



**LUNDS**  
UNIVERSITET

# Do Shifts in Migration policies affect Foreign Trade?

Evidence from the Swedish asylum policy changes of 2016.

Author: Sofia Flising

Lund University - Department of Economics

Bachelor thesis - NEKH03

January 2021

Supervisor: Maria Persson

## **Abstract**

This paper investigates if migration policy reforms have the ability to affect the trade enhancing effect of migration. Migration policies are one of the factors through which a country can control its migration. A shift in migration policy could therefore possibly alter or affect the effect that migration has on trade. In order to investigate this, the Swedish asylum policy changes of 2016 and its possible effect on Swedish imports are examined. As similar papers which investigate the relationship between migration and trade, this paper will use an augmented gravity model to measure Swedish imports. The paper samples data from Sweden and 186 Swedish trading partners during the years of 2000-2019. The results of this paper show that Swedish immigration has a positive effect on Swedish imports, even after the asylum policy changes of 2016. There is therefore no empirical evidence found in favor of the hypothesis that a shift in a country's migration policies alter the trade enhancing effects of migration.

**Keywords:** Migration, Asylum policies, Swedish imports, Trade effects, Gravity model.

## **Abbreviations**

EEA - European Economic Area.

EU - The European Union.

IOM - International Organization for Migration.

OECD - Organization for Economic Co-operation and Development.

PTA - Preferential Trade Agreement.

UNHCR - United Nations High Commissioner for Refugees.

## **Table of Contents**

<b>1. INTRODUCTION</b>	<b>4</b>
<b>2. A BACKGROUND ON MIGRATION</b>	<b>5</b>
2.1. A Brief Introduction on Migration Data	5
2.2. Types of Migrants	7
<b>3. AN OVERVIEW OF SWEDISH MIGRATION POLICIES AND MIGRATION STOCK</b>	<b>8</b>
3.1. Swedish Migration Policies	8
3.1.1. Migration policies prior to 2015	8
3.1.2. What happened in 2015?	9
3.1.3. Migration policies after 2015	10
3.2. A Description of the Swedish Migration Stock	11
3.3. Moving from Sweden - a quick note on Swedish emigration	14
<b>4. THE THEORETICAL MECHANISMS OF TRADE AND MIGRATION</b>	<b>16</b>
4.1. The Relationship between Migration and Trade	16
4.2. How (Swedish) Migration Policies in Theory could affect (Swedish) trade	18
<b>5. PREVIOUS RESEARCH</b>	<b>20</b>
<b>6. EMPIRICAL STRATEGY</b>	<b>23</b>
6.1. Empirical Model	24
6.2. Estimation Issues	26
6.3. Data	28
<b>7. EMPIRICAL RESULTS</b>	<b>29</b>
7.1. OLS Regression	29
7.2. OLS Regression with Fixed Effects	31
7.3. Different Robustness Tests	33
7.3.1. The 2008 labour migration reform	33
7.3.2. Removal of uncertain home countries	35
7.3.3. Respecified models	36
<b>8. CONCLUSIONS</b>	<b>37</b>
<b>9. REFERENCES</b>	<b>40</b>
<b>10. APPENDIX</b>	<b>45</b>

## 1. INTRODUCTION

One of the major engines of globalization is international trade, and one of the major consequences of the globalization process is international migration. Therefore migration could be considered to be a controversial topic, depending on the perspective. But according to economic research, the effect of migration on international trade is positive. The phenomenon migration is found to have a trade enhancing effect on both large and small economies (Gould, 1994; Hatzigeorgiou, 2010).

Although the effect of migration has on trade is well established, little is known regarding whether the trade enhancing effects of migration are affected by a country's migration policies. A country's migration policies are one of several mechanisms through which a country can control its migration. Therefore, it could possibly be that a country's migration policies have an indirect effect on a country's trade. The question is whether or not this is the case, and if migration policies could be used as a tool to reduce or enhance a country's trade. In order to investigate just that, this paper will perform a quasi-natural experiment regarding a shift in Swedish migration policies.

As a direct consequence of the 2015 refugee crisis, the Swedish government abruptly changed its asylum policies. Due to these policy changes, Sweden went from having the most generous asylum policies in the whole of the EU in 2015 to having the EU minimum level asylum policies by July 2016 (Swedish Migration Agency, 2020a). Such strong and sudden policy changes are rarely observed, which makes it a suitable case for this paper to examine.

As a short summary, one can say that this paper will investigate if sudden changes in a country's migration policies in any way changes the trade enhancing effects of migration. The investigation will be on the country of Sweden, as the country has experienced great shifts in its migration policies. Sweden is a small and open economy which is heavily dependent on trade (Hatzigeorgiou, 2010). These types of economies' trade are possibly more sensitive and open for influence than larger economies. Therefore, these types of policy areas are also of special interest for Sweden. This paper will use the following research question:

*“Has the changes in Swedish asylum policies from 2016 changed the overall effect that migration has on imports to Sweden from its trading partners?”*

This investigation will be done using the gravity model, which is a widely recognised model when it comes to measuring international trade. The empirical analysis of the author is that restrictive migration policies should reduce a country’s migration. Policy changes which makes migration policies more restrictive could therefore have negative effects on the trade enhancing effects of migration. According to this analysis, the positive effect on Swedish imports caused by migration should have changed due to the Swedish asylum policy changes of 2016.

The first section of this paper is this introduction, that presents the purpose and research question of this paper. The second section presents a more thorough description on migration data and different distinctions between different types of migrants. After that, the third section will introduce some background on Swedish migration policies and Swedish migration patterns over the years. The fourth section of this paper will present the theoretical mechanisms through which migration is thought to increase trade. This section will also go through how migration policies in theory could affect trade. The fifth section presents some previous research and the sixth section is an empirical overview including the model, variables and data used in this paper. The empirical results will be presented in the seventh section of this paper, and in the seventh section the conclusions of this paper will be presented.

## **2. A BACKGROUND ON MIGRATION**

### **2.1. A Brief Introduction on Migration Data**

One of the major challenges when estimating and measuring international migration is definitions. Countries often define the words ‘migration’ or ‘migrants’ differently, which makes it difficult to compare migration data of different countries with each other (Migration Data Portal, 2020a). The definitions of what migration is or who a migrant is could be politically motivated, as countries could have special interests in certain types of migration (Lucassen & Lucassen, 2014).

The IOM (2019a) defines the word migrant as “[a]n umbrella term, not defined under international law, reflecting the common lay understanding of a person who moves away from his or her place of usual residence, ... ” (pp.132). In short and in its simplest forms, the IOM therefore defines migration as the movement of people. This definition includes all possible purposes and durations of the movements, as well as movements within countries and across borders (IOM, 2019a).

An international migrant is defined as “[a]ny person who is outside a State of which he or she is a citizen or national, ... ” by the IOM (2019a, pp.112). This definition is more in line with some countries' perception of who a ‘real’ migrant is. According to Lucassen & Lucassen (2014), ‘real’ migrants are deemed to be people who have traveled far, crossed many international borders and originate from a culture not similar to the culture of the host country. On the other hand, migrants that originate from a culture that is similar to the host country's culture, or originate from a country close to the host country, aren't considered to be ‘real’ migrants. These types of migrants are instead seen as ‘mobile people’ (Lucassen & Lucassen, 2014). This perception alienates certain migrants from natives and other groups of migrants. This could perhaps explain the anti-immigrant attitude which at times have been considered to dominate the political and public debate regarding migration in Europe for the last couple of years (IOM, 2019b).

When it comes to research, migration data is often divided into two different categories. One is migration stock data and the other migration flow data. The migration stock measures all international migrants that are present in a country at a certain period of time (Migration Data Portal, 2020a), while migration flows measure the number of international migrants that enter or leave a country at a certain period of time (Migration Data Portal, 2020b).

Both of these measures are presumed to capture trends in international migration well. An advantage using migration flow data is that the data can capture the impacts that different types of policies could have on migration flows. On the downside is that the amount of available migration flow data is very limited, while the amount of available migration stock data is quite large (Migration Data Portal, 2020a; Migration Data Portal, 2020b).

Another advantage using migration stock data is that the data shows the volume of groups originating from every country in the host country's migration stock. One could imagine that the larger a group is, the more impact it will have on the society of the host country. Therefore, the volume of a group in the migration stock could be an indicator of the levels of trade between the migrants' home and host countries.

## **2.2. Types of Migrants**

Among the group of international migrants, there are different types of migrants. These types are often divided by the individual migrant's motive for migrating. One type is labour migration, which occurs when individuals move from one country to another in order to seek employment (IOM, 2019a).

Another type are refugees. Refugees are defined by the Convention relating to the Status of Refugees. According to this definition, a refugee is an individual who has left their home country in fear of their life or persecution. Being a refugee is a mandate given to an individual by UNHCR, and refugees have the right of protection from UNHCR (IOM, 2019a).

The last type of migrant to be brought up here are asylum seekers, which are individuals who actively seek international protection from other countries than their home country. Asylum seekers, just like refugees, fear that there is a risk of death or persecution in their home country. The difference between asylum seekers and refugees is that refugees have their situation acknowledged by UNHCR, while asylum seekers do not. According to these definitions, all recognised refugees are asylum seekers but not all asylum seekers are recognised refugees (IOM, 2019a).

### **3. AN OVERVIEW OF SWEDISH MIGRATION POLICIES AND MIGRATION STOCK**

#### **3.1. Swedish Migration Policies**

Swedish migration policy covers matters like refugee and immigration policies, rules on returnings and citizenships (Government of Sweden, 2020). The policies include different rules on different migrants and different types of migration.

