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THE LINK AMONG TRADE, FDI, AND IMMIGRATION

Povezanost med trgovino, neposrednimi tujimi investicijami in imigracijo

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Abstract

Using the gravity model, this paper provides a new empirical framework that analyzes the importance of the link among trade, FDI, and immigration. A further significant contribution of this analysis is the appropriate handling of a large number of zeroes in migration statistics. In this way, the unbalanced panel database of the 15 core European member states (EU15) as destination countries is formed. The results of the estimation show that the introduced explanatory variables, such as the common language, destination country's population, and great circle distance between two countries, represent the most significant deterministic factors that generally explain the share of the immigrant population. It is also confirmed that the sending country's population, trade, FDI, and sending country's landlocked position are important determinants positively influencing the share of immigration.

Key Words: Trade, foreign direct investments, international migration, gravity model.

Izvleček

V prispevku je predstavljen nov empirični okvir, ki temelji na gravitacijskem modelu in ki analizira povezanost med trgovino, neposrednimi tujimi investicijami (NTI) in imigracijo. Naslednji pomemben prispevek analize je ustrezno ravnanje z velikim številom ničel v statističnih podatkih o imigraciji petnajstih držav članic Evropske unije (EU15). Na ta način je bila oblikovana obsežna panelna struktura podatkov EU15 kot ciljnih držav za tuje priseljence. Rezultati ocenjevanja regresijskega modela kažejo, da so vključene pojasnjevalne spremenljivke, npr. skupni jezik v dveh opazovanih državah, prebivalstvo ciljne države in geografska razdalja med dvema državama, najpomembnejši deterministični dejavniki, ki na splošno pojasnijo delež priseljencev v EU15. Rezultati tudi kažejo, da so bilateralna trgovina, neposredne tuje investicije, prebivalstvo države izvora ter dostop do morja države izvora pomembne determinante, ki pozitivno vplivajo na delež priseljencev.

Ključne besede: Trgovina, neposredne tuje investicije, mednarodne migracije, gravitacijski model.

1 Introduction

Since the publication of Rybczynski's (1955) and Mundell's (1957) seminal work, many international economists have been interested in whether trade in goods and in factors are substitutes or complements. Most works published on this topic have focused on the link between trade and immigration, and only a minority of them have focused on the link between FDI and immigration. These works show that immigration positively influences bilateral trade due to consumers' preferences on the part of immigrants and the reduction of transaction costs between the home and the sending country. Specifically, immigrants bring with them a preference for products from the sending countries as well as knowledge, information and contacts from sending countries, which lead to a reduction in transaction costs. A standard tool for evaluating the link among trade, FDI, and migration is the gravity model.

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Accordingly, a new empirical framework is introduced in the present analysis based on the gravity model and analyzing the importance of the link between trade and immigration as well as between FDI and immigration. The hypothesis is that trade (or, alternatively, FDI), the destination country's population, and other explicitly exogenous variables positively influence the share of immigration. A further contribution to the literature is the proper handling of large numbers of zeroes in migration statistics. In this way, unbalanced panel data are formed from the 15 core European member states (EU15) as destination countries and the other 71 trading partner countries that send migrants and receive FDI outflows. Therefore, the following bilateral relationships are observed: EU15 with all countries (world), EU15 with developing countries (developing countries), EU15 with the 12 new European members (NEU12), and EU15 with candidate countries (candidate countries).

This paper is organized as follows. Section Two presents the model and methodology. Section Three presents the empirical data, and Section Four presents the regression results. The final section provides concluding remarks.

2 Model and Methodology

2.1 Review of the Literature

Research on trade and migration is broadly based on two approaches to the link between trade and migration. The first approach analyzes migrations as a real factor in the context of neoclassical international trade theory whereas the second analyzes migration as a socially constructed activity in the context of networks and human capital theory. The former approach is primarily theoretical; the latter is mostly empirical. The theoretical approach has raised the question of whether the trade in goods and trade in factors are substitutes or complements. Mundell (1957) proves that, under the assumptions of the Heckscher-Ohlin-Samuelson factor price equalization theorem and the commodity price equalization theorem, the free movement of factors can substitute for free movement of goods.

