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## **Would a Russian WTO accession increase the country's export?**

### *Abstract*

Russia began its accession process to become a member of the GATT, which later turned into the WTO, in 1993, but has not yet become a member. This paper's ambition is to investigate whether a membership in the WTO would have a positive effect on Russia's export and if the country would gain from a membership. By using data from, mostly, UN-Comtrade and CEPII, and analyzing how trade flows from a set of countries, which are similar to Russia, to the European Union has changed after a WTO accession, the effect of a WTO membership is isolated and applied to Russia's bilateral trade. The paper finds that a WTO membership has a positive effect on trade flows and that it increases the trade flows with 12% among its members. These results suggest that Russia's export will grow bigger with a membership in the WTO, and subsequently that Russia's bilateral trade would gain from a membership in the WTO.

*Keywords: WTO, Russia, bilateral trade, gravity model, EU, accession*

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## 1. Introduction

Russia is the largest economy in the world that is not yet a member of the WTO. The country accounts for more than 2% of the global trade, and is the world's largest exporter of natural gas and second largest exporter of oil (CIA, 2011a). The accession process for Russia to become a member of the WTO has been ongoing since 1993, but before Russia can become a member, the country has to tackle a few specific obstacles, among other things its relationship with Georgia.

Russia is on the verge of becoming a member of the WTO and it is therefore in the country's interest to investigate if the WTO has a positive impact on bilateral trade or not. The ambition with this paper is therefore to investigate how a WTO accession would affect Russia's export. This is done through analyzing how other countries' export has changed after becoming a member of the WTO.

The empirical strategy is to look at countries that already have become members of the WTO and investigate the effects of a WTO accession on the countries' export. In order for the results to be applicable on Russia's trade, the investigated countries are chosen on the basis of their similarity with Russia. Therefore, the 25 countries that are chosen to represent Russia in the study either belongs to the same income classification<sup>1</sup> as Russia, or are similar to the country in an economic or structural sense. The EU is Russia's biggest trading partner, and because of that, it will be investigated how the 25 countries' export to the EU region were affected by a WTO accession. The EU15<sup>2</sup> are therefore considered as importing countries, whilst the countries that are chosen to represent Russia are considered as exporting countries; the trade flows in the study thereby goes from the exporting countries, to the importing countries. Together, these 40 countries form 375 country pairs for which the trade flows are analyzed for the 19 years between 1991 and 2009. The time period is chosen since Russia became a market economy in 1991 and that the negotiations to become a member of the WTO have been ongoing for almost the entire time period. This indicates that the experienced transaction of the exporting countries is equivalent to what Russia would have experienced if the country had become a member during the period.

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<sup>1</sup> See table 5 in Appendix.

<sup>2</sup> See table 9 in Appendix.

In order to investigate the effect on the trade flows, the gravity model of bilateral trade is used to create an econometric regression. The gravity model is an established economic model that considers trade flows between countries as a function of the economic size of the countries and the distance between them. Other independent variables are also included in the model in order to account for as many exogenous factors as possible to receive a reliable estimate of the *WTO* variable, which is the key variable in this study.

However, it has been questioned if Russia could actually be compared with other members of the WTO (Åslund, 2010) and whether the country would gain as much benefits from a membership as other countries. This is due to the fact that Russia is a large and unique country that mostly exports commodities, which are barely taxed when exported. Nevertheless, it has been estimated that the potential gain Russia would receive from a membership in the WTO accounts for 3.3% of the country's GDP every year (Bergsten & Åslund, 2010), which indicates great beneficial gains of becoming a member.

All theoretical and empirical research indicates that international trade is important for the developing process of a country and for the economic growth (Jones, 2002). The creation of the GATT (the General Agreement on Tariffs and Trade) in 1947, and later on the WTO (the World Trade Organization), gave the governments of the industrialized countries in the world an institution where they could seek to lower trade barriers and quotas through negotiations. However, the WTO has been the subject of a great deal of criticism and in a recent study performed by Rose (2004) the author argues that a membership in the WTO does not increase bilateral trade at all. This would imply a great failure for the organization as a whole as well as a waste of time and money. On the other hand, Rose's study has been heavily criticized, both for the results and for the empirical methodology, and the implications of his results are therefore questionable.

In summary, the study shows that a WTO membership increases trade among its members with an average of 12%. Altogether, the countries that were chosen to represent Russia in the study give a good indication of how Russia would be affected by a WTO accession and this, combined with a relevant time period and a suitable trading region, makes the results of the analysis applicable on Russia's export. The paper therefore contributes to the literature with the identification of a reliable estimate of how a WTO accession would influence Russia's export. The analysis also concludes that most of the variables included in the regression

analysis were statistically significant and thus could explain a big part of why countries trade with each other as well as determine the factors that define the size of trade flows.

The paper begins with an introduction to how the GATT and the WTO were founded and what tasks they deal with, as well as their function in the global arena. It also includes some of the criticism that the WTO has been subject to. Later on in the same chapter Russia is introduced as a trading nation and the country's negotiations with the WTO and how far the country has come in the accession process is described. Some of the previous research that has been conducted on the matter, with emphasis on an article by Rose (2004), is presented in chapter 3. The empirical study is introduced in chapter 4, where the methodology, theory and the data used in this paper are presented. In chapter 5, the results of the paper are discussed as well as the implications that they have for Russia. The discussion on whether Russia would gain from becoming a member of the WTO or not will be found in this part of the paper. The paper is rounded off with a summary and a conclusion in chapter 6.

## **2. The World Trade Organization**

*In this chapter, the GATT and the WTO are introduced as international organizations that stimulate multilateral trade flows and the criticism that has been aimed at the organization is discussed. Furthermore, the chapter includes Russia's trade patterns and some country specific facts as well as the country's accession process to the WTO.*

### **2.1. Introduction to the WTO**

At the end of World War II, a set of countries identified the need of a multilateral economic and political institution that would assist in the reconstruction process aiming to rebuild the global economy and global trade. In 1947, 23 nations agreed on implementing what would become known as the GATT - the General Agreement on Tariffs and Trade (WTO, 2011a).

The GATT consisted of two components; namely a multilateral trade agreement to negotiate reductions in tariffs concerning bilateral trade and a component consisting of a series of articles setting out general obligations concerning trade policy (Kaempfer, Markusen, Maskus & Melvin, 1995). The two fundamental approaches to trade liberalization that can be distinguished for the GATT were the multilateralism, where the member countries collectively agreed on reducing trade barriers, along with the willingness to rely on rule-based

trade policy, which means that the countries enrolled in the GATT accepted to obey a set of international norms when they created their trade regulations (Kaempfer *et. al.*, 1995).

Initially, the GATT focused on, and was also limited to, a tariff agreement, but as the average tariff levels in the world grew smaller over time, the GATT began to focus more on non-tariff trade policies and domestic policies that influences trade. By a steady expansion in the number of member countries, the GATT's success was established (Hoekman & Kostecki, 2001) and when the GATT was replaced by the WTO, after the Uruguay round<sup>3</sup> on the 1st of January in 1995 the organization had 128 member states (WTO, 2011a).

The new institution had more authority to consult with governments on their trade practices and great expectations were placed on the WTO regarding reciprocity and the observation of the GATT principles (Kaempfer *et. al.*, 1995). However, despite being the global institution that replaced the GATT, the WTO differed in a number of important aspects. For instance, the GATT was a quite flexible institution when it came to bargaining and deal making, while the rules of the WTO apply to all its member states (Hoekman & Kostecki, 2001).

The WTO has a rule-oriented approach to multilateral cooperation and establish a framework for trade, but does not specify or define the outcome. There are five principles that were of particular importance for the GATT and are of great importance for the WTO; 1. nondiscrimination, 2. reciprocity, 3. enforceable commitments, 4. transparency and 5. safety valves (Hoekman & Kostecki, 2001).

The WTO ultimately consists of three agreements, the General Agreement on Tariffs and Trade (GATT), the General Agreement on Tariffs in Services (GATS) and the Agreement on Trade-related Intellectual Property Rights (TRIPs) (Hoekman & Kostecki, 2001). The institution's main purpose is to ensure that trade flows as freely as possible in order to stimulate the development of the global economy and prosperity. The WTO agreements, which have been negotiated and signed by the member countries, are the core of the institution. They provide the legal ground rules for international trade and essentially are contracts that bind governments to keep their trade policies within agreed limits. Even though

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<sup>3</sup> The eighth round of MTN (Multilateral Trade Negotiations) spanning from 1986 to 1994 that led to the creation of the WTO (Kaempfer *et. al.* 1995).

they are signed by governments, the purpose is to help producers of goods and services, exporters, and importers to conduct their business (WTO, 2011b).

The WTO emphasize that it is an institution that consists of its member states and that it is the member states that set the rules through negotiating. At the WTO's homepage it can be read that "The WTO was born out of negotiations, and everything the WTO does is the result of negotiations" (WTO, 2011b). In July of 2008 the WTO had 153 member countries and more countries, there among Russia, have begun the process of becoming a member (WTO, 2011c).

### **2.1.1. Criticism of the WTO**

The WTO is regarded as the primary international institution to promote free trade. The five main principles, nondiscrimination, reciprocity, enforceable commitments, transparency and safety valves are the cornerstones of the WTO (Hoekman & Kostecki, 2001). The principles that the WTO rests upon is something that the vast majority of the world's nations believe in, since they have signed the WTO agreements, but the criticism that the WTO has received concerns these principles in their essence.

Despite the outspoken will not to discriminate or be corrupt in any way, there has been a lot of criticism aimed at the WTO concerning the impact of the industrialized member countries. The institution has been accused of being hijacked by industrialized countries' interests and thus worsening the situation for the developing countries. An outspoken wish from a number of countries is the need of an extended co-operation between the industrialized and the developing countries, since many people in the world do not benefit from the current form of multilateral trading systems (Shah, 2007).