##### **3.1.1. Migration policies prior to 2015**

In 2001, Sweden joined the Schengen area (Swedish Migration Agency, 2020a). The Schengen cooperation grants citizens from Schengen area countries the right to move, live and work in other Schengen countries without any special formalities (European Commission, 2020a). Citizens of Schengen countries are therefore free to migrate, live and work in Sweden without much difficulties.

Prior to 2008, Swedish employers had to apply for a permission from Swedish authorities to hire labour from a country outside of the EU. If the competence needed for the job were considered to already exist in the Swedish workforce, the employer would not be allowed to employ labour from a country outside of the EU. This changed in 2008 due to a reform regarding labour immigration. Swedish employers have since 2008 been allowed to hire labour from countries outside of the EU, without having to seek permission from Swedish authorities (Government of Sweden, 2008). Due to this change in labour migration policies, Sweden is considered to have the most liberal labour immigration policies amongst the OECD countries (Fores, 2020a).

But to be allowed to work in Sweden, non-EU citizens must be granted a work permit from the Swedish Migration Agency. Work permits are granted if the migrant is offered a job before arriving in Sweden, if the salary is higher than 13.000 SEK, if the working conditions are the same as for Swedish residents and if the employer plans to insure their employee. The migrant must also have a valid passport. In 2019, 30% of all work permits were granted to high-educated migrants and 38% were granted to low-educated migrants (Fores, 2020a).

In the beginning of the 21th century, Sweden was also considered to have the most generous asylum policies in the whole EU (Swedish Migration Agency, 2020a). The Swedish Migration Agency approved asylum applications on the following five safety grounds:

1. *Refugee* - The applicant had a legitimate fear for persecution in their home country due to for example their ethnicity, political beliefs or sexual orientation. The refugee status is a recognised status by Swedish legislation, EU regulations and the UN (Fores, 2020b; Swedish Migration Agency, 2020b).
2. *Person in need for subsidiary protection* - The applicant had a risk of being sentenced to death, tortured or other inhumane treatment in their home country. This safety ground is founded on EU regulations (Swedish Migration Agency, 2020b).
3. *Quota refugee* - The applicant was granted refugee status by UNHCR and transferred to Sweden for safety. These applicants are granted asylum before they arrive in Sweden, which is unique for this safety ground (Fores, 2020b).
4. *Person otherwise in need of protection* - The applicant was in need for protection from external or internal conflicts, or other inhumane treatment, in their home country. They could also have been unable to return to their home country due to natural disasters. This safety ground was founded on Swedish law (Fores, 2020b; Swedish Migration Agency, 2020c).
5. *Particularly distressing circumstances* - The applicant's health or similar circumstances were particularly distressing. The applicant was granted residence permits in order to maintain a dignified life (Fores, 2020c).

If an application was approved, the standard was that the applicant was granted permanent residence permits and family reunification was generally accepted (Fores, 2020b).

### **3.1.2. What happened in 2015?**

At the time of writing this paper, there has been a civil war in Syria for almost a decade (NE, 2020). Due to this war, the Swedish Migration Agency granted everyone fleeing the war in Syria permanent residence permits (Swedish Migration Agency, 2020a). Also starting from 2013 was

the Dublin Regulation. The Dublin regulation was a network of rules regarding asylum seeking in the EU. According to these rules, asylum seekers were to seek asylum in the first EU country that the asylum seeker arrived at (NE, 2020).

In 2015, the war in Syria had been ongoing for five years. The safety situation in neighbouring countries Afghanistan and Iraq had also grown worse during these years due to internal conflicts (NE, 2020). This resulted in 1 million people migrating to Europe during the year of 2015 (European Parliament, 2017). Italy and Greece were the arriving countries for most of these migrants, but the countries didn't register them by the rules of the Dublin Regulation. Due to this, the Dublin Regulation hasn't been in effect since 2015 (NE, 2020). Sweden was one of the EU countries that received the most asylum applications in 2015, with approximately 163,000 handed in asylum applications. This period of time is sometimes referred to as 'the refugee crisis' (Swedish Migration Agency, 2020a).

Due to the free movement within the Schengen cooperation, many member states had removed their border controls. But due to the large inflow of migrants, some member states reintroduced border controls. One of these member states was Sweden, which reintroduced border controls in November of 2015 (NE, 2020).

### **3.1.3. Migration policies after 2015**

The Swedish government thought they had shouldered a lot of responsibility during the beginning of the refugee crisis. When it became clear that there would be no further EU agreement regarding a shared responsibility in the crisis, Sweden chose to change their asylum policies (Ministry of Justice, 2019). This to create some 'breathing space' for the Swedish authorities handling the large inflow of asylum seekers (Swedish Migration Agency, 2020a). A temporary law went into effect in July 2016, and was supposed to cease to apply in July 2019. But the Swedish Parliament decided to prolong the law, and at the time of writing this paper the law is in effect until July 2021 (Fores, 2020b). In practise, the temporary law changed Swedish asylum policies to the EU minimum level (Ministry of Justice, 2019).

The temporary law has three major consequences on Swedish asylum policies. The first major consequence is that two safety grounds on which an applicant could be granted asylum for were limited. These were *Persons otherwise in need of protection* and *Particularly distressing circumstances*, where the first safety ground was removed completely. The second safety ground could only be implemented if not granting an applicant asylum would make Sweden violating international conventions (Fores, 2020c).

The second major consequence is that the new standard is to only grant temporary residence permits. Applicants receiving a refugee status are granted residence permits for three years while applicants receiving a subsidiary protection status are granted residence permits for 13 months (Fores, 2020c). If the applicant's circumstances or the situation in the home country have remained unchanged at the end of the permit, the residence permits could be prolonged. Applicants who can provide for themselves economically could also transform their temporary residence permits into permanent ones (Fores, 2020b).

The third major consequence of the temporary law is that the opportunity for family reunification became limited. Between the years of 2016-2019, the right for family reunification was only granted for those who received a refugee status. In 2019 migrants with a subsidiary protection status were once again granted the opportunity for family reunification. But the temporary law also raised the requirements on which family reunifications could be approved. Therefore, family reunification is deemed as quite difficult to achieve in practise (Fores, 2020b).

Quota refugees were not affected by the change in Swedish asylum policies and have therefore still been granted permanent residence permits since 2015 (Swedish Migration Agency, 2020a). Swedish policies regarding intra-Schengen migration or labour immigration were not changed along with the asylum policies in 2016. The change in Swedish asylum policies have therefore not directly affected the mobility for other types of migrants than asylum seekers.

### **3.2. A Description of the Swedish Migration Stock**

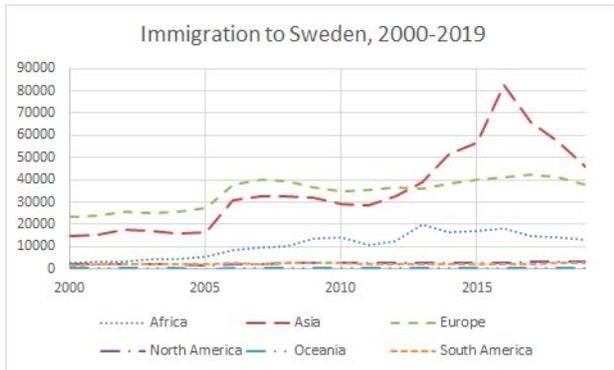
Since the year of 1930 up until 2019, more people have immigrated to than emigrated from Sweden almost every single year (Swedish Migration Agency, 2020a). In the year of 2000, the

Swedish migration stock contained about 1 million people. In 2019, that number had grown to about 2 million. The Swedish migration stock of 2019 therefore made up about one fifth of the total Swedish population of 2019 (Statistics Sweden, 2020a).

Immigration was estimated to stand for about 70% of Sweden’s population growth in 2019 (Statistics Sweden, 2020b). Since the 1980’s, immigration to Sweden has been characterized by refugees. This can be explained by conflicts in other parts of the world as well as Europe, but also Sweden’s generous asylum policies of the past. But the growth of the Swedish migration stock can also be explained by Sweden’s Swedish membership of both the EU and the Schengen area (Fores, 2020d).

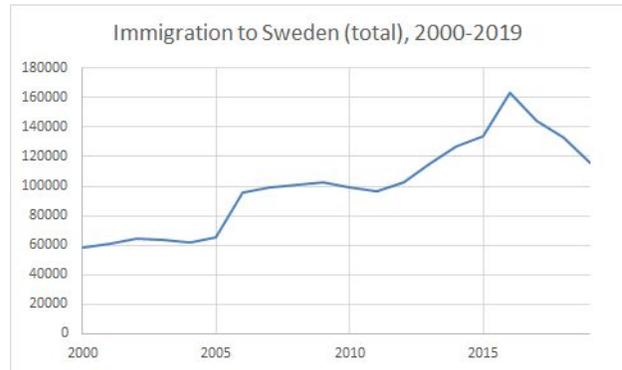
The following graphs describe the two first decades of the 21th century. The first and third graphs show the originating continents of both Swedish immigrants and the Swedish migration stock. The second graph shows immigration levels while the fourth graph shows asylum applications levels.