If these assumptions are relaxed, the nature of the relationship is even reversed. In this way, Markusen's (1983) more recently written work confirms that trade and factor mobility can easily be complements. This reversed relationship opens the door to empirical evaluation. Zimmermann (1994) presented the main factors influencing migration, which are commonly referred to as push–pull factors in the European context. Push factors affect the supply side of migration and are caused by the desire or need of the sending country's population to emigrate. Several factors in the sending country are crucial: hunger, poverty, low wages, unemployment, ethnic or religious persecution, and civil wars. Pull factors affect the demand side of immigration in the destination country. Usually factors such as high wages, employment, property rights, elderly population, social expenditures, educational opportunities, stock of the immigrant population, and destination country's size are important determinants influencing immigration inflows.

Gould (1994) introduced data from the United States on trade with 47 trade partners in order to study the link between trade and immigration using the gravity model. Gould concluded that immigration has a greater impact on trade in consumer goods than in intermediate goods and that exports are more influenced by immigration than imports. Regarding immigration and the trade relationship, Gould argued that immigration influences the bilateral trade flows in two ways. First, immigrants bring with them a preference for products from home (preference approach). When such products or substitutes are not available in the destination country, the desire for the consumption of these products leads to an increase in imports to the destination country. Second, immigrants bring with them knowledge, information, and contacts from the sending country's markets, which might lead to a reduction in transaction costs in those markets (reduction of transaction costs approach). This knowledge includes reductions in transaction costs such as language barriers, costs of information about consumer preferences, and the establishment of reliable contacts for the development of trade agreements, which increases bilateral imports and exports between the sending and destination country.

Although a significant number of empirical studies have found a positive link between international trade and immigration, little attention has been devoted to studying the link between FDI and migration. Many papers have focused on the link between trade and migration flows, such as Girma and Zhihao (2002), Dunlevy (2006), White (2007), Hijzen and Wright (2009), Tai (2009), Jansen (2009), Murat (2009), Poot (2010), Peri (2010), and Gaston and Nelson (2011), whereas Foad (2011)[1] and Javorcik et al. (2011) examined the link between FDI and migration. By contrast, Frankel and Romer's (1999) theoretical model was used to estimate the effect of openness to trade on economic growth, and Ortega and Peri's (2011) model estimated the effect of openness to trade and immigration on economic growth.

2.2 Frankel and Romer's Model

The theoretical framework introduced is based on Frankel and Romer's (1999) model, which includes trade openness. This framework is also based on Ortega and Peri's (2011) model, which contributed to the literature on the aggregate economic effects of openness with the inclusion of openness to immigration in addition to trade openness in Frankel and Romer's (1999) model.

If the GDP per capita for country i in year t is presented with y_{it}, then the country's income per capita is a log-linear function of its accumulated exposure to international trade (T_{it}) and migration flows (M_{it}). As countries differ in their size, the control for size differences S_{it} is introduced into the model specification. The prediction is that larger countries are more diversified in terms of ideas, skills, and factors of production, thereby increasing the frequency of productive

[1] This paper focused on the regional distribution of both FDI and immigration.

interactions. Therefore, the GDP per capita of the destination countries is presented using the following specification:

$$\ln y_{it} = \alpha_{yt}^{\cdot} + \beta_y T_{it} + \gamma_y M_{it} + \delta_y S_i + \varepsilon_{it}^{\cdot}, \quad (1)$$

where y_{it} is GDP per capita for country i in year t, T_{it} is a measure of the accumulated openness to foreign goods (such as the stock of imported capital or ideas relative to the destination country's GDP), M_{it} is a measure of the accumulated openness to migration (such as the stock of the immigrant population), and S_i is a country's size measure. The term $\alpha_{yt}^{\cdot}$ captures the other systematic determinants of the GDP per capita and $\varepsilon_{it}^{\cdot}$ is a mean zero random variable accounting for random shocks to $\ln y_{it}$.

