Czech University of Life Sciences Prague

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Diploma Thesis

Analysis of development of the foreign trade of the Czech Republic - selected aspects

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CZECH UNIVERSITY OF LIFE SCIENCES PRAGUE

Faculty of Economics and Management

DIPLOMA THESIS ASSIGNMENT

Soňa Handschuhová

Economics and Management

Thesis title

Analysis of development of the foreign trade of the Czech Republic – selected aspects

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Objectives of thesis

The aim of this work is to analyze Czech foreign trade from various angles, which correspond to the aspects which are linked to foreign trade and influence on it. In addition to identifying the very meaning of foreign trade and documenting its development in the last decade. Main focus is on the territorial and commodity structure of foreign trade in the Czech Republic.

Methodology

This paper analyzes the Czech foreign trade in the period(2000 -2015) and also compare the accession to the EU. The work assesses the commodity and territorial structure of foreign trade for the Czech Republic and the importance of foreign trade for the country. It also deals with Common commercial policy, its instruments and directions and also Common trade policy. It also discusses the impact of EU accession.

To achieve the most important data we are using a gravity model, which focuses on the distance. Statistical data are processed by its own analysis of the market or taken from other professional resources. Resources are obtained from the Czech Statistical Office, FAO, UN Comtrade and others. Data are presented at current prices.

The proposed extent of the thesis

60 pages

Keywords

Foreign trade, European Union, Czech Republic, commodity structure, RCA, territorial structure , impact, accession EU, Gravity model

Recommended information sources

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Expected date of thesis defence

2016/17 WS – FEM

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Declaration

I declare that I have worked on my diploma thesis titled "**Analysis of development of the foreign trade of the Czech Republic-selected aspects**" by myself and I have used only the sources mentioned at the end of the thesis. As the author of the diploma thesis, I declare that the thesis does not break copyrights of any other person.

In Prague on 22 November 2016

Bc. Soňa Handschuhová

Acknowledgement

I would like to thank to my supervisor Ing. Petr Procházka, MSc, Ph.D. for his guidance, assistance and valuable advices during processing of my thesis. I would like to express my thanks to every person who helped me to gain such a knowledge, especially my family.

Analysis of development of the foreign trade of the Czech Republic - selected aspects

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Analýza vývoje zahraničního obchodu České republiky – vybrané aspekty

Summary

The aim of my diploma thesis „ Analysis of development of the foreign trade of the Czech Republic - selected aspects “ is Czech foreign trade in 2000-2015 with EU 28.

The first part describes the theory of foreign trade, changes in foreign trade, the Czech membership in trade organizations, as well as the changes that occurred in the foreign trade policy of the Czech Republic after accession to the EU in 2004. Literature review search explains gravity model that is used for evaluation main hypotheses.

The second part focuses o article analysis of the Czech foreign trade. The analysis relates primarily on territorial and changes in commodity exports and imports. Competitiveness of trade is evaluated using the RCA index. The index of selected commodities SITC 7 was evaluated on the EU 28 and third countries. Own goal is to identify changes in the territorial structure and commodity structure in relation to the EU, with an emphasis on changes that occurred after EU accession. Using the gravity model and panel data is evaluated which explanatory variables have the greatest influence on foreign trade of the Czech Republic.

Keywords:

Foreign Trade, the Czech Republic, EU 28, territorial structure, commodity structure, the gravity model, development

Souhrn

Cílem diplomové práce na téma „ Analýza vývoje zahraničního obchodu České republiky – vybrané aspekty“ je analýza zahraničního obchodu České republiky v letech 2000 až 2015 se zaměřením na země Evropské unie. První část práce charakterizuje teorie zahraničního obchodu, dále změny zahraničního obchodu a členství ČR v organizacích. Dále také změny, které nastaly v zahraničně - obchodní politice ČR po vstupu ČR do EU v roce 2004. Literární rešerže vysvětluje gravitační model, který byl použit na zhodnocení hlavních hypotéz.

Druhá část se zaměřuje na analýzu zahraničního obchodu České republiky. Analýza se týká především teritoriálních a komoditních změn ve vývozu a dovozu. Konkurenceschopnost agrárního obchodu je hodnocena pomocí indexu RCA. Konkurenceschopnost vybraných komodit SITC 7 byla hodnocena na trhu EU 28 a třetích zemí. Vlastním cílem je identifikace změn v oblasti struktury teritoriálního a komoditního obchodu ČR ve vztahu k EU s důrazem na změny, které nastaly po vstupu ČR do EU. Pomocí gravitačního modelu a panelových dat je zhodnoceno, jaká vysvětlující proměnná má největší vliv na zahraniční obchod České republiky.

Klíčová slova:

Zahraniční obchod, Česká republika, EU 28, teritoriální struktura, komoditní struktura, gravitační model, vývoj

Context

1 INTRODUCTION

An integral part of every state's foreign trade and its importance in the world, increased mainly due to increasing interconnection of economies. The Czech Republic is small and open economy, and therefore foreign trade is very important. The Czech foreign trade is mainly engaged in trade with the European Union. The share of foreign trade in country's GDP is approaching 80% of significant importance, thus affecting the overall economic situation of the country. Since 2004, when the Czech Republic joined the European Union, it is not called imports and exports, but common market.

From the macroeconomic point of view, foreign trade can be measuered by consumption, investment, government spending and net exports. Indicators are used to calculate gross domestic product (GDP). Czech Republic's accession to the EU had very significant impact on the foreign trade of the Czech Republic, particularly on changes in trade from territorial point of view, when the import and export dynamically grew mainly due to member countries.

The aim of this work is to analyse Czech foreign trade from various aspects, which correspond to the aspects which are linked to foreign trade and have influence on it. In addition to identifying the very meaning of foreign trade and documenting its development in years 2000-2015, main focus is on the relationship with EU countries, particularly on the question whether it is possible to observe the relationship between them and the Czech Republic. To identify this changes, we used RCA model of comparative advantages and gravity model. Under this scheme, the paper is divided into 3 main chapters.

The work is mainly focused on the situation in the Czech Republic, therefore the statistical data are drawn mainly from the Czech Statistical Office and the Czech National Bank, OECD and Eurostat. Individual chapters include charts that contribute clarification of analysis of the issue.

2 OBJECTIVES AND METHODOLOGY

2.1 Objectives

The thesis deals with foreign trade. The aim of this work is to evaluate foreign trade of the Czech Republic mainly in the years 2000 - 2015 with a focus on the countries of the European Union and selected aspects. Work is characterized by changes in the foreign trade policy of the Czech Republic, which occurred after joining the EU in 2004. Own goal is to identify changes in the territorial and comodity structure. This thesis aims to provide a comprehensive overview of developments of the Czech foreign trade, and evaluate the results. The theoretical part describes the Common commercial policy of their emergence, directions, instruments and impact on the Czech Republic. Furthermore it engaged in foreign trade, membership in organizations such as the WTO and other changes that occurred after EU accession.

The practical part evaluates the change in territorial and commodity structure. Competitiveness is characterized by RCA index. Comparative advantages of the selected commodities are evaluated on selected countries – EU 28. Gravity model is used for approval or denial main hypothesis.

2.2 Methodology

This paper evaluate Czech foreign trade in the period (2000 - 2015). The work assesses the commodity and territorial structure of foreign trade for the Czech Republic and the importance of foreign trade for the country. It also deals with Common commercial policy, its instruments and directions, also Common trade policy, which is divided into the pre-accession period and period after entrance into the EU. It also discusses the impact of EU accession on the trade balance. Statistical data are processed by own analysis of the market or taken from other professional resources. Resources are obtained from the Czech Statistical Office, FAO, VÚZE, UN Comtrade and others. Data are presented at current prices USD. Values for EU member states are EU 28 and the figures for third countries are used for calculations of the country without the EU 28. Data processing and analysis are performed by the selected statistical-mathematicals methods and data are arranged in time series. Development of FT is evaluated by basic and chain indices. They used the relative and absolute indicators for assessment the impact of EU accession on Czech foreign trade. Average values are calculated by using the arithmetic means. All the calculated values are given in current prices and in USD.

Competitiveness was calculated using indicators of comparative advantages - RCA1 index (Revealed Comparative Advantage Index). Using this index, identify the competitiveness of commodities in selected countries. RCA index or Ballasův obvious comparative advantage index is c alculated as the ratio of the share of the product of the total exports of the country, which is exported to other countries to share the same the product in the country of their total exports (Fojtíková, 2009). This index ignores the import of the country. If the index value is greater than 1, the country has comparative advantage.

RCA index - indicator of comparative advantages

RCA = (EXkij / EXij) / (exk / EX)
EXkij – to export the commodity-i- of the country to the j-th country
EXij – total exports of i-th country in j-th country
exk –export k-th commodities j-th country
EX – total exports of j-th country

RCA index analyses export commodities "j" in the case of a country "i" in relation to the total exports of the country and the corresponding total exports analysed groups of countries or the whole world. Comparative advantage is demonstrated in this case, if the value of RCA index is greater than 1. However, if the resulting value calculated index is less than 1, then it can be stated that the country has a comparative disadvantage in the case of the commodity or group of commodities. (Smutka, 2011)

The gravity model is used to verify main hypothesis. This model includes distance as a main variable. We used panel data for this econometric verification.

Work is mainly engaged in producing commodities that have the greatest significance to the Czech foreign trade. The work use the chapter division commodity structure using SITC.

Mutual international trade can be analysed from two perspectives, both in terms of territorial structure of international trade and commodity structure of international trade. When the territorial structure represents the share of individual countries or groups of countries on the material, respectively.We can say that the territorial structure of trade reports on the most important trade partners. Within the commodity structure of international trade, by contrast, follows the structure of exports and imports of the country, mostly to help international commodity classification Standard International Classification (SITC), where goods are sorted into 9 basic categories (see. Tab. 1), followed by dozens of other subgroups, thus enabling an easier comparison of the statistics of international trade between countries. In conclusion is the evaluation of results and their subsequent synthesis and evaluation.

Table. SITC

0	Food and live animals	5	Chemicals and related products
1	Beverages and tobacco	6	Manufactured goods classifies chiefly by material
2	Crude materials,inedible, except fuels	7	Machinery and transport equipment
3	Mineral fuels, lubricants and related materials	8	Miscellaneous manufactured articles
4	Animal and vegetable oils, fats and wasps	9	Commodities and transactions not classified elsewhere

Source:CZSO.cz

2.3 Research question and hypotheses

Research question

- What factors influence volume of the Czech foreign trade the most?

Hypotheses

- Volume of foreign trade increases mainly after accession to the EU.

- We can prove for the Czech Republic that volume of trade rises when GDP of export/import goes up.

- Trade volume with its trade partner is significantly and negatively affected by the geographical distance between them.

3 FOREIGN TRADE

"Foreign trade is a concrete manifestation of economic relations between economies or economic groups and their external economic environment, in the form of two-way flows of tangible and intangible goods and services "

(Svatoš, 2005)

3.1 Theories of foreign trade

3.1.1.1 Mercantile theory of international trade

This is the first comprehensive economic theory that is originated on the border between the 16th and 17th century in Western Europe and also had a practical impact on economic policy until the century 18th. The basic idea of mercantilism was that the increasing wealth of the country is only accumulation of precious metal in the country where the international trade found this idea application as it is needed the most to promote the export of goods and as much as possible while imports limit, thus the need to promote active balance of trade. Furthermore, the application mercantilism in international trade was support by the idea that in international trade there is only a zero-sum game, where this view is the theory sometimes known as beggar my neighbor. Active trade was subsequently achieved secondly, the high trade tariffs and issuing navigation act, as well as support for export monopolies.

The main representatives of mercantilism were englishman Thomas Mun, who stepped with the idea that there is no need for an active balance required with each country, but must be active as a whole that imports of basic raw materials that can be processed at home and exported a higher value, will lead to a greater influx of precious metals into the country, and the french finance minister Jean-Baptiste Colbert, who in the context of the loss of competitiveness of french goods and the mercantilist doctrine advanced by reducing the prices of agricultural produce, which should then be reflected to reduce production costs of goods destined for export. The economic - trade policy however, led to the devastation of french agriculture and the opposition to mercantilism in France.