There are studies in development economics that claims that free trade and deregulation in fact are damaging in a variety of ways for developing countries, whilst it is beneficiary mainly for industrialized countries. Since one of the principles of the WTO is reciprocity this may indicate a serious problem where the WTO is biased towards the industrialized countries (Hoekman & Kostecki, 2009).

The TRIPS agreement that defines the patent process and the intellectual property rules within the WTO is also a cause for tension. Although reward for one's effort is rational, intellectual property rights serve to stifle the competition. For developing countries it makes it hard and

more costly to develop their own industry independently since they, in some cases, cannot take advantage of modern research (Jones, 2002).

In the article by Åslund (2010, p. 49), the author describes the WTO as an “exclusive club that demands that a member complies with its complex rules before it is accepted”. The WTO is a bureaucratic organization where the governments of the member states work as filters for the export industries. Only governments have legal standing to bring cases to the WTO and therefore the export industries have to operate through them. If the governments do not want to bring a dispute to the WTO, as for instance if a developing country fears a certain case would disturb its relationship with a major trading partner, cases may not be brought forward (Hoekman & Kostecki, 2001).

## **2.2. Russia and the WTO**

### **2.2.1. Russia’s country facts**

Russia is the largest economy in the world that is not yet a member of the WTO and accounts for more than 2% of the global trade (Bergsten & Åslund 2010). The accession process for Russia of a GATT membership was established on the 16th of June 1993. The negotiations have lasted for nearly 18 years (European Commission, 2004), but if Russia manages to meet the criteria of the WTO, it finally seems as Russia will join the WTO in 2011.

The former EU trade commissioner Peter Mandelson emphasizes that Russia needs to join the WTO if they seek to become something more than a hydrocarbon power and to attract foreign investment and increase the country’s trade (2007). He also argues that a Russian membership will strengthen the economic and political relations between the EU and Russia.

An article in the Russian newspaper Деловой Петербург (Devlovoj Petersburg) concludes that Russia's major benefit of a membership is the possibility to protect Russian interests. The major disadvantage for Russia is that some industries will have difficulties with the international competition, such as the Russian aviation industry and the automotive industry (Delovoj Peterburg, 2010).



It could be argued that Russia needs the WTO less than other countries; this is due to the fact that the country mostly exports commodities that have free-market access in any case. However, the gains that Russia potentially would receive from the WTO accession have been estimated to be 3.3% of the country's GDP every year. This would mean a major leap for the economy that would primarily come from freer trade of services and foreign direct investment (Bergsten & Åslund, 2010).

Russia is a former communist state that had operated under a state controlled planned economy for more than 60 years when it became a market economy in the early 1990's (CIA, 2011a). Yet, Russia is the world's largest country in terms of geographical coverage, has a population of about 142 million people (WDI, 2011) and is the 7th largest economy in the world in terms of total GDP (CIA, 2011b). Even though Russia's population has been decreasing since 1993 due to high death rates and low birth rates, the country is still one of the world's most populous countries (WDI, 2011).

In 2009, Russia had a GDP accounting for 400 billion US dollars (WDI, 2011) and the country has had an average annual growth rate of 7% since 1998.<sup>4</sup> The big economic growth has resulted in a doubling of real disposable income since 1998 and an increasing middle class. The country's large reserves of natural gas and oil accounts for 20% of the world's total production of these natural resources and contributes to stabilize the Russian economy. On the other hand, Russia faces long-term problems and challenges with their infrastructure, a shrinking labor force, high inflation, an unstable legal system and an exceptionally high level of corruption (CIA, 2011a).<sup>5</sup>

### **2.2.2. Russia's trade**

In 2009, Russia was the world's largest exporter of natural gas, the second largest exporter of oil and the third largest exporter of steel and primary aluminum (CIA, 2011a).

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<sup>4</sup> The year of the Russian financial crisis.

<sup>5</sup> Russia scores a number 146 out of 180 listed countries in the world according to the NGO Transparency International's Corruption index, where the lower the ranking indicates the greater the corruption in the country.

Figure 1: Russia's major trading partner

Figure 2: The EU's major trading partners<sup>6</sup>

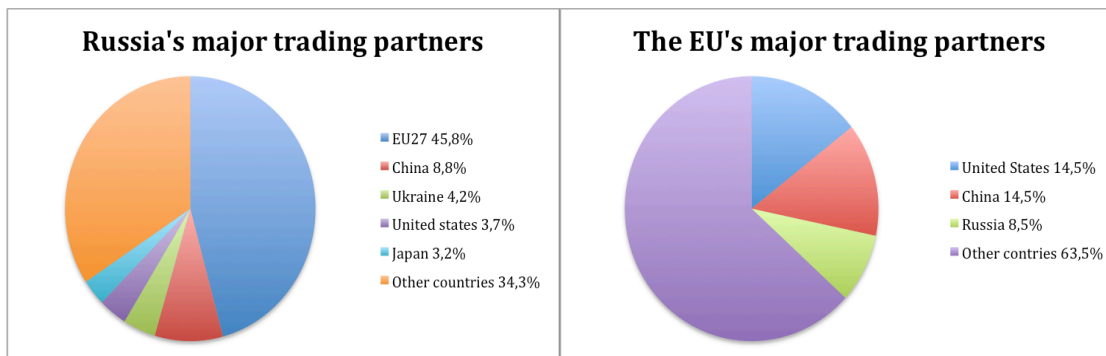


Figure 1 shows that Russia's major trading partner and investor is the EU27.<sup>7</sup> The bilateral trade between Russia and the EU grows rapidly and the trade relationship has grown even stronger due to the enlargement of the EU (European Commission, 2004). The bilateral trade almost tripled in value during the period from 2000 to 2008 (European commission, 2010) and as one can see in figure 2, Russia is the EU's third major trade partner<sup>8</sup> after the United States and China (European Commission, 2011a).

Figure 3: Russia's major export partners

Figure 4: Russia's major import partners

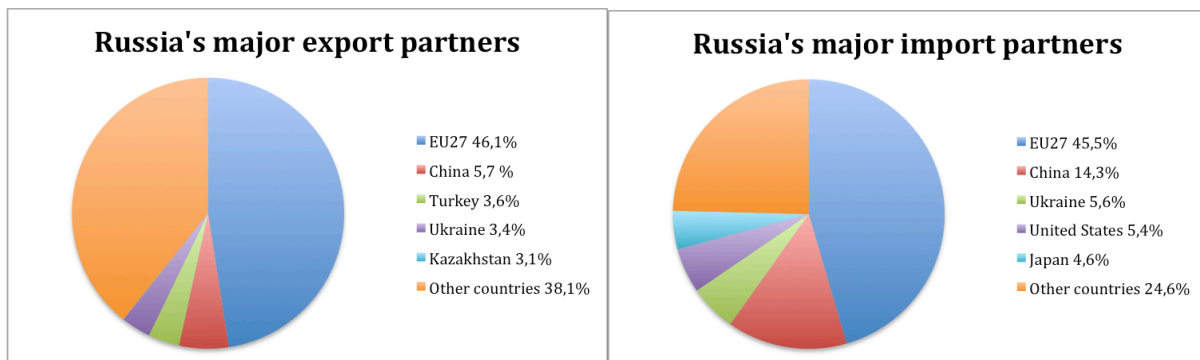


Figure 3 and 4 shows that the EU27 is by far Russia's biggest trading partner in terms of both exports and imports. Russia's trade with the EU accounts for almost half of its total imports and exports (European Commission, 2011a).

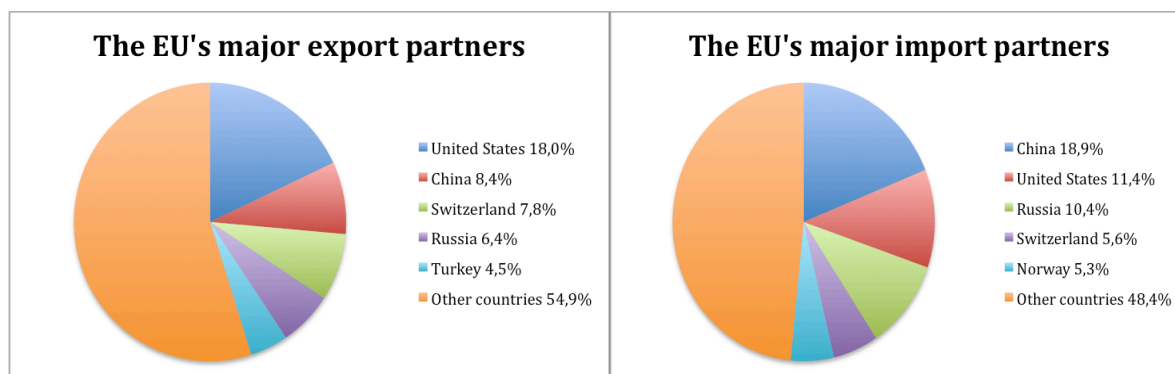
<sup>6</sup> The intra trade that is conducted within the EU is not included in the graph or in the reasoning.

<sup>7</sup> See table 9 in Appendix for definitions of the EU15 and the EU27.

<sup>8</sup> Both import and export.

Figure 5: The EU's major export partners

Figure 6: The EU's major import partners



In figure 5 and 6 one can see that Russia is the EU's third major import partner after the United States and China and the fourth major export partner after the United States, China and Switzerland (European Commission, 2011a).

Consequently, the EU is Russia's biggest trading partner and a big fraction of what the EU is importing is exported by Russia. It is therefore reasonable to focus on trade with the EU when seeking to analyze how Russia's export will be affected by a WTO membership.