2.3 The Gravity Model

The gravity model was introduced as a particular type of specification inspired by Newton's law of gravity. In its basic form, the gravity model states that trade between two countries is a positive function of their GDP as a proxy variable for their respective supply (conditions in the source country) and demand (conditions in the host country) and a negative function of the distance between two countries as a proxy variable for transportation costs:

$$T_{ij} = \frac{GDP_i^{\alpha} GDP_j^{\beta}}{D_{ij}^{\theta}}. \quad (2)$$

This specification is most often estimated in the log-linear form. The equation, first introduced by Tinbergen (1962), explains bilateral trade by means of economic size and distance: the larger the two countries, the larger the trade flows; the greater the distance between two countries, the smaller the bilateral trade. Despite its popularity during the early days of its introduction, the lack of a theoretical foundation gave the gravity model a somewhat dubious reputation among academics. Anderson (1979) and Bergstrand (1985, 1989) provided the first micro-economic foundation of the gravity model while Anderson and van Wincoop (2003) extended the previous work and introduced a method based on a complicated price index (called multilateral resistance terms) that became a well-known reference for subsequent theoretical work using the gravity equation. Finally, Bergeijk and Brakman's (2010) book resumed the theoretical work on the gravity equation to answer a number of questions regarding the gravity equation.

2.4 The Empirical Framework

The empirical framework of the present paper is related to Frankel and Romer's model and Ortega and Peri's theoretical framework, yet differs in a few important aspects. The cited authors estimated the effects of trade openness (and openness to immigration) on GDP per capita income at the aggregate level and introduced the binary variable for common border and colonial history. This paper primarily estimates the effects of trade, FDI, and other explicitly exogenous variables on migration inflows and excludes these variables from further research.

It is supposed that each country's openness to immigration as the endogenous variable is a function of two exogenous factors that are interchangeably introduced in the empirical framework: the bilateral trade flows and the FDI flows between two countries. This analysis introduces time-invariant geographic variables, such as bilateral distance between two countries, landlocked position of the sending country, and common language; it also introduces the population of the sending country as a measure of migration potential and population of the destination country as a measure of the destination country's absorption potential. The destination country's size measure (P_{it}) is the only endogenous explanatory variable introduced in the gravity model.

It is assumed that the effect of trade, destination country's population, and other explicitly exogenous variables on the destination country's immigration are expressed by following a log-log specification:

$$\ln m_{jit} = a^m + b_1^m \ln T_{ijt} + b_2^m \ln P_{jt} + b_3^m \ln P_{it} + \\ + b_4^m \ln(Dist)_{ij} + b_5^m ComLang_{ij} + b_6^m Landlock_j + e_{jit}^m, \quad (3)$$

where the dependent variable m_{jit} is the log of the migration flow[2] from country j to country i, T_{ijt} is an explanatory variable for bilateral trade defined as the proportion between exports plus imports relative to the destination country's GDP, P_{jt} is the population of the sending country (or country of origin), P_{it} is the population of the destination country, $Dist_{ij}$ is the geographical distance[3] between two countries, $ComLang_{ij}$ is an indicator[4] for a common language, $Landlock_{ij}$ is an indicator of the sending country's landlocked geographical position, a^m is the intercept, and e_{jit}^m is the error term. The expected sign on the explanatory variables for trade, sending country's population, destination country's population, and common language is positive whereas the expected sign on distance and landlocked position of the sending country is negative.

Similarly, it is supposed that the effect of FDI flows, the destination country's population, and other explicitly exogenous variables on the destination country's immigration is expressed in the log-log form:

$$\ln m_{jit} = a^m + b_1^m \ln FDI_{ijt} + b_2^m \ln P_{jt} + b_3^m \ln P_{it} + \\ + b_4^m \ln(Dist)_{ij} + b_5^m ComLang_{ij} + b_6^m Landlock_j + e_{jit}^m, \quad (4)$$

where FDI_{ijt} is an explanatory variable for bilateral FDI. This proxy variable is defined as the proportion between FDI outflows plus FDI inflows between two countries relative to

[2] The dependent variable m_{jit} is alternatively defined as the log of the migration flow from country j to country i relative to the destination country's population.