3.1.1.2 The classical theory of international trade

The classical theory of international trade are opposed to mercantilism, based on free trade and market competition, and is thus based on the philosophy of liberalism and the ideas laisses faire. Further based in the international trade, where is no zero-sum game, but it has a positive sum game in which there has been a paradigm shift in the context of international trade. There can be obtained only country with an active trade balance. Using knowledge of the international division. Work then emerged the theory of absolute advantage and comparative advantage.

3.1.1.2.1 Theory of absolute advantages

Absolute advantage theory was first formulated by the father of economics, Adam Smith in his work The Wealth of Nations. Smith explained the theory of absolute advantage on the importance of division of labor, where every country should focus on the production of goods manufactured with lower absolute cost than other countries. These goods are exported to countries where the production is either very expensive or quite unthinkable, for example due to geographical conditions. On the contrary, we will import goods that we are not able to produce more cheaply.

3.1.1.2.2 Theory of comparative advantage

On the theory of absolute advantage and then continued into the theory of comparative advantage further developed by David Ricardo in his book Principles of Political Economy taxation. Ricardo proved that although the country has no absolute advantage, and despite the worth engage in international trade. Kalinski defines comparative advantage as "*the largest relative absolute advantage or lowest relative absolute disadvantage which would produce more kinds of goods, country should specialize in that, at which achieves relatively lowest cost*."This theory can then be within the neoclassical economics explained by the cost of lost opportunities.

3.1.1.3 Neoclassical theory of international trade - Heckscher - Ohlin model

This model was formulated in the early 20th century by economists Eli Heckscher and Bertil Ohlin, when it is an extension of the traditional model of comparative advantage for the production factor capital. In practice this means that "the country will specialize in the manufacture and export, which is relatively consuming one factor of production, which is not the economy is relatively better equipped and imports will focused on those goods whose production is intensive scarce factor.“ (Majerova, 2010). Model is based on that amount of production factors in the individual countries and at the same time different from each other. Further assume that the goods can be divided according to complexity of their production on capital intensive and labor intensive, while the manufacture of the same goods is needed same the ratio of labor and capital, and which also can not substitute capital for labor.

Criticism of this model is based on the assumptions themselves when, for example. Mobility is a factor of production capital in today's world of virtually unlimited. Then inability to substitute capital for labor also appears to be highly theoretical, when the country that is highly capitalized production can be certain farm capital intensive, while in another country may in turn be labor intensive and thus the ratio of capital and labor in the manufacture of the same goods can vary widely.

The most famous critique of empirical Heckscher - Ohlin model comes from Vassiliou Leontief and is known as the so-called Leontief paradox. The Leontief paradox was formulate on the results of data on foreign trade of the United States for the year 1947, which found that despite high capital base, the country exported more labor-intensive goods, while capital intensive goods imported. In 1971, Leontief paradox re-examining Robert Baldwin and came to the same conclusion. This paradox is currently explained that high productivity is due to its high qualifications, under which capital itself is hidden and where there is currently talking about the so-called human capital.

3.2 Functions of foreign trade

Trade as economic phenomenon can be observed in the distant past. Given that people over time due to growing specialization and ceased to be able to provide coverage for all of its own needs, entered the inning to get through its estates, which were essential to their life or improvement and procurement. Over time, there is specialization and from the perspective of individual nations, each of which had different starting assumptions regarding natural conditions, historical background, etc. As a result, created an international innings.

From a theoretical perspective, international trade deals mainly with classical and neo-classical economists who study its contribution to the country. (Plchová, 2007)

If we look at the function of foreign trade, the literature suggests the following four universally applicable:

- Transformation function

- Growth function

- Barriers to the growth of the domestic economy

- Interaction between the change in national income, change in imports and exports

The transformation function means reshaping the structure of domestic production of the desired structure in us, allowing the countries to be able to overcome the limitations of their starting conditions as well as constraints on production factors.

The growth of foreign trade functions resolves to achieving savings incurred by the national labor, leading to an increase in the growth rate. Growth function also linked to the creation of specialization profile of the economy, whose criteria in relation to international trade theory ranks differences in absolute respectively. The relative labor costs, differences in factors of production facilities (Heckscher - Ohlin model), country's technological level and product life cycle theory, which describes the shift in production of technologically advanced countries to underdeveloped countries. The last two criteria are the differences in human capital and geographic concept. The concept of foreign trade as a factor lagging

domestic economy is largely based on alternative theories of international trade advocate protectionism. It is a theory of child Liszt sector Bhagwati theory lowering growth theory Prebishovu peripheral economy. "*It is impossible to underdeveloped countries established a domestic industry without industry which was not sufficiently protected against competition from developed countries.*"(Liszt, 2009)

3.3 Role and importance of foreign trade for the Czech Republic

Czech Republic with its population of 10, 3 mil. ranks of the smaller countries. Area (78,867 square kilometers) is up to 11th place. Regarding the size of the economy by GDP, the CR takes 44th place. For comparison - United States are more than 50 times larger. (Neumann, 2010)

Based on these characteristics, as well as the above mentioned theoretical information on the transfer function of foreign trade, we are quite rightly believe that the Czech Republic will be involved in foreign trade quite intensively. Due to the size of its territory and partly because the historical context is not able to cover all their own production needs. Especially worth mentioning is oil, whose consumption CR covers domestic production. Only two to three percent. Dependenc on imports is also apparent in ores, metals, some industrial minerals and most of the raw materials for fertilizer production.It is significant on the contrary, production of construction materials and the brown and, to some extent coal.

We will look on this issue more closely at the context of commodity structure. Degree of openness of the economy, we can examine by two measures, which are the ratio of exports to GDP and export volume per capita. These indicators also allow international comparisons of countries.

3.4 Support of foreign trade from the Czech Republic

3.4.1 Czech Trade Promotion Agency

Area information export support provided by the Czech Republic, Czech Promotion Agency CzechTrade, which was founded on May 1, 1997 as an organization belonging to the administration of Ministry of Industry and Trade and continued the tradition of the Export First Republic Czechoslovak constitution. As such, it is one of the pillars of the official state export policy and its main objective is to contribute to increasing the competitiveness of Czech companies and exporters.

It focuses mainly on the business of small and medium-sized enterprises and plays an important role mainly in the non-financial and indirect support of Czech exports. CzechTrade as such further characterized by a very flexible approach to individual clients who may benefit from its services through foreign firms that are continually responding to the current situation in a world in which reports publicly available publications, and a wide range of services, exporters who facilitate access to foreign markets. By 2016, CzechTrade runs nearly fifty foreign offices in more than 40 countries.

3.4.2 Export Guarantee and Insurance Corporation EGAP, a. S.

Export Guarantee and Insurance Company is a joint stock company 100% owned by the state, which was first established as an organization aimed at promoting exports in 1992. EGAP represents a specialized credit insurance company, whose main mission is to provide insurance to commercial insurance companies do not cover. It is all about insuring export and domestic receivables against political risks and risks related to business such as inability to repay foreign entity.

3.5 Changes in foreign trade after the Czech Republic joins the EU

Before the Czech Republic joined the European Union, to acquire data imports and exports from customs declarations. After joining the EU, trade has changed for the Interior EU where there are different rules, a change occurred and for data collection, which performs statistical system "Intrastat". Since 2004, statistics of foreign trade was created by a system of data collection from both systems. This new system builds on the time series of

years before joining the EU. EU accession has changed the approach to trade with third countries, which began to drive Agreements resulting from EU membership. Trade with third countries is greatly affected by the Common Commercial Policy. Important part of the Common Policy is to regulate trade with third countries. It follows that a very significant change after accession to the EU is changing tariff in the internal trade much easier and improve the conditions for member countries. It also means that foreign trade has decreased significantly within the third countries, both because of greater protection market, and because of tariffs. (Routledge, 2003)

3.6 Comparative advantages and competitivenes of the Czech foreign trade

In an analysis of the commodity structure of trade is an emphasis on comparative advantages resulting from the application of the aggregation of individual market index using Ballas. Ballasův or RCA index is developed on two levels, for the EU internal market and world market. Czech Republic is a country with a long tradition and its business adapts to changing conditions of the world and European markets. (SMUTKA, 2011)

In 2004 the Czech Republic joined the European Union, thus dramatically affected the overall trade of the Czech Republic. Joining the EU has a positive influence on shaping the structure of Czech export. Czech Republic after accession to the EU has become a part of the market where there is no movement of goods affected protectionist policy. It also subordinated its trade policy not only rules EU internal market, but also the obligations arising from WTO membership. The Czech Republic became the target of many foreign investments and have been primarily focused on re-export. In the analysed period (2000 - 2015) was the dynamic development of the Czech FT recorded a large increase in imports and exports mainly among member states. We use the RCA index to find out which comodities (SITC 7) have comparative advantage

RCA index - indicator of comparative advantages

RCA = (EXkij / EXij) / (exk / EX)
EXkij – to export the commodity-i- of the country to the j-th country
EXij – total exports of i-th country in j-th country
exk –export k-th commodities j-th country
EX – total exports of j-th country

3.7 Common commercial policy

3.7.1 General characteristics and historical contex

The Common commercial policy were laid in 1957 in Rome treaties, which dealt with economic integration in Europe. (Baldwin & Wyplosz, 2008)

The Common commercial policy was laid in agreements that opened the way to Customs Union Member States intend to world trade, to the post the lowering of customs barriers and regulations to community members, which was mainly motivated by the risk of the application non-tariff restrictions in the form. Union was completed in 1968, when it was removed after measures adopted by the Common Customs Tariff another level of liberalization took concrete outlines. The contract also discussed the harmonization of Community, as a "technical barriers to trade". Implementation of Customs removing import tariffs and quantitative data. Constitute the formation of a single internal adoption of the Single European Act. The program creates Treaty of Rome, which anticipated removal factors. The sources are mentioned specific steps: or removal of border formalities within the broad bands procurement the Czech Republic and the EU. "By creating her accessories, application it represented the internal market, its acceptance of creation edjímaly remove barriers. (Baldwin & Wyplosz, 2008)

Harmonization and mutual recognition of technical standards in production, packaging and marketing liberalization of the movement of production factors: (Baldwin & Wyplosz, 2008)

- Elimination of capital controls

- Increasing the degree of integration of capital markets

- Liberalization of policies in cross-border economic contact rules of entering the markets, including the mutual recognition approval of national regulators

Single Internal Market was completed by the Maastricht Treaty. At the same time was also signed the EEA Agreement between the European Communities and the EFTA countries, Which was involve in the extension of the single market to these countries, except the Common agricultural policies and customs tariff.

The principles of the single market include existent border controls or any other trade barriers, is claimed national treatment. Workers have the right to work and settle anywhere in the EU. With this issues related to the common immigration policy towards third countries. Union deals also with protection of competition and consumer protection. It is planned to establish Economic and Monetary union.

3.7.2 Current characteristics about Common policy

Common commercial policy of the European Union is entrusted with the powers, its formation and implementation is therefore solely to Union institutions. During the multilateral negotiations the EU also acts as a single entity. Article 207 of the Treaty on the Functioning of the European Union states that "the Common commercial policy shall be based on uniform principles, particularly with regard to changes in tariff rates, the conclusion of tariff and trade agreements relating to trade in goods and services, trade aspects of intellectual property, foreign direct investment, unification of liberalization measures, export policy and measures to protect trade such as those to be taken in case of dumping or subsidies.

Common commercial policy has three dimensions: (Baldwin & Wyplosz, 2008)

- Multilateral (WTO, other international organizations)

- Bilateral (FTA)

- Autonomous (GSP scheme, safeguards)

At the multilateral level negotiations are underway within the framework of the Doha Development Agenda ("Qatar round"), which is focused on access to global markets and liberalization while respecting sustainable economic growth in developing countries. Given the large number entities and persistent contradictions between clusters, however, are often blocked negotiations. The bilateral dimension of the common commercial policy forms a plurality of bilateral agreements that provide partner countries reciprocal or non-reciprocal benefits. According to the intensity of the advantages resulting from the partnership countries can be classified according to the following hierarchy as shown in the literature. (Baldwin & Wyplosz, 2008)

3.7.3 Influence of EU foreign trade policy of the Czech Republic

The Czech Republic joined the European Union on 1 May 2004. This moment also became part of a unified internal market which also includes free movement of goods and services within the European Economic Area which is today formed EU28, Norway, Iceland and Liechtenstein. The EU itself is most foreign trade of member countries realized as intra-community trade.

