Determinant Factors of German Bilateral Export Volume: Evidence From Panel Data Analysis

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Abstract

This study applies the gravity model of international trade to analyze determinant factors of bilateral export volume by specifically looking at German exports. Germany currently stands as one of the largest exporters in the world. By examining the export flow patterns of Germany, we can get a better understanding of what factors facilitate trade and which ones discourage. Research is based on panel data of 163 countries taken from the years 2009-2018. Analysis was conducted based on the specifications of the gravity model of international trade. Fixed effects and random effects models were estimated. The conclusions from the estimated model are that the gravity model is significant and an accurate model for determining bilateral trade flows in the case of Germany. The model also shows that membership in the European Union has a significant and positive impact on exports. Inflation has an insignificant impact on export volume, while population has a significant and non-linear relationship with exports.

Keywords: *Germany; international trade; gravity model*

1. Introduction

Germany has proven itself as a leader in international trade. As it currently stands, Germany is the world's third largest exporter by volume, standing only behind China and the United States. However, when looking at export volume as a percentage of GDP, Germany far outshines many of its peers. From the years 2009-2018 Germany's exports were equal to on average, 41% of its GDP. Comparatively, China's exports were equal to 21% of its GDP, while the United States' exports were equal to 13%. These stats show that Germany's economy is heavily reliant on its export sector to fuel its economy. Germany is also a founding member of the world's largest and most successful trade unions, the European Union (EU). Given that free trade among its members is a core tenet of the EU, how has Germany benefitted from reduced trade barriers with other EU member nations?

My research is based on German export panel data from the years 2009-2018. The gravity model of international trade will form and shape my approach for conducting my research. The gravity model has been one of the most popular methods for analyzing bilateral trade flows. Germany is a particularly good candidate for gravity model research for a number of reasons. As mentioned before, Germany's export market is massive, which translates to numerous trade partners all across the globe. Germany is also in close proximity to a number of countries, being situated in the heart of Europe. I am hoping that the results of this study will aid in getting a better understanding of what factors facilitate or discourage bilateral trade flows. What factors are influencing Germany to trade with one country more than another one? I will be testing what effect that membership in the EU, population, inflation, and development of the importing country has on impacting exports received from Germany.

2. Literature Review

The gravity model has been one of the leading methods of international trade analysis for decades. Jan Tinbergen, often considered the founder of research using the model, applied the analogy of gravity to estimate bilateral trade flow volume (Liebenstein and Tinbergen, 1962). The model estimates bilateral trade volume using measures of an overall economy for both the importing and exporting countries, GDP is commonly used, as well as the distance between these two countries. The model indicates a positive relationship between bilateral trade volume and the GDP of both the importing and exporting countries. Simple supply and demand theory explains this relationship. GDP of the importing consumption represents the demand side, as GDP increases so does consumption, leading to an increase in demand for foreign goods. The GDP of the exporting country represents the supply side; when GDP increases, the country's production also increases, which raises the supply of foreign goods for the importing country. The model also shows that there is a negative relationship between bilateral trade and distance. The obvious explanation being that as distance increases, the cost of transporting goods also increases. Therefore, as distance increases, the appeal of bilateral trade in turn decreases. Research also shows that increasing transportation costs do not fully explain this relationship. Increasing distance also represents "informational barriers/frictions". Countries that are further away from each other simply interact less with each other, which sets a barrier between the two nations, leading to less trade (Huang, 2005). With my research, I am looking to test the validity of the gravity model.

As a founding member of the European Union (EU), Germany enjoys the many benefits that the union brings. One of the core tenets of the EU is free trade among its member states. Steps toward free trade in Europe began with the 1957 Treaty of Rome. This treaty removed

trade barriers of goods for six countries which would form the predecessor to the EU, the European Economic Community. This treaty would later influence the free trade policies of the EU. In addition to reduced trade barriers, the EU also promotes trade among its members through a currency union. In 1993 the Maastricht Treaty was signed, which formerly established the European Union. This treaty led to the founding of the European Central Bank, which would issue EU's members their new currency, the "Euro" (Freeman et al., 2022). A common currency increases bilateral trade as it eliminates exchange rate volatility and reduces transaction costs. Since members of the EU are part of a free trade zone, and most members share a common currency, we can expect that Germany will trade more with EU members as compared to non-EU members. In fact, the ratio of trade with EU members as compared to non-EU members has been estimated to be 1.5-2.0. I will be looking to see if my results support these findings.