### 2.2.3. Russia's accession process to the WTO

In 1993, Russia began the accession process to become a member of the GATT and the process continued throughout the 1990's. Until Putin came in to power in 1999, Russia made no major attempts to speed up the process, but the pace changed with Putin and Russia worked actively and effectively in order to become a member. During his first term,<sup>9</sup> annual meetings between representatives of the WTO and Russia were held up until 2002 when it was decided to have a tighter schedule and increase the speed of the process (WTO, 2011d). In 2003 the members of the WTO also introduced a number of requirements that Russia needed to meet and a broad range of systematic issues that had to be dealt with, for instance Russia's export duty regime<sup>10</sup> and railway fees (European Commission, 2004).

Russia is close to becoming a member of the WTO, but before the country can become a member, it has three big obstacles to overcome. Firstly; Russia has to deal with its relation with Georgia - a WTO member since 2000 (WTO, 2011e) - and its import prohibition of wine

<sup>9</sup> 1999 – 2004

<sup>10</sup> Russia has prohibitive tariffs on lumber and oil in order to protect its own production and to generate significant benefits (Oxford Analytica, 2007, Åslund, 2010).

and fruits from that region. Secondly, the U.S. Jackson-Vanik amendment<sup>11</sup> imposes a problem when the amendment is used for all kinds of purposes and not only its primary purpose. Thirdly, Russia inflicts high, and gradually growing, prohibitive export tariffs on wood and lumber. The EU, and especially Sweden and Finland,<sup>12</sup> has clearly shown their opposition against that and will put a veto on Russian membership in the WTO until Russia promise to change its decision about the export tariffs (Åslund, 2010).

The EU strongly supports a membership for Russia in the WTO; put aside the export tariffs (European Commission, 2011b). This is the case with the US as well, but they argue that Russia needs to tackle their domestic corruption before the US can give its full support for a membership (BBC, 2011).

Russia is quite close to becoming a member of the WTO and the country has recently speeded up its pace in the accession process and now works actively to become a member. Even though Russia has a few obstacles to overcome concerning international trade regulations, the EU and the US strongly supports a membership for the country. The question, however, is still; would a WTO accession positively affect Russia's export?

### **3. Previous Research**

*This chapter begins with a few empirical studies concerning Russia's WTO accession and continues with a presentation of an article by Rose (2004) that analyses the WTO's effects on trade, as well as some of the criticism that has been aimed towards Rose's study.*

Previous studies and articles give a multifaceted picture of Russia's potential membership in the WTO. Åslund and Kuchins (2009) are proponents of a Russian membership and argue that Russia will benefit from joining the WTO, mainly because of foreign direct investments and freer trade of services. On the other hand, they note that Russia will not receive equal benefits as other countries in the WTO since Russia is primarily exporting commodities and that commodities are barely taxed when exported. However, they conclude that a membership in

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<sup>11</sup> The Jackson-Vanik amendment was adopted in 1974 to put U.S. pressure on the Soviet Union to allow emigration, especially for its Jewish citizens, in exchange for normal trade relations (Åslund, 2010)

<sup>12</sup> Presumably due to that the Swedish and Finnish pulp industry, that is dependent on the import of lumber, have an interest in keeping the lumber prices low.

the WTO is necessary if Russia wants to increase its international status and influence the debate on global trade (Åslund & Kuchins, 2009).

There have been concerns on whether Russia would be able to take advantage of all the benefits of a WTO accession or not. This is due to the fact that Russia, like most of the former communist countries, struggles with weak institutions (Li & Wu, 2004). Well-functioning institutions are important for a country's ability to prosper, since uncertainty in the market and a non-effective economy will intimidate foreign investment and potential international trading partners (Jones, 2002). However, this study will focus on how the WTO affects Russia's export; the studies that have been presented above are a bit more general.

In 2004, Rose published an article where he investigated whether a GATT/WTO membership had, or had not had, a positive effect on trade over a time period of 50 years, by using the gravity model. In the study, Rose could not find any evidence that a membership would increase trade flows between countries. Rose incorporated data from almost all the nations in the world and included a diverse set of variables in the regression analysis that he believed influenced trade. However, the study has been the subject to a significant amount of criticism and studies that have reanalyzed Rose's data have received contradictory results. The results that these studies have led to, as well the criticism on Rose's study, is presented below.

In an article by Tomz, Goldstein and Rivers (2007), the authors criticize Rose for not including colonies as real members of the GATT/WTO. Colonies are countries that, even though they are not formal members of the GATT/WTO, yet participate as a part of their colonizing country. This causes a downward bias on Rose's estimates and the result of the GATT's/WTO's effect on bilateral trade is therefore misleading. When Tomz *et. al.* (2007) used the same data and methods as Rose did, but classified colonies as a group with the same rights and obligations as the formal members, the results clearly indicated that the GATT/WTO increases trade. Thus, they argue that if the colonies are included as member states, the WTO generates a positive effect on bilateral trade. After the publishing of the criticizing article, Rose responded (2007) and agreed that he made a mistake by not correctly coding the colonies since they are in fact covered by the GATT and therefore should be coded accordingly.

Subramanian and Wei (2003) claimed in an article that Rose's results were misleading and distorted mainly due to econometric mistakes but also due to some economic definitions. They chose, unlike Rose, to make a distinction between industrialized and developing

countries, since they believed that the results were misleading as an effect of combining the trade for all goods and trading partners. By correcting for this and by using a more advanced technique to estimate bilateral trade, Subramanian and Wei proved that a membership in the WTO in fact increases trade. However, their conclusion especially covered industrialized countries. Rose responded to their criticisms (2007) and argued that Subramanian and Wei, like many others, believe that the GATT is an organization exclusive to developed countries. A set of other studies also have criticized Rose and argued that the WTO as a whole does affect trade (Chang & Lee, 2009).

Santos Silva and Tenreyro (2006) criticized Rose for having distorted estimates and significant biases as a result of using a log-linearized equation by ordinary least squares (OLS) to estimate the gravity equation. Since Rose used the natural logarithm of the trade flows between countries, a problem occurs when the dependent variable is zero because the natural logarithm of zero is undefined. Instead they recommend that the model should be estimated with the Poisson Pseudo Maximum Likelihood Model (PPML) in multiplicative form, which solves the problem of zeros and bias caused by heteroscedasticity.

Altogether, previous research have suggested that Russia needs to become a member of the WTO in order to develop the country's economy, whilst there have been concerns on whether the country will receive equal benefits from a WTO accession as other countries, since the country mostly exports commodities and has weak institutions. Rose's study indicated that a WTO membership does not increase trade flows at all, but after treating his data differently, other research have received conflicting results suggesting that the WTO does have an impact and increases trade flows among its members. In this study, we will use Rose's regression analysis as a benchmark, but have taken the criticism into consideration and modified Rose's definition of the gravity equation slightly. The criticism aimed at Subramanian and Wei, by Rose, has also been taken into consideration and we therefore only include countries in the study that, mostly, belong to the same income classification as Russia.

## **4. Empirical study**

*In this chapter, the empirical methodology will first be presented, together with the empirical strategy. The definition of the model, as well as the expectations of the variables, is discussed further on in the chapter.*

### **4.1. Methodology**

The aim of this paper is to investigate if a membership in the WTO would positively affect Russia's export and to study whether Russia's export volumes would increase with a membership or not. This is done by investigating and trying to estimate the effects of multilateral trade agreements on bilateral trade flows; principally how a membership in the GATT/WTO affects trade between its members and to what extent.

In this paper, we have chosen to use a study performed by Rose (2004) as a benchmark when performing our analysis. However, the two studies differ in some important aspects. For instance, Rose included almost all the countries in the world, whilst this study only includes 40 countries, where 15 are considered as importing countries and 25 are considered as exporting countries. This is due to the fact that we seek a manageable amount of data, as well as a sample of exporters that are comparable to Russia. We will also exclude some of the variables that Rose included in his regression analysis, as well as include some that he did not. For instance, in this paper the real GDP are defined for each country in the country pair independently and not as a function of the GDP of the two countries multiplied with each other. We also have chosen a different and more concentrated time period in order to make the study more applicable to Russia's export. Combined, it gives this paper a slightly different and improved approach than Rose's study, which has been criticized for its results and methodology.

The 15 countries that were members of the EU15<sup>13</sup> are considered as importing countries in the study, since the EU is Russia's biggest export partner, and the other 25 countries are considered as exporting countries. Consequently, the trade flows emanate from the 25 exporting countries and go towards the 15 importing countries (the EU15). The intention is to investigate how the 25 exporting countries' export volumes to the EU changed after becoming a member of the WTO. In order to draw any conclusions on how Russia's export would be affected from the countries in the sample, it was important to choose the exporting countries

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<sup>13</sup> See table 9 in Appendix.

according to their resemblance with Russia. This was a hard task, because Russia is such a unique country. However, since Russia is classified as an upper-middle-income country, most of the countries were selected from the list of upper-middle-income countries that could be found at the World Bank's homepage (The World Bank, 2011b).<sup>14</sup> As not enough countries that had joined the WTO during the period that was investigated could be found in the upper-middle-income list, and since some of the countries that had were too small to compare with Russia's economy, a few countries were also chosen from the lower-middle-income-country, low-income-country and high-income-country-lists. A criterion was that the countries that were included in the study were comparable to Russia in a structural or economic sense. A few of the countries on the list were members of the GATT before it turned into the WTO. Lists of all the countries, as well as their income classification and date of accession to the WTO, that are included in the study are presented in table 4, 5, and 6 in Appendix.

Together, the countries form 375 country pairs, for which the trade flows will be analyzed for the years 1991 – 2009. Naturally, the fact that the EU now consists of 27 member states has been taken into consideration, but since the EU27 are covered by the same importing policy as the EU15 this will not affect the conclusions of a WTO accession on Russia's trade with the EU. The study starts in 1991 because of the changes in the Russian market since the Soviet Union collapsed and Russia became a market economy in the early 1990's. Before 1991, Russia did not have an opportunity to become a member of the WTO and the negotiations to become a member started in 1993. The time period that is investigated thereof covers the period during which Russia has been in the process of becoming a member and it is thus likely that the countries included in the study have experienced a similar transaction as Russia would have experienced. When seeking to analyze how Russia's export could have been influenced by a WTO accession, the time period chosen is thereby very suitable.