Graph 1. The origin continents of Swedish immigrants  
2000-2019



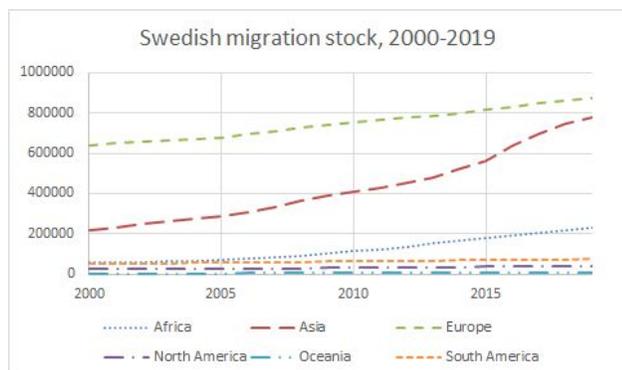
(Data: Statistics Sweden, 2020c)

Graph 2. Immigration to Sweden in total numbers  
2000-2019



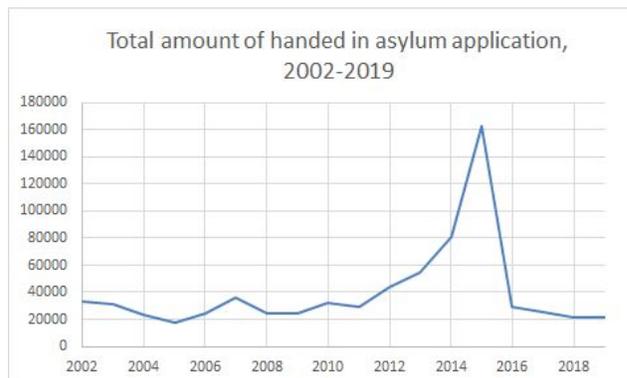
(Data: Statistics Sweden, 2020c)

Graph 3. The origin continents of the Swedish migration stock 2000-2019



(Data: Statistics Sweden, 2020d)

Graph 4. The total amount of handed in asylum applications, 2002-2019 (Calculations made by the author).



(Data: Statistics Sweden, 2020e)

Prior to the refugee crisis, the immigration flows and migration stock were dominated by migrants originating from Europe. In the year 2000, about 60.000 immigrants came to Sweden in total. Around 2013, the migration flows of migrants originating from Asia grew larger than the migration flows of migrants originating from Europe.

Immigration and asylum application numbers peaked in 2016, the same year that the Swedish government implemented their new asylum policies. But after 2016, the inflows from Asia started to decrease more rapidly. This could possibly be due to the fact that the new asylum policies from 2016, which possibly discouraged migrants to try their luck of migrating in Sweden. This could also explain the decrease in both total immigration levels and asylum applications that starts around 2015-2016.

In 2019, the immigration level is about as high as it was in 2013 (Statistics Sweden, 2020b). In terms of asylum applications, the number of handed in applications in 2019 were about as high as they were in 2005. The immigration flows from Asia was still the biggest inflow of Swedish immigration in 2019.

The refugee crisis also affected the build up of the Swedish migration stock. The following table shows the top 10 countries of origin in the Swedish migration stock in the years of 2013 respectively 2017.

Table 1. Top 10 groups of the Swedish Migration Stock the years 2013 and 2017.<sup>1</sup>

2013		2017	
Country	Amount in migration stock	Country	Amount in migration stock
Finland	161,129	Syria	172,258
Iraq	128,946	Finland	150,877
Serbia	83,676	Iraq	140,830
Poland	78,175	Poland	91,180
Iran	67,211	Serbia	85,510
Bosnia and Herzegovina	56,804	Iran	74,096
Somalia	54,221	Somalia	66,369
Germany	48,987	Bosnia and Herzegovina	58,880
Turkey	45,676	Germany	50,863
Denmark	43,198	Turkey	48,299

(Data: Statistics Sweden, 2020d).

The top 10 dominating groups in the Swedish migration stock have grown between the years. The group that grew especially was the group that originated from Syria, which wasn't even on the list in 2013. The group in the migration stock that originated from Turkey has grown with almost 3,000 people in four years, but is still on the bottom spots on the list. That could be an indication that most groups in the migration stock have grown as well. Finland is the only neighbouring country to Sweden in the top 10 list of 2017.

### 3.3. Moving from Sweden - a quick note on Swedish emigration

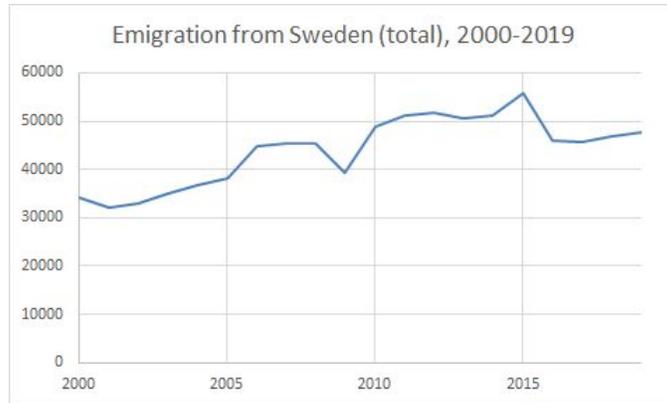
Sweden is today considered to be an immigration country. But in fact, for major parts in history Sweden has been a country people have chosen to leave. How many that emigrates is connected to how many that immigrated the previous years. Migrants that move to Sweden to study or work for a limited period of time often leave when that period of time is over (Statistics Sweden, 2020f).

<sup>1</sup> Note that under the heading of Serbia there is data from Serbia, Montenegro, Serbia & Montenegro and Yugoslavia. Read more of this under part 5.3. Data.

Statistics Sweden collects their data on emigration from the Swedish Taxation Authorities. Residents of Sweden are recommended to report to the Taxation Authorities if they plan to stay abroad for more than 12 months, but are not required to do so. Therefore, not all Swedish residents that move abroad report it and therefore data on Swedish emigration is a little uncertain (Statistics Sweden, 2020f).

The following graph shows that the rate of Swedish citizens that chose to emigrate is continuously increasing at a low rate over the 21st century. One can also see that there is a temporary drop around 2009 and a temporary peak in 2015.

Graph 5. Emigration from Sweden in total numbers, 2000-2019.



(Data: Statistics Sweden, 2020c)

The following tables present information regarding Swedish residents that choose to emigrate from Sweden. Table 2 presents the top 10 destination countries for Swedish emigrants in the years 2013 and 2017. The table also shows how many Swedish emigrants that emigrated there. Table 3 presents the top 10 birth countries of Swedish emigrants in the years of 2013 and 2017.

Table 2. The number of Swedish Residents that emigrated where, top 10 countries of 2013 and 2017.

2013		2017	
Country	Amount that moved there	Country	Amount that moved there
Norway	6,934	Denmark	4,113
Denmark	5,015	Norway	3,430
United Kingdom	3,762	United Kingdom	3,140
USA	3,347	USA	3,017
Finland	2,568	Finland	2,965

Germany	2,390	Germany	2,410
Iraq	1,315	Spain	1,773
China	1,307	Poland	1,476
Poland	1,213	India	1,356
India	1,151	China	1,036
Unknown	4,301	Unknown	4,807

(Data: Statistics Sweden, 2020g)

Table 3. The birth countries of Swedish residents that emigrated the years 2013 and 2017.

2013		2017	
Emigrants birth country	Number that emigrated	Emigrants birth country	Number that emigrated
Sweden	20,237	Sweden	16,760
Denmark	2,202	Finland	2,167
Iraq	1,930	India	1,724
Finland	1,912	Denmark	1,658
Norway	1,464	Poland	1,610
Poland	1,430	Iraq	1,336
Germany	1,383	Germany	1,273
India	1,303	Norway	1,256
China	1,106	China	1,131
Iran	936	USA	989

(Data: Statistics Sweden, 2020c)

In both 2013 and 2017, most Swedish emigrants migrated to other nordic or European countries. They also emigrated to countries from which most Swedish labour immigration originates from - China, India and USA (Fores, 2020a). In both 2013 and 2017, native Swedes were the largest groups to emigrate. Other large emigration groups originate from countries close to Sweden, or countries which many Swedish labour immigrants come from (Fores, 2020a)

## **4. THE THEORETICAL MECHANISMS OF TRADE AND MIGRATION**

### **4.1. The Relationship between Migration and Trade**

Migration has an increasing effect on trade between home and host countries. This was established by David Gould in 1994, and this relationship between migration and trade is

considered to still hold in modern literature. The relationship mainly works one way. That is, that migration affects trade, and not vice versa. This as previous research has shown that pre-existing trade flows have not been found to influence migrants' decision on where to migrate (Hatzigeorgiou, 2010).

Migration influences trade through several mechanisms. One of these is the preference mechanism. All varieties of a good aren't available on every market. Varieties that immigrants enjoyed in their home countries might not exist in their host countries. Immigrants' demand for those varieties increases the host country's demand for those varieties. This increases the level of home country imports of those varieties from the migrants' home countries (Head & Rise, 1998). As the host market becomes more differentiated, natives of the host country could discover and take a liking for the varieties imported from migrants' home countries as well. The total demand for home country imports in the host country is therefore the demand of the migrants plus the demand of the natives.

Another mechanism is the information mechanism. Migrants carry home country-specific information, which is useful information for host country firms. Through this information, firms gain greater understanding of the migrants' home markets. But the information is also important for both home and host country firms to build market relationships with each other. Examples of what the home country-specific information could be is information about business cultures, market structures, traditional manners and languages (Hatzigeorgiou, 2010). All of this information gives firms greater market access on the home country markets, and that is why this mechanism increases overall trade.

The last mechanism to be brought up is the network mechanism. Migrants could still have business or social networks in their home country. Through these networks, firms can more easily initiate contact and build trust between each other, which in turn has a positive effect on overall trade (Hatzigeorgiou & Lodefalk, 2015).

#### **4.2. How (Swedish) Migration Policies in Theory could affect (Swedish) trade**

A country's migration policies help the country to control the immigration to and the emigration from that country. Migration policies can be used to both restrict and increase overall migration, or even certain types of migration. Therefore it is plausible that different migration policies generate different effects of migration on a country's trade.