3.7.4 Tools

In the EU there are two kinds of duties. The first kind of contractual duties concerning trade with countries with which the EU concluded some contract under which determined the level of duties for the import and export of goods from that country. Terms kinds of duties also apply to countries that are contractually linked to the WTO and the European Union has with them a common agreement. The second type of autonomous customs duties are duties that are applied to all countries that have no contractual arrangements with the EU.

Other measures that are applied in the common commercial policy, safeguard measures are to be used when the domestic economy is at risk due to the dramatic increase in imports. The measures include the imposition of additional payments in the correctional management of air carriers. Tools that support the entry of domestic producers on foreign markets, the contractual tools, troubleshooting and monitoring of trade barriers and protective measures by third countries. (Baldwin & Wyplosz, 2008)

Autonomous tariff tools character

The tariff quota is a quantitative determination of the goods which are released for free trade at a reduced tariff.

The tariff ceilings are similar in nature tariff quotas, but even after exceeding the specified amount may also apply a reduced rate.

Customs tariff and duty - the tariff is determined by the amount of duty and describes the goods.

Duty

Duty is defined as "compulsory payments from the state budget". When in one country increase the duty leads primarily to an increase in prices of goods that are exposed to a duty. This creates a larger surplus of domestic producers, less consumer surplus and usually occurs and an overall loss of the economy due to higher commodity prices.

Selecting duties performed in the Czech customs authorities under customs control. The most common customs regime for trade in agricultural commodities is a customs regime called. Circulate freely. This mode assumes that the goods will be consumed domestically, therefore, will not be returned abroad.

During the clearance of goods are important questions, what is the nature and origin of the goods. The origin specifies the country where the goods eg. Obtained a commodity is determined by the global harmonized system.

Tarrif quotas

Tariff quotas represent another instrument of trade policy, which in terms of time limits the amount of import in quantitative terms. Quotas are applied to all countries to specific states or their groupings. Quotas are divided into absolute and tariff according to their effect. Absolute quota restrictions on imports from a quantitative point of view, it is not possible to import goods which have already reached a specified limit. This restriction also applies to goods which have not yet been released to the customs regime of free circulation.

Tariff ceilings

The tariff ceilings are based on a principle similar tariff quotas. Certain quantity of goods, which is defined by the amount or value as possible within a specified timeframe imported under preferential tariff. But when he reaches a specified ceiling, there will be no increase in tariff rates, but the goods continue to be imported at a reduced rate of duty. Only when a member country applies for interruption of imports under the preferential regime to accede to increase tariffs.

The autonomous nature of non-tariff instruments

Among non-tariff instruments include all measures other than customs duties, which affect foreign trade. Most of these instruments is governed by WTO agreements. Common commercial policy is among the most-used primarily quantitative restrictions, certain instruments or fiscal barriers that are of a technical nature. For the application of non-tariff barriers to trade are important conditions for fair competition in the single market. The common tools that are used for imports of agricultural products may include contributions by which balances the price set in the EU markets to world market price. (Svatoš, 1999).

One of the most important tools in exports, export subsidies that compensate for the difference in price between the domestic and the world market price. This applies particularly to the conditions defined export subsidies when exporting to third countries. Subsidies allow the product to be competitive on the world market because the world market price is higher. Export subsidies also applies to the export license. Based on the WTO Agreement on Agriculture was different measures according to their influence on the production volume is divided into three groups.

Other important tools can include intervention price. This price is decisive for the level of domestic prices at the wholesale level, because it is the lowest price in the EU internal market, which farmers can get for their produce. The intervention price fixed by the Council for the entire year and is valid for the entire EU.

Direct payments are a tool that plays a key role in the farms. Across the EU, the same rules apply for direct payments. Awarded within the common market organizations. They are often conditioned by the demand. On environment and nature. Quota systems or quota is the maximum amount of production covered by the guaranteed price. When this limit is exceeded, the next year will drop prices.

3.7.4.1 Contractual Instruments

"Contractual instruments come into force in agreement with other countries or groups of countries. To achieve stability and predictability are fundamental tool of international trade agreements." (Fojtíková, 2009)

Generally, we can divide the contractual tools at bilateral and multilateral. The Czech Republic is a member of the EU and the World Trade Organization and had to accept trade rules that are laid down in the multilateral agreements of the WTO. Membership in the GATT brought the Czech Republic, the MFN clause, which sets out the regime for bilateral trade in goods, which is the origin of a Contracting State.

Multilateral treaty creates a set of commitments, obligations and rights for members of the EU and the WTO, especially in the area of market access in trade in agricultural and industrial products.

The main agreements that applied Czech Republic, were, for example. The agreement between the Czech Republic and the EU, the Central Agreement (CEFTA) and the Free Trade Agreement between Latvia, Lithuania, Turkey, Estonia and Croatia.

3.8 Czech foreign trade policy

Situation in the 90s at the inception of the original GATT in 1947, the then Czechoslovak Republic is one of the signatories to this Agreement. Membership persisted throughout the period of government Communist Party. Membership in the GATT was then placed on the two successor states after the division of the Federation. The actual changes in Czechoslovakia in 1989 brought about significant foreign trade orientation to the West. Natural partner represented The European Community, which was at the end of 1991, signed by the European Association Agreement Czechoslovak Federal Republic, Hungary and Poland to the European Community. This agreement setting out the plan for the creation of a free trade in 2002. After the split of the Federation was renewed for an independent Czech Republic. On this basis, there was a gradual liberalization of mutual trade, but this process was skewed in favor of the Czech Republic when by the EC was liberalized 70% of imports from Czechoslovakia and the remaining 30% within six years, on the other hand ČSFR released only 20-30% of imports from the EC and the other in ten years. Special arrangements were introduced for sensitive items from the perspective of both sides. In 1996 the Czech Republic then filed an application to join the EU. (GANDOLFO, 1998)

In addition to the EU there were other trade relations. Central European Free Trade Agreement (CEFTA), which was signed in 1992 by representatives of Czechoslovakia, Poland and Hungary and the aim was gradual liberalization of trade in goods. Later this agreement acceded Slovenia, Romania, Bulgaria and Chorvatsko. Already in 1992 the Czechoslovak Federal Republic free trade agreement with the EFTA countries. In the course of the year 1996 after the Czech Republic has concluded a bilateral free trade agreements with the Baltic States. Similar agreements govern relations Czech Republic and Turkey. Bilateral relations Czech and Slovak Republic following the division of the Federation was founded the customs union formed between the newly formed states. "It was concluded in order to preserve the highest possible intensity of relations between producers of both countries." (GANDOLFO, 1998) Cooperation Slovakia also initially complement clearing agreement. With a variety of countries bound together by Czech Republic's bilateral trade agreement. It was the post-Soviet countries, most countries of the former Yugoslavia, a large part of Latin America and Arab countries. USA integrate CR into GSP which allowed duty-free imports of selected items covering up to 50% of Czech export.

3.9 Czech Republic and foreign trade with third countries

Trading in the Czech Republic with third countries is characterized by a large number of preferential agreements. Among the major areas where the EU has a free trade agreement include Mediterranean area Member States, EFTA, ACP developing countries. The development of the Czech agricultural trade can be concluded that the share of foreign trade with EU countries is constantly increasing, but sales of foreign trade with third countries is stagnating.

The most important partners of the Czech Republic in the framework of third countries include Ukraine, Russia, USA and Croatia. The most important commodity items, which are exported to these countries, include dried milk, beer, wheat and malt.

The most important territories include: Mediterranean - in this area is important in Lebanon and Jordan. The commodities regard

to this area takes the most cheese and milk powder.

Central Asia - the largest country of this territory are Russia, Belarus and Ukraine. Biggest exports to these countries are comodieties malt and beer.

4 LITERATURE REVIEW ON GRAVITY MODEL

4.1 Gravity model characteristics

The theoretical basis of our work is the gravity model, which has been in economic literature indicated by (Tinbergen, 1962) and (Pöyhönen, 1963). The model was in the 60s and was initially based primarily on empirical observations international commerce without significant theoretical bases. Theoretical studies analysing background of this model emerged late 70s. It turned out that the gravity model is consistent with many models of international trade, such as where (Bergstrand, 1985) explained the gravity equation in microeconomic model of general balance.

Concept models are inspired by Newton's gravitational law. Gravity models are used to estimate the determinants of international trade. The basic model consists of factors related to geography and spatiality. Another stage in the evolution of gravity models began work which derive gravity equation of microeconomic theory (Anderson and Van Wincoop, Eaton and Kortum, 2002).

In the context of our work gravity model says that trade between the Czech Republic and other countries depends positively on the economic power of these countries and negatively on resistance.

In its simplest form, the gravity model is the trade volume between the two countries positively dependent on the GDP and a negatively on distance. For the purposes of economic analysis international trade is a matter understood the economic strength of the country and opposition transaction costs of international trade.

The actual cross-sectional data do not assess significant changes over time. The time aspect of the analysis in this study is very important because the economies of countries can cross over time various changes and reforms and new exports may often be a function of exports past. Inclusion of a large number of countries in the model is conversely important in terms of diversity give.

The gravity equation in international trade is one of the most robust empirical finding in economics: bilateral trade between two countries is proportional to size, measured by GDP, and inversely proportional to the geographic distance between them.

While the role of size is well understood, the role of distance remains a mystery. The first explanation for the gravity equation in international trade, based on the emergence of a stable network of input-output linkages between firms. Over time, a firm acquires more suppliers and customers, which tend to be further away.

The first classical model application has performed Linnemann in 1966, which extended the model of variable reflecting the commodity structure of trade flows. Model subsequently modified Leamer in 1974 for the Standard International Trade Classification (SITC). The theoretical underpinning of gravity models, then finally began to emerge late 70s through publications Anderson in 1979 and Bergstrand in 1985. Anderson speaks about the gravity model as probably the most successful means of empirical analysis of international trade.

Bergstrand states that the gravitational equations are recognized as consistent empirical success in explaining many different types of flows because of their considerable empirical robustness and important abilities, which ranges from 60% to 80%. Eichengreen and Irwin in 1998, then called gravity model as a workhorse for empirical examination of regional integration. Initial empirical application of gravity models in international trade in the 90s were made using cross-sectional data. Their results, however, were often criticized and since the 21st century with the development of data processing software options present empirical application of gravity models based almost exclusively on panel data (Egger, 2002; Cheng Tsai 2008, Bubáková, 2013)

As mentioned Bubáková (2013), gravity models are widely used for estimating bilateral trade relations between the countries for evaluation the effects of trade policies and policy interventions, including the impacts of regional trade agreements, political blocs, regional integration, monetary union, international migration, patent rights or trade distortions. Using models you can measure the impact of foreign direct investment, the effects of natural boundaries or effects of protectionism and openness of the state and many others.

4.2 The use of gravity model

The greatest use of the gravity model of foreign trade came after the collapse of the Eastern bloc, respectively the collapse of Comecon, when they began to examine the impact of the integration of Eastern European countries into Western structures of international trade in order to estimate the potential size of the mutual trade, as summarized (Egger, 2002).

Other uses for gravity model is found in the estimation of the impact of the conclusion of regional free trade agreements on mutual trade, which in this work is inserted into the model of the artificial variables to illustrate the creation of a free trade zone, as they did for example (Greenaway and Milner, 2002; Bergstrand, 2008 and Helpman, 2008). In this area, then it is highly cited work "*Revisiting the effects of regional trade agreements on trade flows with proper specification of the gravity model*" (Carrera, 2006), in which the author examined the progressive integration in Europe. In examining the impact of the creation of free trade zones, the work differ depending on whether it is studied agricultural or non-agricultural sector, where some works speak of insignificance eventually to the negative effect of creating a free trade zone.