By using the gravity model, the analysis seeks to isolate how the different variables influences the trade flows within each country pair and search for variation by comparing the trade flows with the 15 importing countries before and after the 25 exporting countries became members of the WTO. If a WTO membership has a large positive effect on bilateral trade, the trade flows for a country are expected to have grown significantly after joining the WTO.

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<sup>14</sup> See table 5 in Appendix.



The gravity model is an econometric ex post-analysis model used to analyze the effects of a variety of variables in international trade (UNESCAP, 2008). The model is counterfactual, which means that the result indicates how much a variable affect the dependent variable in comparison with a contrarious situation. The model is based on Newton's law of gravitation and describes bilateral trade. The model expresses trade flows between countries as a function of the size of the countries<sup>15</sup> and the distance between the countries in the country pair (Krugman & Obstfeld, 2006). In the field of international economics the gravity model has been widely used to measure the impact of trade policy and the size of bilateral trade flows. The model first appeared in 1962, when Tinbergen introduced it, and has since then been used in a number of academic works and studies, for example Anderson (1979), Bergstrand (1985; 1989), Helpman & Krugman (1985), Deardorf (1998), Anderson & van Wincoop (2003; 2004), Rossi-Hansberg (2005) and Waugh (2010), in which a theoretical explanation of the model is given. The gravity model has a high explanatory power and the estimated relation between trade and distance is sensible and economically and statistically significant. The model has also been quite consistent across earlier studies and is able to explain a big part of the variation in international trade (Rose, 2004). A number of historical, geographical and cultural variables could also be included in the model with the intention to enhance the credibility and to account for as many exogenous factors as possible.

The complete model used in this paper, as well as a detailed description of the model's variables, is introduced in the next part of the chapter.

#### **4.1.1. Model specification and estimation**

The regression analysis in this paper proceeds from a specification of the gravity model done by Rose (2004), although it is updated slightly and factors that may be significant when analyzing trade flows have been added. The natural logarithm of trade flows explained by the natural logarithm of the distance between countries and their GDP and GDP per capita is used, as well as other variables. Our specification of the gravity model is:

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<sup>15</sup> Measured in a country's gross domestic product.

$$\begin{aligned}
\ln(X_{ijt}) = & \beta_1 + \beta_2 \ln GDP_{it} + \beta_3 \ln GDP_{jt} + \beta_4 \ln GDPcap_{it} + \beta_5 \ln GDPcap_{jt} \\
(1) \quad & + \beta_6 \ln Distance_{ij} + \beta_7 Colony_{ij} + \beta_8 Language_{ij} + \beta_9 Border_{ij} + \beta_{10} Landlocked_i \\
& + \beta_{11} Landlocked_j + \beta_{12} Preference_{jt} + \beta_{13} EU_{jt} + \beta_{14} GATT / WTO_{jt} + Year_t
\end{aligned}$$

$i$  and  $j$  signify the trading partners, where  $i$  represents the importing country and  $j$  the exporting country.  $t$  signifies the year when the trade took place and the definition of the variables are as follows:

- $X_{ijt}$  denotes the trade flow from the exporting country to the importing country,
- $GDP_{it}$  denotes the real GDP measured in constant US dollars for the importing country,
- $GDP_{jt}$  denotes the real GDP measured in constant US dollars for the exporting country,
- $GDPcap_{it}$  denotes the real GDP per capita measured in constant US dollars for the importing country,
- $GDPcap_{jt}$  denotes the real GDP per capita measured in constant US dollars for the exporting country,
- $Distance_{ij}$  is the distance between the two most important cities in every country pair, measured in kilometers,
- $Colony_{ij}$  is a binary variable that takes the value of 1 if one country in the country pair ever colonized the other,
- $Language_{ij}$  is a binary variable that takes the value of 1 if the countries in the country pair share a common language,
- $Border_{ij}$  is a binary variable that takes the value of 1 if the countries in the country pair share a common border,
- $Landlocked_i$  is a binary variable that takes the value of 1 if the importing country does not have a coastline,
- $Landlocked_j$  is a binary variable that takes the value of 1 if the exporting country does not have a coastline,
- $Preference_{jt}$  is a binary variable that takes the value of 1 if the exporting country is a member of a preference system at time  $t$ ,
- $EU_{jt}$  is a binary variable that takes the value of 1 if the exporting country is a member of the EU in year  $t$ ,

- $GATT/WTO_{jt}$  is a binary variable that takes the value of 1 if the exporting country is a member of the GATT/WTO in year  $t$ ,
- $Year_t$  are year specific dummies that controls for business cycle effects.

The parameter  $\beta_{14}$  is of the most interest to this paper. If the parameter is positive and statistically significant it implies that a membership in the WTO increases trade among its members, and thus, that a membership in the WTO is beneficial for a country's bilateral trade. The binary  $GATT/WTO$  variable is defined as the year the country became a member of the WTO. Consequently, if a country became a member in April of 2005, for instance, the years between 1991 and 2004 are coded with 0, and the years between 2005 and 2009 are coded with 1. The variable captures the time of entrance in the WTO as well as how the trade flows has changed since becoming a member. If it is the case that a WTO membership has a positive effect on bilateral trade among its members, the parameter  $\beta_{14}$  is expected to be positive and statistically significant. This is also the expectations we have on the parameter, since the bigger part of previous research have suggested that the WTO does have a positive impact on bilateral trade, and logically, that lowering the barriers of international trade should lead to increased trade flows.

The gravity model explains the variation in bilateral trade among the world's countries as a function of countries' economic size and the distance between countries. In order to capture other relevant factors that affect bilateral trade, demographical and cultural factors are also included in our specification of the model.

The  $GDP$  and the  $GDP$  *per capita* variables are included to cover the economic and demographical size of a country. The variables are measured in constant US dollars and are defined as the total GDP, or GDP per capita, in one country in one year. Since it is empirically established that large economies trade more than smaller economies, the  $GDP$  variable is expected to have a positive impact on bilateral trade. The  $GDP$  *per capita* variable, on the other hand, is more complex to analyze and has empirically both had a negative and positive impact on bilateral trade. The variable could be argued to capture the level of development in a country and thus a large GDP per capita should have a positive impact on trade saying that industrialized countries trade more. However, a larger GDP per capita could also be expected to have a negative impact on trade flows; this due to the fact that the more people that live in a country, the more resources are required to provide for the population. If the population

grows, and thus the GDP per capita grows smaller, *ceteris paribus*, the resources within the country may not be enough for the population and international trade is necessary.

In order to capture the geographical aspects of trade, the variables *Distance*, *Border* and *Landlocked* are used. *Distance* is defined as the distance, in kilometers, between the two most important cities in every country pair. The intuition behind the variable is that the further away from each other two countries are located, the smaller will their bilateral trade be, due to the costs of transportation. This indicates that if two countries share a border, they will trade more with each other since they are located close. A country is considered as landlocked if it does not have a coastline, which is likely to decrease the country's trade flows. The variables, altogether, are expected to capture the effects of transportation costs and adjust for them.

The *Preference* and the *EU* variables are included to capture how a membership in a preference system or in the EU affects bilateral trade. Both of the variables are defined in the same way as the *WTO* variable. The self-idea about preference systems is that it should simplify trade, and thereby the variable is expected to have a positive effect on trade. The expectation for the EU variable is similar, since the EU has a set of trade agreements among its members and an EU accession is likely to have a positive effect on trade with that region.

The *Language* and *Colony* variables are included to investigate whether cultural aspects and a common history have an effect on bilateral trade. Both of the variables are binary; the *Language* variable takes the value of 1 if two countries in a country pair share a common language, where only the majority language is considered, whilst the *Colony* variable takes the value of 1 if a country pair has a colonization relationship. Both the variables are expected to have a positive effect on trade, since they indicate a strong cultural relationship between two countries.

The year dummies are included to capture and adjust for the effects that occur as a consequence of business cycles and global financial crises.

The expected results of the variables included in the regression analysis are presented in table 1 below.

Table 1: Expected results

<i>Parameter</i>	<i>Variable</i>	<i>Expectation</i>	<i>Reason</i>
$\beta_2, \beta_3$	GDP	+	Large economies tend to trade more.
$\beta_4, \beta_5$	GDPcap	+/-	A large GDP per capita indicates a larger economy, whilst an increased population decreases, <i>ceteris paribus</i> , the GDP per capita.
$\beta_6$	Distance	-	A great distance indicates large transportation costs.
$\beta_7$	Colony	+	Colonization may lead to a cultural relationship.
$\beta_8$	Language	+	A common language facilitates trade.
$\beta_9$	Border	+	A common border reduces the transportation costs.
$\beta_{10}, \beta_{11}$	Landlocked	-	The lack of a coastline indicates larger trading costs.
$\beta_{12}$	Preference	+	Membership in a preference system facilitates trade.
$\beta_{13}$	EU	+	Increased trade due to trade agreements within the union.
$\beta_{14}$	GATT/WTO	+	Increased trade due to bilateral trade agreements.

A model with ordinary least squares (OLS) was used to estimate the variables in the gravity model and the regression. The OLS-model seeks to minimize the squared deviation between every observation in the sample and the adjusted straight line. The OLS-model is unbiased, effective and consistent (Westerlund, 2005) and therefore seems to fit the data well. However, a problem occurs when the dependent variable is equal to zero, which means that the natural logarithm is undefined. This is due to lack of data or that no trade has been taken place within a country pair for a specific year. There are a few different methods to elude the problem.

Santos Silva & Tenreyo (2006) recommend estimating the variables in a multiplicative form in the gravity model with the Poisson Pseudo Maximum Likelihood-model to consider the zero trade flows and the bias that heteroscedasticity gives rise to. This model would evade the problem, but is too technically complicated for a study on bachelor level. Instead, in this paper, the missing data<sup>16</sup> will be disregarded and excluded from all the observations when estimating the log linear model with the OLS. We are aware of the biased results that may occur, but argue that this method will not result in false estimates that will determine the outcome of the results.