Restrictive migration policies would allow a lower amount of migrants to migrate to and stay in a country. The low inflow of migrants would lead to a small migration stock, but also small groups in the country's migration stock. The possibilities to influence the host country's preferences would be smaller in a country with restrictive migration policies, as the groups in the migration stock would be smaller. A lower inflow of migrants would also generate a smaller inflow of new country specific knowledge regarding the migrants home countries, and a smaller inflow of new networks. In other words, the effect of the trade enhancing mechanisms of migration could be smaller in a country with restrictive migration policies.

On the other side, less restrictive migration policies would allow a larger amount of migrants to migrate to and stay in a country. Larger inflows of migrants would indicate for a larger migration stock, but also larger groups in the migration stock. The migrants possibilities to influence the host country's preferences would therefore be larger than if the country had more restrictive migration policies. Countries with less restrictive migration policies could also attract different groups of migrants from the same country, but also from a larger range of countries. The number of different influences available in a host country could therefore be higher in a country with less restrictive migration policies. This would also indicate a larger amount of available country specific information and networks in the migrants home country. From this perspective, the trade enhancing mechanisms of migration would be larger in a country with less restrictive migration policies.

The effect of the trade enhancing mechanisms of migration could therefore, theoretically, be larger in a country with less restrictive migration policies. But the marginal effect of migrants could also be smaller in countries with less restrictive migration policies. When the migration

inflows or migration stocks of a country are large, the amount of new country specific information or network that comes with one additional migrant is smaller than if the migrants inflows or migration stocks of a country is small. Therefore, the effect that one additional migrant has on a country's trade could be larger in a country with more restrictive migration policies than in a country with less restrictive migration policies. Due to all that has been mentioned here, it cannot beforehand be said for certain what effects different migration policies could have on a country's trade.

In the case of Sweden, different migration policies apply for different types of migrants. Differences in the level of restrictiveness within a country's migration policies works as an indication for the country's preference for certain types of migrants. If a country has special interests in a certain type of migration, its migration policies regarding that type of migration is probably not very restricted, relatively speaking. But if a country has little or low interests of a certain type of migration, then its migration policies will probably be more restrictive regarding that type of migration.

Different levels of restrictiveness in migration policies will probably generate different inflows of different types of migrants. The migrants being favored by a country's migration policies will probably be attracted to migrate there, while the migrants not being favored will more likely be scared of. This would most likely lead to different amounts of migration inflows for different types of migrants, which could possibly make migrations trade enhancing effects amongst migrants to differ as well. This as the favored migrants are more likely to migrate, but they would also have an easier time migrating to and being allowed to stay. Therefore these migrants have greater opportunities to influence the host country and spread their country specific information and networks, than migrants not being favored by a host country's migration policies. This could make the marginal effect of migrants to differ between types of migrants.

Due to the asylum policy changes of 2016, the migration policies regarding asylum seekers became more restricted, while the rest of Swedish migration policies remained unchanged. Through its asylum policy changes, Sweden indicated a lower preference for asylum seekers as well as a larger preference for other types of migrants. The asylum policy changes also seemed

to have an effect, as both the level of immigration and handed in asylum applications dropped after 2016. This can be seen in Graph 2 and Graph 4 in Part 3.2 of this paper.

Most Swedish asylum seekers originate from countries outside of Europe (Hatzigeorgiou & Lodefalk, 2015). As the inflow of these migrants have been reduced, so has the inflow of new country specific information and network possibilities of those countries. But it could also mean that the marginal effect of these migrants have increased. Due to this, the trade enhancing effects of migration could possibly differ amongst different types of migrants. But trade between Sweden and these countries could be affected by other means than migration. Many of the asylum seekers' home countries are politically unstable, and therefore not as capable to produce or export as other countries (Hatzigeorgiou & Lodefalk, 2015). It could also be that the home countries think less of Sweden due to the new asylum policies. Therefore, the will to trade with Sweden could have been reduced due to the Swedish asylum policy changes.

## **5. PREVIOUS RESEARCH**

This section of the paper will present some previous research on the relationship between migration and trade. Most of the papers mentioned here cover the trade-migration relationship for different countries, but two of them cover the specific case of Sweden. The papers included in this section have results that could be of relevance for this paper.

Gould (1994) investigates if there is a possible relationship between immigration from US trading partners and increased US trade. Gould's analytical model is that trade transaction costs are a function of information brought in by US immigrants. More immigrants would mean more information, which in turn would reduce trade transactions costs. To investigate if this analytical thought could be true, Gould used the gravity trade model, which is a standard model to use for measuring international trade. The sample included 47 US trading partners.

The results show that immigration increases trade between the US and US trading partners. It is also found that immigration affects US exports more than US imports. A relatively small group in the US migrant stock originating from a certain US trading partner could have great effect on US exports, but the group has to be relatively large to also affect US imports. But the results also

show that the marginal effect of immigrants decreases the larger a group in the US migration stock is. The effect of one additional immigrant is larger if a group in the US migration stock is small, and smaller if the group in the US migration stock is large (Gould, 1994).

Also using a gravity model, Head & Ries (1998) study the relationship between migration to Canada and Canadian trade. The authors also investigate if different types of immigrants generate different types of effects on Canadian trade.

The conclusions from this paper is that a 10% increase in migration generated a 1% increase in Canadian exports and a 3% increase in Canadian imports. Canadian immigrants are found to decrease the costs of trade and therefore increase trade between Canada and immigrant's home countries. This is due to the migrants' link to their home country. The results also show that all immigrants have links to their home countries, but the strength of the link differs between different types of immigrants. In other words, the effect of one additional immigrant differs depending on the type of the immigrant. The migrant class with the weakest respectively strongest link to their home countries were refugees and 'independent' immigrants (Head & Ries, 1998).

Tai (2009) investigates the relationship between immigration and trade for Switzerland, considering the market structure of Switzerland's export and import market. The author uses a trade function which includes sector specific differences, preferences and trade costs. The model is then estimated using the gravity model. In terms of immigration, the author assumes that immigration only affects fixed trade costs and not variable trade costs. The study performs robustness tests for endogeneity in the migration data by also using French migration data.

The study shows that immigration affects imports more than exports. This since the fixed prices of import goods are found to be more influenced by preferences than the fixed prices of export goods. The structure of a country's market is found to largely determine the effect immigrants have on trade, as immigration is found to affect trade in differentiated goods more than non-differentiated goods (Tai, 2009).

Hatzigeorgiou (2010) studies how immigration affects Swedish trade. The study includes a sample of 180 Swedish trading partners and the author uses an augmented gravity model.

The study concludes that a 10% increase in migration resulted in a 6% increase in Swedish exports and a 9% increase in Swedish imports. In other words, the study finds that the effect of immigration is greater on Swedish imports than Swedish exports. Considering these findings, the Hatzigeorgiou (2010) argues that migration policies can be used as a tool to affect the trade levels of a small and open economy.

Hatzigeorgiou & Lodefalk's (2015) investigated how migration along with other variables like labour market integration, Swedish emigration and product margins affected Swedish trade. The study samples trade and migration data from Sweden and 184 Swedish trading partners from the years 2000-2010. The purpose of the study is to further investigate how governments in small open economies like Sweden can use migration as a trade-enhancing factor. To safeguard for endogeneity in the migration variable used in this paper, the authors took inspiration from Tai (2009) by having the migration stock of Denmark as an instrument to the Swedish migration stock.

The results show that a 10% increase in the migration stock generated a 3-4.5% increase on Swedish exports, but no effect was found on Swedish imports. These findings are explained as a possible consequence of the fact that many Swedish immigrants, during the time period of this paper, originated from politically unstable countries with low production or exporting possibilities. The migrants most integrated in the Swedish labour market were found to have the largest effect on Swedish trade. The study also concluded that Swedish emigration is positive for Swedish trade and that Swedish immigrants primarily reduce fixed costs rather than variable costs (Hatzigeorgiou & Lodefalk, 2015).

As a summary, one can say that the literature has not agreed on what trade migration affects the most, whether it is exports or imports. But it is concluded that migration influences trade positively, and that different types of migrants generate different effects on trade. It has also been found that the size of a migration stock group affects the marginal effect of migration. The

magnitude of the effect migration has on trade can also be determined by the economic power or size of the host country. There has also previously been concluded that there is a positive relationship between Swedish immigration and Swedish trade.

A change in a country's migration policies could therefore possibly affect the country's level of trade, or the effect that migration has on trade. To the knowledge of the author writing this paper there is no previous research that investigates if shifts in migration policies, or specifically asylum policies, in any way affect a country's relationship between migration and trade. The contribution of this paper to the literature is therefore to investigate this, as the paper will examine if the shift in asylum policies of 2016 in any way have altered the relationship between Swedish immigration and Swedish imports.

## **6. EMPIRICAL STRATEGY**

The idea that increased migration increases trade between the home and the host country is well established. In order to test how this theorem is affected by migration policy changes, the gravity model will be used. The gravity model was first used to describe trade volumes by Jan Tinbergen in 1962. Since then, the model has proven to have strong empirical foundations, and it has become the model to use when estimating bilateral trade volumes. The model creates counterfactual values, which then are used to determine how different variables affect trade (Yotov et al, 2016).

The gravity model has previously been used to prove Swedish relationship between migration and trade (Hatzigeorgiou, 2010). As this paper aims to examine this relationship, it is suitable to use a similar model. Due to all that is mentioned above, the gravity model is deemed to be a convenient model for this paper. The model is then run in different types of OLS regressions.