[3] Geographical distance is introduced as a proxy for migration costs.

[4] This dummy variable is equal to 1 when both countries share the same official language and 0 otherwise.

the destination country's GDP. All other variables are the same as in equation (3).

The estimations of the gravity model for migration flows are not without problems: One important issue is how to handle zero values. This paper introduces the first standard procedure of handling zeroes in migration data, which was primarily implemented by Linnemann (1966).[5] Santos Silva and Tenreyro (2006) and Afman and Maurel (2010) also used the same approach, which mainly discards the zeroes by truncating the data sample, and applies the least squares estimation method. Stein and Duade (2007) confirmed that the estimates obtained using the two alternative standard procedures of handling zeroes[6] show similar results of estimation. The problem is that estimating strictly positive observations, as suggested by Linnemann's procedure, might lead to a selection bias. The sample selection bias problem can be handled by means of sample selection corrections. For instance, Helpman et al. (2008) implemented a theoretical model rationalizing the zero trade flows. They proposed an estimation of the gravity model with correction for the probability of countries to trade and applied the new two-step estimation technique similarly to sample selection models used in labor economics.

The implementation of the suggested approach is comprehensive and hardly applicable in the present analysis. Although the zero values in the migration statistics are discarded and the data truncated as suggested by Linnemann's procedure, the least squares (LS) estimation method is introduced to estimate equations (3) and (4). The assumption is that the sample selection bias is of the second order. The time dummies are also included in the gravity model. This model is alternatively estimated using the two-stage least squares (TSLS) method.[7] Therefore, Appendixes 2 and 3 present the results of the estimation using the TSLS methodology. We additionally test common border and colonial ties as explanatory variables. Although both variables are highly correlated with great circle distance as an explanatory variable for transportation costs, both tested variables are excluded from further research.[8]

3 Empirical Data

The United Nations' Comtrade database (in US $) introduced is almost perfectly covered by values on exports and imports.[9] This database is without zero values or missing values for a sample of more than six thousand observations. The introduced data on migration flows are sourced from the OECD database, and data on the FDI bilateral flows are also from the same data source.

Ireland, which reports extremely asymmetric migration flows, is excluded from further research. The introduced OECD data sample on migration ensures relatively consistent international comparisons. For instance, Austria and Luxemburg as the only core EU15 landlocked states have the smallest number of country pairs (14) and also the smallest number of observations (154) compared to the other EU15 member states.

The data on migration flows are an unbalanced panel beginning in 1998 and ending in 2008. These data measure the yearly inflows of migrants and yearly stocks of immigrants. The stocks of immigrants are introduced to ensure the robustness of the analysis. The sample of data includes only those migration inflows with positive values from the 5610 observations and excludes all zero immigrant flows.

The data for population and purchasing power parity gross domestic product are taken from the Penn World Table (PWT 7.0) website.[10] Data for distances and common official language are taken from the CEPII website (www.cepii.fr). Distance is measured in kilometers between the partner countries' capital cities. The EU15 partner countries are considered to be landlocked when they are without direct access to the sea and shipping trade.[11] These data are from United Nations' database.

4 Results of the Analysis

Models (3) and (4) are estimated using the LS methodology. Tables 1 and 2 report the results of the estimations for the following samples of countries: world, developing countries, NEU12, and candidate countries. The results of estimations show the sign as expected on all explanatory variables introduced. Similar results are also shown in Appendixes 2 and 3 when the TSLS method is introduced as an alternative estimation method and the alternative dependent variable is included in the model.[12] The only noteworthy exception is the opposite sign as expected

[5] The alternative standard approach of handling zeroes has been suggested by Brakman et al. (2010), Santos Silva and Tenreyro (2006), Baldwin and Harrigan (2007), and Rose and Spiegel (2010). This alternative procedure is implemented on FDI data. Thus, instead of zeroes, we add 1 to all bilateral FDI outflows and inflows to overcome the zero problem in the log specification. This alternative procedure is introduced in order to ensure an equal number of observations in FDI statistics and migration statistics.