## 4.2. Data

As mentioned in previous chapter, the trade flows from 25 countries that, most of them, joined the WTO during the years 1991 to 2009, to the 15 countries that were members of the EU15, will be analyzed since Russia's biggest exporting partner is the EU.

The regression consists of the trade flows within the 375 country pairs during 19 years. This results in a total of 7125 observations, which the estimates will be based on. The natural logarithm of trade flows (total export from the exporting country to the importing country) for every year within every country pair, is the dependent variable and the data was obtained from UN-Comtrade (WITS, 2011). The key variable is the GATT/WTO membership and the website of the WTO provided the dates for accession of its members to the GATT/WTO (WTO, 2011g). The GDP and the GDP per capita are measured in constant US dollars and were found at World Development Indicators homepage (WDI, 2011).

The CEPII database (CEPII, 2011) was exploited to gather the bilateral variables, which include distance between countries, colonization, if they share a common language<sup>17</sup> or border and if any country in the country pair is landlocked. The information on whether the exporting country is a member of a preference system or not was taken from a database created by Persson and Wilhelmsson (2007) and from United States International Trade Commission (USITC, 2011). Data on if and when the exporting country joined the European Union were obtained at the homepage for the European Union (EU, 2011).

Table 7 in Appendix provides more information on the data.

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<sup>16</sup> Considered as missing if no trade has been taken place within a country pair for a specific year.

<sup>17</sup> Only the majority language was considered in this study.

## **5. Results**

*In this chapter, the results of the study is presented and analyzed and the results significance for Russia's export is discussed. The sensitivity analysis that was performed in the study is also presented in this chapter.*

### **5.1. Results of the econometric regression analysis**

Trade flows within 375 country pairs have been analyzed for the years 1991 to 2009. This resulted in 7125 observations that were run in the data processing program SPSS. The variables were estimated using the OLS-estimator (Ordinary Least Square) and the results were tested for collinearity, which was not found. This connotes that the regression is statistically significant and the variables explain 70.4% of all the variations in trade flows, when respect has been taken to the number of estimated variables. The results for the variables are presented in table 2 below;

Table 2: Regression Results

Number of observations	7125
Regression	(0,000)
Constant	-35,435*** (0,000)
WTO	0,117** (0,035)
GDP importer	1,257*** (0,000)
GDP exporter	1,167*** (0,000)
GDP per capita, importer	-0,563*** (0,000)
GDP per capita, exporter	-0,315*** (0,000)
Distance	-0,908*** (0,000)
Colony	0,510*** (0,001)
Language	0,351 (0,131)
Border	1,349*** (0,000)
Landlocked importer	-0,277*** (0,000)
Landlocked exporter	-0,731*** (0,000)
Preference	0,142 (0,101)
EU	1,235*** (0,000)

Adjusted  $R^2$  0,704

*Note:* The dependent variable is the natural logarithm of the trade flows within every country pair, the natural logarithm has also been taken on the *GDP*, *GDP per capita* and the *Distance* variable. For more details, see table 8 in Appendix. The p-value is presented in brackets and asterisks denotes the significance at the 1% (\*\*\*), 5% (\*\*) and 10% (\*) levels.

What is shown in table 2 are the variables that were included in the gravity model, except for the year dummies that are to be seen in table 8 in Appendix, as well as their b-value and their statistical significance. The standard error, t-value and collinearity statistics are included in table 8 in Appendix. The dependent variable in the regression is the natural logarithm of trade



flows within each country pair and the whole regression is, as can be seen in table 2, statistically significant.

The variable that is of the most interest to the study and the variable around which this paper was built, is the question on whether a membership in the WTO affects trade among its members and essentially, if it increases it. As can be seen in table 2, the variable is statistically significant and countries that are members of the WTO trade about 12% more with each other than with other countries, according to the equation  $(e^{\beta} - 1) * 100$ . A country, that becomes a member of the WTO, could therefore on average expect its trade to increase with 12%. Thus, a membership in the WTO has a significant and positive effect on countries' bilateral trade flows.

A problem with regression analysis is that it does not say anything about the casual relationship between variables; it just says that there is a linkage between them. Hence, one cannot be sure if a membership in the WTO increases trade flows or if great trade flows increases the possibilities of a membership in the WTO. In this case, though, it can be quite certain that the casual linkage goes from a membership in the WTO to increased trade flows within the country pair, since there is no trade flow criterion for becoming a member of the WTO (WTO 2011f). Consequently, the results suggest that a membership in the WTO increased the trade flows for the countries in the study and thereby has a positive impact on bilateral trade.

As assumed in the gravity model, the economic size of a country measured in GDP affects the level of trade for that country. The bigger a country's economy is, the more the country will trade. This is the case for both the importing and the exporting country, saying that larger countries trade more. The GDP measure does not take the demographic of a country into consideration, but the GDP per capita measure does, even though it does not regard the distribution in the society. The *GDP per capita* variable could be considered to capture the level of development in a country and thus have a positive impact on trade, but from table 2 above, it can be deducted that the bigger the GDP per capita is for a country, the smaller that country's trade flow will be, due to the fact that the more people that live in a country the more resources will be needed. As the population in a country grows the GDP per capita

becomes smaller, *ceteris paribus*, and since the population grows, the resources within the country may not be enough for the population and international trade is necessary.

The core of the gravity model is that the economic size of two countries and the distance between them determine the trading patterns for a country pair. The b-value for the natural logarithm of the distance between countries is statistically significant and negative. This implies that a country will trade more with countries that are geographically located closer to it than with countries that are located further away. This is all in line with the gravity models assumption and mainly due to the costs of transportation, such as the costs of delivery. This is even more deeply rooted with the *Border* variable; whether or not two countries in a country pair share a common border. The variable is significant and indicates that two neighboring countries do trade a lot more with each other than with other countries. If they share a border, it often means that the distance between the most important cities in each country is relatively short, which strings it together with the distance variable.

Even though one might think that a common language would be something that boosts trade flows between two countries, this is not something that the analysis could support. The reason for this result may be that only 5 out of the 375 country pairs in the sample shares a common language which leads to the nonexistence of variation and that the variable was not significant. On the other hand, though, it was clearly beneficial for trade if one country in the country pair ever colonized the other, since they have a strong cultural relationship even before becoming members of the same trade union (Krugman & Obstfeld, 2006).

The fact that a country has a coastline is something that is generally accepted to simplify trade, both import and export. Since there always is a cost of transportation when trading, *i. e.* cost of delivery, the trade flows are affected by the transportations possibilities. If it could go over sea it would cost less than if transported by airplanes or motor vehicles. In the analysis it was also statistically significant whether the country had a coastline or not, and it had a negative impact on trade if the country was landlocked for both the importing and the exporting countries.

The analysis could not find any evidence that a membership in a preference system has a positive effect on trade, but it was statistically significant that a membership in the EU does

have a positive effect on trade. This implies that a country's trade with the member states of the EU will increase if the country itself becomes a member of the EU.

The different year specific dummy variables that are incorporated in the regression analysis are not presented in table 2, but could be seen in table 8 in Appendix. They were included in the regression analysis to capture year specific effects and picked up the effects of business cycles, as well as long-term time trends in several of the variables. That some of these year specific dummies were statistically significant indicates that trade volumes, and essentially trade flows, are sensitive to events throughout the world.

Overall, the results are reasonable and logical. The variables indicate that trade flows between countries could be explained to a great extent by the regression analysis conducted in this paper. In order to investigate when the effect of a WTO membership occurs, and to see how corruption could inflict countries trade flows, a sensitivity analysis was performed. In the sensitivity analysis, it was also investigated if the disregarding of the zero trade flows had an effect on the implication of the *WTO* variable.

## **5.2. Sensitivity analysis**

A technique used to determine how sensitive results are to uncertainty is called sensitivity analysis. Essentially it seeks to analyze how sensitive the dependent variable is to changes in the independent variables, or if variables that are not included in the regression have impact on the dependent variable (Morris, Devlin & Parkin, 2007).

The OLS-estimator was used to estimate the variables in the econometric regression analysis. The OLS-estimator minimizes the sum of the squared deviation between every observation in the sample and the adjusted straight line. Even though the OLS-estimator is unbiased, effective and consistent, when studying time-series analysis with panel data there are a few phenomenon that only occurs when there are observations ranged over time and these could result in false t- and  $\beta$ -values. It is extremely important to be aware of this, since it could lead to clear and strong linear relationships between variables when there in fact is no relationship (Westerlund, 2005). For that reason, the regression was tested for collinearity and it was found that there existed no collinearity between the variables. Hence, the regression is reliable and statistically significant and the variables explain the variance in trade flows to a great extent.

The aim of this paper was to investigate how a membership in the WTO effects bilateral trade flows. What has been determined in previous chapters was that the dummy variable that denoted time for entrance in the WTO was statistically significant and thus, that the WTO increases trade. In order to define when the effect of a membership in the WTO affected the trade flows a sensitivity analysis was carried out. The variable was therefore lagged with two years in the first rerunning of the regression and postponed with two years in the second rerunning of the regression. In the first case, the variable turned out to be statistically significant. This indicates that the effect of a membership in the WTO occurs already two years previous to becoming a member. It could be due to new trading relations being established before the WTO accession, since the country that is about to become a member prepares for a different international trade pattern, and that other countries are eager to begin trading relations that can be established once the country becomes a member of the WTO. However, it was not statistically significant that the effect of a WTO membership remained two years after the accession. This could be because the country has already adapted to its new trade and is no longer expanding. The effect of a WTO accession comes gradually, which is a logical conclusion since it takes time for a country to adjust to a new trading pattern, but after a few years, the effect stifles and no longer expands a country's trade that has reached a consistent higher level.