## 6.1. Empirical Model

This paper will use the following model:

$$\begin{aligned} \ln M_{ijt} = & \beta_1 + \beta_2 \ln GDP_{it} + \beta_3 \ln GDP_{jt} + \beta_4 \ln pop_{it} + \beta_5 \ln pop_{jt} + \beta_6 \ln D_{ij} + \\ & \beta_7 \ln Migrationstock_{jt} + \beta_8 Post2016_t + \beta_9 Post2016_t \times \ln Migrationstock_{jt} + \\ & \beta_{10} Contig_{ij} + \beta_{11} EEA_{jt} + \beta_{12} EUP TA_{jt} + \beta_{13} Landlocked_j + \varepsilon_{ijt} \end{aligned}$$

The dependent variable  $\ln M_{ijt}$  measures the level of Swedish imports from trading partner  $j$  at time  $t$ . Throughout all observations, Sweden will have the subscript  $i$  and all Swedish trading partners will have the subscript  $j$ . Only Swedish imports will be examined due to a need for narrowing the field of research. Swedish imports were chosen due to the fact that the theoretical mechanisms through which migration increases trade all increase imports, while only two of the mechanisms theoretically increase exports. Swedish imports are measured in USD.

The explanatory variables  $\ln GDP_{it}$  and  $\ln GDP_{jt}$  represents the GDP of Sweden and the GDP of trading partner  $j$  respectively at time  $t$ . Both are measured in current USD. A larger GDP indicates a larger economy, which in turn indicates of a larger domestic production. This could decrease the need for imports. But larger economies are also expected to have greater demands than small economies, which on the other hand would increase the need for imports. Considering this, the estimations of these variables are expected to be positive.

The second pair of explanatory variables,  $\ln pop_{it}$  and  $\ln pop_{jt}$ , represents the population of Sweden and trading partner  $j$  at time  $t$  respectively. A large population could be seen as a sign of high levels of demand in a country, which generates high consumption levels and higher levels of trade. But if GDP is held constant, the GDP per capita will become smaller the larger the population is. Therefore, it is hard to determine beforehand how the estimation of the population variables will be.

$\ln D_{ij}$  is an explanatory variable that represents the distance between Sweden and trading partner  $j$ . Distance is not a variable that changes over time, and therefore the  $t$ -subscript is dropped on this variable. This coefficient is expected to be negative since distance generates different trade

related costs, as transportation or storage costs. The larger the distance, the larger negative effect distance is hypothesized to have on trade.

The next variable in the model is  $\ln Migrationstock_{jt}$ . It represents the number of Swedish residents that originate from country  $j$  at time  $t$ . Previous research has shown that migration leads to higher trade volumes between home- and host-countries. Thus, the estimate of this variable has in previous research been positive. The value of this estimate will indicate the effect Swedish immigration has on Swedish imports.

As this paper investigates the relationship between migration and trade for Sweden since the asylum policy changes of 2016, the model includes the dummy variable  $Post2016_t$ . If an observation takes place prior to the year 2016, the dummy will take the value of 0. If an observation takes place during or after 2016, the dummy takes the value 1.

The model also includes the interactive variable  $\beta_9 Post2016_t \times \ln Migrationstock_{jt}$ . This variable is simply the post 2016-dummy multiplied with the migration stock variable. This interactive variable will make the estimation of the migration stock variable to take a different value starting from 2016. Via this, it will be possible to determine if and how the effect that migration has on trade has changed since 2016. If an observation takes place prior to 2016, the post reform-dummy will take the value 0, which makes the estimation of the whole interactive variable equal to 0. For observations taking place during or after 2016, the post reform-dummy will take the value of 1. This will make the effect of the migrationstock equal to  $\beta_7 + \beta_9$ . The estimation of this variable will determine the effect that migration has on Swedish imports after 2016, and therefore also indicate what effect the changes in Swedish asylum policies had on migrations' effect on Swedish imports.

The model also includes the dummy variable  $Contig_{ij}$ . Trade is affected positively if the trading countries share a border. Therefore the estimations of this dummy is expected to be positive. The dummy will take the value of 0 if Sweden and trading partner  $j$  doesn't share a border, and it will take the value of 1 if Sweden and trading partner  $j$  do share a border. As the nordic borders

haven't changed during the time period of this paper, the  $t$ -subscript is dropped on this variable as well.

The variable  $EEA_{jt}$  is also a dummy variable<sup>2</sup>. The variable carries information regarding whether or not trading partner  $j$  is part of the EEA. This dummy is included to investigate if the effects of migration differs, depending on if the trading partner is a European country or not. The dummy takes the value 0 if trading partner  $j$  isn't a part of the EEA and it takes the value 1 if country  $j$  is part of the EEA. The estimation is expected to be positive, as the EEA has increased intra-European trade since its establishment.

The dummy variable  $PTA_{jt}$  shows if there is a PTA between the EU, which includes Sweden, and trading partner  $j$ . The dummy takes the value 0 if trading partner  $j$  isn't involved in a PTA with Sweden and takes the value 1 if trading partner  $j$  is involved in a PTA with Sweden. As PTAs have a positive effect on trade, this estimation is expected to be positive.

The dummy variable  $Landlocked_j$  takes the value 0 if trading partner  $j$  isn't landlocked and it takes the value 1 if trading partner  $j$  is landlocked. Not having a coast has a negative effect on trade due to longer and more expensive forms of transportations. Due to this, this estimation is expected to be negative.

Last but not least is the error term  $\varepsilon_{ijt}$ , which captures what the explanatory variables cannot explain regarding Swedish imports.<sup>3</sup>

## 6.2. Estimation Issues

The model will be estimated in Stata through OLS. When running the gravity model in an OLS regression there are a few things you need to be aware of. One is the risk for heteroscedasticity in

---

<sup>2</sup> The EEA dummy variable includes all countries that are part of the European Economic Area, where Switzerland is included. This for the sake of simplicity, as Switzerland also is a European country.

<sup>3</sup> The dummy variables language and colonial links, which are traditional variables of the gravity model, have not been included in this model. According to the CEPII GEO data set (2011), Sweden shares official language with only one other country, Finland. Therefore the language dummy would only become a 'Finland' dummy, which is why the language dummy is excluded. According to the CEPII DIST data set (2011), Sweden shares no colonial history with any other country, and therefore there is no need to include that dummy in the model.

the data. This would make the standard errors unnecessarily large, which makes it difficult to draw conclusions. Heteroscedasticity is common in datasets, especially considering data that covers different countries. To eliminate the problem of heteroscedasticity, robust standard errors will be used when estimating the model (Shepherd, 2016).

Another risk with the gravity model is that there is unobserved heterogeneity in the data. There is a risk that there are unobserved differences in the data, caused by for example different effects on trade caused by different time periods and trading partners. Certain effects on trade could be caused exclusively by certain years or certain exporters, but that isn't covered by the variables of the model. The problem with unobserved heterogeneity is that it makes the OLS estimates biased and inconsistent. To safeguard for unobserved heterogeneity, the model, in some specifications, includes year and exporter fixed effects. This would solve the issue of unobserved heterogeneity (Shepherd, 2016).

Another issue would be if there were to be much missing or zero values in the Swedish import data. This would be a problem since the model of this paper is log-linear, and the log of 0 is undefined. But considering data regarding Swedish trade, that is not thought to be a problem. At the time of writing this paper, Sweden trades with most of the world's countries and reported trade data from Sweden is considered to be trustworthy (Hatzigeorgiou & Lodefalk, 2015). Therefore, it is not thought of as likely that this would be an issue of this paper.

The last issue to be mentioned is the risk of multicollinearity in the data. Looking at Table A.1. in the Appendix, one can see that the GDP and population variables of Sweden and Sweden's trading partner are quite correlated with each other respectively. Multicollinear variables are difficult to estimate in OLS regressions, and therefore, inference is hard to do on these estimates. But as the variables mentioned here are traditional for the gravity model and therefore multicollinearity will most likely not be a problem for this paper. But it is a risk to keep in mind and be aware of.

### 6.3. Data

The time frame for this paper will be the years between 2000-2019. This time frame will hopefully make it possible to observe different patterns in the Swedish migration stock over time. The number of countries included in this paper's sample is 186 and they are presented in Table A.2. in the Appendix. The sample includes both small and large countries from every part of the world. The sample size is the largest possible after merging all collected data. The size of the sample is motivated by previous research which has shown that a wider and less homogeneous sample reduces the risk for biased results (Tai, 2009).

Different datasets may use different labelling for the same countries. This could be a problem when it comes to merging datasets. If there is one dataset of trade data labeling a country in one way, and another dataset of for example population data labeling the same country in a different way, both observations of this country will be dropped when the data is merged. The appearance of new countries, caused by break ups of former countries, contributes to this problem.

Large parts of the Swedish migration stock originates from countries that no longer exist, for example Czechoslovakia and Yugoslavia. While there is available migration data from these countries, all other datasets of this paper did not include observations for these countries. The choice was therefore to either allow the observations of former countries to be dropped, or to collect the data under one single heading of a current country in order to keep the data. To prevent that large parts of the Swedish migration stock would be left out of this paper's analysis, the later option was chosen. Therefore, the reader is to be informed that data that have been labeled Yugoslavia, Serbia & Montenegro, Montenegro and Serbia in different datasets have all been collected under the heading of Serbia. Similarly, Czechia represents both Czechia and Czechoslovakia, Russia represents both Russia and the Soviet Union and Sudan represents Former Sudan, Sudan and South Sudan in the data. This was deemed as the best possible solution, as the author also lacks information regarding which current country a migrant originates from if he or she originated from a former country.