In examining the impact of the creation of monetary union is the most frequently cited work of Rose in 2000, "*One Money, One Market: The Effect of Common Currencies on Trade,"* which proved that the two countries together deal more if together create a monetary union, than countries without common currency, when this fact can be attributed primarily decreased transaction costs between the countries and had earlier predicted a fairly large trade exchange.

In examining the impact of the creation of monetary union is the most frequently cited work (Rose, 2000), "*One Money, One Market: The Effect of Common Currencies on Trade*," which proved that the two countries together deal more if together create a monetary union, than countries without common currency, when this fact can be attributed primarily using gravity models, it is possible to examine not only the effects of an economic nature, such as assessment of trade policies of individual states, potential business opportunities, the effects of regional integration and the creation of monetary union but also to analyse some of the more remote areas of the economy such as transport, tourism, urbanization and migration. At the end, we can still say that using gravity models

to examine not only in terms of cross-border flows, but flows within one ekonomiky.esu transaction costs between the countries and had earlier predicted a fairly large trade exchange.

5 ANALYSIS OF THE CZECH FOREIGN TRADE IN THE CZECH REPUBLIC

The Czech Republic is an industrially advanced country with a lack of raw materials base, and thus can not establish a target other than pointing to an active foreign trade balance (Kraus, 2007). In terms of what the Czech Republic, but it is not possible that import cover one hundred percent of exports. The following table shows total external trade of the Czech Republic in long term row. The table provides a brief analysis of the total foreign trade of the Czech Republic, in order to capture the effects of EU entry the major changes that have occurred on foreign trade.

Table 1 Total foreign trade of the Czech Republic

Year	Import	Export	Balance	Turnover
2000	26 263 379	27 305 659	1 042 281	53 569 038
2001	30 418 891	32 501 472	2 082 581	62 920 364
2002	31 262 792	32 210 598	3 947 806	66 473 390
2003	32 515 488	37 843 098	5 327 610	70 358 586
2004	39 743 336	47 406 868	7 663 533	87 150 204
2005	44 047 749	54 005 347	9 957 598	98 053 096
5006	52 598 673	65 224 729	12 626 056	117 823 402
2007	61 126 264	76 642 088	15 515 824	137 768 353
2008	64 744 446	85 014 328	20 269 882	149 758 774
2009	50 379 193	68 931 999	18 552 806	119 311 192
2010	60 616 491	84 550 522	23 934 031	145 167 013
2011	69 893 693	97 533 110	27 639 417	167 426 803
2012	70 803 941	99 294 666	28 490 726	170 098 607
2013	70 838 141	99 030 276	28 192 135	169 868 417
2014	76 987 816	108 312 248	31 324 432	185 300 064
2015	83 471 099	118 462 745	38 833 570	201 933 844

Source CZSO, own analysis

Between 2000 and 2015, the Czech foreign imports and exports increased. Import increased almost four times and export increased more than five times. Turnover in 2015 is

four times larger than in year 2000. Years 2004/2005 were very significant for the Czech Republic´s foreign trade because of accession to the EU.

5.1 Characteristics of the overall development of foreign trade in the years 2000-2015

The Czech Republic is an industrially advanced country with an inadequate resource base, and thus can not establish a target other than pointing to the foreign trade surplus (Kraus, 2007). In the Czech Republic is not possible to import cover one hundred percent by exports. The following table provides a brief analysis of the total foreign trade of the Czech Republic and its development.

Between 2000 and 2015, the Czech imports and exports increased. The largest increase was seen in 2004 and 2005, following the Czech Republic's accession to the EU, which was recorded in both nominal and percentage terms the largest increase in 10 years.

Options of the foreign trade with EU after accession in 2004 greatly facilitated, because before 2004 the trade was strictly regulated. In the years 2004 - 2005 was the increase in business compared to the pre-accession period by tens of percent.

Table shows the development of foreign trade in the years 2000 to 2015 using basic and chain index. The value of exports in 2015 is approximately 3 times higher than the value of exports in 2000 and the value of imports in 2015 is approximately 2.5 times higher than the value of imports in 2000. CZK. The degree of coverage of imports by exports in the period analysed the long-term rise.

Table 2 Basic indicators of development FT in long-time series 2000-2015 (ths USD) and chain and basic indices

Year	Export			Import			Balance	Turnover
	Ths USD	Chain index	Base index	Ths USD	Chain index	Base index	Ths USD	Ths USD
2000	27 305 659	-	-	26 263 379	-	-	1 042 280	53 569 038
2001	32 501 472	1,19	1,19	30 418 891	1,16	1,16	2 082 581	62 920 363
2002	32 210 598	0,99	1,18	31 262 792	1,03	1,19	947 806	63 473 390
2003	37 843 098	1,17	1,39	32 515 488	1,04	1,24	5 327 610	70 358 586
2004	47 406 868	1,25	1,74	39 743 336	1,22	1,51	7 663 532	87 150 204
2005	54 005 347	1,14	1,98	44 047 749	1,11	1,68	9 957 598	98 053 096
2006	65 224 729	1,21	2,39	52 598 673	1,19	2,00	12 626 056	117 823 402
2007	76 642 088	1,18	2,81	61 126 264	1,16	2,33	15 515 824	137 768 352
2008	85 014 328	1,11	3,11	64 744 446	1,06	2,47	20 269 882	149 758 774
2009	68 931 999	0,81	2,52	50 379 193	0,78	1,92	18 552 806	119 311 192
2010	84 550 522	1,23	3,10	60 616 491	1,20	2,31	23 934 031	145 167 013
2011	97 533 110	1,15	3,57	69 893 693	1,15	2,66	27 639 417	167 426 803
2012	99 294 666	1,02	3,64	70 803 941	1,01	2,70	28 490 725	170 098 607
2013	99 030 276	1,00	3,05	70 838 141	1,00	2,33	28 192 135	169 868 417
2014	108 312 248	1,09	3,36	76 987 816	1,09	2,46	31 324 432	185 300 064
2015	118 462 745	1,09	3,13	83 471 099	1,08	2,57	34 991 646	201 933 844

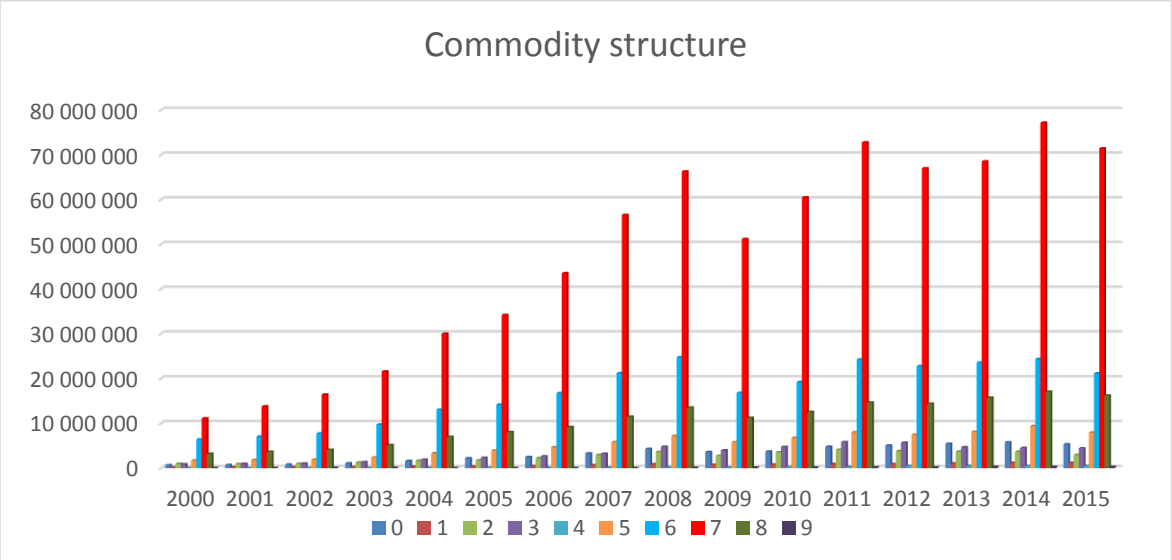
Source: CZSO

5.2 Commodity structure of foreign trade in the period 2000 - 2015

Commodity structure of Czech FT can be divided into two main periods. Period before the entry into the EU (2000 - 2004) and the period after accession to the EU (2004-2015). Period before EU accession was not bound by the commitments and the main criterion was competitiveness of goods that were exported. The second period begins in 2004, the year when the Czech Republic joined the European Union. Since this year the Czech foreign trade must comply with European tariffs, quotas, product standards and other regulations. Accession to the EU has been influenced by the balance of various commodities and overall foreign trade.

5.2.1 Export

Graph 1 Commodity structure - export in 2000-2015 in THS USD

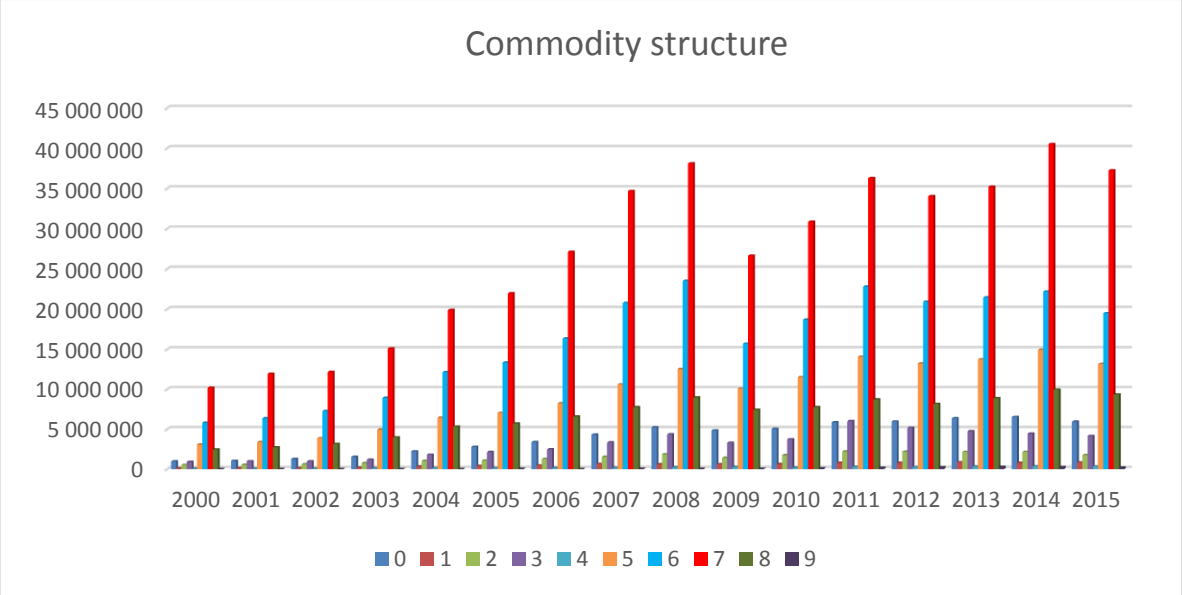


Source CZSO

The most exported commodities in period 2000-2015 were SITC 7 and SITC 6. In the following period, the most important chapters still ranks SITC 7, which even increased its share in total exports and in second place in the context of materiality remains SITC 6. From the point of view of imports structure of foreign trade after the country joins the EU did not change much for most imported commodities include SITC 7. Another very important chapters that had growing tendency since 2004 are SITC 6 and SITC 5.

5.2.2 Import

Graph 2 Commodity structure - import 2000-2015 in THS USD



Source CZSO

The structure of imported and exported commodities after accession to the EU remained almost unchanged, rather there was a dynamic increase in total trade. The most significant changes occurred in SITC 78 and 79, which increased the balance several times.

5.2.3 Balance

The table shows the long-term development of the balance of payments for selected commodities SITC 7, which have the largest share in the foreign trade of the Czech Republic. There are very significant changes that happend after the Czech Republic's entry into the EU. Most commodities have positive balance after the accession to the EU in 2004.