The problem with the zero trade flows was eluded in this study by disregarding the observations where no trade had taken place within a country pair for a specific year. However, in order to estimate the consequences of this procedure, the zeros in the sample were replaced with a very small number close to zero<sup>18</sup> and then the regression was rerun. The results showed that if the sample had been estimated in a way that would have solved the problem with the zero trade flows, the *WTO* variable may have indicated that a WTO accession increases trade among its members with 28%. This implies that the same results would have been received; that a WTO accession increases trade among its members, but to an even greater extent. Thus, the implications of the *WTO* variable would not have been different and the fact that the zero trade flows were disregarded did not affect the most important conclusion of this paper; whether or not the WTO has an impact on bilateral trade.

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<sup>18</sup> 0,00001

As Russia is a country where corruption is widespread, the level of corruption in the investigated countries was also included in the sensitivity analysis in order to see how it affected bilateral trade. Data for the corruption index was obtained from the Transparency International homepage (Transparency, 2011), where a country without any corruption at all scores a 10 and a country that is completely corrupt scores a 0. The variable was included in the regression analysis which was once again rerun, and the result that followed should be crucial for Russia's bilateral trade. It was not statistically significant whether the country, importing and exporting, were corrupt or not - consequently; corruption within the trading country does not affect bilateral trade flows. Therefore, the fact that Russia does have to deal with a lot of corruption should not affect its trade with neither the EU nor the rest of the world. However, the countries in the sample were not chosen due to their level of corruption, and it may subsequently be hard to apply this particular variable on Russia's export.

### **5.3. The results significance for Russia's export**

The results of the empirical study is presented and discussed in previous parts of this chapter. However, the aim with this paper was to examine how the results would affect Russia and more precisely how a membership in the WTO would affect Russia's export. The *WTO* variable and the ability to apply it on Russia's bilateral trade are therefore the subject of the following discussion. The rest of the results from the regression analysis are only relevant to control for the important factors of trade in order to receive a reliable estimate of the WTO effect and are subsequently not included in the discussion.

As could be observed in table 2, the results suggest that a WTO membership affects bilateral trade and increases it with 12% on an average. This indicates that Russia's export would increase if the country became a member of the WTO. However, one has to take into consideration that Russia is a very unique country. As the largest country in the world, with a big population and a somewhat peculiar political history, Russia is hard to compare with other countries. It is therefore central for the paper whether the countries that were included in the study as exporting countries are possible to compare with Russia, and if it is likely that the effect of a WTO accession would be similar to Russia as for the rest of the countries in the sample. The time period that is investigated also has to be relevant for Russia's export, as well as analyzing the trade flows with the EU.

The study considers the countries of the EU15 as importers and their 25 trading partners as exporters. The countries that are to be compared with Russia are the exporting countries that have been chosen on the basis of their income level as well as their accession date to the WTO. Some countries were also included since their size and economic structure is similar to Russia's. This was done to improve the possibilities to apply the results on Russia's export.

Some of the countries included in the study are very small, both in an economic and geographical sense, and it could therefore be very hard to draw any conclusion about how a WTO membership would affect Russia from the size of their economy. However, a significant number of those small countries had, like Russia, been under a government-planned economy for a long time when they become market economies in the early 1990's. This indicates that their institutional system is likely to be similar to Russia's and that the problems that they deal with concerning a market economy may be comparable to Russia. The larger countries included in the study that has been former planned economies and only have been market economies for a short period of time are easier to link to Russia than the smaller ones. Even though the countries are not similar to Russia in every aspect, there is some basic resemblance. For instance, Ukraine, that became a member of the WTO in 2008, is a large and populous country that has similar institutions as Russia and a common history. It is therefore likely that the two countries' economy and export will react similar to a WTO accession.

There are countries included in the study that have a comparable position in the world economy as Russia. For instance, China and India are both large countries with a big population and a large exporting sector. What those countries have experienced from a WTO accession is very likely to be applicable to Russia. Consequently, Russia may expect to experience a similar effect on its export as China and India did.

Russia mostly exports commodities, and it is therefore important to include countries with similar economic structure in order to control for the effect that a WTO accession has on countries that possesses a large quantity of natural resources. Saudi Arabia, for instance, is a country that is not similar to Russia when it comes to economic or geographical size or cultural history, but has a comparable economic structure and mostly exports commodities. This could give a prediction of how Russia's export will be affected when the country becomes a member of the WTO.

The time period for which the trade flows are investigated, 1991 to 2009, is chosen since the Soviet Union collapsed in the early 1990's. In 1991 Russia became a market economy and in 1993, the country started its accession process to the WTO. In order to capture an effect of a WTO accession that could in fact be applicable to Russia, the time span had to cover a period during which the country could actually have become a member. Since Russia has been in the process of becoming a member during almost the entire time period that is investigated, the results suggests how different Russia's trade could have been today, if the country would already had become a member. Thereby, the transaction that the investigated countries have experienced is likely to be equivalent to what Russia would have experienced. Given Russia's history, it is not interesting or significant to investigate how a membership in the GATT previous to 1991 would have inflicted the country's export, since the country did not have a chance of becoming a member before 1991. The time period is therefore very suitable to capture a realistic effect of a Russian WTO accession on the country's export.

The EU is Russia's biggest trading partner, and it is therefore relevant to analyze how Russia's export with that region would be affected by a WTO membership. It was for that reason that the trade flows with the EU was investigated for the exporting countries in the study. The method is thus well adapted to its purpose of analyzing how a WTO membership would influence Russia's export.

The countries that have been chosen to represent Russia in this paper altogether give a quite good indication of how Russia's export would be affected of a WTO accession. Even though Russia is a very special country, most of the country's aspects have been covered by the many different countries in the sample. This, combined with a relevant time period and a suitable trading region, makes the results of the analysis applicable on Russia's export. A membership would, in all likelihood, have a major effect on the country's export and even if Russia's export would not increase as much as the export has increased for the other countries in the study, the effect would still be considerably favorable. This study contributes to the literature with an identification of a probable effect of a WTO accession for Russia, and we thereby argue that Russia's export would increase with a WTO accession.

## 6. Conclusion

*In this chapter, a short summary of the paper is presented as well as a discussion of how a WTO accession affects export and a conclusion on whether or not Russia's export would gain from a membership in the WTO.*

The ambition with this paper has been to investigate whether a Russian WTO accession would increase the country's export or not. Since Russia is on the verge of becoming a member of the WTO it is interesting to investigate how an accession would influence the country's bilateral trade and if the WTO has an impact on international trade flows.

The empirical strategy was to look at countries that had already become members of the WTO and to investigate the effect that these countries experienced from their WTO accessions. In order for the results to be applicable on Russia's export, the countries had to be similar to Russia. Therefore, the 25 countries that were chosen to represent Russia in the study either belongs to the same income classification as Russia or are similar to the country in an economic or structural aspect. Since the EU is Russia's biggest trading partner, it was investigated how the countries' export to the EU region were affected by a WTO membership. Thus, the EU15 were considered as importing countries, and the 25 countries that were chosen to represent Russia were considered as exporting countries.

Together, these 40 countries forms 375 country pairs, for which the paper analyzed trade flows over a time period of 19 years, 1991 – 2009, which ultimately results in 7125 observations. The time period were chosen since Russia became a market economy in 1991, and began the negotiations to become a member of the WTO in 1993. Thereby, the time period covers the negotiation process for a WTO accession as well as the years during which Russia had the possibility to become a member and it is therefore likely that Russia's export would have experienced an equivalent transaction as the investigated countries.

In order to capture the effect that a WTO membership has on a country's export, the gravity model of bilateral trade was exploited. The model explains variation in bilateral trade as a function of the economic size of the trading countries as well as the distance between them. An additional set of variables were also included in the model in order to account for as many exogenous factors as possible, which are important to control for in order to receive a reliable estimate of the *WTO* variable. The data was mostly conducted from UN-Comtrade and CEPII.



The results from the gravity model indicated that the variables that were included in the study could explain up to 70.4% of all the variations in trade. The results also established that a membership in the WTO increases trade with an average of 12% among its members, which was the variable of interest for this paper. This indicates that a country's trade flow increase with a WTO accession and consequently that Russia's export would increase if the country became a member of the WTO. However, Russia is hard to compare with other countries, but the countries that were chosen to represent Russia altogether give a quite good indication of how Russia would be affected of a WTO accession. This, combined with a relevant time period and a suitable trading region, makes the results of the analysis applicable on Russia's export. Thus, a membership in the WTO would have a positive effect on Russia's export.

Nevertheless, there have been discussions about whether the WTO benefits each of its members equally or in fact favor the industrialized countries. If Russia became a member of the WTO, the country would be one of the industrialized countries and thus gain from the benefits of better trade conditions even though the WTO might be biased towards the industrialized countries.

Since this study does not account for different commodities, a study that investigates Russia's export with specific products, for example natural gas, oil and steel, would be interesting in order to get a result that is even more applicable on Russia's export. The study can also be improved by using a larger number of importing and exporting countries, since the result then may be even more general for international trade.

Another way to further develop this study is to estimate variables in a multiplicative form in the gravity model with the Poisson Pseudo Maximum Likelihood-model to solve the problem with the zero trade flows and the potential bias given by heteroscedasticity.

In summary, given the results of the econometric regression analysis, the study indicates that a membership in the WTO increases trade flows between its members. The results contribute to the literature with a reliable identification of the WTO effect for Russia and suggest that Russia's export will be positively affected by a membership in the WTO. The country would therefore, altogether, gain from becoming a member of the World Trade Organization.

