha_1 \ln\left(POP_i\right) + \alpha_2 \ln\left(POP_j\right) + \alpha_3 \ln\left(GDPpc_i\right) + \alpha_4 \left(GDPpc_j\right) +$$

$$+\alpha_5 \ln(DIST_{ij}) + \beta_1 DUMMY_{ij}1 + \beta_2 DUMMY_{ij}2 +$$

$$+\beta_3 DUMMY_{ij}3 + \beta_8 DUMMY_{ij}8 + \sum_{m=1}^{10} \gamma_m \frac{\left(INST_i + INST_j\right)}{2} + \varepsilon_{ij}$$

Model 2: inter-bloc trade

$$\ln(X_{ij}) = \alpha_0 + \alpha_1 \ln\left(POP_i\right) + \alpha_2 \ln\left(POP_j\right) + \alpha_3 \ln\left(GDPpc_i\right) + \alpha_4 \left(GDPpc_j\right) +$$

$$+\alpha_5 \ln(DIST_{ij}) + \beta_1 DUMMY_{ij}1 + \beta_2 DUMMY_{ij}2 +$$

$$+\beta_7 DUMMY_{ij}7 + \sum_{m=1}^{10} \gamma_m \frac{\left(INST_i + INST_j\right)}{2} + \varepsilon_{ij}$$

Model 3: in-bloc trade (EU divided for: EU15-to-EU15, EU12-to-EU12, and EU15-to-EU12)

$$\ln(X_{ij}) = \alpha_0 + \alpha_1 \ln\left(POP_i\right) + \alpha_2 \ln\left(POP_j\right) + \alpha_3 \ln\left(GDPpc_i\right) + \alpha_4 \left(GDPpc_j\right) +$$

$$+\alpha_5 \ln(DIST_{ij}) + \beta_1 DUMMY_{ij}1 + \beta_2 DUMMY_{ij}2 +$$

$$+\beta_4 DUMMY_{ij}4 + \beta_5 DUMMY_{ij}5 + \beta_6 DUMMY_{ij}6 +$$

$$+\beta_8 DUMMY_{ij}8 + \sum_{m=1}^{10} \gamma_m \frac{\left(INST_i + INST_j\right)}{2} + \varepsilon_{ij}$$

Model 4: Ukrainian trade flows estimation (EU27 vs.SES)

$$\ln(X_{ij}) = \alpha_0 + \alpha_1 \ln\left(POP_i\right) + \alpha_2 \ln\left(POP_j\right) + \alpha_3 \ln\left(GDPpc_i\right) + \alpha_4 \left(GDPpc_j\right) +$$
$$+\alpha_5 \ln(DIST_{ij}) + \beta_1 DUMMY_{ij}1 + \beta_2 DUMMY_{ij}2 +$$
$$+\beta_{11} DUMMY_{ij}11 + \beta_{12} DUMMY_{ij}12 + \sum_{m=1}^{10} \gamma_m \frac{\left(INST_i + INST_j\right)}{2} + \varepsilon_{ij}$$

Model 5: Ukrainian trade flows estimation (EU15 and EU12 vs.SES)

$$\ln(X_{ij}) = \alpha_0 + \alpha_1 \ln\left(POP_i\right) + \alpha_2 \ln\left(POP_j\right) + \alpha_3 \ln\left(GDPpc_i\right) + \alpha_4 \left(GDPpc_j\right) +$$
$$+\alpha_5 \ln(DIST_{ij}) + \beta_1 DUMMY_{ij}1 + \beta_2 DUMMY_{ij}2 +$$
$$+\beta_9 DUMMY_{ij}9 + \beta_{10} DUMMY_{ij}10 +$$
$$+\beta_{12} DUMMY_{ij}12 + \sum_{m=1}^{10} \gamma_m \frac{\left(INST_i + INST_j\right)}{2} + \varepsilon_{ij}$$

The third dimension defines the CIF-to-FOB difference estimation. Thus, $ln(X_{ij})$ is replaced with CIF-to-FOB difference. Nevertheless, there is a high correlation between two incoterms export clasificators, thus, the study doesn't concentrates on CIF, rather on difference CIF-to-FOB. The correlation between difference CIF-to-FOB and Export (CIF and FOB) is not large.[20]

Tab 5.1: Correlation matrix of Export incoterms classificatiors (FOB vs. CIF)

	Export FOB	**Export CIF**
Export FOB	1.0000	
Export CIF	0.9819	1.0000

Therefore, having estimated all the above mentioned gravity model specifications (Models) with pooled, fixed, and random effect regressions according to

[20] See Appendix C3.

individual (IND) and pairwise (PWS) effect selection, I defined the results for the Export FOB and CIF-to-FOB as dependent variables.[21]

In a favor to reduce the workspace of the results, I have limited outputs to the most statistically appropriate ones, with restricting the results with the the F-test, Breush-Pagan Test, and Hausman Test.[22] Also the data was tested for heterogeneity, and multicollinearity.

Finally, the results (final output)[23] are divided into two blocks:

(i) Export FOB (as dependent variable: in logs);

(ii) CIF-to-FOB difference (as dependent variable).

Each block includes only the tests' restricted results of specified models (Model 1-5) over the individual and pairwise effects selection ((i) IND = RE, PWS = FE, (ii) IND = RE, PWS = RE). The results are presented in the Appendixes

2. Analysis of the results.

Presenting the findings of this study I will also separate it into two parts:

Export FOB. (Classical gravity model specification)

All the signs support the previous findings on gravity modeling, while still the estimated results keep some misleading signs between individual and pairwise effect selection (e.g. log of GDP per capita of country-exporter). Overall, the international trade in the defined area (EU and SES) develops, more or less, in accordance with common laws of international trade.

The individual effect selection identifies the position of country-exporter towards the trade flows with other countries. Generally, it captures the specifics of the trade

[21] The results are described in the Appendix D (1 - 10).

[22] See Appendix E1 and Appendix E2 for the test statistics.

patterns of the country, or in another words, its economic interests. Thus, the interpretation is:

- the *10%* increase in GDP per capita of country-exporter (origin) will lead to approximately *3.2%* increase in trade volumes (*1%* significance). The fact can be explained with the terms of productivity, thus, the sudden intensification of productivity will stimulate the trade potential;
- an increase for *10%* in GDP per capita of country-importer (destination) will intensify the trade, on average, for *1.8%* (*1%* significance). Most common explanation that describes this result underlines the purchasing power as a leverage of import attraction;
- the changes in amount of population either in origin or destination country respond to almost similar change in trade. Therefore *1%* increase in population will stimulate trade for about *1%* (*1%* significance). Logically, an additional inhabitant will need an additional unit of import which is alternatively related to export self-clearing.
- the distance plays a negative role for international trade development, thus, doubling of distance decreases the trade twice (*1%* significance).
- the nearby countries with common border aims to trade intensively, thus such countries trade for *1.5* times more than with others.
- quite similar to common border effect is the effect of similar language, which is a little bit higher than previous one, thus still forcing the countries of similar language group to trade for about *1.6* times more than with others (*1%* significance).
- the *Business Freedom index* serves the international trade not so crucially. Thus with an absolutely free (*100%*) business regulation for both trade partners the international trade will be only *0.25%* higher from average state (*1%* significance).

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[23] See Appendix F1 and Appendix F2.

- the *Fiscal Freedom* decreases the volumes of international trade, which means that taxes stimulates trade. Herein, the economies completely free of taxes will decrease their trade nearly for 1.2% more from average state (*1%* significance).

- the *Government* interventions into economy have a negative effect on trade, thus economies absolutely free of government influence trade *1.1%* more than that with average indexes (*1%* significance).

- the *Monetary Freedom Index* covers the inflation and currency stability, thus economies with maximally stable currency will trade 1.5% more than the ones with average stability (*1%* significance).

- the *Financial Freedom* serves for trade negatively, therefore countries with a highly development banking system will trade less (the indicator for absolute state is *-0.7%* from average (*1%* significance)).

- the highly protected *Property Rights* regulation can increase the potential trade. Thus, in absolute state the trade could be increased by *2.2%* above average (*1%* significance).

- nevertheless, Corruption even increase trade volumes. Herein, the absolutely corrupted economies trade for about *0.7%* more than that with average indicators (*5%* significance).

The pairwise effect selection identifies the trade from the side of historically developed trade relations between countries. It captures the specifics of the trade partners' relations, in another worlds, the PWS captures the fixed or random effects that were established between countries (e.g. intensive trade with country which has the same colored flag). Thus, this scope discards the patterns of trade between two trade partners. In this case:

- nevertheless, GDP per capita for country-exporter and -importer is insignificant in PWS, one still can think about the sign, which, in this case, is negative. The PWS selection concentrates on retrospective relations in bilateral

trade. Therefore, may be, the amount of population and GDP per capita are not the significant factors of trade, while here gravity concentrates on relations.

- the common border effect is higher in PWS and constitutes that the countries with common border will aim to trade *1.8%* more than with other (*1%* significance).
- the linguistic dummy also shows that the similar language increases trade for *1.3* times.
- other parameter are insignificant.

Concluding this part of analysis, I want to refer to the previous studies that also found out the individual effect selection as an appropriate one, while it gives more precise results. One of such confirmation can be found in Redding and Venables (2000) study. Therefore, I will mainly concentrate on it.

Furthermore, it would be logically to analyze the specific dummies identifying the in-bloc and inter-block trade, as well as, Ukrainian trade within EU and SES countries:

- the trade within the Europe Union area is *1.7* times higher from the average trade over the understudied area.
- the trade within Single Economic Space area is about *2.3* times higher from the average trade over the understudied area.
- moreover, the trade between countries of SES and EU blocs is *1.9* less from the average trade over the understudied area.
- in this scope, I have detailed the analysis for in-EU trade, thus the trade between old-EU (EU15) members is, nearly, *2.3* times more from the average trade over the understudied area, while the trade between new-EU (EU12) constitutes the number *1.5* times.
- from other hand, the relations between old-EU and new-EU countries form the *1.8* times higher trade from the average level for SES-EU region.

- the trade between Ukraine and countries of EU area is less for *2.1* times, while the trade with countries of SES-bloc is higher for *1.4* times from average level of trade over defined region.

- while, in this scope Ukrainian trade with new-EU (EU12) countries is less for *1.7* times, while the trade with old-EU (EU15) is less for, approximately, *2.4* times less from the average level.

Thus, concluding the above described results I can perform some weak ideas. Ukrainian trade is still closely related with the SES-bloc countries. Nevertheless, it could be thought alternatively, the most of new-EU countries were the former CIS which is more likely to have close trade relations, otherwise the results shows that these countries trade less between each other than with old-EU. Moreover, the data shows that Ukraine is still linked with new-EU countries.

Fig. 5.2: The non-aggregated Indexes of Freedom for Ukraine, 2007

Source: *Heritage Foundation, Index of Economic Freedom.*

According the institutional effects estimations, Ukraine is still the 40th from the 41 countries of European area. Some of Ukrainian Indexes of Economic Freedom are above the world's average; nevertheless Ukraine still needs to improve the business and property rights regulation, which can meaningfully increase the

trade. The Index of Freedom from Corruption states that Ukraine is the country with high level of corruption, thus, in accordance with the estimations, corruption supports the international trade. Other indexes are either quite close to world's average or don't play the significant role in the trade intensity.

Export CIF-to-FOB. (The trade costs.)