The following table shows that the only commodity that has throughout the test period, the positive balance of payments is the SITC 78 and its value increased from 2000 to 2015 almost $ 15 million. The second greatest increase balance of payments recorded a commodity 74 with nearly 3 million dollars.

Table 3 Balance - commodities SITC 7 ths USD

YEAR/SITC 7	71	72	73	74	75	76	77	78	79	TOTAL
2000	-99 740	-110 467	14 462	-204 398	-633 603	-714 485	-372 760	2 168 711	551	48 270
2001	-120 683	-248 622	-22 319	-112 169	-662 433	-16 824	-911 482	2 428 379	63 397	397 244
2002	110 294	-86 974	-39 341	42 472	207 597	772	-995 252	2 543 424	88 877	1 871 869
2003	122 018	-31 328	-168 846	250 613	608 447	-109 435	-1 113 027	2 955 686	-37 216	2 476 912
2004	246 006	20 284	-222 617	616 184	723 168	560 452	-667 395	3 923 037	95 513	5 294 632
2005	221 699	311 924	-34 553	1 122 954	1 276 718	233 009	-234 063	6 244 139	-266 738	8 875 089
2006	53 910	522 263	3 475	1 616 601	1 351 568	-78 175	-27 244	8 204 607	323 506	11 970 511
2007	371 367	530 243	41 737	1 936 062	1 182 587	507 909	510 202	10 076 829	407 340	15 564 277
2008	793 735	544 149	79 668	2 857 250	1 282 393	1 603 876	1 043 747	11 176 570	649 566	20 030 954
2009	424 098	447 761	318 191	2 222 993	607 269	1 411 762	-255 026	11 037 490	895 262	17 109 799
2010	212 423	779 761	273 444	2 764 098	984 148	814 274	-1 696 668	13 122 242	406 400	17 660 123
2011	55 862	964 874	178 697	3 383 597	1 423 102	1 604 281	980 728	16 062 519	775 443	25 429 102
2012	99 110	1 272 650	263 545	3 335 643	2 426 994	1 559 082	1 220 268	15 711 184	714 309	26 602 786
2013	-41 937	1 247 485	244 994	3 909 792	2 418 794	1 032 221	1 831 542	16 821 519	920 065	28 384 474
2014	-161 520	706 592	155 074	3 509 213	2 888 679	1 134 522	1 738 977	19 171 414	517 818	29 660 768
2015	-857 128	401 079	13 527	3 092 262	680 115	-236 844	1 309 783	17 707 224	821 617	22 931 635

Source C ZSO, Own analysis

5.3 Territorial structure in 2000 – 2015

The most important partners in the framework of imports and exports in recent years, Member States of the European Union, of which it is directed almost 89% of exports and 80% of imports to the Czech Republic. Trade with third countries since 2000 declined, with exports from 21% to 10% and in import from 28% to 17%. The main reasons for the reduction of export and import from third countries are mainly the duty-free single market for the EU Member States and better protected goods. The most important countries outside the EU are mainly Russia, which has almost a 25% share of exports to EU countries, as well as that of the US, Switzerland, Croatia and Ukraine.

The next table shows a comparison of the total exports and imports to the EU 27 and third countries. The table shows that imports and exports to the EU 27 is much higher than foreign trade within third countries. If we compare the import and export of third countries and imports from 2000 to 2015 has increased.

Table 4 Develompent of foreign trade with EU 28 and third countries in 2000-2015 in ths USD

Year	2000	2001	2002	2003	2004	2005	2006	2007
Export	28 997 603	33 358 210	38 504 312	48 708 988	67 193 640	77 984 619	95 143 290	122 760 263
Import	32 106 520	36 453 083	40 735 091	51 238 990	68 244 671	76 339 708	93 429 813	118 466 891
Export EU 28	27 305 659	32 501 472	32 210 598	37 843 098	47 406 868	54 005 347	65 224 729	76 642 088
Import EU 28	26 263 379	30 418 891	31 262 792	32 515 488	39 743 336	44 047 749	52 598 673	61 126 264
Export except EU 28 countries	1 401 126	1 584 377	1 967 040	2 265 775	3 301 614	4 372 881	5 821 365	8 214 620
Import except EU 28 countries	3 273 532	3 435 400	3 454 043	4 357 174	5 354 679	7 426 813	9 045 947	9 306 237
Year	2008	2009	2010	2011	2012	2013	2014	2015
Export	146 405 679	113 175 609	133 019 643	162 896 903	157 166 556	162 302 430	175 016 812	157 880 358
Import	142 171 965	105 255 611	126 600 034	152 121 917	141 514 819	144 319 873	154 233 193	141 366 178
Export EU 28	85 014 328	68 931 999	84 550 522	97 533 110	99 294 666	99 030 276	108 312 248	118 462 745
Import EU 28	64 744 446	50 379 193	60 616 491	69 893 693	70 803 941	70 838 141	76 987 816	83 471 099
Export except EU 28 countries	10 189 974	7 409 704	9 440 809	12 900 985	14 118 428	14 555 838	13 499 061	10 049 091
Import except EU 28 countries	14 214 260	9 074 663	11 747 129	14 459 833	13 985 045	14 088 470	12 044 082	9 002 673

Source CZSO

It turns out that in the Czech Republic after EU accession not revolutionary structural changes and is stable, because the business is focused primarily on neighboring countries and the EU.

5.4 Foreign trade with third countries

In years 2000 - 2003 was the foreign trade with third countries in terms of percentage on a much higher level than after accession into the EU. On joining the EU the Czech Republic started far more trade with EU countries. Exports to third countries since 2000 decreased. Although the value of the USD over the period analysed grows, the value of total exports grow many times bigger, and therefore the value of exports to third countries, drops in percentage.

5.4.1 Export

The following table shows the evolution of commodity exports to third countries. The most important countries outside the EU, Russia's exports. In the analysed period, ie in the years 2000-2015, the value of exports to third countries, however, compared with the total export of agricultural commodities percentage stagnates. From the value in 2000, when exports amounted to nearly 1,400 miles. USD, which was 5% of the total agricultural export value increased to 10,000 miles. USD, and yet it is the percentage grow by only 1%.

Table 5 export to third countries in 2000-2015(ths USD)

Year	Export	Export except EU 28 countries	Export except EU 28 countries in %
2000	28 997 603	1 401 126	5%
2001	33 358 210	1 584 377	5%
2002	38 504 312	1 967 040	5%
2003	48 708 988	2 265 775	5%
2004	67 193 640	3 301 614	5%
2005	77 984 619	4 372 881	6%
2006	95 143 290	5 821 365	6%
2007	122 760 263	8 214 620	7%
2008	146 405 679	10 189 974	7%
2009	113 175 609	7 409 704	7%
2010	133 019 643	9 440 809	7%
2011	162 896 903	12 900 985	8%
2012	157 166 556	14 118 428	9%
2013	162 302 430	14 555 838	9%
2014	175 016 812	13 499 061	8%
2015	157 880 358	10 049 091	6%

Source CZSO

5.4.2 Import

Development of imports from third countries nepatrnľ percentage is growing. Czech Republic and other EU countries favor EU markets, mainly because of the duty-free market and better protection market. In 2000, the share of imports from third countries in total imports nearly 5% with a value of 1,401 miles USD, in 2015 the value of imports rose to nearly 9% in 2015, the value was back at 6% of the total exports of Czech Republic.

For the most part, the EU imports from third countries are mainly products uncompetitive nature.

Table 6 Import to third countries in 2000-2015 (ths USD)

Year	Import	Import except EU 28 countries	Import except EU 28 countries in %
2000	32 106 520	3 273 532	10%
2001	36 453 083	3 435 400	9%
2002	40 735 091	3 454 043	8%
2003	51 238 990	4 357 174	9%
2004	68 244 671	5 354 679	8%
2005	76 339 708	7 426 813	10%
2006	93 429 813	9 045 947	10%
2007	118 466 891	9 306 237	8%
2008	142 171 965	14 214 260	10%
2009	105 255 611	9 074 663	9%
2010	126 600 034	11 747 129	9%
2011	152 121 917	14 459 833	10%
2012	141 514 819	13 985 045	10%
2013	144 319 873	14 088 470	10%
2014	154 233 193	12 044 082	8%
2015	141 366 178	9 002 673	6%

Source CZSO, own analysis

5.5 Comparativeness and competitiveness

„ *Ability to achieve basic economic goals“*

(Kjeldsen-Kragh, 1973)

Competitiveness is generally defined as the ability to succeed in domestic and world markets with positive effect.

Ability to assert themselves and gain a competitive advantage in the global or regional market is crucial for the successful development of every sector of the economy. Current EU and its individual member states is among the leading economies of the world. (Smutka, 2011)

Table 7 Commodities SITC 7

71	Machinery and equipment for energy
72	Machinery specialized for particular industries
73	Metalworking machinery
74	Machinery and equipment generally used in industry
75	Office machines and automatic. data processing
76	Equipment for telecommunications and sound recording and reproducing
77	Electrical machinery, apparatus and appliances
78	Road vehicles
79	Other transport equipment

Source CZSO

5.5.1 Competitiveness of choosen comodities

The table shows the index using RCA 1 in the EU 28 and third countries competitiveness of capitol SITC 7. The comparative advantage of most chapters are much higher in third countries compared to the comparative advantages of EU member states.

Comparative advantages in the EU 28 reached most chapters, both in the pre-accession period and after accession to the EU. In chapters 75, 76, 77 and 78 after 2004, a very significant increase in the index of RCA, which means improving comparative advantages in these chapters.

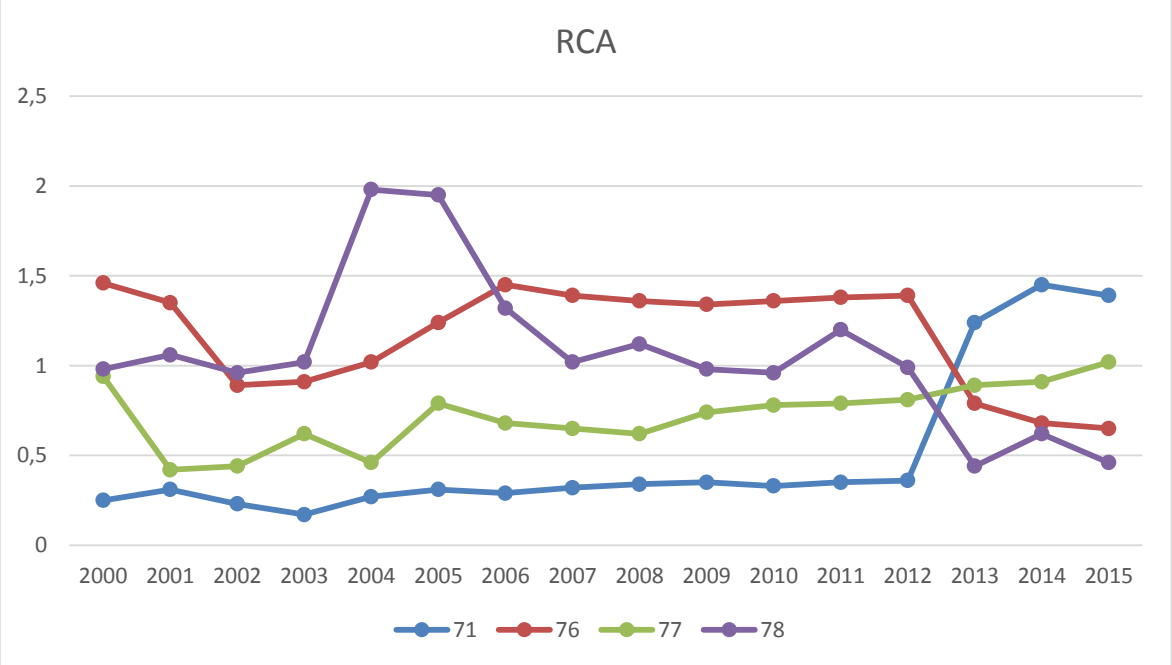
Table 8 Comparative advantage in 2000-2015 SITC 7

SITC	2000		2005		2010		2015		2000-2015	
	RCA EU 28	RCA third countries	RCA EU 28	RCA third countries	RCA EU 28	RCA third countries	RCA EU 28	RCA third countries	Basic index EU 28	Basic index third countries
71	0,93	3,64	0,9	4,61	1,2	1,9	1,04	0,96	1,11	0,26
72	0,82	8,47	0,88	6,84	0,95	2,74	0,94	3,4	1,15	0,4
73	0,84	3,91	0,89	3,99	0,94	4,34	0,93	5,13	1,1	1,31
74	1,55	0,43	1,25	0,44	1,05	0,64	1,09	0,52	0,71	1,23
75	0,84	4,39	0,88	8,89	0,93	0	0,92	7,12	1,1	1,62
76	0,87	3,06	0,93	3,2	0,97	4,77	0,92	5,53	1,06	1,8
77	0,85	6,92	0,92	4,55	0,94	7,31	0,94	3,56	1,11	0,51
78	0,82	8	0,88	9,15	0,92	4,16	0,92	4,12	1,12	0,52
79	0,88	2,22	1,02	0,79	0,98	1,18	0,94	3,41	1,07	1,54

Source CZSO, own analysis

Commodity structure is evaluated in the context of comparative advantages. Comparative advantages reached four of the nine chapters listed. Chapter SITC 78 and 79 reached between 2002 and 2003, when it was recorded very low export and this is reflected in the evaluation of these chapters.