[6] Stein and Duade tested the first and the second standard procedure of handling zeroes.

[7] Frankel and Romer (1999) tested the gravity model using this methodology.

[8] Nevertheless, Bosker and Garretsen (2010) suggested that the inclusion of proxy variables such as great circle distance, border and language variables, and geographical features (e.g., having direct access to the sea) should be preferred.

[9] Alternatively, the OECD STAN bilateral trade database is implemented.

[10] http://pwt.econ.upenn.edu/php_site/pwt_index.php.

[11] Afghanistan, Armenia, Azerbaijan, Belarus, Czech Republic, Ethiopia, Hungary, Kazakhstan, Macedonia, Moldova, Serbia, Slovakia, Switzerland, Uzbekistan (and Austria and Luxemburg for intra EU27 migration).

[12] The alternative dependent variable is defined as the log of the migration flow from country *j* to country *i* relative to the destination country's population.

Table 1. *Regression Results for World and Developing Countries*

	Relationship			
	World		Developing countries	
Variable	1	2	1	2
Trade	0.180		0.276	
	(0.01)***		(0.01)***	
FDI		0.092		0.174
		(0.01)***		(0.01)***
Population origin	0.212	0.278	0.001	0.001
	(0.01)***	(0.01)***	(0.01)***	(0.01)***
Population destination	0.482	0.557	0.328	0.447
	(0.02)***	(0.02)***	(0.03)***	(0.03)***
Common language	0.758	0.833	1.016	0.991
	(0.06)***	(0.06)***	(0.08)***	(0.08)***
Landlocked	-0.120	-0.295	0.579	0.116
	(0.04)***	(0.04)***	(0.09)***	(0.09)*
Distance	-0.313	-0.435	-0.208	-0.331
	(0.01)***	(0.02)***	(0.04)***	(0.04)***
Constant	-1.813	-1.817	3.728	5.580
	(0.36)***	(0.39)***	(0.57)***	(0.67)***
Observations	5610	5610	3069	3069
R-squared	0.35	0.34	0.29	0.26

*Notes: Standard errors are shown in parentheses; *, **, ***—statistically significant at the 10%, 5%, and 1% levels, respectively. Trade—bilateral trade defined as the sum of exports plus imports relative to the destination country's GDP. FDI—bilateral foreign direct investments defined as the sum of inflows plus outflows relative to the destination country's GDP.*

on the proxy variable for the destination country's size measure.[13]

Table 1 reports the results of the estimations for the largest sample—namely, world—in the first two columns. It is interesting to note that some results are comparable with Ortega and Peri's (2011) analysis,[14] yet their analysis introduces a different sample of countries (30 OECD destination countries) and tests two different model specifications (openness to trade and migration). Thus, the variables for a common language, destination country's population, and distance are the most important deterministic factors defining the share of the immigrant population in Table 1. The proxy variables for trade and FDI are significant and at the same time the lowest values of the coefficients; they also strictly hold the last position after all other explanatory variables are introduced.

Almost the same holds true when the same model specification is implemented on the sample of developing countries in columns 3 and 4. The variables for a common language, destination country's population, and distance in columns 3 and 4 are ranked one after another, as previously explained.[15] The destination country's population represents a significant endogenous factor that outweighs the sending country's population as an exogenous factor, the common language represents the most important exogenous factor, and distance with the expected negative sign represents an important exogenous factor that significantly limits immigration into the core European destination countries. At the same, the landlocked position of the sending country reveals the opposite sign than expected while trade and FDI represent important exogenous factors that significantly influence immigration inflows from developing countries.