The CIF-to-FOB regression does not perform so much significant parameters as a classical presentation of a gravity model. Nevertheless, it captures some economically interesting results:

- the GDP per capita of the country-exporter negatively influences the costs of the trade, thus with *10%* increase in GDPpc the exporter will aim to decrease the costs of trade for *69 - 87%*, what can be explained by the TNT (Tradable, Non-tradable Goods Theory) or NEG (New Economic Geography) theories. Thus, from one hand, the country is "rich" because it trade. From another it trades, because it is "rich" and supports highly developed trade infrastructure (5% significance). Recall the previously discussed results, the countries with the highest GDP per capita, such as representatives of old-EU trade more within the limits of the bloc. Also, I want to refer to the data summary, which shoved the absolute value of old-EU countries trade costs which is the most little parameter over the defined area. Moreover, one can find the lot of negative values in the CIF-to-FOB across the new-EU countries, which additionally supports the high level of subsidization over the European economics.
- the another factor that influences trade costs is the amount of population in the country-exporter. The results conclude that *10%* expansion of country's inhabitants will obviously cause the reduction of trade costs by *43-48%*. The modern theory cannot precisely explain this fact; nevertheless, the world's evidence presents the China practice. One of the possible explanations could be

found in economy of scale, thus still, it is not an appropriate one (1% significance).

- the most theoretically grounded result is the distance influence on the trade costs. Herein, the results conclude that with doubling of distance the trade costs will increase up to 14 times (1% significance).
- the banks also support international trade. In accordance with results, the perfectly developed bunking system in both countries can significantly decrease the trade costs (1% significance).
- the level of property rights protection also influences the trade costs. Thus, economies with absolutely developed Property rights law can substantially decrease the trade costs (1% significance).
- by the way, the within SES-bloc trade founds the negative effect on the trade costs. Consequently the trade costs between SES-bloc's countries are significantly reduced. Generally, it could be explained by the preferential tariffs which are involved in this trade area (Common Energetic Systems.)

Finally, this part of analysis completes the study analysis. As a result, the study found out a lot of facts supported by modern economic theory. Moreover it answers a bundle of questions in international trade. Even though, it captures the effects which are not still deeply explained by the theory. Nevertheless, this study helps us to understand the division of the trade flows in the EU-SES economic area, and form some expectation and understanding framework of the trade costs.

Chapter 6

CONCLUSIONS

The gravity model has served as a good instrument for international trade estimation. Moreover, it has helped to estimate the differences in trade between the trade blocs, which are presented in this study by Single Economic Space end European Union, and, consequently measure the trade attraction of Ukraine.

The results support the idea of in-bloc trade intensity, therefore, defining the in-bloc's (SES and EU) trade to be higher for about 1.5 -2.0 times over the average trade level in the range of other countries. From the other hand, the inter-bloc trade feels some restrictions, thus the trade flows between blocs of countries decreases. Otherwise, it is a perfect explanation of the multidimensional trade policy impossibility. Thus, the most appropriate outcome is to concentrate on the single vector of trade (in-bloc trade).

Consequently, Ukraine is still tied to the trade with SES-bloc countries. According the estimates, Ukraine still aims to trade with former USSR (SES) countries more. Thus, factually, Ukraine, which for the last years has started the redirection of the trade flows is still in so called SES trade region.

Nevertheless, there is no clear answer about Ukrainian future perspectives in trade: to stay with SES, or smoothly redirects the trade to EU countries. The study does no answer the question concretely, but with the help of simple logic the propositions to the answer could be easily found. The results conclude that the new-EU countries trade less with each other then they trade with old-EU countries. Furthermore, the second wave of EU expansion covered, mostly, the

countries from former CIS. In any case, it would be logically to assume that before the EU membership, these countries were trading with each other no less than the current CIS countries trade. Thus, projecting the Ukrainian relations on to new-EU countries retrospective trade patterns, one can imagine the trade possibilities of Ukraine after entering the EU space.

The study explains the influence of institutional climate onto trade. Thus, defining the business regulation, bunking system, government control, property rights regulation, and taxes as the most influential ones. Herein, the study recommends Ukraine to concentrate on property rights and business regulation, while these ones are lover the world's average, and in fact has a significant influence on trade. From the other side, Ukraine achieves the benefits in trade, which is stimulated with the high level of corruption.

Finally, this study estimate the trade cost of international trade. The gravity model estimates a well theoretically explained results. Alternatively, it involves a new uncertainty about further Ukrainian actions towards integration. From one side, Ukraine can crucially reduce the trade costs while integrating to highly developed countries; from another, it is tied to SES-bloc through the preferential tariffs, thus still holding Ukraine in the nets of ex –USSR countries.

However, with the help of this study, we cannot *100%* say the best possible vector of trade development, thus, this study creates a good framework of knowledge about SES and EU trade within the blocs and with each other, and the economic position of Ukraine between those blocs. This study makes a considerable base for further thinking about Ukrainian trade orientation.

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Luzhentsov Vitaliy_____

APPENDIX A. GENERAL DESCRIPTION OF TRADE FLOWS.

A1: ***The volume of trade of USSR and Ukraine for 1987-2004, %***

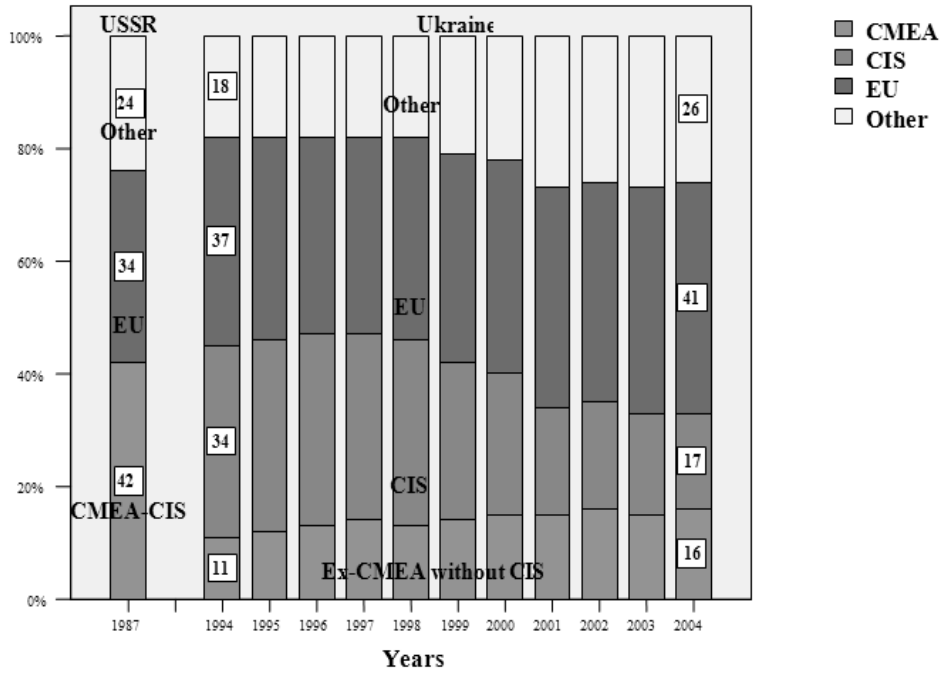

Fig. A1: *The specific volume of trade with EU, CMEA and other countries (rest of the world) in the general volume of USSR's and Ukraineian trade, %*

Note: EU on left and right parts of figure consists of 15 countries, present members of EU. For 1987 there was no information on trade volumes of Ukraine with Bulgaria, Cuba, Mongolia and Vietnam, thus, the data of 1987 for CMEA is presented only by 5 countries: Czechoslovakia, Poland, Romania, Hungary and Germany. The block of ex-CMEA includes 12 countries: Bulgaria, Czech Republic, Slovakia, Hungary, Poland, Romania, Estonia, Latvia, Lithuania, Cuba, Mongolia, and Vietnam.

Source: IMF DOTS.

PPENDIX B. DATA SPECIFICATIONS AND DESCRIPTION.

B1: ***Data (specifications) description.***

Variables	Explanation
Export FOB	export from country origin (*i*) to destination (*j*) measured in FOB (PPP adjusted), http://wits.worldbank.org
Export CIF	export from country origin (*i*) to destination (*j*) measured in CIF (PPP adjusted), http://wits.worldbank.org
CIF-to-FOB	difference between Export CIF and Export FOB[24], author's calculations
$(GDPpc)_i$	GDP per capita PPP adjusted (PPP - parity of purchasing power) of exporting countries (Origin), http://www.worldbank.org
$(GDPpc)_j$	GDP per capita PPP adjusted (PPP - parity of purchasing power) of importing countries (Destination), http://www.worldbank.org
$(POP)_i$	a population of exporting country (Origin), http://www.worldbank.org
$(POP)_j$	a population of importing country (Destination), http://www.worldbank.org
(DIST)	distance between the capitals of countries (*i*) and (*j*), measured with the «large circle» equation[25], http://privatewww.essex.ac.uk/~ksg/data-5.html
Dummy 1 (border)	determines that trade partners have a common border (land and marine) (e.g. for Ukraine: (Byelorussia, Poland, Russia, Slovakia, Hungary) - 1; other - 0), http://www.wikipedia.org, my calculations
Dummy 2 (language)	determines a linguistic barrier affecting the trade between trading countries (e.g. for Ukraine: group I - 1 (Bulgarian, Byelorussian, Czech, Estonian, Hungarian, Latvian, Lithuanian, Polish, Russian, Slovenian, Slovak, Ukrainian,); group II - 0 (Austrian, Belgian, Danish, Dutch, English, French, Finnish, German, Greek, Irish, Italian, Romanian, Spanish, Swedish), http://www.wikipedia.org, my calculations
Dummy 3 (EU27-EU27)	determines that trade is between the countries of EU27 ((EU12+EU15) - 1; other – 0).
Dummy 4 (EU15- EU15)	determines that trade is between the countries of EU15 ((EU15) - 1; other – 0).
Dummy 5 (EU12- EU12)	determines that trade is between the countries of EU12 ((EU12) - 1; other – 0).
Dummy 6 (EU15-EU12)	determines that trade is between the countries of EU15 and EU12 ((EU15 with EU12) - 1; other – 0).
Dummy 7 (EU27-SES)	determines that trade is between the countries of EU27 and SES ((EU27 with SES) - 1; other – 0).
Dummy 8 (SES-SES)	determines that trade is between the countries of SES and SES ((SES with SES) - 1; other – 0).
Dummy 9 (Ukraine-EU15)	determines that trade is between Ukraine and the countries of EU15

[24] See Appendix B2 for details.

[25] See Appendix B3 for details.