Graph 3 Choosen commodities RCA EU 28



Source:Own analysis

5.6 Gravity model

Gravity models are used due to its high empirical success in explaining different flows in areas such as migration or tourism (Bergstrand, 1985). In the case of foreign trade based on this model is the idea that trade volume is determined by economic power individual countries and further affect other factors suppressive or strengthening trade relations between countries.

In other words, the very economic activity creates a space for the exchange of goods and services. The stronger economic activity in different centers, the more you can expect the flow of goods and services between these centers. However, there are other factors that these flows may dampen or strengthen. Gravity model of international trade as opposed to a classical model, it does not address the commodity structure of trade, but its value. In our model we apply the gravity model of foreign trade Czech Republic and other EU member states.

The gravity equation foreign trade traditionally consists of variables reflecting supply and demand potential of the home country of a foreign country (GDP, population) and the supporting factors and quench foreign trade (membership in international economic groupings, the distance between countries or cultural differences) (Egger and Pfaffermayr, 2003). In this form, the gravity equation can be estimated using standard panel data analysis. It is a common practice in the trade literature employed by most of researchers (Moser, 2006; Bussière, 2005; Plchová, 2013).

In order to estimate the parameters of the gravity equation, standard panel data are used. In econometrics, it is generally desirable to have a sufficient amount of observations to get as accurate results as possible. In terms of panel data, one has to acquire a number of individuals N in a number of time periods T. These are called the cross-section and time-series dimensions of the panel.

5.6.1 Variables of gravity model

Like most response variable is elected by the volume of exports of the countries surveyed and in country j (Egger 2002; Ševela 2002 Nitsch; 2007) and total bilateral trade (Melitz 2007; Grant and Lambert 2008; Gifts 2009). Furthermore, although not as often,

then we can also meet with modeling imports, the country and the country j (Suárez-Burguet, 2005).

Variable population then represents the physical size of the population and is one of the components of aggregate demand for foreign goods. When countries with larger populations have less need to use trade to obtain a specialization and economies of scale, because a large portion of domestic demand are able to cover its own production. Generally therefore where a variable population assumes a negative sign. Some authors such as Oguledo and MacPhee in 1994 and then intend the possibility of a positive factor, because large domestic market deepening division of labor and creates the possibility of a broad diferencializace products, which can then serve as an export commodity. In practice, the more often instead of the variable conversion population uses GDP per capita (Nilsson 2000; Sohn 2005; Stack 2009), which better represents the purchasing power of the population exporting and importing countries. The third category of variables are then classified the distance between the two countries, which have been included in the initial model formulated by Tinbergen in 1962, along with the growing distance dew transaction costs of securing trade, which can give this parameter can expect a negative correlation. (Shepherd, 2012).

Variable type common border is closely associated with the geographic distance at which it expects positive sign, given the cultural and historical proximity of the two countries. As an additional variable in this category is then placed a variable of type common language when it is assumed that countries with a common language they share strong historical bond which is then reflected also in the trade. Both of these variables then have the values zero or one, depending on the fulfillment of certain conditions. Other possible variables are listed in the following summary table and their expected effect on foreign trade.

Table 9 Variables

Variable	Type of variable	Presumption of action	Variable	Type of variable	Presumption of action
Offer from exporting country			**Demand from importing countries**		
GDP / GNP exporting country	Quantitative	+	HDP/HNP dovozní země	Quantitative	+
The population of the exporting country	Quantitative	+ či -	The population of the importing country	Quantitative	+ či -
GDP / GNP per capita export country	Quantitative	+ či -	GDP / GNP per capita of the importing country	Quantitative	+ či -
Factors conducive or restricting trade					
a) Geografické faktory ovlivňující náklady			**d) Foreign and Trade Policy**		
Distance	Quantitative	-	Duty	Quantitative	-
common border	dummy	+	tariff preferences	dummy	+
landlocked country	dummy	-	**e) Foreign exchange risk**		
b) Historical links	Exchange rate	quantitative	+		
A common language	dummy	+	The common currency	dummy	+
common religion	dummy	+	Exchange rate index	Quantitative	+
former colonies	dummy	+	**f) Others**		
c) Agreement	Inflation	quantitative	-		
Signed contracts	dummy	+	political stability	dummy / quantitative	+
Membership in trade blocks	dummy	+	infrastructure quality	dummy / quantitative	+

Since the dependent variable in the gravity model is export from the Czech Republic, the product of GDP and the product of per capita GDP have been used as independent variables. We have added some additional independent variables in our model. The model is therefore "augmented" in the sense that several conditioning variables that may affect trade have been included. Thus the following gravity equation of trade for our regression analysis.

The Gravity model has been central to forecasting the effects on trade flows if the UK leaves the EU ('Brexit').

The data used for the analysis come from different sources: Czech Statistical Office, Czech Export Bank (data provided by the export promotion), International Monetary Fund (GDP, population) and World Developement Indicators 2016.

5.6.2 Data set

Economic model

We model a relationship $Y = f(X1, X2, X3, X4, X5)$

Y_i = Export

$X_{1,i}$ = GDP (foreign country)

$X_{2,i}$ = GDP Czech

$X_{3,i}$ = GDP per capita Czech

$X_{4,i}$ = GDP per capita (foreign country)

$X_{5,i}$ = Distance

Assumptions

We assume that:

- We can prove for the Czech Republic that volume of trade rises when GDP of export/import goes up.

- Trade volume with its trade partner is significantly and negatively affected by the geographical distance between them.

Econometric model

We estimate that our model is linear and therefore has the functional form:

$$Y_{1t} = \gamma_{10}X_{0t} + \gamma_{11}X_{1t} + \gamma_{12}X_{2t} + \gamma_{13}X_{3t} + \gamma_{14}X_{4t} - \gamma_{15}X_{5t} + u_{1t}$$

Data table

In the table below you can see choosen country as an example of data table. We have to estimate this data in Gretl and also include the distance, which is for this country 333 km. We also make correlation matrix, which doesn't show multicollinearity. Multicollinearity occurs when the absolute value of relation between one exogenous variable and second one is higher than 0.8. In our case we do not have to use multicollinearity elimination.

Table 10 Example of data set for one country (Austria)

Country	t	Export	GDP AUS	GDP CZECH	GDP per capita AUS.	GDP per capita Czech
Austria	2000	1 732 941	196 953 628 635	61 474 265 135	29 566	16 283
Austria	2001	1 920 587	196 953 628 635	67 375 623 428	29 857	17 650
Austria	2002	2 133 648	212 970 685 112	81 696 651 659	31 262	18 318
Austria	2003	3 042 787	260 721 478 555	99 300 329 682	32 202	19 609
Austria	2004	4 035 647	299 857 238 639	118 976 023 160	33 801	20 985
Austria	2005	4 373 807	314 648 986 445	135 990 215 967	34 691	22 287
Austria	2006	4 856 499	334 309 371 472	155 213 006 072	37 626	24 401
Austria	2007	5 628 310	386 458 951 547	188 818 155 388	39 234	26 681
Austria	2008	6 937 945	427 611 527 757	235 204 812 643	41 152	27 112
Austria	2009	5 295 297	397 594 276 188	205 729 790 694	40 620	27 009
Austria	2010	6 280 818	390 235 099 338	207 015 860 050	41 893	27 070
Austria	2011	7 406 770	429 010 675 563	227 313 162 936	44 022	28 604
Austria	2012	7 246 084	407 373 026 612	206 441 578 343	45 858	28 728
Austria	2013	7 364 139	428 698 577 647	208 328 435 109	47 416	30 044
Austria	2014	7 567 423	436 887 543 467	205 269 709 744	47 707	31 186
Austria	2015	6 428 029	374 055 872 241	181 811 026 983	47 824	32 167

Source: National bank, 2016

5.6.3 Gret l estimation

For Gretl estimation we are using data for EU 28. In the table you can see results for panel data, which have been used for estimation our gravity model. This model is very unique because of application panel data for gravity model.

	koeficient	směr. chyba	t-podíl	p-hodnota	
const	−2,45766e+06	1,75616e+06	−1,399	0,1624	
GDP	5,68478e−06	3,03318e−07	18,74	1,35e−057	***
GDPCZECH	−2,35190e−06	1,08112e−05	−0,2175	0,8279	
GDPpercapita	−35,4513	19,3045	−1,836	0,0670	*
GDPpercapitaCzech	237,086	127,728	1,856	0,0641	*
Distance	−1281,56	239,901	−5,342	1,50e−07	***

Mean dependant variable	3362786	S. D. Dependent var	7497292
Sum squared resid.	1.16e+16	S. E. Of regression	5208719
R – squared	0.822926	Adjusted R-squared	0.797327
F(5, 426)	93.38882	P - value (F)	3.10e-66
Log.- likelihood	−7291.205	Akaike criterion	14594.41
Schwarz criterion	14618.82	Hannan-Quinn	14604.05
rho	0.333879	Durbin-Watson	1.277375

Variable		Parameters
const	γ_{0t}	24576606
X1	γ_{1t}	5.68478
X2	γ_{2t}	−2.35190
X3	γ_{3t}	−35.4513
X4	γ_{4t}	237.086
X5	γ_{5t}	-1281.56

5.6.4 Economic verification

$$\boldsymbol{Y_{1t} = 24576606 + 5.68478X_{1t} - 2.35190\Delta X_{2t} - 35.4513X_{3t} + 237.086X_{4t} - 1281.56X_{5t} + u_t}$$

By comparing the calculated parameter estimates with our theoretical expectations, we concluded that the parameter of the directive:

γ_1 meets theoretical assumptions. We can prove for the Czech Republic that volume of trade rises when GDP of export/import goes up.

γ_2 meets theoretical assumptions. We can prove that trade volume with its trade partner is significantly and negatively affected by the geographical distance between them.

5.6.5 Statistical verification

R-squared

Because $R^2 = 0.8229$ our estimated linear model explained 82.29% function. F-statistic is equal to 93.38882 and the model is statistically conclusive.

T-test

Using the t-test, we check whether the individual parameters are conclusive. We calculate the Test statistic, on the level of significance 5%:

t-value	t-critical; α=0,05	Significant/Not Significant
t_{X_0} = 1.399	2.2141	N
t_{X_1} = 18.74	2.2141	S
t_{X_2} = 0.2175	2.2141	N
t_{X_3} = 1.836	2.2141	N
t_{X_4} = 1.856	2.2141	N
t_{X_5} = 5.342	2.2141	S

Critical quantile for the hypothesis H_1 is = 2. 2141. We can say that the coefficients γ_1 and γ_5 are statistically significant at the 5% significance level, because these values are higher than 2.2141.

According to F (5.426) which has the value 93.38882, which is higher than statistical value 2.2141. We can say, that our data are conclusive.