## 7. References

- Anderson, James E. (1979), “*A theoretical Foundation for the Gravity Equation*”, American Economic Review, Vol. 69, Nr 1, pp. 106-116.
- Anderson, James E. & van Wincoop, Eric (2003), “*Gravity with Gravitas A Solution to the Border Puzzle*”, American Economic Review, Vol. 93, Nr. 1, pp. 170-192.
- Anderson, James E. & van Wincoop, Eric (2004), “*Trade Costs*”, Journal of Economic Literature, Vol. 42, No. 3, pp. 691–751.
- BBC (2011), “*Biden urges Russia to tackle corruption*”, BBC, <http://www.bbc.co.uk/news/business-12692618> (2011-04-12)
- Bergsten, C. Fred & Åslund, Anders (2010), “*Let Russia join the WTO*”, Foreign Policy, [http://www.foreignpolicy.com/articles/2010/06/18/let\\_russia\\_join\\_the\\_wto](http://www.foreignpolicy.com/articles/2010/06/18/let_russia_join_the_wto) (2011-04-03)
- Bergstrand, Jeffrey H. (1985), “*The Gravity Equation in International Trade: some Microeconomic Foundation and Empirical Evidence*”, Review of Economics and Statistics, Vol. 67, Nr. 3, pp. 474-481.
- Bergstrand, Jeffrey H. (1989), “*The Generalized Gravity Equation Monopolistic Competition, and the Factor-Proportions Theory in International Trade*”, Review of Economics and Statistics, Vol. 71, Nr. 1, pp. 143-153.
- CEPII (2011), “*Database*”, Centre d’Etudes Prospectives et d’Informations Internationales, <http://www.cepii.fr/anglaisgraph/news/accueilengl.htm>
- Chang, Pao-Li & Lee, Myoung-Jae (2009), “*The WTO Trade Effect*”, School of Economics, Singapore Management University
- CIA (2011a), “*The World Factbook: Russia*”, Central Intelligence Agency <https://www.cia.gov/library/publications/the-world-factbook/geos/rs.html> (2011-03-21)
- CIA (2011b), “*The World Factbook: Country Comparison: GDP (purchasing power parity)*”, Central Intelligence Agency, <https://www.cia.gov/library/publications/the-world-factbook/rankorder/2001rank.html> (2011-04-02)
- CIA (2011c), “*The World Factbook: Country Comparison: GDP (purchasing power parity) per capita*”, Central Intelligence Agency, <https://www.cia.gov/library/publications/the-world-factbook/rankorder/2004rank.html> (2011-04-02)
- Delovoj Peterburg (2010), “*Россия вступает в ВТО: плюсы и минусы* ” (“Russia joins the WTO: advantages and disadvantages”), Деловой Петербург [http://www.dp.ru/a/2010/12/08/Rossija\\_vstupajet\\_v\\_VTO\\_pl](http://www.dp.ru/a/2010/12/08/Rossija_vstupajet_v_VTO_pl) (2011-04-19)
- Deardorff, Alan V. (1998), “*Determinants of Bilateral Trade: Does Gravity Work in a Neoclassical World?*”, Frankel, Jeffrey A. (red.), The Regionalization of the World Economy, Chicago: University of Chicago Press

Devlin, Nancy., Morris, Stephen & Parkin, David (2007): *"Economic Analysis in Health Care"*, John Wiley & Son, Glasgow

European Commission (2004), "Russia-WTO: EU-Russia deal brings Russia a step closer to WTO membership", The European Commission, <http://trade.ec.europa.eu/doclib/press/index.cfm?id=165&serie=144&langId=en> (2011-03-16)

European Commission (2010), "Joint Statement of the Delegations of the Russian Federation and of EU on the occasion of the conclusion of the bilateral talks on the key issues in the accession of the Russian Federation to the WTO", The European Commission, <http://trade.ec.europa.eu/doclib/press/index.cfm?id=660&serie=385&langId=en> (2011-03-16)

European Commission (2011a), "Russia - Trade Statistics", The European Commission, <http://ec.europa.eu/trade/creating-opportunities/bilateral-relations/countries/russia/> (2011-03-16)

European Commission (2011b), "Russia", The European Commission, <http://ec.europa.eu/trade/creating-opportunities/bilateral-relations/countries/russia/> (2011-03-16)

EU (2011), "About the European Union", The European Union [http://europa.eu/about-eu/index\\_en.htm](http://europa.eu/about-eu/index_en.htm) (2011-03-04)

Helpman, Elhanan & Krugman, Paul (1985), *"Market Structure and Foreign Trade"*, Cambridge, Mass: MIT Press.

Hoekman, Bernard M. & Kostecki, Michel M. (2001), *"The Political Economy of the World Trading System; The WTO and Beyond"*, 2nd edition, Oxford University Press Inc, New York.

Hoekman, Bernard M. & Kostecki, Michel M. (2009), *"The Political Economy of the World Trading System; The WTO and Beyond"*, 3rd edition, Oxford University Press Inc, New York.

Jones, Charles I. (2002), *"Introduction to Economic Growth"*, 2nd edition, W.W. Norton, New York

Kaempfer, William H., Markusen, James R., Maskus, Keith E., & Melvin, James R. (1995), *"International trade: theory and evidence"*, McGraw-Hill, Inc, Singapore

Krugman, Paul.R & Obstfeld, Maurice (2006), *"International Economics: Theory and Policy"*, 7th edition, Pearson International Edition, Boston

Mandelson, Peter (2007), "The Future relationship between Russia and the European Union: Which kind of opportunities for the Italian economy?" (<http://europa.eu/rapid/pressReleasesAction.do?reference=SPEECH/07/242>) (2011-04-12)

Oxford Analytica (2007), "*Russia's oil tax*", The Forbes [http://www.forbes.com/2007/06/14/russia-oil-taxes-biz-cx\\_0615oxford.html](http://www.forbes.com/2007/06/14/russia-oil-taxes-biz-cx_0615oxford.html) (2011-04-17)

Persson, Maria & Wilhelmsson, Fredrik (2007), "Assessing the Effects of EU Trade

Preferences for Developing Countries”, in Bourdet, Yves, Gullstrand, Joakim and Olofsdotter, Karin (eds.): *”The European Union and Developing Countries: Trade, Aid and Growth in an Integrating World”*, Edward Elgar

Rose, Andrew K. (2004), *”Do We Really Know That the WTO Increases Trade?”*, American Economic Review, Vol 94. Nr 1. pp. 98-114.

Rose, Andrew K. (2007), *”Do We Really Know That the WTO Increases Trade? Reply”*, American Economic Review, Vol. 97, No. 5, pp. 2019-2025.

Rossi-Hansberg, Esteban (2005) *”A Spatial Theory of Trade”* American Economic Review, Vo. 95, No. 5, pp.1464–1491.

Santos Silva, João M. C. & Tenreyro, Silvana (2006), *”The Log of Gravity”*, Review of Economics and Statistics, Vol. 88, No. 4, pp. 641-658.

Shah, Anup (2007), *”The WTO and free trade”*, Global issues, <http://www.globalissues.org/article/42/the-wto-and-free-trade> (2011-04-04)

Subramanian, Arvind & Wei, Shang-Jin (2003), *”The WTO promotes trade, stongly but unevenly”*, Journal of International Economics, Vol 11. Nr 1, pp. 151-175.

Tinbergen, Jan (1962), *”Shaping the world economy: Suggestions for an international economics policy”*, The Twentieth Century Fund, New York.

Tomz, Michael., Goldstein, Judith & Rivers, Douglas (2007), *”Do We Really Know That the WTO Increases Trade? Comment”*, American Economic Review, Vol. 97, No. 5, pp. 2005-2018.

Transparency (2011), *”Transparency International Index”*, Transparency International [http://www.transparency.org/policy\\_research/surveys\\_indices/cpi](http://www.transparency.org/policy_research/surveys_indices/cpi) (2011-04-12)

USITC (2011), *”GSP”*, United states International Trade Commission [http://dataweb.usitc.gov/scripts/gsp/gsp\\_group.asp?country\\_group=GSP2011](http://dataweb.usitc.gov/scripts/gsp/gsp_group.asp?country_group=GSP2011) (2011-04-12)

UNESCAP (2008), *”Gravity Models: Theoretical Foundations and related estimation issues”*, UNESCAP, [http://www.unescap.org/tid/artnet/mtg/cbcam\\_d2s3.pdf](http://www.unescap.org/tid/artnet/mtg/cbcam_d2s3.pdf) (2011-03-17)

Waugh, Michael E. (2010), *”International Trade and Income Differences”*, American Economic Review, Vol. 100, No. 5, pp. 2093–2124.

WDI (2011), *”World Databank”*, World Development Indicators, <http://databank.worldbank.org/> (2011-03-04)

Westerlund, Joakim (2005), *”Introduktion till Ekonometri”*, Studentlitteratur, Lund

WITS (2011), *”United Nations Commodity Trade Statistics Database”*, World Integrated Trade Solutions, <https://wits.worldbank.org/WITS/WITS/Restricted/Login.aspx> (2011-03-02)

The World Bank (2011a), *”A short history”*, The World Bank,

<http://data.worldbank.org/about/country-classifications/a-short-history> (2011-04-02)

The World Bank (2011b), "Country and Lending Groups", The World Bank, [http://data.worldbank.org/about/country-classifications/country-and-lending-groups#Upper\\_middle\\_income](http://data.worldbank.org/about/country-classifications/country-and-lending-groups#Upper_middle_income) (2011-04-02)

WTO (2011a), "The 128 countries that had signed GATT by 1994", The World Trade Organization, [http://www.wto.org/english/thewto\\_e/gattmem\\_e.htm](http://www.wto.org/english/thewto_e/gattmem_e.htm) (2011-04-02)

WTO (2011b), "Understanding the WTO: Who we are", The World Trade Organization, [http://www.wto.org/english/thewto\\_e/whatis\\_e/who\\_we\\_are\\_e.htm](http://www.wto.org/english/thewto_e/whatis_e/who_we_are_e.htm) (2011-04-03)

WTO (2011c), "Understanding the WTO: The Organization", The World Trade Organization, [http://www.wto.org/english/thewto\\_e/whatis\\_e/tif\\_e/org6\\_e.htm](http://www.wto.org/english/thewto_e/whatis_e/tif_e/org6_e.htm) (2011-04-04)

WTO (2011d), "Main stages of Russia's WTO accession negotiations", The World Trade Organization, <http://www.wto.ru/russia.asp?f=etaps&t=10> (2011-03-17)

WTO (2011e), "Georgia and the WTO", The World Trade Organization, [http://www.wto.org/english/thewto\\_e/countries\\_e/georgia\\_e.htm](http://www.wto.org/english/thewto_e/countries_e/georgia_e.htm) (2011-04-04)

WTO (2011f), "How to become a member of the WTO", The World Trade Organization, [http://www.wto.org/english/thewto\\_e/acc\\_e/acces\\_e.htm](http://www.wto.org/english/thewto_e/acc_e/acces_e.htm) (2011-05-10)

WTO (2011g), "Members and Observers", The World Trade Organization, [http://www.wto.org/english/thewto\\_e/whatis\\_e/tif\\_e/org6\\_e.htm](http://www.wto.org/english/thewto_e/whatis_e/tif_e/org6_e.htm) (2011-03-16)

Åslund, Anders (2010), "*Why doesn't Russia join the WTO?*", The Washington Quarterly, Vol. 33, Nr 2, pp. 49-63.