	((Ukraine with EU15) - 1; other – 0).
Dummy 10 (Ukraine- EU12)	determines that trade is between Ukraine and the countries of EU12 ((Ukraine with EU12) - 1; other – 0).
Dummy 11 (Ukraine- EU27)	determines that trade is between Ukraine and the countries of EU27 ((Ukraine with EU27) - 1; other – 0).
Dummy 12 (Ukraine- SES)	determines that trade is between Ukraine and the countries of SES ((Ukraine with SES) - 1; other – 0).
$INST_{i/j}1$	**Regulation or Business Freedom** *(Business freedom is a quantitative measure of the ability to start, operate, and close a business that represents the overall burden as well as the efficiency of government regulations. Regulations are a form of taxation that makes it difficult for entrepreneurs to create value. Although many regulations hinder businesses, the most important are associated with licensing new companies and businesses).*
$INST_{i/j}2$	**Trade Freedom** *(Trade restrictions can take the form of taxes on imports and exports (known as tariffs), quotas or outright bans on trade, and regulatory barriers. The degree to which government hinders access to and the free flow of foreign commerce can have a direct bearing on the ability of individuals to pursue their economic goals. Tariffs immediately and directly increase the prices that local consumers pay for foreign imports, and these price distortions change incentives, often indirectly pulling producers away from specializing in some goods and toward the blocked goods. By interfering with comparative advantage, trade restrictions impede economic growth. Also, tariffs make local citizens poorer by raising prices).*
$INST_{i/j}3$	**Fiscal Freedom** *(A government can impose fiscal burdens on economic activity by generating revenue for itself, primarily through taxation but also from debt that ultimately must be paid off through taxation. Fiscal freedom is a quantitative measure of these burdens in which lower taxation translates as a higher level of fiscal freedom. The Index methodology includes the top marginal tax rates on individual and corporate income, as well as a measure of total tax revenue as a portion of gross domestic product (GDP)).*
$INST_{i/j}4$	**Freedom from Government** *(The burden of excessive government is a central issue in economic freedom, both in terms of generating revenue (see fiscal freedom) and in terms of expenditure. Index is adopting the newly named freedom from government factor to measure the level of government spending and control in one place. The revised factor considers both the level of government expenditures as a percentage of GDP and the share of government revenue from state-owned enterprises and property).*
$INST_{i/j}5$	**Monetary Freedom** *(Monetary freedom is to market economics what free speech is to democracy. Free people need a steady and reliable currency as a medium of exchange and store of value. Without monetary freedom, it is difficult to create long-term value. Investment, savings, and other longer-term plans are easier to make, and individuals enjoy greater economic freedom. Inflation not only confiscates wealth like an invisible tax, but also distorts pricing, misallocates resources, raises the cost of doing business, and undermines a free society).*
$INST_{i/j}6$	**Investment Freedom** *(Restrictions on foreign investment limit the inflow of capital and thus limit economic freedom. By contrast, little or no restriction of foreign*

	investment enhances economic freedom because foreign investment provides funds for economic expansion. By its nature, capital will flow to where it is most needed and the returns are greatest.).
$INST_{i/j}7$	**Financial Freedom** *(In most countries, banks provide the essential financial services that facilitate economic growth; they lend money to start businesses, purchase homes, and secure credit for the purchase of durable consumer goods. Banks also furnish a safe place in which individuals can store their savings. Greater direct control of banks by government is a threat to these functions because government interference can introduce inefficiencies and outright corruption. Heavy bank regulation reduces opportunities and restricts economic freedom; therefore, the more a government restricts its banking sector, the lower its economic freedom score will be).*
$INST_{i/j}8$	**Property Rights** *(The ability to accumulate private property is the main motivating force in a market economy, and the rule of law is vital to a fully functioning free-market economy. Secure property rights give citizens the confidence to undertake commercial activities, save their income, and make long-term plans because they know that their income and savings are safe from expropriation).*
$INST_{i/j}9$	**Freedom from Corruption** *(Corruption is defined as dishonesty or decay. In the context of governance, it can be defined as the failure of integrity in the system, a distortion by which individuals are able to gain personally at the expense of the whole. Political corruption is a sad part of human history and manifests itself in many forms such as bribery, extortion, nepotism, cronyism, patronage, embezzlement, and (most commonly) graft, whereby public officials steal or profit illegitimately from public funds. Corruption infects all parts of an economy unless the market is allowed to develop transparency and effective policing. As a general rule, a higher level of corruption equates to a greater corrosion of economic freedom, although this may not hold in extreme cases. "In some circumstances," notes Harvard economist Robert Barro, "corruption may be preferable to honest enforcement of bad rules. For example, outcomes may be worse if a regulation that prohibits some useful economic activity is thoroughly enforced rather than circumvented through bribes").*
$INST_{i/j}10$	**Labor Freedom** *(In light of the growing importance of labor market flexibility in today's economy and the increased availability of consistent labor policy data across countries, the 2007 Index has adopted an independent labor freedom factor that is designed to measure countries' labor market regulations more adequately).*

[*]Dummies determining the EU (12, 15, and 27) and SES countries' trade are formed by me on the basis of country table.[26]

[**]The descriptions of non-aggregated Indexes of Economic Freedom are taken from resources of Heritage Foundation.[27]

[26] See Appendix B4 for details.

[27] See Appendix B5 for details.

B2: ***The explanation of CIF-to-FOB difference utilization.***

Tab. B2: The difference between CIF and FOB incoterms classificators.

Assuming that Ukraine trade with two completely the same countries (A and B), trade partners; only the distance between Ukraine and trade partners is different (say 1000 km. and 100000 km.) Considering the FOB measurement the volume of exported goods, for simplicity I assume, to be the same. Now introducing the CIF standard, the situation will obviously change the overall price for the same amount of goods (I assumed the FOB measurement is the same, thus the outflow of goods from Ukraine to those partners is nearly the same) the "price", that should be paid is going to be different. Therefore, the "price" (transportation costs) for the B-partner will be higher. Generally, the fact is obvious, and should be taken into consideration.

Also, I would like to underline that the distance is not only one determinant of this difference. One can think about other "distances" mentioned in the methodology of this study, such as cultural distance. Nevertheless, it is also can be influenced by the institutional factors, such as corruption or customs (tariff) policy.

On the above described example I have illustrated the positive difference, which is theoretically correct. Thus, the real world evidence can sometimes provides the negative CIF-to-FOB difference. Modern literature explains this fact in the following way:

- Statistical error in data (more likely to happen, thus, allows only small deviation);
- Subsidization and dumping (is appropriate explanation for large deviations);
- Free Trade Area trade policy (rarely);

With economic logic, one should notice that both FOB and CIF as difference CIF-to-FOB is very challenging for economic researches. Therefore, one of the purposes of this study is to test the difference (CIF-FOB) as a dependent variable.

B3: ***The "large circle" equation.***

To measure distances according to «large circle» equation, it is needed to define longitudes and latitude of the capital or "economic center" of every country which is under study. To get the measure of distance in miles ehe following formula is used:

$$D_{ij} = 3962.6 \arccos([\sin(Y_i) \cdot \sin(Y_j)] + [\cos(Y_i) \cdot \cos(Y_j) \cdot \cos(X_i - X_j)]),$$

where, X is longitude in degrees, multiplied by 57,3 (to convert it into radians) and Y is a latitude, multiplied by - 57,3 (it supposed to be measured in degrees westward).

B4: ***European Union (EU – 27, 15, and 12) and Single Economic Space countries specification.***

European Union (EU27)			**Single Economic Space (SES)**
First wave (EU15)	**Second wave (EU12)**		
up to 2004	***2004 - 2006***	***2006 - 2007***	
Belgium (1957)	Cyprus (2004)	Bulgaria (2007)	Russian Federation
France (1957)	Czech Republic (2004)	Romania (2007)	Belorussia
Germany (1957)	Estonia (2004)		Kazakhstan
Italy (1957)	Hungary (2004)		*Ukraine*
Luxembourg (1957)	Latvia (2004)		
Netherlands (1957)	Lithuania (2004)		
Denmark (1973)	Malta (2004)		
Republic of Ireland (1973)	Poland (2004)		
United Kingdom (1973)	Slovakia (2004)		
Greece (1981)	Slovenia (2004)		
Portugal (1986)			
Spain (1986)			
Austria (1995)			
Finland (1995)			
Sweden (1995)			