The data regarding GDP and populations are collected through the World Bank's Database World Development Indicators (2020) and Swedish import data is collected from the UN

Comtrade database (2020). Data about the Swedish migration stock come from Statistics Sweden (2020d). Data regarding distances, shared borders and landlockedness are collected from the Centre d'Études Prospectives et d'Informations Internationales (CEPII, 2011). Information regarding which countries that are a part of the European Economic Area is collected from Eurostat (2020) and information regarding which countries the EU (and therefore also Sweden) have PTAs with come from the European Commission (2020b).

## **7. EMPIRICAL RESULTS**

This part of the paper will present the empirical results of this research. The main result is presented first, which comes from an ordinary OLS regression. After that, the results of two OLS regressions with different fixed effects are presented, following some tests for robustness of the main results.

For all of these regressions, the natural logarithm of Swedish imports is the dependent variable. All continuous variables are also in their natural logarithmic form. The interpretation of an OLS estimation of a continuous variable is that when the variable increases with 1%, Swedish imports increases or decreases in percentage units of the estimation. The dummy variables should be interpreted as indicators of how much or less likely it is that Sweden and Sweden's trading partner trade, given that the dummy takes the value 1 (Shepherd, 2016)

### **7.1. OLS Regression**

The results of the OLS regression from Stata can be found on the next page. The variables of most interest for this paper is the migration stock variable, the post 2016-dummy and interactive migration-variable. This since these are the variables that can tell us something about the relationship regarding Swedish immigration and Swedish imports.

The migration stock variable has a positive impact on Swedish imports at a 1% significance level. The results show that a 1% increase in the Swedish migration stock generates an increase of approximately 0.34% in Swedish imports. The result also shows that both the reform dummy and the interactive migration variable are insignificant. Given these results it can be concluded that the asylum policy changes from 2016 has not changed the relationship between Swedish

immigration and Swedish imports. Swedish immigration still generates more Swedish imports, even after the change in Swedish asylum policies.

Result table 1: OLS

Variables	Estimates
Migration stock	0.338 (0.000)
2016 Dummy	0.504 (0.152)
Interactive Migration Variable	-0.008 (0.820)
GDP of Sweden	-0.514 (0.045)
GDP of Trading Partner	1.379 (0.000)
Population Sweden	-8.911 (0.000)
Population Trading Partner	-0.303 (0.000)
Distance	-0.478 (0.000)
Contiguous Borders	0.076 (0.549)
EEA	1.670 (0.000)
EU PTA	-0.193 (0.062)
Landlocked	-0.575 (0.000)

Number of observations: 3,501  
**R<sup>2</sup>: 0.766**

The level of significance for each variable is presented in the parentheses under the variable.

The results also show that as Swedish GDP has a significant, but negative, impact on Swedish trade at a level of significance of 5%. As Swedish GDP increases, Swedish imports decrease with 0.5%. This is not the expected outcome of this variable. The GDP of Sweden's trading partner is significant at a level of significance of 1%, and 1% increase in trading partner GDP increases Swedish imports with approximately 1.38%.

Both population variables are estimated to have a negative effect on Swedish imports at a 1% significance level. Since the effect of population on trade is ambiguous, these results are not unordinary. Although the effect that a 1% increase in the Swedish population is estimated to

have on Swedish imports is, according to the author, unrealistically large at approximately -8.9%. The effect of trading partners populations are estimated to be approximately -0.3%.

The geographical variables Distance and Landlocked have as expected a negative effect on Swedish imports. Their effects are approximately -0.48% and -0.57% respectively, at a level of significance of 1%. The last geographical variable Contiguous borders have a positive estimate, but is insignificant. The variable EEA has a significance level of 1% and has a positive effect on Swedish imports, which is what was expected from this variable. The results also show that Sweden is less likely to trade with a country that is a part of an PTA with the EU at a significance level of 10%, which is not as expected.

## **7.2. OLS Regression with Fixed Effects**

To understand if the effect on Swedish imports differ between the years and exporters, OLS regressions with fixed effects for both time and trading partners are run separately. Their results are presented in a table on the next page.

The dataset that the author uses is constructed in pairs between Sweden and all Sweden's trading partners, for every single year between 2000-2019. For example, the Swedish GDP of the year 2000 could be in a maximum of 186 observations, paired with the GDP of every Swedish trading partner from the same year. Estimates of such variables, that there are more than one observation of in a group, cannot be made in a fixed effects OLS regression. This is mentioned to explain why there are no estimates for the variables GDP of Sweden and Population of Sweden in the regression run on fixed time of the group 'years'. Since the regression measures the effect that time has on Swedish imports, there is no need to include the Reform Year-dummy in the regression. Therefore there is no estimate on that variable either.

Due to the same reason that is mentioned above, there are no estimates for the variables Distance, Contiguous border and Landlocked in the regression with fixed exporter effects. This due to the fact that these variables are constant for each exporter.

Result table 2: OLS with Fixed effects

Variables	Estimates – Time Fixed effects	Estimates – Exporter Fixed effects
Migration stock	0.338 (0.000)	-0.057 (0.754)
2016 Dummy	-	0.289 (0.372)
Interactive Migration Variable	-0.009 (0.819)	0.017 (0.626)
GDP of Sweden	-	0.299 (0.238)
GDP of Trading Partner	1.381 (0.000)	0.804 (0.000)
Population Sweden	-	-5.966 (0.005)
Population Trading Partner	-0.304 (0.000)	0.953 (0.132)
Distance	-0.478 (0.000)	-
Contiguous borders	0.076 (0.240)	-
EEA	1.663 (0.000)	0.756 (0.000)
EU PTA	-0.194 (0.089)	-0.317 (0.061)
Landlocked	-0.574 (0.000)	-
Number of observations (N):	3,501	3,501
Number of groups (n):	20	186
Overall R <sup>2</sup> :	0.758	0.547

The level of significance for each variable is presented in the paratheses under the variable.

Analyzing the estimations generated by the OLS regression with fixed time effects, one can see that the estimates are almost exactly the same as in the ‘ordinary’ OLS regression. The rate of fit ( $R^2$ ) of this regression is very close to the rate of fit of the ‘ordinary’ OLS regression. These estimates are to be interpreted similarly as in part 6.1.

The fixed exporter effects return insignificant estimators of the migration stock-variable, post 2016-dummy and the interactive migration-variable. In this regression, migration has no effect on Swedish imports. This is most likely due to the fact that the variation in the migrant stock of a certain exporter is low. Therefore the exporter fixed effects captures a lot of the effects of migration on Swedish imports. The estimates for Swedish GDP and Population of trading partners also became insignificant. These variables probably became insignificant due to the

same reason as is mentioned above, that the variation in those variables isn't that large. The rate of fit for this regression is lower than the rate of fit of both previously regressions.

### **7.3. Different Robustness Tests**

In order to ensure that the main results are robust, some extra tests for robustness are performed in this section. In each test, either the model or data have been slightly modified, in order to test for certain circumstances. If these tests show similar results to the main results, the main results can be considered to be robust and therefore trustworthy.

#### **7.3.1. The 2008 labour migration reform**

In 2008, there was a major reform in Swedish labour migration policies. This reform made it easier for Swedish employers to employ labour from countries outside of the EU (Government of Sweden, 2008). If these reforms were to have an effect on the relationship between Swedish migration and Swedish imports, then there is a possibility that the main results of this paper were affected by this reform as well. That would make the results suffer from omitted variable bias, due to the left out effect of the 2008 reform. To check for this, a new 2008 dummy-variable replaces the 2016 dummy-variable. The dummy takes the value 0 if the year of an observation is prior to 2008 and it takes the value 1 if the year of an observation is in or after 2008. Along with that, a new interactive migration variable is created by multiplying the 2008 dummy with the migration stock-variable. The model is then estimated in an OLS regression.

Robust Test Table 1: The 2008 labour migration reform

Variables	Estimates
Migration stock	0.309 (0.000)
2008-dummy	-0.493 (0.061)
Interactive Migration Variable, 2008	0.045 (0.140)
GDP of Sweden	-0.718 (0.002)
GDP of Trading Partner	1.378 (0.000)
Population Sweden	-3.415 (0.015)
Population Trading Partner	-0.302 (0.000)
Distance	-0.474 (0.000)
Continuous borders	0.090 (0.463)
EEA	1.679 (0.000)
EU PTA	-0.171 (0.099)
Landlocked	-0.578 (0.000)
Number of observations: 3,501	
<b>R<sup>2</sup>: 0.766</b>	

The level of significance for each variable is presented in the paratheses under the variable.

The rate of fit of this model is exactly the same as the rate of fit for the original model. Overall, the results are also quite similar to those of the original model. Just like in the original model, the migration stock-variable has a positive effect on Swedish imports. The 2008 year dummy is significant at a 10% significance level, but the interactive migration-variable is insignificant. The results can therefore not empirically prove that the 2008 labour migration reform affected migrations' effect on Swedish imports. Therefore, the results from the original model do not suffer from omitted variable bias and they are to be considered robust in this perspective.

### 7.3.2. Removal of uncertain home countries

It was mentioned in part 6.3. that some home countries of migrants weren't certain, due to breakups of former countries. The solution to this problem was to collect the data of these countries under different headings. To ensure that this solution hasn't affected the results, another regression is run on modified data. In this test, the data excludes the uncertain home countries. In other words, observations labeled Czechia, Russia, Serbia and Sudan are excluded from the data set. Due to this, the number of observations in this dataset is 3,422 and not 3,501.