5.6.6 Econometric verification

Autocorrelation

Darwin-Watson test, Breusch-Godffrey test and Cochrene-Orrcute method. Breusch-Godffrey test is used to detect autocorrelation in the model in this project.

The hypotheses to test autocorrelation are:

H_0: no autoroccelation in the model

H_1: autocorrelation in the model

$\alpha = 0.05$

The p-value is equal to 3.10e-66, which is higher the level of significance therefore we can not reject the null hypothesis. There is no autocorrelation in the model.

Panel data, which are used for my gravity model proves the aforementioned hypethesis to be correct.

6 RESULTS AND DISCUSSION

The aim of this work is the analysis of the Czech foreign trade with EU countries. After 2004, the conditions for the trade policy of the Czech Republic has been very significantly changed. Before joining the EU, the Czech Republic had its own tools to protect the market and determine their own trade rules, but joining the EU will become part of the common trade policy and has taken its rules and regulations. The main changes include the amendment of the tariffs of the EU to third countries, mainly due to greater market protection. In the years 2000 - 2015 foreign trade in terms of both imports and exports grew.

The value of imports in 2000 (26 mil USD) increased to a value of 2015 (83 mil USD). The value of exports recorded an increase and from 2000 to 2015 almost fivetimes. The foreign trade balance since 2000 - 2015 increased by 33 mil USD.

The most exported commodities were SITC 7 and SITC 6. In the following period, the most important chapters still ranks SITC 7, which even increased its share in total exports and in second place in the context of materiality remains SITC 6. From the point of view of imports structure of foreign trade after the country joins the EU did not change much for most imported commodities include SITC 7. Another very important chapters that had growing tendency since 2004 are SITC 6 and SITC 5.

Territorially, the structure of foreign trade has not changed much. The Czech Republic always traded with neighboring countries, such as Germany, Slovakia and Poland and these countries are among the most important trading partners after accession EU in 2004. What has changed is, however, the value of imported and exported commodities, both within the EU member countries as well as third countries.

Imports from EU 28 amounted about 26 mil USD in 2000 and in 2015 was much higher and up to 83 mil USD. Exports in the period 2000-2015 had approximately the same growth rate. The value of imports and exports within the third countries in these years is also increasing, but the percentage share of third countries in the total value decreases. The most important third countries are mainly Russia, accounting for 25% of total trade with third countries, and the United Kingdom.

In terms of the competitiveness of the commodity does not reach the majority of comparative advantage, but only on a global scale. If we focus on EU member states, RCA index is approaching or exceeded the value of most commodities. In comparison with third countries, the values of comparative advantage is higher than in EU countries. Detailing the competitiveness of their exports is shown in the table.

Our results reveal that trade with the twenty-eight European Union countries is affected positively by economic size and per capita GDP, and negatively by the distance between the trading partners.

Panel data, which are used for my gravity model proves the aforementioned hypethesis to be correct.

7 CONCLUSION

Based on the comparison of indicators can be seen a number of changes that occurred after the accession to the EU, mainly due to globalization and liberalization of foreign trade and subsequent growth of foreign trade. After 2004, the conditions for the trade policy of the Czech Republic very significantly changed. Before joining the EU, the Czech Republic had its own tools to protect the market and determine their own trade rules, but joining the EU will become part of the common trade policy and has taken its rules and regulations. The main changes include the amendment of the tariffs of the EU to third countries, mainly due to greater protection trhu.V internal EU trade started for the Czech Republic to pay particular the removal of customs barriers.

From a territorial point of view, in recent years the trend deepens in trade with European Union countries. In recent years, the EU imports accounted for nearly 85% of exports and 90%. The most important trading partners within the EU are Germany, Poland and Slovakia, outside the EU, it is Russia that foreign trade accounts for almost 25%.

The structure of imported and exported commodities after accession to the EU remained almost unchanged, rather there was a dynamic increase in total trade. The most significant changes occurred in SITC 78 and 79, which increased the balance several times.

Commodity structure is evaluated in the context of comparative advantages Comparative advantages reached four of the nine chapters listed. Chapter SITC 78 and 79 reached between 2002 and 2003, when it was recorded very low export and this is reflected in the evaluation of these chapters.

In conclusion about gravity model and panel data we'd like to mention some of our important results. In one equation model we searched relationship between export and five others variables. After observed multicolinearity and autocorrelation we found out, that our model is statisticaly significant. We established economic theory and both our assumptions, which are that we can prove for the Czech Republic that volume of trade rises when GDP of export/import goes up and trade volume with its trade partner is significantly and negatively affected by the geographical distance between them.meet the theory. The test of significance of parameters showed significant parameter X5, which was distance,on

the 5% level of significance. Our estimated linear model explained 82 % function. F-statistic also proved that the model is statistically conclusive.

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9 Appendix

1. Tables

2. Graphs

3. Attached tables

Year	Import	Export	Balance	Turnover
2000	26 263 379	27 305 659	1 042 281	53 569 038
2001	30 418 891	32 501 472	2 082 581	62 920 364
2002	31 262 792	32 210 598	3 947 806	66 473 390
2003	32 515 488	37 843 098	5 327 610	70 358 586
2004	39 743 336	47 406 868	7 663 533	87 150 204
2005	44 047 749	54 005 347	9 957 598	98 053 096
5006	52 598 673	65 224 729	12 626 056	117 823 402
2007	61 126 264	76 642 088	15 515 824	137 768 353
2008	64 744 446	85 014 328	20 269 882	149 758 774
2009	50 379 193	68 931 999	18 552 806	119 311 192
2010	60 616 491	84 550 522	23 934 031	145 167 013
2011	69 893 693	97 533 110	27 639 417	167 426 803
2012	70 803 941	99 294 666	28 490 726	170 098 607
2013	70 838 141	99 030 276	28 192 135	169 868 417
2014	76 987 816	108 312 248	31 324 432	185 300 064
2015	83 471 099	118 462 745	38 833 570	201 933 844

Source:CZSO

IMPORT SITC 2000-2015

	0	1	2	3	4	5	6	7	8	9
2000	964 947	114 517	538 535	923 720	59 894	3 092 430	5 807 729	10 180 826	2 457 189	10 413
2001	1 051 185	127 852	551 211	990 026	70 975	3 384 663	6 378 348	11 953 572	2 729 831	9 076
2002	1 276 021	145 645	611 453	963 895	80 043	3 891 423	7 276 072	12 176 860	3 138 964	7 901
2003	1 544 527	206 290	765 329	1 203 505	119 886	4 951 021	8 949 301	15 106 048	3 977 285	12 805
2004	2 227 428	331 901	1 028 013	1 808 071	142 281	6 440 649	12 161 992	19 899 338	5 332 580	8 797
2005	2 790 412	405 906	1 073 764	2 157 879	131 312	7 053 405	13 350 708	21 972 556	5 722 705	42 802
2006	3 380 808	472 329	1 291 990	2 479 694	150 279	8 251 514	16 365 195	27 127 928	6 586 826	24 428
2007	4 327 428	659 021	1 550 889	3 351 889	155 209	10 626 534	20 778 364	34 685 041	7 766 001	31 751
2008	5 234 640	611 789	1 854 260	4 346 637	255 004	12 539 140	23 528 978	38 132 881	8 979 534	50 521
2009	4 843 970	621 808	1 425 400	3 315 704	279 339	10 078 135	15 717 916	26 653 556	7 440 978	54 391
2010	5 047 154	639 814	1 760 611	3 739 854	195 749	11 529 987	18 704 458	30 865 295	7 762 575	90 280
2011	5 882 109	782 922	2 202 139	6 024 039	312 213	14 078 805	22 806 441	36 294 162	8 736 960	171 544
2012	5 964 703	799 221	2 188 417	5 179 221	264 745	13 235 246	20 935 700	34 062 613	8 177 671	211 511
2013	6 394 254	872 514	2 163 504	4 744 671	329 977	13 760 820	21 448 603	35 219 032	8 890 676	285 076
2014	6 540 110	800 108	2 160 913	4 452 834	356 534	14 950 672	22 190 356	40 536 086	9 961 307	243 196
2015	5 956 131	834 683	1 769 448	4 158 745	359 249	13 167 804	19 492 124	37 262 899	9 349 903	192 822

Source:CZSO

EXPORT

	0	1	2	3	4	5	6	7	8	9
2000	663 480	188 743	954 271	842 038	30 797	1 721 442	6 415 151	11 091 111	3 214 198	19 808
2001	721 895	205 674	943 967	948 146	36 297	1 810 630	7 029 429	13 771 634	3 630 800	26 421
2002	799 078	235 850	990 735	1 050 776	27 288	1 873 080	7 723 216	16 417 078	4 092 016	49 171
2003	1 091 240	249 310	1 246 721	1 363 904	33 746	2 368 574	9 698 246	21 553 780	5 147 783	58 216
2004	1 631 379	304 987	1 671 576	1 886 785	39 405	3 335 430	13 044 067	29 992 093	6 963 231	32 757
2005	2 232 238	384 026	1 741 072	2 310 995	71 204	3 941 048	14 168 621	34 197 266	8 036 508	19 086
2006	2 485 756	414 697	2 237 058	2 624 628	68 116	4 676 880	16 734 660	43 528 593	9 179 879	24 678
2007	3 293 526	646 311	2 956 565	3 221 966	99 321	5 786 447	21 189 483	56 529 872	11 461 454	36 070
2008	4 293 782	871 605	3 606 005	4 769 832	153 790	7 188 302	24 709 329	66 274 385	13 517 140	67 860
2009	3 622 095	786 786	2 765 597	3 953 792	156 009	5 760 195	16 808 504	51 161 325	11 202 718	91 395
2010	3 691 687	810 887	3 572 400	4 728 303	240 777	6 738 411	19 201 574	60 481 632	12 537 436	134 591
2011	4 772 080	897 023	4 101 983	5 820 083	265 446	8 013 917	24 262 219	72 788 687	14 659 522	173 949
2012	5 055 567	924 158	3 795 788	5 678 316	466 846	7 475 698	22 736 821	66 992 660	14 351 146	196 893
2013	5 421 015	1 037 010	3 728 572	4 678 284	469 347	8 095 374	23 563 683	68 537 934	15 720 740	296 630
2014	5 725 752	1 209 140	3 641 564	4 487 774	501 007	9 389 310	24 347 015	77 157 606	17 080 469	299 389
2015	5 298 015	1 208 058	2 948 208	4 424 645	505 459	7 923 981	21 128 791	71 429 435	16 224 873	285 916

Source:CZSO

Data for Gretl

Country	t	Export	GDP AUS	GDP CZECH	GDP per capita AUS.	GDP per capita Czech	Distance
Austria	2000	1 732 941	196 953 628 635	61 474 265 135	29 566	16 283	333
Austria	2001	1 920 587	196 953 628 635	67 375 623 428	29 857	17 650	333
Austria	2002	2 133 648	212 970 685 112	81 696 651 659	31 262	18 318	333
Austria	2003	3 042 787	260 721 478 555	99 300 329 682	32 202	19 609	333
Austria	2004	4 035 647	299 857 238 639	118 976 023 160	33 801	20 985	333
Austria	2005	4 373 807	314 648 986 445	135 990 215 967	34 691	22 287	333
Austria	2006	4 856 499	334 309 371 472	155 213 006 072	37 626	24 401	333
Austria	2007	5 628 310	386 458 951 547	188 818 155 388	39 234	26 681	333
Austria	2008	6 937 945	427 611 527 757	235 204 812 643	41 152	27 112	333
Austria	2009	5 295 297	397 594 276 188	205 729 790 694	40 620	27 009	333
Austria	2010	6 280 818	390 235 099 338	207 015 860 050	41 893	27 070	333
Austria	2011	7 406 770	429 010 675 563	227 313 162 936	44 022	28 604	333
Austria	2012	7 246 084	407 373 026 612	206 441 578 343	45 858	28 728	333
Austria	2013	7 364 139	428 698 577 647	208 328 435 109	47 416	30 044	333
Austria	2014	7 567 423	436 887 543 467	205 269 709 744	47 707	31 186	333
Austria	2015	6 428 029	374 055 872 241	181 811 026 983	47 824	32 167	333