B5: ***Index of Economic Freedom Specifications.***

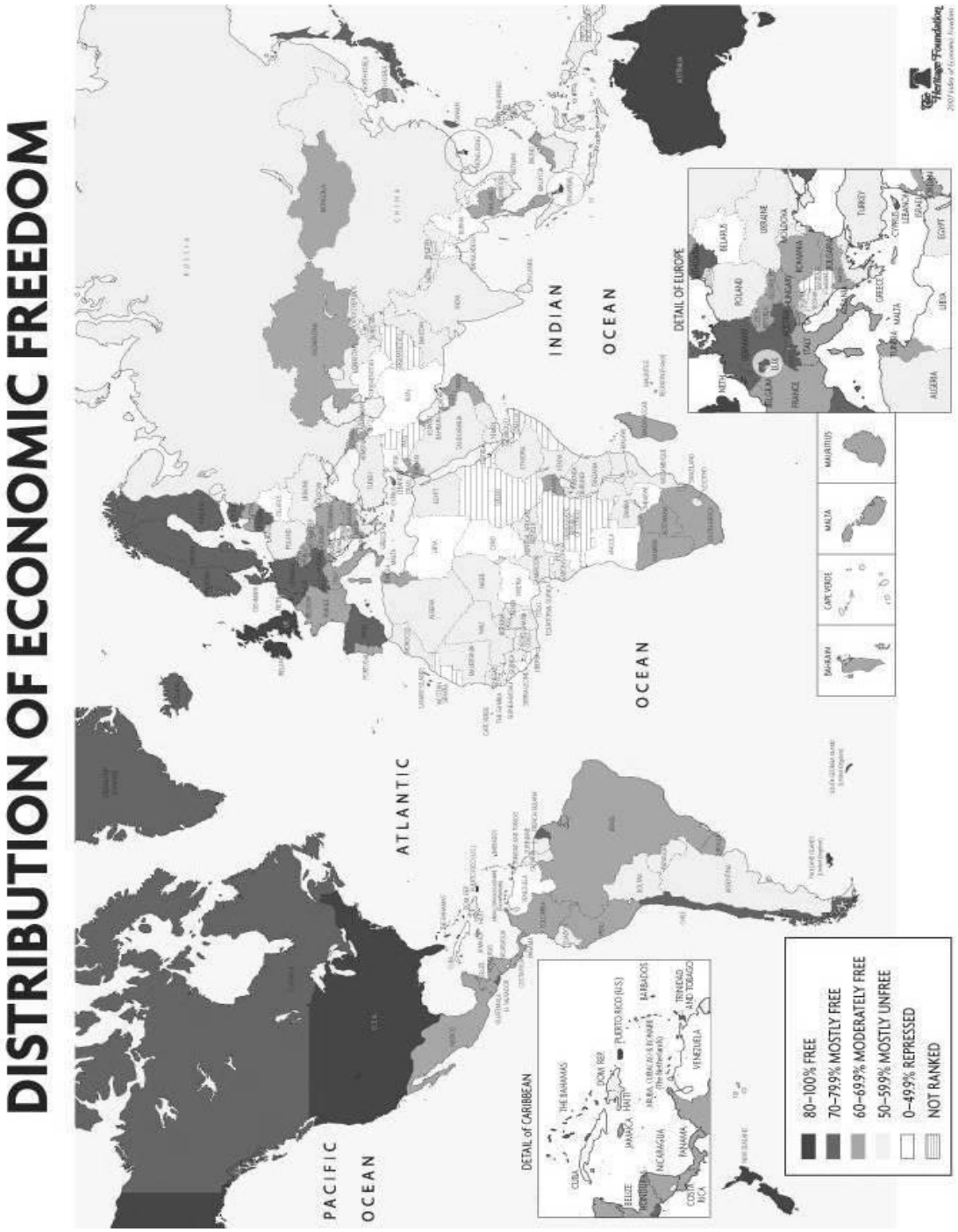

Fig. B5: *Distribution of Economic Freedom*

Source: Heritage Foundation, http://www.heritage.org/

APPENDIX C. SUMMARY STATISTICS OF THE DATA

C1: Summary statistics of data

		Absolute values				Relative values			
Variable	**N**	**Avg**	**Min**	**Max**	**S.D**	**Avg**	**Min**	**Max**	**S.D**
Export CIF	7437	2241794	.001	9.48e+07	6822463	12.13157	-6.214608	18.48031	2.72017
Export FOB	7440	2388491	.002	1.06e+08	7420986	12.09398	-6.907755	18.36769	2.720823
CIF-FOB	7440	9.274871	-100	862.8	57.02761				
$GNIpc_i$	7440	15065.93	690	50280	12381.37	9.127437	6.536692	10.82536	1.121714
POP_i	7440	2.26e+07	388000	1.46e+08	3.09e+07	16.04666	12.86876	18.80123	1.46902
$GNIpc_j$	7440	15065.93	690	50280	12381.37	9.127437	6.536692	10.82536	1.121714
POP_j	7440	2.26e+07	388000	1.46e+08	3.09e+07	16.04666	12.86876	18.80123	1.46902
Distance	7440	1663.339	62	6975	1098.626	7.205495	4.127134	8.850087	.6874915
Common border	7440	.1430108	0	1	.3501073				
Linguistic dummy	7440	.1602151	0	1	.36683				
EU27 vs. EU27	7440	.7548387	0	1	.4302117				
EU15 vs. EU15	7440	.2258065	0	1	.4181404				
EU12 vs. EU12	7440	.1419355	0	1	.3490074				
EU15 vs. EU12	7440	.3860215	0	1	.4868683				
Ukraine vs. EU15	7440	.0322581	0	1	.1766966				
Ukraine vs. EU12	7440	.0236559	0	1	.1519849				
Ukraine vs. EU27	7440	.055914	0	1	.229771				
Ukraine vs. SES	7440	.0064516	0	1	.0800678				
SES vs. EU27	7440	.2322581	0	1	.4223011				
SES vs. SES	7440	.0129032	0	1	.1128647				
Business Freedom	7440	54.57661	10	96.1	17.10974				
Trade Freedom	7440	72.9629	41.9	100	9.447549				
Fiscal Freedom	7440	73.3004	50.3	94.4	10.33336				
Freedom from Government	7440	51.4	3.9	90.3	16.32695				
Monetary Freedom	7440	76.65081	0	93.9	16.59415				
Investment Freedom	7440	65.24194	10	90	17.45913				
Financial Freedom	7440	64.19355	30	90	19.0554				
Property Rights	7440	67.09677	30	90	21.65765				
Freedom from Corruption	7440	58.49194	0	100	24.22205				
Labor Freedom	1860	1860	45.4	83.9	9.750703				

C2: Summary of CIF-to-FOB difference within the trade blocs.

		Absolute values			
Blocs' relations	**N**	**Avg**	**Min**	**Max**	**S.D**
EU27 vs. EU27	7440	3.567095	-100	862.8	34.57433
EU15 vs. EU15	7440	-.2660261	-100	190.063	11.80499
EU15 vs. EU15	7440	.9648866	-99.551	687.196	21.52137
EU15 vs. EU12	7440	2.874988	-100	862.8	24.39277
SES vs. EU27	7440	5.514586	-100	681.667	45.70419
SES vs. SES	7440	.193189	15.68	178.11	3.278533

C3: Correlation matrices of export classifications and CIF-to-FOB difference.

(i) Export FOB vs. Export CIF

	Export FOB	**Export CIF**
Export FOB	1.0000	
Export CIF	0.9819	1.0000

(ii) Export FOB vs. Export CIF

	Export FOB	**CIF-FOB**
Export FOB	1.0000	
CIF-FOB	-0.0872	1.0000

(iii) Export FOB vs. Export CIF

	Export CIF	**CIF-FOB**
Export CIF	1.0000	
CIF-FOB	-0.0587	1.0000

APPENDIX D. STATA OUTPUT

D1: MODEL 1: Export FOB

MODEL 1: Export FOB					
	(1)	***(2)***	***(3)***	***(4)***	***(5)***
	Pooled	***FE(IND)***	***RE(IND)***	***FE(PWS)***	***RE(PWS)***
ln*(GDPpc)$_i$*	0.484 (8.81)**	0.034 (0.04)	0.349 (3.06)**	-0.257 (0.34)	0.473 (5.82)**
ln*(POP)$_i$*	1.027 (48.37)**	-9.014 (0.36)	1.071 (15.84)**	-9.783 (0.45)	1.037 (36.74)**
ln*(GDPpc)$_j$*	0.342 (5.44)**	0.192 (2.39)*	0.210 (2.69)**	-0.401 (0.53)	0.332 (3.76)**
ln*(POP)$_j$*	0.864 (36.19)**	0.914 (38.73)**	0.909 (38.32)**	-9.945 (0.46)	0.874 (29.01)**
ln*(Distance)*	-1.055 (20.23)**	-0.953 (19.45)**	-0.961 (19.43)**	-0.244 (0.39)	-1.037 (13.28)**
Common border	0.449 (5.87)**	0.534 (7.34)**	0.527 (7.28)**	0.851 (4.99)**	0.515 (5.08)**
Linguistic dummy	0.604 (8.73)**	0.595 (8.56)**	0.596 (8.80)**	0.313 (2.14)*	0.553 (6.30)**
EU27-EU27	0.154 (1.35)	0.783 (6.00)**	0.720 (5.47)**	dropped	0.256 (1.49)
SES-SES	1.904 (8.40)**	1.313 (5.43)**	1.373 (5.93)**	dropped	1.790 (6.11)**
Business Freedom	0.004 (2.31)*	0.006 (1.79)	0.005 (2.69)**	0.005 (1.52)	0.003 (1.90)
Trade Freedom	-0.023 (2.59)**	-0.006 (0.57)	-0.008 (0.85)	0.003 (0.28)	-0.009 (1.21)
Fiscal Freedom	-0.028 (3.69)**	-0.023 (2.70)**	-0.024 (2.81)**	0.010 (0.30)	-0.018 (1.77)
Freedom from Government	0.015 (3.25)**	0.020 (3.94)**	0.019 (3.79)**	0.007 (0.55)	0.013 (2.16)*
Monetary Freedom	0.026 (3.24)**	0.028 (3.09)**	0.027 (3.10)**	0.004 (0.11)	0.021 (1.95)
Investment Freedom	0.022 (6.00)**	0.005 (1.19)	0.007 (1.58)	0.006 (0.66)	0.015 (3.16)**
Financial Freedom	-0.008 (2.12)*	-0.017 (3.49)**	-0.016 (3.33)**	0.002 (0.12)	-0.006 (1.15)
Property Rights	0.025 (5.85)**	0.045 (7.99)**	0.043 (8.09)**	-0.013 (0.67)	0.022 (3.64)**
Freedom from Corruption	-0.015 (3.17)**	-0.014 (2.35)*	-0.014 (2.40)*	0.035 (1.54)	-0.005 (0.74)
Labor Freedom	0.006 (1.29)	0.010 (1.84)	0.010 (1.80)	-0.026 (0.98)	0.006 (1.10)
Constant	-19.467 (14.38)**	143.185 (0.35)	-21.282 (10.16)**	334.769 (0.48)	-21.039 (11.70)**
Observations	1860	1860	1860	1860	1860
R-squared	0.83	0.75		0.09	
Number of IND		31	31		
Number of PWS				465	465

Robust t statistics in parentheses: * significant at *5%*; ** significant at *1%*

D2: MODEL 2: Export FOB

MODEL 2: Export FOB					
	(1)	***(2)***	***(3)***	***(4)***	***(5)***
	Pooled	***FE(IND)***	***RE(IND)***	***FE(PWS)***	***RE(PWS)***
ln*(GDPpc)$_i$*	0.427 (7.84)**	0.079 (0.08)	0.322 (2.85)**	-0.257 (0.34)	0.425 (5.24)**
ln*(POP)$_i$*	1.046 (48.95)**	-9.067 (0.36)	1.081 (16.11)**	-9.783 (0.45)	1.054 (37.14)**
ln*(GDPpc)$_j$*	0.285 (4.62)**	0.169 (2.18)*	0.182 (2.42)*	-0.401 (0.53)	0.283 (3.24)**
ln*(POP)$_j$*	0.884 (37.52)**	0.922 (39.88)**	0.919 (39.71)**	-9.945 (0.46)	0.892 (29.71)**
ln*(Distance)*	-1.028 (19.22)**	-0.946 (19.18)**	-0.953 (19.06)**	-0.244 (0.39)	-1.006 (12.34)**
Common border	0.541 (6.79)**	0.554 (7.61)**	0.552 (7.58)**	0.851 (4.99)**	0.602 (5.69)**
Linguistic dummy	0.640 (9.13)**	0.601 (8.63)**	0.604 (8.90)**	0.313 (2.14)*	0.572 (6.44)**
SES-EU27	-0.497 (4.61)**	-0.934 (9.72)**	-0.901 (9.04)**	dropped	-0.527 (3.40)**
Business Freedom	0.004 (2.22)*	0.006 (1.76)	0.005 (2.72)**	0.005 (1.52)	0.003 (2.02)*
Trade Freedom	-0.023 (2.51)*	-0.006 (0.61)	-0.008 (0.90)	0.003 (0.28)	-0.010 (1.33)
Fiscal Freedom	-0.027 (3.56)**	-0.023 (2.65)**	-0.023 (2.75)**	0.010 (0.30)	-0.016 (1.57)
Freedom from Government	0.020 (4.31)**	0.021 (4.29)**	0.021 (4.19)**	0.007 (0.55)	0.016 (2.55)*
Monetary Freedom	0.017 (2.04)*	0.024 (2.72)**	0.023 (2.63)**	0.004 (0.11)	0.013 (1.21)
Investment Freedom	0.017 (4.78)**	0.004 (0.85)	0.005 (1.16)	0.006 (0.66)	0.012 (2.58)**
Financial Freedom	-0.010 (2.93)**	-0.018 (3.78)**	-0.017 (3.69)**	0.002 (0.12)	-0.008 (1.48)
Property Rights	0.027 (6.24)**	0.046 (8.20)**	0.044 (8.32)**	-0.013 (0.67)	0.023 (3.76)**
Freedom from Corruption	-0.009 (1.92)	-0.012 (2.09)*	-0.011 (2.05)*	0.035 (1.54)	-0.001 (0.16)
Labor Freedom	0.010 (2.16)*	0.012 (2.08)*	0.011 (2.12)*	-0.026 (0.98)	0.009 (1.53)
Constant	-18.752 (13.70)**	144.591 (0.35)	-20.247 (9.69)**	334.769 (0.48)	-20.326 (11.03)**
Observations	1860	1860	1860	1860	1860
R-squared	0.83	0.75		0.09	
Number of IND		31	31		
Number of PWS				465	465

Robust t statistics in parentheses: * significant at *5%*; ** significant at *1%*