Robust Test Table 2: Removal of uncertain home countries

Variables	Estimates
Migration stock	0.333 (0.000)
2016 dummy	0.535 (0.132)
Interactive Migration Variable	-0.011 (0.764)
GDP of Sweden	-0.483 (0.064)
GDP of Trading Partner	1.366 (0.000)
Population Sweden	-9.046 (0.000)
Population Trading Partner	-0.288 (0.000)
Distance	-0.442 (0.000)
Continuous borders	0.168 (0.209)
EEA	1.724 (0.000)
EU PTA	-0.202 (0.054)
Landlocked	-0.641 (0.000)
Number of observations: 3,422	
<b>R<sup>2</sup>: 0.762</b>	

The level of significance for each variable is presented in the paratheses under the variable.

The rate of fit for this model is similar, but not identical, to the original model's rate of fit. The results of this model are also quite similar to the results of the original model, and returns the same significant and insignificant variables as the original model did. Therefore, the solution to collect uncertain home countries under different heading did not affect the results of the original model, and therefore, these results are robust in this aspect as well.

### 7.3.3. Respecified models

The author interprets that the OLS estimate for the Swedish population variable is unrealistically large in the main results. An explanation could be that there is multicollinearity between the variables Swedish GDP and Swedish Population, as have been mentioned earlier in this paper. To face this problem, an OLS regression on a respecified version of the model is performed. The respecified model takes the form of the original model, excluding the population variables.

Robust Test Table 3: OLS without population variables

Variables	Estimates
Migration stock	0.230 (0.000)
2016 Dummy	-0.078 (0.802)
Interactive Migration Variable	-0.010 (0.792)
GDP of Sweden	-1.129 (0.000)
GDP of Trading Partner	1.218 (0.000)
Distance	-0.609 (0.000)
Continuous borders	0.331 (0.005)
EEA	2.066 (0.000)
EU PTA	-0.046 (0.643)
Landlocked	-0.799 (0.000)

Number of observations: 3,501

**R<sup>2</sup>: 0.761**

The level of significance for each variable is presented in the paratheses under the variable.

The rate of fit between the regression runned on the original model and the respecified model is almost the same - 0.766 and 0.761 respectively. This indicates that the population variables are of little relevance for the original model. The respecified model, just as the original model, returns estimations of a significant Migration stock-variable as well as an insignificant post 2016-dummy and interactive migration-variable. This also indicates that the main results are robust as well. With this respecified model, the Contiguous border variable becomes significant at a 1% significance level while the EU PTA variable becomes insignificant at all significance levels.

The correlations between the Sweden variables and Swedish imports was weak, and therefore a second respecification of the model is made. This to check what relevance the variables have to the original model. This time the model is respecified as the original model, but excluding the variables GDP of Sweden and Population of Sweden.

Robust Test Table 4: OLS without Sweden variables

Variables	Estimates
Migration stock	0.317 (0.000)
2016 Dummy	-0.408 (0.189)
Interactive Migration Variable	0.000 (0.985)
GDP of Trading Partner	1.317 (0.000)
Population Trading Partner	-0.242 (0.000)
Distance	-0.549 (0.000)
Continuous borders	0.108 (0.361)
EEA	1.664 (0.000)
EU PTA	-0.358 (0.000)
Landlocked	-0.673 (0.000)

Number of observations: 3,501  
**R<sup>2</sup>: 0.760**

The level of significance for each variable is presented in the paratheses under the variable.

The rate of fit of the original model and this respecified model is also almost the same - 0.766 and 0.760 respectively. Similar estimations and levels of significance of the original model are returned, which indicate for robust main results.

## 8. CONCLUSIONS

This paper attempts to conclude whether or not a shift in a country's migration policies affect migrations' trade enhancing effects. This was done via a quasi-natural experiment on Sweden's abrupt asylum policy changes of 2016. Using an augmented gravity model, this paper tries to

answer the question whether the asylum policy changes of 2016 in any way changed the overall effect that migration had on Swedish imports.

The results of this paper find that migration still has a positive effect on Swedish imports. This is in consensus towards the literature, which previously have stated that there is a positive relationship between migration and trade. This indicates that the estimations of the model's other variables are trustworthy as well. The results also show no empirical support in favor of the hypothesis that changed migration policies would alter the relationship between migration and trade. In other words, the paper cannot present any empirical evidence that the shift in Swedish asylum policies of 2016 have altered migration's effect on Swedish imports.

It should be mentioned that the results are not in the line with the results of Hatzigeorgiou & Lodefalk (2015), which conclude that immigration has a positive effect on Swedish exports but not Swedish imports. Although, the results of this paper should not be discouraged. Both model specifications and time spans differ between the papers, and therefore it is not surprising that the results differ. Therefore, the conclusions of this paper are still trustworthy. With that being said, it could have been in favor for this paper to also examine if migrations' effect on Swedish exports in any way changed due to the shift in Swedish asylum policy from 2016.

During the refugee crisis, many asylum seekers came from certain countries. Many of them were granted asylum in Sweden on the safety ground *Person in need for subsidiary protection*, and were therefore granted a 13 months temporary residence permit (Fores, 2020b). But many of these migrants haven't been able to return to their home country, due to ongoing conflict and unsecure circumstances. This could, in many cases, lead to prolonged residence permits. Due to this, asylum seekers have been able to stay in Sweden for a longer time than the policies first intended. Since these migrants have been able to stay in Sweden, they have been able to use their trade enhancing mechanisms. This could contribute to the fact that migration still has a positive effect on Swedish imports. That asylum seekers haven't been able to return to their home countries could be an explanation to why the positive relationship between Swedish migration and Swedish trade haven't changed due to the shift in Swedish asylum policies.

Previous research has shown that out of all migrants, refugees affect trade the least while independent migrants affect trade the most (Head & Ries, 1998). As all refugees are asylum seekers, one could possibly consider that asylum seekers' effects on their host country's trade is similar to the effect that refugees have. Therefore, a reform making asylum policies stricter could be expected to have a lower effect on trade than for example a reform making labour immigration stricter. A change in other Swedish migration policies could therefore possibly have a great effect on Swedish imports or even change the relationship between Swedish immigration and Swedish imports.

This paper has examined the overall relationship between migration and trade for Sweden. But considering that different migrants affect trade differently, it could have been in favor for this paper to examine if the relationship between different types of migration and Swedish imports changed due to the asylum policy changes of 2016. As the more restrictive asylum policies only affected asylum seekers, it could possibly be that the policy changes only altered asylum seekers' effect on Swedish imports, but not other types of migrants.

In summary, what role migration policies play when it comes to migrations' relationship to trade remains uncertain. This paper shows no empirical evidence in favor that a shock in a country's migration policy would affect the country's trade. The effect that migration has on Swedish imports is still found to be positive, even though the Swedish migration policies in some areas have become more restricted. But this paper also shows that much can be done in this field of research. The hopes of the author is that this paper encourages other scholars to continue the research on the potential effects that different types of migration policies and migration policy shifts could have on different types of trade.

## 9. REFERENCES

CEPII (2011), *GeoDist*, Centre d'Études Prospectives et d'Informations Internationales (2011), Available: [CEPII - GeoDist - Presentation](#), Collected 2020-12-17.

European Commission (2020a), *Schengen Area*, [Electronic] Available at: [Schengen Area \(europa.eu\)](#), Collected: 2020-12-10.

European Commission (2020b), *Negotiations and Agreements*, [Electronic] Available at: [Negotiations and agreements - Trade - European Commission \(europa.eu\)](#), Collected: 2020-12-19.

European Parliament (2017), *Asylum and migration in the EU: facts and figures*, [Electronic] Available at: [Asylum and migration in the EU: facts and figures | News | European Parliament \(europa.eu\)](#), Collected: 2020-11-30.

Eurostat (2020), *Glossary: European Economic Area (EEA)*, [Electronic] Available at: [Glossary:European Economic Area \(EEA\) - Statistics Explained \(europa.eu\)](#), Collected 2020-12-19.

Fores (2020a), *Arbetskraftsinvandring*, [Electronic] Available at: [Arbetskraftsinvandring \(migrationsinfo.se\)](#), Collected: 2020-12-10.

Fores (2020b), *Den tillfälliga lagen*, [Electronic] Available at: [Den tillfälliga lagen \(migrationsinfo.se\)](#), Collected: 2020-12-10.

Fores (2020c), *Asylsökande i Sverige*, [Electronic] Available at: [Asylsökande i Sverige \(migrationsinfo.se\)](#), Collected: 2020-12-10.

Fores (2020d), *Historiskt*, [Electronic] Available at: [Historiskt \(migrationsinfo.se\)](#), Collected: 2020-12-10.

Gould, D.M. (1994), *Immigrant Links to the Home Country: Empirical Implications for U.S. Bilateral Trade Flows*, *The Review of Economics and Statistics*, Vol.76, No.2, pp.302-316.

Government of Sweden (2008), *Nya regler för arbetskraftsinvandring*, Government Offices of Sweden, [Electronic] Available at: [Nya regler för arbetskraftsinvandring - Regeringen.se](https://www.regeringen.se/nyheter/2008/08/nya-regler-for-arbetskraftsinvandring), Collected: 2020-12-10.

Government of Sweden (2020), *Migration och asyl*, Government Offices of Sweden, [Electronic] Available at: [Migration och asyl - Regeringen.se](https://www.regeringen.se/nyheter/2020/12/migration-och-asyl), Collected: 2020-12-10

Hatzigeorgiou, A. (2010), *Does Immigration Stimulate Foreign Trade? Evidence from Sweden*, *Journal of Economic Integration*, Vol.25, No.2, pp.376-402.

Hatzigeorgiou, A. & Lodefalk, M. (2015), *Trade, Migration and Integration – Evidence and Policy Implications*, *The World Economy*, Vol.38, No.12, pp.2013-2048.