However, an issue surrounding the gravity model since its inception is its difficulty in estimating the effects of free trade agreements. For a long time, international trade studies have produced inconclusive results on whether free trade agreements have any impact on increasing trade between two nations. In fact, the first gravity model study by Jan Tinbergen, found that the free trade agreements are economically insignificant. These results seem counterintuitive as the very purpose of a free trade agreement is to reduce barriers between nations, to promote trade between them. This issue was eventually resolved when it was found that economists were inaccurately assuming that free trade agreements were exogenous variables, rather than endogenous. When econometrically accounting for the endogeneity of free trade agreements, the effect of the variable quadruples (Baier and Bergstrand, 2006). In my analysis, I will not be accounting for the endogeneity of free trade agreements, rather, I will be looking to see if my results show that the effect of free trade agreements are underestimated using traditional

econometric methods. In the case of Germany, a previous study using standard econometric methods has shown that the effect of a free trade agreement is insignificant (Paulus et al., 2014).

It is common to include additional explanatory variables in gravity model analysis. In my study I am looking to get a better understanding of what role the population of the importing country has on bilateral trade flows. Economic consensus on the effect of this variable is inconclusive. Some have found the effect to be positive, with the explanation that as population increases so demand. However, others have found a negative correlation between importers population and trade volume, since population is negatively correlated with GDP per capita (Nuroğlu, 2010). We will see where my results lie. Curiously the results found by Paulus et al. found that the relationship between importer's population and trade volume with Germany to be non-linear. They found that population increases trade volume up to a point, until it has a negative correlation, due to the fact that the nation will become more self-reliant as population increases.

Another variable in which I am curious to see the results of is inflation. Traditional economic theory says that the relationship between the inflation of an importing country and trade volume from an exporting country should be positive. The economic reasoning being that as inflation rises in the importing country, so does the cost of domestic goods, therefore, the demand for foreign goods increases (IMF, 1965). An inflation variable is rather uncommon in the case of gravity model analysis, so I am curious to see its effect in the case of bilateral trade with Germany, and I will see if my results support the economic theory.

3. Empirical Model and Estimation

Table 1 shows my variables with explanations. For my model I used the standard variables outlined in the standard gravity as well as some extra variables.

Table 1: Variables

Indicator	Variable	Unit	Source	Expected Sign
EXP_{it}	Germany exports (dependent)	$USD (thous.)	German Federal Statistics Office	N/A
GDP_{it}	GDP of trade partner	$USD (thous.)	World Bank	+
GE_GDP_{it}	GDP of Germany	$USD (thous.)	World Bank	+
DIS_{it}	Air distance between Berlin, and capital of trade partner	km	timeanddate.com	-
POP_{it}	Population of trade partner	inhabitants	World Bank	?
INF_{it}	National consumer level inflation rate of trade partner	percent	World Bank	+
EU_{it}	European Union membership	dummy (0,1)	German Federal Statistics Office	+
HDI_{it}	Human Development Index of trade partner	percent	Our World in Data	+
MON_{it}	Monetary freedom of trade partner	percent	Heritage Foundation	+
TRA_{it}	Trade freedom of trade partner	percent	Heritage Foundation	+
BUS_{it}	Business freedom of trade partner	percent	Heritage Foundation	+

The dependent variable of my model is export volume from Germany to a trade partner. The main independent variables are the gross domestic product (GDP) of Germany as well as the GDP of the trade partner, and the distance between Germany and the trade partner. Exports, GDP, and GDP of Germany are all measured in thousands of USD. Variables that are not common to the gravity model that I am interested in testing are a dummy variable signifying membership in the European Union, a variable for inflation of the trade partner and a variable for the population of the trade partner. I have also included other variables to control for differences in institutional factors. Variables such as the Human Development Index (HDI), as well as their

trade, business and monetary freedom. HDI essentially measures a country's human development. Trade freedom is a measure of the absence or presence of tariffs or trade barriers in an economy. Business freedom measures how easy it is to operate a private business in a country's economy. Monetary freedom measures the stability of a country's currency. For my model the dependent variable, exports, is in log form, as well as the variables for GDP and population. The population is in polynomial form as well.