D3: MODEL 3: Export FOB

MODEL 3: Export FOB					
	(1)	***(2)***	***(3)***	***(4)***	***(5)***
	Pooled	***FE(IND)***	***RE(IND)***	***FE(PWS)***	***RE(PWS)***
ln*(GDPpc)$_i$*	0.457 (6.68)**	-0.137 (0.14)	0.220 (1.80)	-0.259 (0.34)	0.459 (4.59)**
ln*(POP)$_i$*	1.021 (46.12)**	-9.160 (0.37)	1.051 (15.58)**	-9.831 (0.45)	1.031 (35.10)**
ln*(GDPpc)$_j$*	0.315 (4.03)**	0.053 (0.54)	0.082 (0.86)	-0.405 (0.54)	0.318 (2.93)**
ln*(POP)$_j$*	0.859 (34.95)**	0.893 (36.82)**	0.888 (36.45)**	-9.993 (0.46)	0.869 (27.99)**
ln*(Distance)*	-1.069 (19.21)**	-0.986 (19.75)**	-0.994 (19.54)**	-0.241 (0.39)	-1.048 (12.49)**
Common border	0.431 (5.47)**	0.480 (6.53)**	0.474 (6.44)**	0.850 (4.98)**	0.500 (4.74)**
Linguistic dummy	0.573 (7.47)**	0.512 (6.51)**	0.519 (6.81)**	0.313 (2.14)*	0.522 (5.37)**
EU15-EU15	0.271 (1.47)	1.380 (6.27)**	1.273 (5.86)**	dropped	0.310 (1.13)
EU12-EU12	0.110 (0.87)	0.587 (4.11)**	0.535 (3.71)**	dropped	0.213 (1.14)
EU15-EU12	0.138 (1.07)	0.903 (5.98)**	0.826 (5.50)**	-1.092 (3.06)**	0.193 (1.01)
SES-SES	1.870 (7.84)**	1.108 (4.43)**	1.184 (4.90)**	dropped	1.780 (5.72)**
Business Freedom	0.004 (2.37)*	0.006 (1.95)	0.005 (2.92)**	0.005 (1.52)	0.003 (1.90)
Trade Freedom	-0.023 (2.56)*	-0.004 (0.42)	-0.007 (0.71)	0.003 (0.29)	-0.009 (1.16)
Fiscal Freedom	-0.027 (3.54)**	-0.017 (2.01)*	-0.018 (2.16)*	0.010 (0.30)	-0.017 (1.69)
Freedom from Government	0.014 (3.08)**	0.018 (3.52)**	0.017 (3.39)**	0.007 (0.55)	0.013 (2.04)*
Monetary Freedom	0.028 (3.37)**	0.031 (3.45)**	0.031 (3.43)**	0.004 (0.11)	0.022 (2.07)*
Investment Freedom	0.022 (6.00)**	0.005 (1.18)	0.007 (1.58)	0.006 (0.66)	0.015 (3.20)**
Financial Freedom	-0.007 (2.04)*	-0.016 (3.43)**	-0.015 (3.25)**	0.002 (0.12)	-0.006 (1.08)
Property Rights	0.025 (5.70)**	0.047 (8.12)**	0.045 (8.18)**	-0.013 (0.67)	0.022 (3.52)**
Freedom from Corruption	-0.016 (3.35)**	-0.017 (2.81)**	-0.016 (2.87)**	0.035 (1.54)	-0.006 (0.84)
Labor Freedom	0.006 (1.33)	0.013 (2.19)*	0.012 (2.15)*	-0.026 (0.97)	0.006 (1.08)
Constant	-18.890 (11.57)**	147.984 (0.37)	-18.921 (8.14)**	336.751 (0.48)	-20.661 (9.35)**
Observations	1860	1860	1860	1860	1860
R-squared	0.83	0.75		0.09	
Number of IND		31	31		
Number of PWS				465	465

Robust t statistics in parentheses: * significant at *5%*; ** significant at *1%*

D4: MODEL 4: Export FOB

MODEL 4: Export FOB					
	(1)	***(2)***	***(3)***	***(4)***	***(5)***
	Pooled	***FE(IND)***	***RE(IND)***	***FE(PWS)***	***RE(PWS)***
ln*(GDPpc)$_i$*	0.397 (7.16)**	0.318 (0.32)	0.327 (3.11)**	-0.251 (0.33)	0.396 (4.96)**
ln*(POP)$_i$*	1.059 (50.96)**	-16.319 (0.66)	1.080 (18.43)**	-9.654 (0.44)	1.064 (38.96)**
ln*(GDPpc)$_j$*	0.254 (4.19)**	0.170 (2.11)*	0.184 (2.40)*	-0.395 (0.53)	0.253 (2.99)**
ln*(POP)$_j$*	0.898 (39.34)**	0.922 (38.94)**	0.919 (39.21)**	-9.814 (0.45)	0.903 (31.33)**
ln*(Distance)*	-1.141 (20.59)**	-1.067 (20.53)**	-1.075 (20.26)**	-1.472 (2.10)*	-1.131 (13.25)**
Common border	0.425 (5.14)**	0.475 (6.15)**	0.469 (6.02)**	0.662 (4.74)**	0.469 (4.41)**
Linguistic dummy	0.608 (8.71)**	0.564 (8.02)**	0.568 (8.29)**	0.314 (2.15)*	0.547 (6.22)**
Ukraine-EU27	-1.029 (7.96)**	-1.146 (8.64)**	-1.124 (8.23)**	-1.411 (4.27)**	-1.052 (5.79)**
Ukraine -SES	0.605 (2.46)*	0.378 (1.44)	0.407 (1.61)	dropped	0.576 (1.87)
Business Freedom	0.004 (2.37)*	0.005 (1.57)	0.005 (2.78)**	0.005 (1.52)	0.003 (2.18)*
Trade Freedom	-0.018 (2.00)*	0.000 (0.01)	-0.004 (0.40)	0.003 (0.28)	-0.008 (1.09)
Fiscal Freedom	-0.032 (4.24)**	-0.029 (3.28)**	-0.029 (3.41)**	0.010 (0.30)	-0.021 (2.08)*
Freedom from Government	0.024 (4.86)**	0.024 (4.41)**	0.024 (4.28)**	0.007 (0.55)	0.020 (3.12)**
Monetary Freedom	0.033 (3.97)**	0.048 (4.92)**	0.046 (4.86)**	0.004 (0.11)	0.030 (2.80)**
Investment Freedom	0.016 (4.62)**	0.005 (1.29)	0.007 (1.73)	0.006 (0.66)	0.012 (2.66)**
Financial Freedom	-0.008 (2.26)*	-0.013 (2.85)**	-0.012 (2.76)**	0.002 (0.12)	-0.006 (1.18)
Property Rights	0.030 (7.10)**	0.049 (8.46)**	0.046 (8.63)**	-0.013 (0.67)	0.026 (4.28)**
Freedom from Corruption	-0.012 (2.85)**	-0.018 (3.29)**	-0.017 (3.27)**	0.035 (1.54)	-0.004 (0.59)
Labor Freedom	0.001 (0.14)	-0.001 (0.20)	-0.001 (0.24)	-0.026 (0.98)	0.000 (0.03)
Constant	-18.973 (13.90)**	258.035 (0.64)	-20.832 (10.61)**	339.474 (0.49)	-20.303 (11.18)**
Observations	1860	1860	1860	1860	1860
R-squared	0.83	0.75		0.09	
Number of IND		31	31		
Number of PWS				465	465

Robust t statistics in parentheses: * significant at *5%*; ** significant at *1%*

D5: MODEL 5: Export FOB

MODEL 5: Export FOB					
	(1)	***(2)***	***(3)***	***(4)***	***(5)***
	Pooled	***FE(IND)***	***RE(IND)***	***FE(PWS)***	***RE(PWS)***
ln*(GDPpc)$_i$*	0.401 (7.24)**	0.309 (0.31)	0.331 (3.26)**	-0.251 (0.33)	0.398 (5.00)**
ln*(POP)$_i$*	1.061 (51.02)**	-16.149 (0.67)	1.082 (19.24)**	-9.654 (0.44)	1.067 (39.15)**
ln*(GDPpc)$_j$*	0.259 (4.25)**	0.174 (2.16)*	0.188 (2.47)*	-0.395 (0.53)	0.255 (3.02)**
ln*(POP)$_j$*	0.900 (39.45)**	0.924 (39.01)**	0.920 (39.29)**	-9.814 (0.45)	0.905 (31.50)**
ln*(Distance)*	-1.139 (20.63)**	-1.066 (20.60)**	-1.075 (20.31)**	-1.472 (2.10)*	-1.126 (13.22)**
Common border	0.414 (5.03)**	0.462 (5.99)**	0.456 (5.86)**	0.662 (4.74)**	0.464 (4.37)**
Linguistic dummy	0.567 (7.83)**	0.519 (7.15)**	0.523 (7.39)**	0.314 (2.15)*	0.516 (5.66)**
Ukraine-EU15	-1.287 (9.29)**	-1.433 (10.15)**	-1.407 (9.83)**	dropped	-1.312 (6.67)**
Ukraine - EU12	-0.644 (3.26)**	-0.753 (4.04)**	-0.729 (3.76)**	-1.411 (4.27)**	-0.724 (2.50)*
Ukraine - SES	0.643 (2.65)**	0.400 (1.55)	0.433 (1.73)	dropped	0.600 (1.97)*
Business Freedom	0.004 (2.34)*	0.005 (1.56)	0.005 (2.75)**	0.005 (1.52)	0.003 (2.17)*
Trade Freedom	-0.018 (1.99)*	0.000 (0.01)	-0.004 (0.42)	0.003 (0.28)	-0.008 (1.08)
Fiscal Freedom	-0.032 (4.21)**	-0.029 (3.29)**	-0.029 (3.42)**	0.010 (0.30)	-0.021 (2.09)*
Freedom from Government	0.024 (4.80)**	0.024 (4.36)**	0.023 (4.24)**	0.007 (0.55)	0.020 (3.11)**
Monetary Freedom	0.032 (3.92)**	0.048 (4.88)**	0.045 (4.81)**	0.004 (0.11)	0.030 (2.77)**
Investment Freedom	0.016 (4.65)**	0.006 (1.33)	0.007 (1.80)	0.006 (0.66)	0.012 (2.67)**
Financial Freedom	-0.008 (2.25)*	-0.013 (2.85)**	-0.012 (2.75)**	0.002 (0.12)	-0.006 (1.17)
Property Rights	0.029 (6.98)**	0.048 (8.36)**	0.045 (8.52)**	-0.013 (0.67)	0.026 (4.24)**
Freedom from Corruption	-0.012 (2.70)**	-0.018 (3.17)**	-0.017 (3.14)**	0.035 (1.54)	-0.003 (0.51)
Labor Freedom	0.001 (0.13)	-0.001 (0.21)	-0.001 (0.25)	-0.026 (0.98)	-0.000 (0.01)
Constant	-19.090 (14.01)**	255.364 (0.66)	-20.909 (10.85)**	339.429 (0.49)	-20.413 (11.27)**
Observations	1860	1860	1860	1860	1860
R-squared	0.83	0.75		0.09	
Number of IND		31	31		
Number of PWS				465	465

Robust t statistics in parentheses: * significant at *5%*; ** significant at *1%*

D6: MODEL 1: CIF-to-FOB

MODEL 1: CIF-to-FOB					
	(1)	***(2)***	***(3)***	***(4)***	***(5)***
	Pooled	***FE(IND)***	***RE(IND)***	***FE(PWS)***	***RE(PWS)***
ln*(GDPpc)$_i$*	-6.106 (2.52)*	-9.061 (0.20)	-7.982 (2.30)*	7.935 (0.19)	-5.516 (1.82)
ln*(POP)$_i$*	-4.727 (5.88)**	-208.264 (0.23)	-4.473 (3.25)**	-24.018 (0.02)	-4.588 (4.88)**
ln*(GDPpc)$_j$*	-3.136 (1.24)	-6.404 (2.16)*	-5.015 (1.74)	10.956 (0.27)	-2.549 (0.82)
ln*(POP)$_j$*	-0.337 (0.34)	0.091 (0.11)	-0.089 (0.10)	-19.645 (0.02)	-0.197 (0.18)
ln*(Distance)*	13.978 (6.84)**	3.917 (2.11)*	7.066 (3.72)**	-18.611 (0.81)	14.495 (5.75)**
Common border	5.997 (2.18)*	-2.551 (1.01)	0.145 (0.06)	8.339 (0.89)	6.281 (1.89)
Linguistic dummy	1.495 (0.51)	1.995 (0.77)	1.852 (0.68)	10.545 (1.65)	1.745 (0.49)
EU27-EU27	-3.074 (0.63)	6.073 (1.21)	1.937 (0.37)	dropped	-4.204 (0.70)
SES - SES	-17.364 (2.83)**	-30.054 (3.20)**	-24.823 (3.58)**	dropped	-16.014 (2.19)*
Business Freedom	0.106 (1.34)	0.086 (0.63)	0.094 (1.19)	0.119 (0.73)	0.119 (1.59)
Trade Freedom	-0.596 (1.68)	0.175 (0.47)	-0.098 (0.28)	0.004 (0.01)	-0.445 (1.27)
Fiscal Freedom	-1.040 (3.02)**	-1.514 (4.03)**	-1.340 (3.64)**	-1.316 (0.69)	-1.021 (2.53)*
Freedom from Government	0.394 (2.06)*	-0.019 (0.09)	0.155 (0.76)	-0.182 (0.28)	0.335 (1.49)
Monetary Freedom	0.270 (0.79)	-0.267 (0.75)	-0.053 (0.14)	-0.940 (0.51)	0.122 (0.30)
Investment Freedom	0.007 (0.04)	0.499 (2.28)*	0.311 (1.60)	-0.049 (0.10)	-0.020 (0.11)
Financial Freedom	-0.239 (1.53)	0.038 (0.19)	-0.073 (0.38)	0.567 (0.97)	-0.122 (0.63)
Property Rights	-0.141 (0.79)	-0.968 (3.67)**	-0.641 (2.85)**	-0.762 (0.86)	-0.148 (0.67)
Freedom from Corruption	0.160 (0.88)	0.225 (0.93)	0.183 (0.83)	-0.115 (0.09)	0.103 (0.46)
Labor Freedom	0.374 (1.90)	0.374 (1.61)	0.383 (1.71)	-0.390 (0.30)	0.333 (1.43)
Constant	143.477 (2.49)*	3,573.151 (0.25)	242.718 (3.50)**	887.120 (0.03)	126.734 (1.83)
Observations	1860	1860	1860	1860	1860
R-squared	0.09	0.04		0.03	
Number of IND		31	31		
Number of PWS				465	465