Head, K. & Ries, J. (1998), *Immigration and Trade Creation: Econometric Evidence from Canada*, *The Canadian Journal of Economics*, Vol.31, No.1, pp.47-62.

IOM (2019a), *Glossary on Migration*, International Organization for Migration, [Electronic] Available at: [iml\\_34\\_glossary.pdf \(iom.int\)](https://www.iom.int/sites/default/files/2019-11/iml_34_glossary.pdf), Collected: 2020-11-27.

IOM (2019b), *World Migration Report 2020*, International Organization for Migration, [Electronic] Available at: [wmr\\_2020.pdf \(iom.int\)](https://www.iom.int/sites/default/files/2019-11/wmr_2020.pdf), Collected: 2020-11-27.

Lucassen, L. & Lucassen, J. (2014), “Quantifying and qualifying cross-cultural migrations in Europe since 1500 - A plea for a broader view” in Francesca Fauri’s (editor) *The History of Migration in Europe - Perspectives from Economics, Politics and Sociology*, 1st edition, London: Routledge, pp.13-38.

Migration Data Portal (2020a), *International migrant stocks*, International Organization for Migration's Global Migration Data Analysis Center, [Electronic] Available at: [International migrant stocks data \(migrationdataportal.org\)](https://www.migrationdataportal.org/migrant-stocks), Collected: 2020-12-09.

Migration Data Portal (2020b), *International migration flows*, International Organization for Migration's Global Migration Data Analysis Center, [Electronic] Available at: [International migration flows data \(migrationdataportal.org\)](https://www.migrationdataportal.org/migration-flows), Collected: 2020-12-09.

Ministry of Justice (2019), *Sweden's migration and asylum policies - fact sheet*, Government Offices of Sweden, [Electronic] Available at: [Sweden's migration and asylum policy \(government.se\)](https://www.government.se/press-releases/2019/12/sweden-s-migration-and-asylum-policy), Collected: 2020-12-10.

NE (2021), *flyktingkrisen 2015*, Nationalencyklopedin, [Electronic] Available at: [flyktingkrisen 2015 - Uppslagsverk - NE.se](https://www.encyklopedin.se/artiklar/flyktingkrisen-2015), Collected: 2021-01-06.

Shepherd, B. (2016), *The Gravity Model of International Trade: A User Guide (An updated version)*, United Nations ESCAP.

Statistics Sweden (2020a), *Utrikes födda i Sverige*, [Electronic] Available at: [Utrikes födda i Sverige \(scb.se\)](https://www.scb.se/utrikes-fodda-i-sverige), Collected: 2020-12-10.

Statistics Sweden (2020b), *Invandring till Sverige*, [Electronic] Available at: [Invandring till Sverige \(scb.se\)](https://www.scb.se/invandring-till-sverige), Collected: 2020-11-30.

Statistics Sweden (2020c), *Statistikdatabasen - Invandringar och utvandringar efter födelseland och kön. År 2000 - 2019*, [Electronic] Available at: [Invandringar och utvandringar efter födelseland och kön. År 2000 - 2019. PxWeb \(scb.se\)](https://www.scb.se/invandringar-och-utvandringar-efter-fodelseland-och-kon), Collected: 2020-12-10.

Statistics Sweden (2020d), *Statistikdatabasen - Befolkning efter födelseland, ålder och kön. År 2000-2019*, [Electronic] Available at: [Befolkning efter födelseland och år. PxWeb \(scb.se\)](#), Collected: 2020-12-10.

Statistics Sweden (2020e), *Statistikdatabasen - Asylsökande under året efter medborgarskapsland och kön. År 2002-2019*, [Electronic] Available at: [Asylsökande under året efter medborgarskapsland och kön. År 2002 - 2019. PxWeb \(scb.se\)](#), Collected: 2020-12-31.

Statistics Sweden (2020f), *Utvandring från Sverige*, [Electronic] Available at: [Utvandring från Sverige \(scb.se\)](#), Collected: 2020-12-11

Statistics Sweden (2020g), *Statistikdatabasen - Invandringar och utvandringar efter ut-/inflyttningsland och kön. År 2000-2019*, [Electronic] Available at: [Statistikdatabasen \(scb.se\)](#), Collected: 2020-12-10.

Swedish Migration Agency (2020a), *Migration till Sverige - Historik*, [Electronic] Available at: [Historik - Migrationsverket](#), Collected: 2020-12-10.

Swedish Migration Agency (2020b), *Asylum regulations*, [Electronic] Available at: [Asylum regulations - Swedish Migration Agency \(migrationsverket.se\)](#), Collected: 2020-12-10.

Swedish Migration Agency (2020c), *Protection status*, [Electronic] Available at: [Protection status - Swedish Migration Agency \(migrationsverket.se\)](#), Collected: 2020-12-10.

Tai, S. (2009), *Market Structure and the Link between Migration and Trade*, Review of World Economics, Vol.145, No.2, pp.225-249.

UN Comtrade Database (2020), [Download trade data | UN Comtrade: International Trade Statistics](#), Collected: 2020-12-16.

World Bank: World Development Indicators (2020), [World Development Indicators | DataBank \(worldbank.org\)](https://data.worldbank.org/), Collected: 2020-12-16.

Gould, D.M. (1994), *Immigrant Links to the Home Country: Empirical Implications for U.S. Bilateral Trade Flows*, *The Review of Economics and Statistics*, Vol.76, No.2, pp.302-316.

## 10. APPENDIX

Table A.1. Correlations between the dependent and explanatory variables.

	lnIMPO~S	lnGDPo~E	lnGDPo~R	lnPOPo~E	lnPOPo~R	lnDist~e	lnMIGR~K	REFORM	Intera~e
lnIMPORTS	1.0000								
lnGDPofSWE	0.0495	1.0000							
lnGDPofPAR~R	0.8198	0.1682	1.0000						
lnPOPoofSWE	0.0379	0.7514	0.1512	1.0000					
lnPOPoofPAR~R	0.5248	0.0115	0.7348	0.0170	1.0000				
lnDistance	-0.4684	0.0109	-0.2874	0.0110	-0.0365	1.0000			
lnMIGRATIO~K	0.6877	0.0935	0.7113	0.1051	0.6868	-0.4524	1.0000		
REFORM	0.0233	0.3394	0.0805	0.7822	0.0152	0.0070	0.0740	1.0000	
Interactiv~e	0.1375	0.3154	0.1939	0.7277	0.1343	-0.0739	0.2363	0.9293	1.0000
contig	0.2257	-0.0026	0.1308	-0.0017	-0.0189	-0.3802	0.2316	-0.0007	0.0332
eea	0.5196	0.0494	0.3670	0.0324	0.0180	-0.6559	0.3327	0.0141	0.0686
eu_pta	-0.1035	0.2140	-0.0663	0.2842	-0.1641	0.0557	-0.0586	0.2234	0.1797
landlocked	-0.1793	0.0020	-0.1650	0.0023	0.0258	-0.0479	-0.0614	0.0018	-0.0032

Table A.2. Countries included in sample.

Afghanistan	Denmark	Lebanon	Samoa
Albania	Djibouti	Lesotho	San Marino
Algeria	Dominica	Liberia	Saudi Arabia
Andorra	Dominican Rep.	Libya	Sao Tome and Principe
Angola	El Salvador	Lithuania	Senegal
Antigua and Barbuda	Egypt	Luxembourg	Serbia
Argentina	Eritrea	Madagascar	Seychelles
Armenia	Estonia	Malaysia	Sierra Leone
Australia	Eswatini	Malawi	Singapore
Austria	Ethiopia	Maldives	Slovakia
Azerbaijan	Equatorial Guinea	Mali	Slovenia
Bahamas	Finland	Malta	Solomon Islands
Bahrain	Fiji	Marshall Islands	South Africa
Bangladesh	France	Mauritania	South Korea
Barbados	Gabon	Mauritius	Somalia
Bulgaria	Gambia	Mexico	Spain
Belarus	Georgia	Morocco	Sri Lanka
Belgium	Germany	Moldova	Sudan
Belize	Ghana	Mongolia	Suriname
Benin	Greece	Mozambique	Syria
Bermuda	Grenada	Myanmar	Switzerland
Bhutan	Guatemala	N. Macedonia	Tajikistan
Bolivia	Guinea	Namibia	Tanzania
Bosnia Herzegovina	Guinea-Bissau	Nepal	Thailand
Botswana	Guyana	Netherlands	Timor-Leste
Burkina Faso	Haiti	New Zealand	Togo
Burundi	Honduras	Nicaragua	Trinidad and Tobago
Brazil	Hong Kong	Niger	Turkmenistan
Brunei Darussalam	Hungary	Nigeria	Tunisia
Cabo Verde	Iceland	Norway	Turkey
Cambodia	India	Oman	Tuvalu
Cameroon	Indonesia	Pakistan	Uganda
Canada	Iran	Palestine	Ukraine
Central African Rep.	Iraq	Panama	United Arab Emirates
Chad	Ireland	Papua New Guinea	United Kingdom
Chile	Israel	Paraguay	Uruguay
China	Italy	Peru	USA
Czechia	Jamaica	Philippines	Uzbekistan
Colombia	Japan	Poland	Vanuatu
Comoros	Jordan	Portugal	Venezuela
Congo (Democratic Rep.)	Kazakhstan	Qatar	Viet Nam
Congo	Kenya	Romania	Yemen
Costa Rica	Kiribati	Russia	Zambia
Cuba	Kuwait	Rwanda	Zimbabwe
Cyprus	Kyrgyzstan	Saint Kitts and Nevis	
Côte d'Ivoire	Laos	Saint Lucia	
Croatia	Latvia	Saint Vincent and the Grenadines	

*Sample size: 186 countries*