Empirical Model

$$\ln(EXP_{it}) = \beta_0 + \beta_1 \ln(GDP_{it}) + \beta_2 GE\_GDP_{it} + \beta_3 DIS_{it} + \beta_4 \ln(POP_{it}) + \beta_5 \ln(POP_{it})^2 + \beta_6 INF_{it} + \beta_7 EU_{it} + \beta_8 HDI_{it} + \beta_9 MON_{it} + \beta_{10} TRA_{it} + \beta_{11} BUS_{it} + \varepsilon_{it}$$

I used the log form of exports, GDP and population due to the large differences between the minimum and maximum data for those variables. I conducted the Hausman test which resulted in the rejection of the null hypothesis, indicating that I should use the fixed effects model. However, I have chosen to select the random effects model as my final model because the fixed effects model would omit the distance variable, which is an important variable in the gravity model. The random effects model also produced a regression with a better fit as compared to the fixed effects model. Heteroskedasticity tests were conducted and showed severe heteroskedasticity in my model, which was remedied with robustness checks. Tests for serial correlation were also conducted which showed that it wasn't an issue.

4. Data

My research is based on unbalanced panel data taken from 163 countries between the years 2009-2018. Table 4 in the appendix shows the selected countries, grouped by continent. I had no

particular methods when selecting the trade partner countries of Germany for my study, if the data was available it was selected. In my data there is sufficient representation of both developed and developing countries. 61 of the countries selected have an HDI of greater than or equal to 0.80, and 102 countries have an HDI below 0.80. A Human Development Index of 0.80 or greater typically signifies that a country is developed.

I utilized many sources to gather my data. I gathered export data and data for membership in the EU from Destatis, the German Federal Statistics Office. Data from the World Bank served as the source for the GDP of the trade partner, GDP of Germany, inflation rate of the trade partner, as well as the population of the trade partner. My method for measuring the distance between Germany and the trade partner, was to measure the air distance between the capital of Germany, Berlin, and whatever the capital of the trade partner was. I utilized the distance calculator from "timeanddate.com" to make these calculations and it is measured in kilometers. The HDI of the trade partners was gathered from Our World in Data, as it is their own index. I also utilized the Heritage Foundation's indexes of estimated monetary, trade, and business freedoms of the trade partners.

Table 2 is the summary statistics for the data. Exports, GDP of Germany and population are represented in millions of US dollars, while GDP is represented in billions of US dollars, this is for readability purposes. As can be seen, the standard deviations of exports, GDP, and population are quite large. These high standard deviations influenced me to select the log forms of those variables. When looking at the distance variable, you will notice that the standard deviation for within groups is zero. This means that the distance between Germany and the trade partner does not change over time, this is expected. This also means that when running the fixed effects model, the distance variable will be omitted from estimations.