Robust t statistics in parentheses: * significant at *5%*; ** significant at *1%*

D7: MODEL 2: CIF-to-FOB

MODEL 2: CIF-to-FOB					
	(1)	***(2)***	***(3)***	***(4)***	***(5)***
	Pooled	***FE(IND)***	***RE(IND)***	***FE(PWS)***	***RE(PWS)***
ln*(GDPpc)$_i$*	-5.637 (2.37)*	-12.140 (0.27)	-6.912 (2.03)*	7.935 (0.19)	-5.132 (1.73)
ln*(POP)$_i$*	-4.886 (6.11)**	-204.654 (0.23)	-4.849 (3.55)**	-24.018 (0.02)	-4.718 (5.04)**
ln*(GDPpc)$_j$*	-2.667 (1.08)	-4.863 (1.66)	-3.939 (1.39)	10.956 (0.27)	-2.165 (0.71)
ln*(POP)$_j$*	-0.497 (0.50)	-0.461 (0.53)	-0.466 (0.49)	-19.645 (0.02)	-0.328 (0.30)
ln*(Distance)*	13.753 (6.72)**	3.460 (1.87)	6.709 (3.54)**	-18.611 (0.81)	14.290 (5.66)**
Common border	5.245 (1.90)	-3.906 (1.52)	-0.976 (0.38)	8.339 (0.89)	5.646 (1.69)
Linguistic dummy	1.205 (0.41)	1.571 (0.61)	1.470 (0.54)	10.545 (1.65)	1.533 (0.44)
SES-EU27	5.873 (1.46)	4.222 (1.13)	4.960 (1.28)	dropped	6.416 (1.27)
Business Freedom	0.107 (1.34)	0.091 (0.67)	0.092 (1.15)	0.119 (0.73)	0.118 (1.57)
Trade Freedom	-0.599 (1.68)	0.200 (0.54)	-0.087 (0.25)	0.004 (0.01)	-0.438 (1.25)
Fiscal Freedom	-1.046 (3.04)**	-1.541 (4.10)**	-1.359 (3.69)**	-1.316 (0.69)	-1.028 (2.54)*
Freedom from Government	0.353 (1.90)	-0.136 (0.68)	0.072 (0.37)	-0.182 (0.28)	0.307 (1.40)
Monetary Freedom	0.347 (1.03)	-0.032 (0.09)	0.113 (0.31)	-0.940 (0.51)	0.183 (0.46)
Investment Freedom	0.046 (0.30)	0.611 (2.94)**	0.390 (2.11)*	-0.049 (0.10)	0.006 (0.03)
Financial Freedom	-0.216 (1.42)	0.104 (0.52)	-0.024 (0.13)	0.567 (0.97)	-0.105 (0.56)
Property Rights	-0.154 (0.87)	-1.012 (3.89)**	-0.669 (3.00)**	-0.762 (0.86)	-0.158 (0.72)
Freedom from Corruption	0.112 (0.64)	0.092 (0.39)	0.086 (0.40)	-0.115 (0.09)	0.070 (0.32)
Labor Freedom	0.341 (1.74)	0.280 (1.23)	0.315 (1.43)	-0.390 (0.30)	0.308 (1.34)
Constant	135.830 (2.35)*	3,536.805 (0.25)	232.457 (3.37)**	887.120 (0.03)	118.390 (1.70)
Observations	1860	1860	1860	1860	1860
R-squared	0.09	0.04		0.03	
Number of IND		31	31		
Number of PWS				465	465

Robust t statistics in parentheses: * significant at *5%;* ** significant at *1%*

D8: MODEL 3: CIF-to-FOB

MODEL 3: CIF-to-FOB					
	(1)	***(2)***	***(3)***	***(4)***	***(5)***
	Pooled	***FE(IND)***	***RE(IND)***	***FE(PWS)***	***RE(PWS)***
ln*(GDPpc)$_i$*	-8.591 (2.66)**	-8.579 (0.19)	-8.879 (2.13)*	8.033 (0.20)	-8.159 (2.00)*
ln*(POP)$_i$*	-5.017 (6.10)**	-201.729 (0.22)	-4.580 (3.43)**	-21.012 (0.02)	-4.868 (5.06)**
ln*(GDPpc)$_j$*	-5.621 (1.63)	-6.415 (1.66)	-5.905 (1.54)	11.153 (0.27)	-5.192 (1.21)
ln*(POP)$_j$*	-0.628 (0.62)	0.104 (0.12)	-0.197 (0.20)	-16.658 (0.02)	-0.479 (0.42)
ln*(Distance)*	13.011 (5.98)**	3.721 (1.87)	6.927 (3.41)**	-18.761 (0.82)	13.580 (5.07)**
Common border	4.813 (1.71)	-2.694 (1.02)	-0.098 (0.04)	8.365 (0.90)	5.174 (1.52)
Linguistic dummy	1.823 (0.55)	3.531 (1.17)	2.855 (0.92)	10.556 (1.65)	2.100 (0.53)
EU15-EU15	7.855 (0.96)	5.459 (0.63)	5.571 (0.64)	dropped	7.627 (0.76)
EU12-EU12	-6.712 (1.17)	4.104 (0.70)	-0.803 (0.13)	dropped	-7.444 (1.04)
EU15-EU12	2.467 (0.47)	8.383 (1.55)	5.375 (0.97)	68.012 (6.89)**	2.053 (0.32)
SES-SES	-22.520 (3.23)**	-30.899 (3.09)**	-27.051 (3.51)**	dropped	-21.556 (2.59)**
Business Freedom	0.117 (1.47)	0.086 (0.64)	0.099 (1.24)	0.118 (0.73)	0.129 (1.71)
Trade Freedom	-0.588 (1.66)	0.158 (0.42)	-0.123 (0.35)	0.003 (0.00)	-0.442 (1.26)
Fiscal Freedom	-0.968 (2.86)**	-1.520 (4.01)**	-1.303 (3.57)**	-1.317 (0.69)	-0.942 (2.37)*
Freedom from Government	0.407 (2.14)*	0.001 (0.00)	0.183 (0.90)	-0.183 (0.28)	0.351 (1.57)
Monetary Freedom	0.297 (0.85)	-0.270 (0.74)	-0.035 (0.09)	-0.942 (0.51)	0.139 (0.34)
Investment Freedom	-0.019 (0.12)	0.485 (2.22)*	0.281 (1.46)	-0.049 (0.10)	-0.047 (0.25)
Financial Freedom	-0.255 (1.64)	0.028 (0.14)	-0.093 (0.50)	0.567 (0.97)	-0.141 (0.73)
Property Rights	-0.085 (0.47)	-0.950 (3.61)**	-0.588 (2.63)**	-0.762 (0.86)	-0.091 (0.41)
Freedom from Corruption	0.109 (0.59)	0.226 (0.92)	0.164 (0.74)	-0.116 (0.10)	0.059 (0.26)
Labor Freedom	0.441 (2.15)*	0.382 (1.60)	0.416 (1.79)	-0.393 (0.30)	0.406 (1.67)
Constant	190.469 (2.72)**	3,465.199 (0.24)	256.807 (3.20)**	763.709 (0.02)	175.547 (2.06)*
Observations	1860	1860	1860	1860	1860
R-squared	0.10	0.04		0.03	
Number of IND		31	31		
Number of PWS				465	465

Robust t statistics in parentheses: * significant at *5%*; ** significant at *1%*

D9: MODEL 4: CIF-to-FOB

MODEL 4: CIF-to-FOB					
	(1)	***(2)***	***(3)***	***(4)***	***(5)***
	Pooled	***FE(IND)***	***RE(IND)***	***FE(PWS)***	***RE(PWS)***
ln*(GDPpc)$_i$*	-7.292 (2.89)**	-8.971 (0.20)	-8.248 (2.22)*	7.916 (0.19)	-6.767 (2.19)*
ln*(POP)$_i$*	-4.229 (5.06)**	-244.723 (0.27)	-4.351 (2.93)**	-24.378 (0.02)	-4.088 (4.23)**
ln*(GDPpc)$_j$*	-4.337 (1.77)	-5.893 (1.96)	-5.297 (1.84)	10.940 (0.27)	-3.813 (1.25)
ln*(POP)$_j$*	0.174 (0.19)	-0. 064 (0.07)	0.040 (0.04)	-20.008 (0.02)	0.315 (0.30)
ln*(Distance)*	13.332 (6.36)**	3.342 (1.76)	6.301 (3.24)**	-15.189 (0.46)	14.097 (5.39)**
Common border	4.266 (1.55)	-4.319 (1.66)	-1.775 (0.69)	8.865 (0.90)	4.826 (1.44)
Linguistic dummy	1.897 (0.65)	1.831 (0.70)	1.838 (0.68)	10.541 (1.64)	2.182 (0.63)
Ukraine-EU27	-11.111 (2.18)*	-5.049 (1.02)	-7.220 (1.35)	3.932 (0.26)	-9.997 (1.59)
Ukraine-SES	-10.095 (1.38)	-12.375 (1.32)	-12.086 (1.57)	dropped	-8.564 (0.95)
Business Freedom	0.108 (1.36)	0.085 (0.63)	0.096 (1.20)	0.119 (0.73)	0.125 (1.67)
Trade Freedom	-0.518 (1.48)	0.219 (0.59)	-0.040 (0.11)	0.004 (0.01)	-0.415 (1.19)
Fiscal Freedom	-1.083 (3.12)**	-1.555 (4.12)**	-1.387 (3.75)**	-1.316 (0.68)	-1.050 (2.59)**
Freedom from Government	0.501 (2.42)*	-0.055 (0.27)	0.161 (0.76)	-0.182 (0.28)	0.432 (1.80)
Monetary Freedom	0.318 (0.96)	-0.065 (0.17)	0.072 (0.19)	-0.939 (0.51)	0.146 (0.37)
Investment Freedom	-0.064 (0.42)	0.551 (2.67)**	0.329 (1.77)	-0.049 (0.10)	-0.080 (0.43)
Financial Freedom	-0.244 (1.60)	0.087 (0.43)	-0.039 (0.21)	0.567 (0.97)	-0.135 (0.71)
Property Rights	-0.078 (0.44)	-0.970 (3.66)**	-0.637 (2.79)**	-0.762 (0.86)	-0.092 (0.42)
Freedom from Corruption	0.199 (1.19)	0.146 (0.63)	0.153 (0.73)	-0.115 (0.09)	0.150 (0.72)
Labor Freedom	0.315 (1.58)	0.271 (1.18)	0.297 (1.33)	-0.389 (0.30)	0.285 (1.21)
Constant	142.542 (2.47)*	4,153.846 (0.29)	243.333 (3.47)**	874.012 (0.03)	128.003 (1.85)
Observations	1860	1860	1860	1860	1860
R-squared	0.09	0.04		0.03	
Number of IND		31	31		
Number of PWS				465	465