Source:NATIONAL BANK

Country	European Union	Austria	Belgium	Bulgaria	Croatia	Cyprus	Czech Republic	Denmark	Estonia	France	Germany	Greece	Hungary	Ireland	Italy	Latvia	Lithuania	Luxembourg	Malta	Netherlands	Poland	Portugal	Romania	Slovak Republic	Slovenia	Spain	Sweden	United Kingdom
2000	8,818,086,715,617.1	196,953,628,635.3	237,904,919,845.2	13,148,099,185.2	21,774,273,832.1	9,929,632,422.2	61,474,265,134.5	164,158,800,460.2	5,685,773,518.8	1,368,438,363,736.9	1,949,953,934,033.5	130,133,845,771.1	47,169,872,903.5	99,833,960,199.0	1,141,760,021,927.4	7,934,770,567.8	11,539,211,480.4	21,375,345,494.7	3,957,418,082.8	412,807,259,996.3	171,885,598,582.6	118,358,489,957.6	37,438,527,799.5	29,114,875,621.9	20,342,197,589.3	595,402,616,546.9	259,802,012,617.1	1,554,801,028,900.0
2001	8,922,661,784,767.6	196,953,628,635.3	237,841,610,738.3	14,135,393,875.6	23,289,671,102.3	10,328,979,963.6	67,375,623,427.5	164,791,416,350.3	6,245,072,061.6	1,382,218,344,519.0	1,950,648,769,574.9	136,191,353,467.6	53,656,435,272.0	109,076,737,091.7	1,162,317,840,447.4	8,347,312,514.0	12,252,498,921.0	21,052,080,536.9	3,917,620,727.9	426,573,601,789.7	190,521,263,343.0	121,545,880,984.3	40,716,836,998.0	30,703,017,449.7	20,875,389,930.9	625,975,838,926.2	239,917,320,967.0	1,535,942,133,295.0
2002	9,732,741,442,663.5	212,970,685,112.0	258,860,342,556.0	16,360,346,653.8	26,878,499,206.0	11,345,759,615.4	81,696,651,658.9	178,635,160,297.4	7,322,068,380.9	1,500,337,850,555.2	2,079,136,081,310.0	153,830,947,016.8	67,516,529,106.7	127,937,524,280.1	1,266,510,668,643.0	9,537,868,349.2	14,278,357,283.7	23,308,582,721.6	4,296,164,768.3	465,368,906,455.9	198,680,637,254.9	134,228,697,534.4	46,174,557,555.6	35,083,608,131.0	23,563,581,047.4	705,145,868,624.1	263,926,220,332.5	1,680,256,294,964.0
2003	11,859,660,657,836.3	260,721,478,555.3	319,003,386,004.5	21,074,775,206.3	34,658,113,497.4	14,445,240,090.6	99,300,329,682.0	218,095,997,085.5	9,833,875,338.8	1,848,124,153,498.9	2,505,733,634,311.5	201,924,270,316.0	84,998,508,738.3	164,537,038,261.9	1,569,649,631,715.6	11,734,856,721.2	18,802,576,988.2	29,206,884,875.8	5,119,621,569.3	571,863,431,151.2	217,513,049,291.6	164,964,195,259.6	59,867,801,204.8	46,731,767,494.4	29,697,443,017.5	906,853,273,137.7	331,108,912,605.3	1,943,025,306,122.5
2004	13,701,690,846,114.8	299,857,238,639.2	370,885,274,397.8	26,094,622,563.6	41,574,530,815.5	17,164,625,000.0	118,976,023,159.7	251,242,843,551.3	12,059,204,968.9	2,124,112,242,364.0	2,819,245,095,604.7	240,521,260,988.3	103,641,111,184.5	193,911,407,996.0	1,798,314,755,525.2	14,359,465,331.1	22,649,930,576.3	34,343,804,320.8	5,643,525,281.9	650,532,654,581.6	253,528,543,307.1	189,187,437,298.2	76,216,441,462.1	57,240,535,137.8	34,470,229,197.8	1,069,555,500,372.5	381,705,425,301.7	2,297,889,051,629.4
2005	14,334,011,439,138.0	314,648,986,444.5	387,365,999,253.8	29,821,662,537.3	45,416,076,680.9	18,270,009,451.3	135,990,215,966.7	264,559,522,419.9	14,006,093,769.4	2,203,678,646,934.5	2,861,410,272,354.2	247,783,001,865.4	112,530,908,271.0	211,388,699,291.1	1,852,661,936,077.6	16,903,250,777.8	26,125,575,942.3	36,977,365,999.3	5,990,648,162.0	678,533,764,457.2	304,410,137,536.7	197,304,513,120.3	99,697,566,667.8	62,493,023,255.8	36,346,971,769.7	1,157,276,458,152.0	389,042,298,376.8	2,418,941,818,181.8
2006	15,295,130,473,683.3	334,309,371,471.6	409,813,072,387.4	34,304,448,149.8	50,453,577,898.5	19,866,878,478.7	155,213,006,072.0	282,961,088,316.4	16,963,630,661.1	2,325,011,918,203.5	3,002,446,368,084.3	273,317,737,046.8	114,733,732,591.9	231,995,095,847.4	1,942,633,841,801.5	21,410,922,999.7	30,216,060,233.4	41,913,561,661.0	6,365,500,031.9	726,649,102,998.4	343,261,472,028.9	208,566,948,939.9	123,533,036,667.9	70,388,970,016.3	39,587,730,523.1	1,264,551,499,184.5	420,032,121,655.7	2,588,077,276,908.9
2007	17,685,550,146,489.5	386,458,951,546.7	471,821,790,309.3	44,765,733,380.0	60,093,155,532.8	23,716,042,497.1	188,818,155,388.1	319,500,339,842.4	22,237,065,425.7	2,663,112,510,265.5	3,439,953,462,907.2	318,497,936,901.2	139,079,807,957.3	269,714,892,827.8	2,203,053,327,128.4	30,847,189,167.0	39,738,180,076.6	50,323,159,047.4	7,466,219,568.5	839,419,655,078.0	428,762,961,089.6	240,169,336,162.1	171,536,685,395.6	86,072,414,453.9	48,114,700,246.4	1,479,341,637,010.7	487,816,328,342.3	2,969,733,893,557.4
2008	19,029,134,448,898.9	427,611,527,757.4	518,626,043,650.2	54,666,642,734.3	70,481,451,814.3	27,493,064,742.4	235,204,812,643.1	352,591,553,716.1	24,194,038,377.0	2,923,465,651,091.3	3,752,365,607,148.1	354,460,802,548.7	157,094,861,350.1	274,713,996,338.1	2,390,729,210,487.8	35,542,093,261.2	47,850,551,148.8	55,144,865,973.3	8,554,293,727.1	936,228,211,513.1	530,185,123,692.5	262,007,590,449.7	208,181,626,906.0	100,076,967,921.5	55,589,863,776.2	1,634,989,014,208.3	513,965,650,650.1	2,793,376,838,235.3
2009	17,020,888,550,380.2	397,594,276,187.8	484,552,653,514.9	51,783,454,183.6	62,703,095,750.5	25,593,262,400.9	205,729,790,694.0	319,762,353,336.2	19,652,486,801.9	2,693,827,452,070.0	3,418,005,001,389.3	330,000,252,153.4	129,774,040,645.1	235,387,174,076.1	2,185,160,158,794.1	26,144,610,786.8	37,440,673,477.9	50,386,496,249.0	8,099,400,961.0	857,932,759,099.8	436,476,394,987.3	243,745,748,819.1	167,422,949,529.4	88,661,433,731.6	50,244,790,219.5	1,499,074,742,984.2	429,657,033,107.7	2,314,577,036,921.6
2010	16,946,058,883,844.3	390,235,099,337.7	483,577,483,443.7	49,939,168,133.2	59,680,624,422.4	25,247,424,011.0	207,015,860,050.4	319,810,991,980.9	19,494,662,251.7	2,646,994,701,986.8	3,417,298,013,245.0	299,379,400,264.9	130,093,753,005.7	220,076,114,437.1	2,125,184,794,172.2	23,743,309,486.0	37,132,564,255.4	52,351,655,629.1	8,163,355,021.1	836,439,735,099.3	479,242,529,764.9	238,317,631,788.1	167,998,080,493.4	89,254,437,086.1	48,016,423,841.1	1,431,672,847,682.1	488,379,327,089.8	2,403,504,326,328.8
2011	18,321,253,083,347.7	429,010,675,563.0	526,975,257,158.7	56,949,835,051.5	62,249,565,359.0	27,089,174,646.3	227,313,162,936.0	341,498,686,832.9	23,168,793,439.0	2,862,502,085,070.9	3,757,464,553,794.8	287,779,921,184.3	139,930,994,006.6	241,784,795,802.1	2,276,150,874,756.7	28,385,281,828.4	43,505,562,065.1	58,697,386,711.1	9,302,635,890.2	893,701,695,857.7	528,742,068,313.8	244,879,869,335.6	185,362,855,081.0	97,919,794,273.0	51,287,600,778.4	1,487,924,659,438.4	563,113,421,113.4	2,594,904,662,714.3
2012	17,249,382,954,724.7	407,373,026,611.6	497,815,990,388.0	53,576,670,827.9	56,485,301,967.4	24,940,600,822.1	206,441,578,342.5	325,012,162,410.0	23,135,266,649.1	2,681,416,108,537.4	3,539,615,377,794.5	245,670,666,639.0	127,176,184,359.1	224,652,132,155.0	2,072,823,111,961.1	28,023,276,371.6	42,852,204,396.5	55,986,712,367.8	8,882,509,103.8	828,946,812,396.8	500,227,851,988.3	216,368,178,659.4	171,664,638,717.5	93,049,717,829.5	46,240,004,973.3	1,339,946,773,437.2	543,880,647,757.4	2,630,472,981,169.7
2013	17,986,267,255,955.0	428,698,577,647.4	521,370,527,591.4	55,626,359,256.2	57,770,884,728.6	24,055,947,955.4	208,328,435,108.8	338,927,058,604.2	25,246,787,742.0	2,808,511,203,185.4	3,745,317,149,399.1	239,509,850,570.4	134,401,774,737.9	238,259,956,626.8	2,130,330,362,918.4	30,221,574,615.0	46,418,255,974.5	61,794,506,555.5	9,642,848,650.1	864,169,242,952.9	524,059,039,422.9	226,073,492,966.5	191,549,024,910.6	98,028,544,875.2	47,675,792,660.3	1,369,261,671,179.0	578,742,001,487.6	2,712,296,271,990.0
2014	18,516,744,672,413.1	436,887,543,467.0	531,234,803,749.5	56,717,054,673.7	57,136,241,867.0	23,227,106,275.7	205,269,709,743.5	346,119,472,127.5	26,485,161,115.9	2,829,192,039,171.8	3,868,291,231,823.8	235,574,074,998.3	138,346,650,089.0	250,813,607,686.1	2,138,540,909,211.1	31,286,809,075.2	48,353,937,110.3	64,873,963,098.5	..	879,319,321,494.6	544,982,089,079.1	230,116,913,843.0	199,324,435,686.1	100,252,753,084.8	49,491,396,798.1	1,381,342,101,735.7	571,100,683,085.1	2,990,201,431,078.2
2015	16,229,464,160,142.9	374,055,872,241.3	454,039,037,373.8	48,952,959,079.6	48,732,003,674.4	19,319,729,400.0	181,811,026,983.1	295,164,313,328.8	22,691,482,754.8	2,421,682,377,731.0	3,355,772,429,854.7	195,212,006,432.3	120,687,138,088.1	238,020,405,900.0	1,814,762,858,045.9	27,035,266,718.4	41,243,983,586.6	57,793,612,066.1	..	752,547,410,446.9	474,783,393,022.9	198,931,394,033.5	177,954,489,852.0	86,581,789,952.3	42,746,980,843.1	1,199,057,336,142.8	492,618,068,568.6	2,848,755,449,421.3