Table 2: Summary Statistics

Variable		Mean	Std. dev.	Min	Max	Observations		
EXP_MIL	overall	8214.790	21110.620	0.001	1.41e+05	N	=	1630
	between		20988.550	0.086	1.24e+05	n	=	163
	within		2751.887	-2.88e+04	32238.060	T	=	10
GDP_BIL	overall	428.737	1656.431	0	20533.060	N	=	1630
	between		1639.430	0.175	17268.610	n	=	163
	within		266.236	-4051.434	4741.680	T	=	10
GE_GDP_MIL	overall	3290233	1.77e+05	2964077	3559041	N	=	1630
	between		0	3290233	3290233	n	=	163
	within		1.77e+05	2964077	3559041	T	=	10
DIS	overall	5895.632	3950.356	280	18134	N	=	1630
	between		3961.314	280	18134	n	=	163
	within		0	5895.632	5895.632	T	=	10
INF	overall	4.798	9.140	-6.811	254.948	N	=	1601
	between		6.787	-0.059	72.740	n	=	163
	within		6.562	-46.873	187.006	T-bar	=	9.822
POP_MIL	overall	42.614	151.359	0	1402.760	N	=	1630
	between		151.707	0.069	1366.991	n	=	163
	within		4.660	-31.690	113.673	T	=	10
HDI	overall	70.492	15.625	32.7	96.2	N	=	1630
	between		15.580	36.45	94.97	n	=	163
	within		1.661	62.222	79.052	T	=	10
EU	overall	0.146	0.353	0	1	N	=	1630
	between		0.351	0	1	n	=	163
	within		0.051	-0.454	1.046	T	=	10
MON	overall	75.129	7.506	16.800	93.600	N	=	1607
	between		6.528	42.800	87.360	n	=	163
	within		3.899	49.129	90.919	T-bar	=	9.859
TRA	overall	75.773	11.120	27.200	95	N	=	1605
	between		10.429	45.530	90.500	n	=	163
	within		4.056	37.673	113.183	T-bar	=	9.847
BUS	overall	65.490	15.563	20	100	N	=	1616
	between		14.810	28.360	97.510	n	=	163
	within		4.829	45.390	90.390	T-bar	=	9.914

Figure 1 shows the correlation matrix of the data. As can be seen, the explanatory variables are all correlated with the dependent variable at the 1% level, except for the GDP of Germany. This shows that my variables are relevant. I presume the reasoning that the GDP of

Germany is not correlated with export volume since the data is taken from a relatively short period of time, where the data does not vary that much. Another factor that could be affecting this relationship is that my data is partly taken from the era of the great recession, which officially ended in 2009. I suspect that the economic downturn this period has created noise in the data. In addition, none of the explanatory variables are too highly correlated with one another to warrant removing any of them. All the correlation coefficients have the expected sign, except for inflation, which I would expect to be positive as the theory outlines.

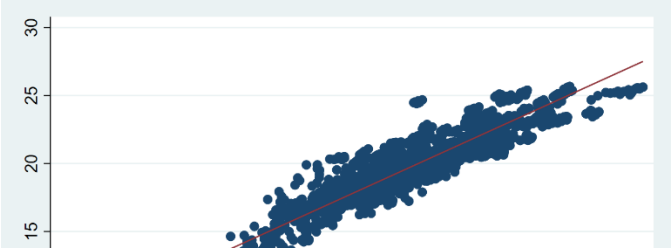
Pairwise correlations

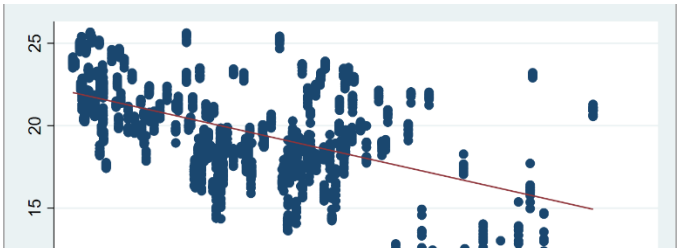
Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
(1) EXP	1.000										
(2) GDP	0.642***	1.000									
(3) GE_GDP	0.015	0.015	1.000								
(4) DIS	-0.316***	-0.041*	0.000	1.000							
(5) INF	-0.110***	-0.058**	-0.027	0.057**	1.000						
(6) POP	0.307***	0.523***	0.006	0.024	0.026	1.000					
(7) HDI	0.415***	0.223***	0.057**	-0.285***	-0.154***	-0.027	1.000				
(8) EU	0.446***	0.024	0.000	-0.522***	-0.150***	-0.073***	0.470***	1.000			
(9) MON	0.198***	0.066***	0.167***	-0.053***	-0.450***	-0.109***	0.310***	0.300***	1.000		
(10) TRA	0.286***	0.118***	0.015	-0.238***	-0.201***	-0.087***	0.617***	0.410***	0.389***	1.000	
(11) BUS	0.303***	0.163***	-0.019	-0.156***	-0.177***	-0.121***	0.736***	0.343***	0.333***	0.525***	1.000

*** p<0.01, ** p<0.05, *p<0.10

Figure 1: Correlation Matrix

Figures 2.1 and 2.2, show the relationship of the variables of the gravity model, using the data. The first graph shows the relationship between export volume from Germany and the GDP of the trade partner. As can be seen, there is a strong positive correlation between these two variables. The second graph shows the relationship between export volume from Germany and the distance between Germany and the trade partner. The graph shows a negative correlation between these two variables; however, the relationship is not as strong. These graphs align with the theory outlined by the gravity model.