The results of the estimation for two of the largest samples of countries confirm that the new empirical framework introduced in the present analysis successfully analyzed the importance of the link among trade, FDI, and immigration. Table 2 shows the results of estimations for the NEU12 members and the candidate countries. The explanatory variable for a common language, which

[13] The alternative dependent variable is highly negatively correlated with the destination country's size measure. Therefore, the destination country's size measure switches the expected sign.

[14] For instance, the cited analysis shows the highest values of coefficients for a common language (1.64), followed by distance (-0.60) and sending country population (0.58) when openness to immigration is estimated. Table 1 shows the comparable results in columns 1 and 2 when immigration inflows are estimated as dependent variables. Therefore, the variables for a common language, distance, and sending country's population are ranked one after another as reported by Ortega and Peri.

[15] The exception is the third position for the proxy variable for trade and the fourth position for distance as the proxy variable for migration costs in column 3.

Table 2. *Regression Results for the NEU12 and Candidate Countries*

	Relationship			
	NEU12		Candidate countries	
Specification	1	2	1	2
Trade	0.290		0.359	
	(0.04)***		(0.07)***	
FDI		0.095		0.173
		(0.02)***		(0.04)***
Population origin	0.542	0.632	0.172	0.501
	(0.05)***	(0.05)***	(0.10)*	(0.06)***
Population destination	0.596	0.790	0.325	0.538
	(0.07)***	(0.06)***	(0.09)***	(0.06)***
Common language	-0.364	-0.069		
	(0.40)	(0.38)		
Landlocked	-0.769	-0.796	0.366	0.683
	(0.10)***	(0.10)***	(0.20)*	(0.19)***
Distance	-0.259	-0.525	-1.069	-1.433
	(0.09)***	(0.08)***	(0.14)***	(0.12)***
Constant	-8.724	-10.476	8.340	4.237
	(1.30)***	(1.35)***	(2.75)***	(2.29)**
Observations	760	760	410	410
R-squared	0.51	0.50	0.48	0.48

*Notes: Standard errors are shown in parentheses; *, **, ***—statistically significant at the 10%, 5%, and 1% levels, respectively. Trade—bilateral trade defined as the sum of exports plus imports relative to the destination country's GDP. FDI—bilateral foreign direct investments defined as the sum of inflows plus outflows relative to the destination country's GDP.*

is not introduced in columns 3 and 4 due to methodological reasons,[16] shows completely insignificant values of coefficients in columns 1 and 2. The explanatory variables for landlocked position, destination country's population, sending country's population, and distance reveal the highest weights of coefficients and are ranked one after another in the first two columns while being ranked differently in the next two columns.

In this way, distance has the highest influence on a candidate country's migration in the columns 3 and 4, and the landlocked position has the highest influence on the immigrant population of the NEU12 members in columns 1 and 2. These results confirm that migrants from candidate countries are primarily orientated to neighboring core EU members and that immigration from the NEU12 members (e.g., the Czech Republic, Hungary, and Slovakia) is importantly limited by the landlocked position of these Central European countries. The results of the estimation also show a significant influence of the sending country's population, trade, and FDI as explicitly exogenous variables on the 14 European destination countries' immigration inflows; they further demonstrate robust results in the case of the NEU12 and candidate countries with the smallest number of observations.

[16] The EU15 members do not share a common language with the EU candidate countries.

Concluding Remarks

The aim of this paper was to analyze the link among immigration, trade, and FDI. It tested two hypotheses: Trade, destination country's population, and other explicitly exogenous variables positively influence the share of immigration and FDI, destination country's population, and other explicitly exogenous variables positively influence the share of migration inflows by using the same adopted gravity model.

The results of estimation confirmed that introduced variables, such as the common language, destination country's population, and great circle distance between two countries, represent the most significant deterministic factors for explaining the share of the immigrant population. They also confirmed that trade, FDI, sending country's population, and sending country's landlocked position are important determinants that significantly influence the share of the immigrant population in the relationship between EU15 with all countries, developing countries, NEU12, and candidate countries.