Robust t statistics in parentheses: * significant at *5%*; ** significant at *1%*

D10: MODEL 5: CIF-to-FOB

MODEL 5: CIF-to-FOB					
	(1)	***(2)***	***(3)***	***(4)***	***(5)***
	Pooled	***FE(IND)***	***RE(IND)***	***FE(PWS)***	***RE(PWS)***
ln*(GDPpc)$_i$*	-7.303 (2.89)**	-8.976 (0.20)	-8.172 (2.29)*	7.916 (0.19)	-6.769 (2.19)*
ln*(POP)$_i$*	-4.235 (5.07)**	-244.633 (0.27)	-4.340 (3.13)**	-24.378 (0.02)	-4.090 (4.24)**
ln*(GDPpc)$_j$*	-4.349 (1.78)	-5.891 (1.95)	-5.220 (1.83)	10.940 (0.27)	-3.815 (1.25)
ln*(POP)$_j$*	0.169 (0.18)	-0.063 (0.07)	0.053 (0.06)	-20.008 (0.02)	0.313 (0.30)
ln*(Distance)*	13.327 (6.36)**	3.343 (1.76)	6.759 (3.45)**	-15.189 (0.46)	14.096 (5.38)**
Common border	4.295 (1.56)	-4.326 (1.65)	-1.376 (0.53)	8.865 (0.90)	4.839 (1.44)
Linguistic dummy	2.009 (0.66)	1.807 (0.67)	1.861 (0.66)	10.541 (1.64)	2.235 (0.61)
Ukraine-EU15	-10.410 (2.14)*	-5.203 (1.05)	-7.404 (1.47)	dropped	-9.639 (1.65)
Ukraine-EU12	-12.160 (1.37)	-4.839 (0.62)	-7.726 (0.89)	3.932 (0.26)	-10.489 (0.94)
Ukraine-SES	-10.198 (1.39)	-12.364 (1.31)	-12.035 (1.57)	dropped	-8.603 (0.95)
Business Freedom	0.108 (1.37)	0.085 (0.63)	0.097 (1.21)	0.119 (0.73)	0.125 (1.67)
Trade Freedom	-0.518 (1.48)	0.219 (0.59)	-0.073 (0.21)	0.004 (0.01)	-0.415 (1.19)
Fiscal Freedom	-1.083 (3.11)**	-1.555 (4.12)**	-1.364 (3.69)**	-1.316 (0.68)	-1.050 (2.59)**
Freedom from Government	0.502 (2.42)*	-0.055 (0.27)	0.191 (0.90)	-0.182 (0.28)	0.432 (1.79)
Monetary Freedom	0.319 (0.96)	-0.065 (0.17)	0.091 (0.25)	-0.939 (0.51)	0.146 (0.37)
Investment Freedom	-0.064 (0.42)	0.551 (2.67)**	0.298 (1.62)	-0.049 (0.10)	-0.080 (0.43)
Financial Freedom	-0.244 (1.60)	0.087 (0.43)	-0.057 (0.31)	0.567 (0.97)	-0.134 (0.71)
Property Rights	-0.076 (0.43)	-0.970 (3.66)**	-0.591 (2.64)**	-0.762 (0.86)	-0.092 (0.42)
Freedom from Corruption	0.198 (1.18)	0.147 (0.63)	0.155 (0.75)	-0.115 (0.09)	0.149 (0.71)
Labor Freedom	0.315 (1.58)	0.271 (1.18)	0.300 (1.35)	-0.389 (0.30)	0.285 (1.21)
Constant	142.860 (2.47)*	4,152.418 (0.29)	235.621 (3.42)**	874.139 (0.03)	128.111 (1.85)
Observations	1860	1860	1860	1860	1860
R-squared	0.09	0.04		0.03	
Number of IND		31	31		
Number of PWS				465	465

Robust t statistics in parentheses: * significant at *5%*; ** significant at *1%*

APPENDIX E. TESTS

E1: Export FOB:

- Model 1

	IND = RE	**PSW = FE**
Pooled vs. FE	F(30, 1810) = 14.19 Prob > F = 0.0000	F(464, 1378) = 3.75 Prob > F = 0.0000
Pooled vs. RE	chi2(1) = 1182.02 Prob > chi2 = 0.0000	chi2(1) = 439.32 Prob > chi2 = 0.0000
FE vs. RE	chi2(10) = 1.29 Prob>chi2 = 0.9995	chi2(15) = 31.39 Prob>chi2 = 0.0078

- Model 2

	IND = RE	**PSW = FE**
Pooled vs. FE	F(30, 1811) = 15.66 Prob > F = 0.0000	F(464, 1378) = 3.89 Prob > F = 0.0000
Pooled vs. RE	chi2(1) = 1494.64 Prob > chi2 = 0.0000	chi2(1) = 475.21 Prob > chi2 = 0.0000
FE vs. RE	chi2(9) = -0.15 non-asymptotic	chi2(15) = 28.92 Prob>chi2 = 0.0164

- Model 3

	IND = RE	**PSW = FE**
Pooled vs. FE	F(30, 1808) = 14.98 Prob > F = 0.0000	F(464, 1377) = 3.75 Prob > F = 0.0000
Pooled vs. RE	chi2(1) = 1220.56 Prob > chi2 = 0.0000	chi2(1) = 437.31 Prob > chi2 = 0.0000
FE vs. RE	chi2(10) = 5.14 Prob>chi2 = 0.8816	chi2(15) = 37.18 Prob>chi2 = 0.0012

- Model 4

	IND = RE	**PSW = FE**
Pooled vs. FE	F(30, 1810) = 12.53 Prob > F = 0.0000	F(464, 1377) = 3.75 Prob > F = 0.0000
Pooled vs. RE	chi2(1) = 1069.56 Prob > chi2 = 0.0000	chi2(1) = 446.42 Prob > chi2 = 0.0000
FE vs. RE	chi2(10) = 1.52 Prob>chi2 = 0.9989	chi2(15) = 32.31 Prob>chi2 = 0.0058

- Model 5

	IND = RE	**PSW = FE or Pooled**
Pooled vs. FE	F(30, 1809) = 12.64 Prob > F = 0.0000	F(464, 1377) = 3.72 Prob > F = 0.0000
Pooled vs. RE	chi2(1) = 1090.84 Prob > chi2 = 0.0000	chi2(1) = 439.58 Prob > chi2 = 0.0000
FE vs. RE	chi2(11) = 1.66 Prob>chi2 = 0.9994	chi2(15) = 18.45 Prob>chi2 = 0.2399

E2: CIF-to-FOB:

- Model 1

	IND = RE	**PSW = RE**
Pooled vs. FE	F(30, 1810) = 12.26 Prob > F = 0.0000	F(464, 1378) = 1.91 Prob > F = 0.0000
Pooled vs. RE	chi2(1) = 524.87 Prob > chi2 = 0.0000	chi2(1) = 91.65 Prob > chi2 = 0.0000
FE vs. RE	chi2(11) = -0.74 non-asymtotic	chi2(14) = 8.12 Prob>chi2 = 0.8832

- Model 2

	IND = RE	**PSW = RE**
Pooled vs. FE	F(30, 1811) = 12.01 Prob > F = 0.0000	F(464, 1378) = 1.91 Prob > F = 0.0000
Pooled vs. RE	chi2(1) = 514.23 Prob > chi2 = 0.0000	chi2(1) = 92.74 Prob > chi2 = 0.0000
FE vs. RE	chi2(11) = 5.81 Prob>chi2 = 0.885	chi2(14) = 7.70 Prob>chi2 = 0.9042

- Model 3

	IND = RE	**PSW = RE**
Pooled vs. FE	F(30, 1808) =12.17 Prob > F = 0.0000	F(464, 1377) = 1.90 Prob > F = 0.0000
Pooled vs. RE	chi2(1) = 500.59 Prob > chi2 = 0.0000	chi2(1) = 89.68 Prob > chi2 = 0.0000
FE vs. RE	chi2(14) = -6.37 non-asymtotic	chi2(15) = 12.88 Prob>chi2 = 0.6117

- Model 4

	IND = RE	**PSW = RE**
Pooled vs. FE	F(30, 1810) = 11.92 Prob > F = 0.0000	F(464, 1377) = 1.90 Prob > F = 0.0000
Pooled vs. RE	chi2(1) = 498.86 Prob > chi2 = 0.0000	chi2(1) = 90.80 Prob > chi2 = 0.0000
FE vs. RE	chi2(11) = 0.59 Prob>chi2 = 1.0000	chi2(15) = 9.81 Prob>chi2 = 0.8317

- Model 5

	IND = RE	**PSW = RE**
Pooled vs. FE	F(30, 1809) = 11.91 Prob > F = 0.0000	F(464, 1377) = 1.90 Prob > F = 0.0000
Pooled vs. RE	chi2(1) = 498.47 Prob > chi2 = 0.0000	chi2(1) = 90.76 Prob > chi2 = 0.0000
FE vs. RE	chi2(13) = -1.27 non-asymptotic	chi2(15) = 10.01 Prob>chi2 = 0.818

APPENDIX F. FINAL RESULTS

F1: Export FOB:

Export FOB										
	(1)	***(2)***	***(3)***	***(4)***	***(5)***	***(6)***	***(7)***	***(8)***	***(9)***	***(10)***
	Model1 (IND)	***Model1 (PWS)***	***Model2 (IND)***	***Model2 (PWS)***	***Model3 (IND)***	***Model3 (PWS)***	***Model4 (IND)***	***Model4 (PWS)***	***Model5 (IND)***	***Model5 (PWS)***
$\ln(GDPpc)_i$	0.349 (3.06)**	-0.257 (0.34)	0.322 (2.85)**	-0.257 (0.34)	0.220 (1.80)	-0.259 (0.34)	0.327 (3.11)**	-0.251 (0.33)	0.331 (3.26)**	-0.251 (0.33)
$\ln(POP)_i$	1.071 (15.84)**	-9.783 (0.45)	1.081 (16.11)**	-9.783 (0.45)	1.051 (15.58)**	-9.831 (0.45)	1.080 (18.43)**	-9.654 (0.44)	1.082 (19.24)**	-9.654 (0.44)
$\ln(GDPpc)_j$	0.210 (2.69)**	-0.401 (0.53)	0.182 (2.42)*	-0.401 (0.53)	0.082 (0.86)	-0.405 (0.54)	0.184 (2.40)*	-0.395 (0.53)	0.188 (2.47)*	-0.395 (0.53)
$\ln(POP)_j$	0.909 (38.32)**	-9.945 (0.46)	0.919 (39.71)**	-9.945 (0.46)	0.888 (36.45)**	-9.993 (0.46)	0.919 (39.21)**	-9.814 (0.45)	0.920 (39.29)**	-9.814 (0.45)
$\ln(Distance)$	-0.961 (19.43)**	-0.244 (0.39)	-0.953 (19.06)**	-0.244 (0.39)	-0.994 (19.54)**	-0.241 (0.39)	-1.075 (20.26)**	-1.472 (2.10)*	-1.075 (20.31)**	-1.472 (2.10)*
Common border	0.527 (7.28)**	0.851 (4.99)**	0.552 (7.58)**	0.851 (4.99)**	0.474 (6.44)**	0.850 (4.98)**	0.469 (6.02)**	0.662 (4.74)**	0.456 (5.86)**	0.662 (4.74)**
Linguistic dummy	0.596 (8.80)**	0.313 (2.14)*	0.604 (8.90)**	0.313 (2.14)*	0.519 (6.81)**	0.313 (2.14)*	0.568 (8.29)**	0.314 (2.15)*	0.523 (7.39)**	0.314 (2.15)*
EU27-EU27	0.720 (5.47)**	dropped								
EU15-EU15					1.273 (5.86)**	dropped				
EU12-EU12					0.535 (3.71)**	dropped				
EU15-EU12					0.826 (5.50)**	-1.092 (3.06)**				
EU27- SES			-0.901 (9.04)**	dropped						
SES-SES	1.373 (5.93)**	dropped			1.184 (4.90)**	dropped				
Ukraine-EU15									-1.407 (9.83)**	dropped
Ukraine-EU12									-0.729 (3.76)**	-1.411 (4.27)**
Ukraine-EU27							-1.124 (8.23)**	-1.411 (4.27)**		