5. Empirical Results

Figure 3 shows the results of the final regression. Since this regression was estimated using the random effects model, we look at overall r-squared to determine the model's fit. The overall r-squared is 0.932 which indicates that the model is a good fit for the data. Since severe heteroskedasticity was present in the model, it was estimated with robust standard errors. We will first examine the variables outlined in the gravity model. GDP and distance have the expected signs and are statistically significant at the 1% level. It seems that GDP of the trade partner has a major impact at influencing bilateral trade with Germany. For every one percent increase in the GDP of the trade partner, exports from Germany increase by 0.9%. The distance coefficient tells us that for every km between the trade partner and Germany, we can expect that exports from Germany will decrease by 0.02%. The GDP of Germany has a negative coefficient, however, due to the extremely low value and its insignificance, we cannot draw any conclusions. Inflation is also insignificant, with a p-value of .137. Next, we will examine variables that aren't outlined by the gravity model. Population is significant at the 5% level and has a polynomial relationship with exports. The relationship is positive up until a country reaches a population of 413,017,284. The Human Development Index of the trade partner is highly significant at the 1% level, and we can expect that for every one unit increase in the HDI, exports increase by 2.33%. The role of

EU membership also has an effect on exports. EU member countries enjoy 48.8% higher exports from Germany as compared to non-EU members. A country's measure of monetary, trade freedom and business freedom had an insignificant effect on influencing exports from Germany.

Final regression results

ln_EXP	Coef.	Std. Err.	t-value	p-value	[95% Conf	Interval]	Sig
ln_GDP	.902	.065	13.86	.000	.774	1.029	***
DIS	-.0002	.00002	-9.15	.000	-.0002	-.0002	***
GE_GDP	-1.28e-10	8.01e-11	-1.60	.110	-.2.85e-10	-2.91e-11	
INF	.005	.003	1.49	.137	-.001	.011	
ln_POP	.615	.273	2.26	.024	.081	1.15	**
ln_POP^2	-.031	.015	-2.03	.043	-.06	-.001	**
HDI	.023	.006	3.61	.000	.011	.036	***
EU	.398	.136	2.92	.004	.13	.665	***
MON	.003	.003	0.82	.410	-.004	.009	
TRA	.005	.004	1.38	.169	-.002	.012	
BUS	.002	.002	0.88	.377	-.003	.007	
Constant	-6.757	1.557	-4.34	.000	-9.808	-3.706	***

Mean dependent var	13.100	SD dependent var	3.003
Overall r-squared	0.932	Number of obs	1571
Chi-square	.	Prob > chi2	.
R-squared within	0.098	R-squared between	0.944

**** p<.01, ** p<.05, * p<.1*

Figure 3: Final regression with robust std. err.

Table 3.1 in appendix shows all the reported models. Model 1 is the fixed effects, 2 is random effects, 3 and 4 are fixed effects and random effects with robustness. As can be seen, since models 1 and 3 are fixed effects models, the variable for distance was omitted. This presents an issue as distance was an important variable in the gravity model. Fixed effects models also had much worse fits as compared to random effects models at 0.129. These factors influenced me to choose the random effects model as my final model even though the Hausman test suggested I use the fixed effects model.

Tables 3.2 and 3.1 show alternate regression models. Table 3.2 shows my regression models from 3.1 with the population variable in linear form. I believe these models to be inferior as the population variable becomes insignificant in the linear form. Table 3.3 are the models from 3.1 without the log forms, which produces a much worse fit.