The present study explained the effect of trade, foreign direct investments, destination country's population, and other explicitly exogenous factors on immigration. At the same time, similar policy implications are suggested regarding the effect of trade and FDI on immigration in the observed EU15 member's foreign relationships (EU15 with all countries, developing countries, NEU12, and candidate countries).

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Appendix 1: List of Countries

EU15 states: Austria, Belgium, Denmark, Finland, France, Germany, Greece, Italy, Luxemburg, Netherlands, Portugal, Spain, Sweden, and United Kingdom.

NEU12 countries: Bulgaria, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Slovenia, Slovakia, Malta, and Cyprus.

EU Candidate countries: Bosnia and Herzegovina, Croatia, Macedonia, Serbia and Montenegro, and Turkey.

Developing countries: Afghanistan, Albania, Algeria, Argentina, Armenia, Azerbaijan, Bangladesh, Byelorussia, Brazil, Cameroon, Cape Verde, China, Colombia, Congo Republic, Congo Democratic Republic, Cuba, Ecuador, Egypt, Ethiopia, Georgia, Ghana, India, Indonesia, Iran, Iraq, Kazakhstan, Kenya, Korea, Lebanon, Libya, Malaysia, Mexico, Moldova, Morocco, Nigeria, Pakistan, Philippines, Russian Federation, South Africa, Sri Lanka, Sudan, Syria, Thailand, Tanzania, Tunisia, Ukraine, Uzbekistan, and Vietnam.

Other countries: Australia, Canada, Japan, Norway, Switzerland, and United States.

Appendix 2: Regression Results for World and Developing Countries using TSLS Estimation Method

	Relationship			
	World		Developing countries	
Variable	1	2	1	2
Trade	0.235		0.223	
	(0.01)***		(0.02)***	
FDI		0.035		0.050
		(0.01)***		(0.01)***
Population origin	0.187	0.339	0.001	0.001
	(0.04)***	(0.04)***	(0.01)*	(0.01)*
Population destination	-0.518	-0.332	-0.560	-0.366
	(0.05)***	(0.04)***	(0.07)***	(0.07)***
Common language	0.682	0.870	1.028	1.086
	(0.17)***	(0.17)***	(0.24)***	(0.24)***
Landlocked	-0.061	-0.295	0.422	-0.080
	(0.14)	(0.14)***	(0.24)	(0.24)
Distance	-0.258	-0.520	-0.213	-0.257
	(0.05)***	(0.05)***	(0.11)**	(0.11)***
Observations	5610	5610	3069	3069

*Notes: Standard errors are shown in parentheses; *, **, ***—statistically significant at the 10%, 5%, and 1% levels, respectively. Trade—bilateral trade defined as the sum of exports plus imports relative to the destination country's GDP. FDI—bilateral foreign direct investments defined as the sum of inflows plus outflows relative to the destination country's GDP.*

Appendix 3: Regression Results for the NEU12 and Candidate Countries using TSLS Estimation Method

	Relationship			
	NEU12		Candidate countries	
Specification	1	2	1	2
Trade	0.421		0.191	
	(0.04)***		(0.05)***	
FDI		0.090		0.083
		(0.01)***		(0.02)***
Population origin	0.406	0.568	0.419	0.548
	(0.11)***	(0.11)***	(0.20)**	(0.17)***
Population destination	-0.514	-0.119	-0.393	-0.290
	(0.14)***	(0.12)	(0.22)	(0.20)
Common language	-0.653	-0.149		
	(0.92)	(0.88)		
Landlocked	-0.776	-0.796	0.407	0.503
	(0.28)***	(0.28)***	(0.52)*	(0.20)
Distance	-0.203	-0.547	-1.278	-1.387
	(0.13)**	(0.21)***	(0.38)***	(0.34)***
Observations	760	760	410	410

*Notes: Standard errors are shown in parentheses; *, **, ***—statistically significant at the 10%, 5%, and 1% levels, respectively. Trade—bilateral trade defined as the sum of exports plus imports relative to the destination country's GDP. FDI—bilateral foreign direct investments defined as the sum of inflows plus outflows relative to the destination country's GDP.*

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