Ukraine-SES							0.407 (1.61)	dropped	0.433 (1.73)	dropped
Business Freedom	0.005 (2.69)**	0.005 (1.52)	0.005 (2.72)**	0.005 (1.52)	0.005 (2.92)**	0.005 (1.52)	0.005 (2.78)**	0.005 (1.52)	0.005 (2.75)**	0.005 (1.52)
Trade Freedom	-0.008 (0.85)	0.003 (0.28)	-0.008 (0.90)	0.003 (0.28)	-0.007 (0.71)	0.003 (0.29)	-0.004 (0.40)	0.003 (0.28)	-0.004 (0.42)	0.003 (0.28)
Fiscal Freedom	-0.024 (2.81)**	0.010 (0.30)	-0.023 (2.75)**	0.010 (0.30)	-0.018 (2.16)*	0.010 (0.30)	-0.029 (3.41)**	0.010 (0.30)	-0.029 (3.42)**	0.010 (0.30)
Freedom from Government	0.019 (3.79)**	0.007 (0.55)	0.021 (4.19)**	0.007 (0.55)	0.017 (3.39)**	0.007 (0.55)	0.024 (4.28)**	0.007 (0.55)	0.023 (4.24)**	0.007 (0.55)
Monetary Freedom	0.027 (3.10)**	0.004 (0.11)	0.023 (2.63)**	0.004 (0.11)	0.031 (3.43)**	0.004 (0.11)	0.046 (4.86)**	0.004 (0.11)	0.045 (4.81)**	0.004 (0.11)
Investment Freedom	0.007 (1.58)	0.006 (0.66)	0.005 (1.16)	0.006 (0.66)	0.007 (1.58)	0.006 (0.66)	0.007 (1.73)	0.006 (0.66)	0.007 (1.80)	0.006 (0.66)
Financial Freedom	-0.016 (3.33)**	0.002 (0.12)	-0.017 (3.69)**	0.002 (0.12)	-0.015 (3.25)**	0.002 (0.12)	-0.012 (2.76)**	0.002 (0.12)	-0.012 (2.75)**	0.002 (0.12)
Property Rights	0.043 (8.09)**	-0.013 (0.67)	0.044 (8.32)**	-0.013 (0.67)	0.045 (8.18)**	-0.013 (0.67)	0.046 (8.63)**	-0.013 (0.67)	0.045 (8.52)**	-0.013 (0.67)
Freedom from Corruption	-0.014 (2.40)*	0.035 (1.54)	-0.011 (2.05)*	0.035 (1.54)	-0.016 (2.87)**	0.035 (1.54)	-0.017 (3.27)**	0.035 (1.54)	-0.017 (3.14)**	0.035 (1.54)
Labor Freedom	0.010 (1.80)	-0.026 (0.98)	0.011 (2.12)*	-0.026 (0.98)	0.012 (2.15)*	-0.026 (0.97)	-0.001 (0.24)	-0.026 (0.98)	-0.001 (0.25)	-0.026 (0.98)
Constant	-21.282 (10.16)**	334.769 (0.48)	-20.247 (9.69)**	334.769 (0.48)	-18.921 (8.14)**	336.751 (0.48)	-20.832 (10.61)**	339.474 (0.49)	-20.909 (10.85)**	339.429 (0.49)
Observations	1860	1860	1860	1860	1860	1860	1860	1860	1860	1860
R-squared		0.09		0.09		0.09		0.09		0.09
Number of IND	31		31		31		31		31	
Number of PWS		465		465		465		465		465

Robust t statistics in parentheses: * significant at *5%*; ** significant at *1%*

F2: CIF-to-FOB:

CIF-to-FOB										
	(1)	***(2)***	***(3)***	***(4)***	***(5)***	***(6)***	***(7)***	***(8)***	***(9)***	***(10)***
	Model1 (IND)	***Model1 (PWS)***	***Model2 (IND)***	***Model2 (PWS)***	***Model3 (IND)***	***Model3 (PWS)***	***Model4 (IND)***	***Model4 (PWS)***	***Model5 (IND)***	***Model5 (PWS)***
$\ln(GDPpc)_i$	-7.982 (2.30)*	-5.516 (1.82)	-6.912 (2.03)*	-5.132 (1.73)	-8.879 (2.13)*	-8.159 (2.00)*	-8.248 (2.22)*	-6.767 (2.19)*	-8.172 (2.29)*	-6.769 (2.19)*
$\ln(POP)_i$	-4.473 (3.25)**	-4.588 (4.88)**	-4.849 (3.55)**	-4.718 (5.04)**	-4.580 (3.43)**	-4.868 (5.06)**	-4.351 (2.93)**	-4.088 (4.23)**	-4.340 (3.13)**	-4.090 (4.24)**
$\ln(GDPpc)_j$	-5.015 (1.74)	-2.549 (0.82)	-3.939 (1.39)	-2.165 (0.71)	-5.905 (1.54)	-5.192 (1.21)	-5.297 (1.84)	-3.813 (1.25)	-5.220 (1.83)	-3.815 (1.25)
$\ln(POP)_j$	-0.089 (0.10)	-0.197 (0.18)	-0.466 (0.49)	-0.328 (0.30)	-0.197 (0.20)	-0.479 (0.42)	0.040 (0.04)	0.315 (0.30)	0.053 (0.06)	0.313 (0.30)
ln***(Distance)***	7.066 (3.72)**	14.495 (5.75)**	6.709 (3.54)**	14.290 (5.66)**	6.927 (3.41)**	13.580 (5.07)**	6.301 (3.24)**	14.097 (5.39)**	6.759 (3.45)**	14.096 (5.38)**
Common border	0.145 (0.06)	6.281 (1.89)	-0.976 (0.38)	5.646 (1.69)	-0.098 (0.04)	5.174 (1.52)	-1.775 (0.69)	4.826 (1.44)	-1.376 (0.53)	4.839 (1.44)
Linguistic dummy	1.852 (0.68)	1.745 (0.49)	1.470 (0.54)	1.533 (0.44)	2.855 (0.92)	2.100 (0.53)	1.838 (0.68)	2.182 (0.63)	1.861 (0.66)	2.235 (0.61)
EU27-EU27	1.937 (0.37)	-4.204 (0.70)								
EU15-EU15					5.571 (0.64)	7.627 (0.76)				
EU12-EU12					-0.803 (0.13)	-7.444 (1.04)				
EU15-EU12					5.375 (0.97)	2.053 (0.32)				
EU27- SES			4.960 (1.28)	6.416 (1.27)						
SES-SES	-24.823 (3.58)**	-16.014 (2.19)*			-27.051 (3.51)**	-21.556 (2.59)**				
Ukraine-EU15									-7.404 (1.47)	-9.639 (1.65)
Ukraine-EU12									-7.726 (0.89)	-10.489 (0.94)

Ukraine-EU27							-7.220 (1.35)	-9.997 (1.59)		
Ukraine-SES							-12.086 (1.57)	-8.564 (0.95)	-12.035 (1.57)	-8.603 (0.95)
Business Freedom	0.094 (1.19)	0.119 (1.59)	0.092 (1.15)	0.118 (1.57)	0.099 (1.24)	0.129 (1.71)	0.096 (1.20)	0.125 (1.67)	0.097 (1.21)	0.125 (1.67)
Trade Freedom	-0.098 (0.28)	-0.445 (1.27)	-0.087 (0.25)	-0.438 (1.25)	-0.123 (0.35)	-0.442 (1.26)	-0.040 (0.11)	-0.415 (1.19)	-0.073 (0.21)	-0.415 (1.19)
Fiscal Freedom	-1.340 (3.64)**	-1.021 (2.53)*	-1.359 (3.69)**	-1.028 (2.54)*	-1.303 (3.57)**	-0.942 (2.37)*	-1.387 (3.75)**	-1.050 (2.59)**	-1.364 (3.69)**	-1.050 (2.59)**
Freedom from Government	0.155 (0.76)	0.335 (1.49)	0.072 (0.37)	0.307 (1.40)	0.183 (0.90)	0.351 (1.57)	0.161 (0.76)	0.432 (1.80)	0.191 (0.90)	0.432 (1.79)
Monetary Freedom	-0.053 (0.14)	0.122 (0.30)	0.113 (0.31)	0.183 (0.46)	-0.035 (0.09)	0.139 (0.34)	0.072 (0.19)	0.146 (0.37)	0.091 (0.25)	0.146 (0.37)
Investment Freedom	0.311 (1.60)	-0.020 (0.11)	0.390 (2.11)*	0.006 (0.03)	0.281 (1.46)	-0.047 (0.25)	0.329 (1.77)	-0.080 (0.43)	0.298 (1.62)	-0.080 (0.43)
Financial Freedom	-0.073 (0.38)	-0.122 (0.63)	-0.024 (0.13)	-0.105 (0.56)	-0.093 (0.50)	-0.141 (0.73)	-0.039 (0.21)	-0.135 (0.71)	-0.057 (0.31)	-0.134 (0.71)
Property Rights	-0.641 (2.85)**	-0.148 (0.67)	-0.669 (3.00)**	-0.158 (0.72)	-0.588 (2.63)**	-0.091 (0.41)	-0.637 (2.79)**	-0.092 (0.42)	-0.591 (2.64)**	-0.092 (0.42)
Freedom from Corruption	0.183 (0.83)	0.103 (0.46)	0.086 (0.40)	0.070 (0.32)	0.164 (0.74)	0.059 (0.26)	0.153 (0.73)	0.150 (0.72)	0.155 (0.75)	0.149 (0.71)
Labor Freedom	0.383 (1.71)	0.333 (1.43)	0.315 (1.43)	0.308 (1.34)	0.416 (1.79)	0.406 (1.67)	0.297 (1.33)	0.285 (1.21)	0.300 (1.35)	0.285 (1.21)
Constant	242.718 (3.50)**	126.734 (1.83)	232.457 (3.37)**	118.390 (1.70)	256.807 (3.20)**	175.547 (2.06)*	243.333 (3.47)**	128.003 (1.85)	235.621 (3.42)**	128.111 (1.85)
Observations	1860	1860	1860	1860	1860	1860	1860	1860	1860	1860
R-squared										
Number of IND	31		31		31		31		31	
Number of PWS		465		465		465		465		465

Robust t statistics in parentheses: * significant at *5%*; ** significant at *1%*