6. Concluding Remarks

The results of my study overwhelmingly support the gravity model of international trade in the case of German exports. Both GDP of the trade partner and distance have are significant at the 1% level and have the expected coefficient signs. The effect of the GDP of Germany was shown to be insignificant, but I believe this to be the result of the limited scope of my data. The influence of the European Union on German export volume is very high with EU members receiving 48.8% higher exports as compared to non-EU members. Given that I am treating EU membership as an exogenous factor and it is statistically significant, my results do not support Baier and Bergstrand's findings, that free trade agreements are underestimated when treating the variable as an exogeneous factor. It seems that the push for free trade in Europe has been largely successful by the European Union. Inflation proved to be insignificant in affecting export volume, which goes against the expectations outlined in the theory from the IMF, which showed that inflation in the importing country should increase demand for foreign goods. My results support the conclusion that population of the importing country has a non-linear relationship with exports from Germany, which is supported by the study from Paulus. I found the results of the HDI variable to be surprising. I expected that HDI would have a positive effect, but I didn't expect the relatively high coefficient and significance at the 1% level. This suggests that

Germany is much more likely to trade with countries with higher development. I suspect that the reason is that Germany is a large producer of high-tech goods and machinery, which would be see high demand in countries with greater development. Further study would be needed to see if this is true. Institutional factors seemed to have no influence on affecting bilateral trade flows. Monetary freedom, trade freedom, and business freedom were all insignificant.

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Appendix

Table 3.1: Regression models

	(1) fe	(2) fe	(3) fe(vce)	(4) re(vce)
ln_GDP	.735***	.902***	.735***	.902***
	(.065)	(.056)	(.084)	(.065)
DIS		0***		0***
		(0)		(0)
GE_GDP	0**	0**	0*	0
	(0)	(0)	(0)	(0)
INF	.003	.005*	.003	.005
	(.002)	(.002)	(.003)	(.003)
ln_POP	-.857	.615***	-.857	.615**
	(.98)	(.217)	(1.731)	(.273)
c.ln_POP#c.ln_POP	-.02	-.031***	-.02	-.031**
	(.056)	(.012)	(.093)	(.015)
HDI	.009	.023***	.009	.023***
	(.009)	(.006)	(.012)	(.006)
EU	.063	.398***	.063*	.398***
	(.173)	(.135)	(.033)	(.136)
MON	.004	.003	.004	.003
	(.003)	(.003)	(.003)	(.003)
TRA	.003	.005**	.003	.005
	(.002)	(.002)	(.004)	(.004)
BUS	-.001	.002	-.001	.002
	(.002)	(.002)	(.002)	(.002)
_cons	7.92*	-6.757***	7.92	-6.757***
	(4.371)	(1.054)	(8.004)	(1.557)
Observations	1571	1571	1571	1571
Pseudo R^2	.129	.932	.129	.932

Standard errors are in parentheses
*** p<.01, ** p<.05, * p<.1*

Table 3.2: Regression models, population in linear form

	(1) fe	(2) re	(3) fe(vce)	(4) re(vce)
ln_GDP	.735***	.898***	.735***	.898***
	(.065)	(.056)	(.083)	(.065)
DIS		0***		0***
		(0)		(0)
GE_GDP	0***	0**	0*	0
	(0)	(0)	(0)	(0)
INF	.003	.005*	.003	.005
	(.002)	(.002)	(.003)	(.003)
ln_POP	-1.195***	.069	-1.195***	.069
	(.217)	(.062)	(.3)	(.067)
HDI	.008	.022***	.008	.022***
	(.009)	(.006)	(.012)	(.007)
EU	.063	.402***	.063*	.402***
	(.173)	(.136)	(.033)	(.137)
MON	.004	.003	.004	.003
	(.003)	(.003)	(.003)	(.003)
TRA	.003	.006**	.003	.006
	(.002)	(.002)	(.003)	(.004)
BUS	-.001	.002	-.001	.002
	(.002)	(.002)	(.002)	(.002)
_cons	9.343***	-4.289***	9.343***	-4.289***
	(1.715)	(.514)	(2.398)	(.722)
Observations	1571	1571	1571	1571
Pseudo R^2	.404	.508	.404	.508