Åslund, Anders & Kuchins, Andrew (2009), "*The Russia Balance sheet*", Peterson Institute for International economics, Washington

## 8. Appendix

Table 3: List of abbreviations

<i>Abbreviation</i>	<i>Meaning and definition</i>
GATT	The General Agreements on Tariffs and Trade
WTO	The World Trade Organization
EU	The European Union
EU15	The European Union (1995)
EU27	The European Union (2011)
GSP	The General System of Preferences
WDI	World Development Indicators
WITS	World Integrated Trade Solution
UN comtrade	United Nations Commodity Trade Statistics Database
CEPII	Centre d'Etudes Prospectives et d'Informations Internationales
MTN	Multilateral Trade Negotiations
GATS	The General Agreements on Tariffs in Services
TRIPS	Agreement on Trade-related Intellectual Property Rights
GDP	Gross Domestic Product
CIA	Central Intelligence Agency
EC	The European Commission
NGO	Non-Governmental Organization
OLS	Ordinary Least Square
UNESCAP	United Nations Economic and Social Commission for Asia and the Pacific

Table 4: Country list

<i>Exporting countries</i>	<i>Importing Countries (EU15)</i>
Albania	Austria
Argentina	Belgium
Armenia	Denmark
Brazil	Finland
Bulgaria	France
Cambodia	Germany
China	Greece
Colombia	Ireland
Croatia	Italy
Estonia	Luxembourg
Georgia	The Netherlands
India	Portugal
Jordan	Spain
Latvia	Sweden
Lithuania	The United Kingdom
Macedonia	
Moldavia	
Oman	
Romania	
Saudi Arabia	
Turkey	
Ukraine	
Uruguay	
Venezuela	
Vietnam	

*Note:* The exporting countries have been chosen in order to their resemblance with Russia. Either, the exporting countries belong to the same income classification as Russia or are similar to Russia in an economic or structural sense.

Table 5: Income classification

<i>Country name</i>	<i>Income classification</i>
Albania	Upper-middle-income country
Argentina	Upper-middle-income country
Armenia	Lower-middle-income country
Austria	High-income country
Belgium	High-income country
Brazil	Upper-middle-income country
Bulgaria	Upper-middle-income country
Cambodia	Low-income country
China	Lower-middle-income country
Colombia	Upper-middle-income country
Croatia	High-income country
Denmark	High-income country
Estonia	High-income country
Finland	High-income country
France	High-income country
Georgia	Lower-middle-income country
Germany	High-income country
Greece	High-income country
India	Lower-middle-income country
Ireland	High-income country
Italia	High-income country
Jordan	Lower-middle-income country
Latvia	High-income country
Lithuania	Upper-middle-income country
Luxembourg	High-income country
Macedonia	Upper-middle-income country
Moldavia	Lower-middle-income country
The Netherlands	High-income country
Oman	High-income country
Portugal	High-income country
Romania	Upper-middle-income country
Saudi Arabia	High-income country
Spain	High-income country
Sweden	High-income country
Turkey	Upper-middle-income country
Ukraine	Lower-middle-income country
The United Kingdom	High-income country
Uruguay	Upper-middle-income country
Venezuela	Upper-middle-income country
Vietnam	Lower-middle-income country

*Source:*

The World Bank (2011b)



Table 6: Date of WTO accession

<i>Country</i>	<i>Date of entrance in the WTO</i>
Albania	8 September 2000
Argentina	1 January 1995
Armenia	5 February 2003
Brazil	1 January 1995
Bulgaria	1 December 1996
Cambodia	13 October 2004
China	11 December 2001
Colombia	30 April 1995
Croatia	30 November 2000
Estonia	13 November 1999
Georgia	14 June 2000
India	1 January 1995
Jordan	11 April 2000
Latvia	10 February 1999
Lithuania	31 May 2001
Macedonia	4 April 2003
Moldavia	26 July 2001
Oman	9 November 2000
Romania	1 January 1995
Saudi Arabia	11 December 2005
Turkey	26 March 1995
Ukraine	16 May 2008
Uruguay	1 January 1995
Venezuela	1 January 1995
Vietnam	11 January 2007

*Source:*

WTO (2011g)

Table 7: Variables and Data Sources

<i>Data</i>	<i>Source</i>	<i>Comment</i>
Trade flows	United Nations Commodity Trade Statistics Database	Measured in thousands US dollars, with the EU15 as importing countries. Covers bilateral trade from 1991 to 2009.
GDP and GDP per capita	World Development Indicators	Measured in constant US dollars
Country specific variables	CEPII database	Distance between countries, colonization, if the countries share a common language or border and if a country is landlocked
Preference system	Persson & Willhelmsson United States International Trade Commission	1991-2006: Persson & Willhelmsson 2006-2009: USITC
EU-membership	European Union homepage	Year specific
WTO-membership	The World Trade Organization homepage	Year specific
Corruption	Transparency International	Corruption index, scaled from 0-10
Countries	The World Bank homepage	Low-income countries, Lower-middle-income countries, Upper-middle-income countries, High-income countries

Table 8: All variables

<i>Variable</i>	<i>B</i>	<i>Std. Error</i>	<i>t-value</i>	<i>P-value</i>	<i>Collinearity Statistics</i>	
					<i>Tolerance</i>	<i>VIF</i>
Constant	-35,435	0,895	-39,592	0,000		
GDP importer	1,257	0,019	65,547	0,000	0,835	1,197
GDP exporter	1,167	0,014	82,960	0,000	0,566	1,766
GDP per capita, importer	-0,563	0,067	-8,349	0,000	0,686	1,457
GDP per capita, exporter	-0,315	0,022	-14,254	0,000	0,767	1,303
Distance	-0,908	0,030	-30,551	0,000	0,614	1,629
Colony	0,510	0,158	3,232	0,001	0,526	1,900
Language	0,351	0,233	1,509	0,131	0,507	1,971
Border	1,349	0,200	6,729	0,000	0,876	1,141
Landlocked importer	-0,277	0,075	-3,707	0,000	0,745	1,343
Landlocked exporter	-0,731	0,086	-8,538	0,000	0,852	1,173
Preference	0,142	0,087	1,639	0,101	0,489	2,043
EU	1,235	0,122	10,160	0,000	0,513	1,950
WTO	0,117	0,055	2,112	0,035	0,585	1,711
1991	-0,564	0,145	-3,878	0,000	0,645	1,550
1992	-0,827	0,132	-6,269	0,000	0,543	1,842
1993	-0,462	0,127	-3,624	0,000	0,525	1,907
1994	-0,509	0,127	-4,005	0,000	0,527	1,899
1995	-0,305	0,127	-2,403	0,016	0,529	1,890
1996	-0,260	0,126	-2,063	0,039	0,534	1,873
1997	-0,222	0,126	-1,769	0,077	0,538	1,859
1998	-0,240	0,128	-1,871	0,061	0,558	1,791
1999	-0,265	0,120	-2,205	0,027	0,516	1,938
2000	-0,218	0,119	-1,838	0,066	0,529	1,890
2001	-0,171	0,118	-1,450	0,147	0,531	1,882
2002	-0,102	0,118	-0,865	0,387	0,532	1,880
2004	0,050	0,119	0,420	0,674	0,526	1,903
2005	0,043	0,119	0,366	0,714	0,525	1,905
2006	0,147	0,119	1,241	0,215	0,523	1,912
2007	0,188	0,122	1,544	0,123	0,500	2,002
2008	0,279	0,122	2,292	0,022	0,500	1,999
2009	0,106	0,122	0,870	0,385	0,511	1,957

WTO-2	0,173	0,059	2,929	0,003	0,584	1,712
WTO+2	0,029	0,053	0,547	0,584	0,594	1,684
Corruption, importer	-0,018	0,019	-0,943	0,346	0,091	11,034
Corruption, exporter	0,018	0,018	1,039	0,299	0,345	2,899

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*Note:* The dependent variable is the natural logarithm of the trade flows within every country pair, the natural logarithm has also been taken on the *GDP*, *GDP per capita* and the *Distance* variable. 2003 is excluded due to too low tolerance.

Table 9: The European Union

<i>EU27</i>	<i>EU15</i>
Austria	Austria
Belgium	Belgium
Bulgaria	Denmark
Cyprus	Finland
Czech Republic	France
Denmark	Germany
Estonia	Greece
Finland	Ireland
France	Italy
Germany	Luxembourg
Greece	The Netherlands
Hungary	Portugal
Ireland	Spain
Italy	Sweden
Latvia	The United Kingdom
Lithuania	
Luxembourg	
Malta	
The Netherlands	
Poland	
Portugal	
Romania	
Slovakia	
Slovenia	
Spain	
Sweden	
The United Kingdom	