Standard errors are in parentheses
*** p<.01, ** p<.05, * p<.1*

Table 3.3: Regression models without log forms

	(1) fe	(2) re	(3) fe(vce)	(4) re(vce)
GDP	.007***	.007***	.007***	.007***
	(0)	(0)	(.001)	(.001)
DIS		-1402.485***		-1402.485***
		(278.085)		(328.066)
GE_GDP	0	0	0	0
	(0)	(0)	(.001)	(.001)
INF	10069.029	10074.883	10069.029***	10074.883***
	(8878.908)	(9001.051)	(3305.724)	(3317.225)
POP	-6.005	63.288***	-6.005	63.288
	(34.585)	(14.976)	(47.828)	(38.962)
c.POP#c.POP	0***	0***	0	0***
	(0)	(0)	(0)	(0)
HDI	81573.04	103778.13***	81573.04*	103778.13***
	(50361.584)	(39496.034)	(41423.345)	(31742.481)
EU	-870680.49	1244803.5	-870680.49	1244803.5
	(1119867.3)	(1086788.1)	(809219.93)	(1370736)
MON	26010.841	29334.245*	26010.841	29334.245
	(16585.566)	(16757.319)	(19312.41)	(20242.07)
TRA	-7591.499	-2540.215	-7591.499	-2540.215
	(14544.128)	(14674.272)	(5998.168)	(5890.814)
BUS	-18776.557	-14435.658	-18776.557	-14435.658
	(12866.077)	(12869.146)	(18788.034)	(18401.918)
_cons	-673731.8	3361864.4	-673731.8	3361864.4
	(2991139.2)	(3464907.7)	(3489075.1)	(3037423.8)
Observations	1577	1577	1577	1577
Pseudo R^2	.404	.508	.404	.508

Standard errors are in parentheses
*** p<.01, ** p<.05, * p<.1

Table 4: List of trade partners by continent

Africa	**Asia**	**Europe**	**North America**	**Oceania**	**South America**
Algeria	Armenia	Albania	Barbados	Australia	Bolivia
Angola	Azerbaijan	Austria	Belize	Fiji	Brazil
Benin	Bahrain	Belarus	Canada	Kiribati	Chile
Botswana	Bangladesh	Belgium	Costa Rica	Micronesia	Colombia
Burkina Faso	Brunei	Bosnia and Herzegovina	Dominica	New Zealand	Ecuador
Burundi	Cambodia	Bulgaria	Dominican Republic	Papua New Guinea	Guyana
Cameroon	China	Croatia	El Salvador	Solomon Islands	Paraguay
Central African Republic	Egypt	Czechia	Guatemala	Tonga	Peru
Chad	Georgia	Denmark	Haiti	Vanuatu	Suriname
Comoros	Hong Kong	Estonia	Honduras		Uruguay
Cote d'Ivoire	India	Finland	Jamaica		Venezuela
Dem Republic of Congo	Indonesia	France	Mexico		
Djibouti	Iran	Greece	Nicaragua		
Equatorial Guinea	Israel	Hungary	Panama		
Eswatini	Japan	Iceland	Trinidad and Tobago		
Ethiopia	Jordan	Ireland	USA		
Gabon	Kyrgyzstan	Italy			
Ghana	Laos	Latvia			
Guinea	Lebanon	Lithuania			
Guinea-Bissau	Malaysia	Luxembourg			
Kenya	Maldives	Malta			
Kuwait	Mongolia	Moldova			
Lesotho	Nepal	Montenegro			
Liberia	Oman	Netherlands			
Libya	Pakistan	North Macedonia			
Madagascar	Philippines	Norway			
Malawi	Qatar	Poland			
Mali	Saudi Arabia	Portugal			
Mauritania	Singapore	Romania			
Mauritius	South Korea	Russia			
Morocco	Sri Lanka	Serbia			
Mozambique	Syria	Slovakia			
Namibia	Tajikistan	Slovenia			
Niger	Thailand	Spain			
Nigeria	Timor	Sweden			
Rwanda	United Arab Emirates	Switzerland			
Senegal	Uzbekistan	Ukraine			
Seychelles	Vietnam	United Kingdom			
Sierra Leone	Yemen				
South Africa					
Sudan					
Tanzania					
Togo					
Tunisia					
Turkey					
Uganda					
Zambia					
Zimbabwe					