CZECH UNIVERSITY OF LIFE SCIENCES PRAGUE

Faculty of Economics and Management

Department of Economics

DIPLOMA THESIS

The Impact of FDI (Foreign Direct Investments) on the employment in the Czech Republic

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Declaration

I declare that I have worked on my diploma thesis called "The Impact of FDI (Foreign Direct Investment) on the employment in the Czech Republic" by myself and I have used only the sources mentioned at the end of the thesis.

Prague, the 4th April 2011 .....

Bc. Renáta Levá

Acknowledgment

I would like to thank Ing. Mansoor Maitah, Ph.D. et Ph.D. for being my supervisor, for consultations concerning my diploma thesis and useful advices. I also want to thank my parents for their endless support during my study years.

The Impact of FDI (Foreign Direct Investments) on the Employment in the Czech Republic

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Dopad FDI (přímé zahraniční investice) na zaměstnání v České republice

Summary

The diploma thesis deals with two economic indicators – FDI and employment, and their relationship. It tries to prove or deny a hypothesis, which generally assumes that the greater FDI the greater employment (the lower unemployment rate). Finally, it results in a compact document briefly introducing to the situation concerning FDI and employment in the Czech Republic and exploring the impact of FDI on the employment in the Czech Republic on both, national (NUTS 1) and regional (NUTS 3) level.

Souhrn

Diplomová práce se zabývá dvěma ekonomickými indikátory – PZI a zaměstnaností, a jejich vzájemným vztahem. Dále se snaží potvrdit nebo vyvrátit danou hypotézu, která předpokládá, že s vyšší částkou PZI se sníží míra nezaměstnanosti. Diplomová práce krátce uvádí do situace týkající se PZI a zaměstnanosti v České republice a odhaluje dopad PZI na zaměstnanost právě v České republice na národní i krajské úrovni.

Key words

FDI, employment, unemployment rate, investment incentives

Klíčová slova

PZI, zaměstnanost, míra nezaměstnanosti, investiční pobídky

Table of Content

1. Introduction

Foreign direct investment (FDI) is an important source of capital and one of the key indicators in quantifying and assessing the effect of globalisation on the world economy. It has played an important role in the transition process and economic development of the Czech Republic. FDI helps to improve economic situation in various sectors through fostering growth in efficiency, affecting the employment rate, expanding production capacities, promoting restructuring, generating export growth and ultimately contributing to GDP growth. The relationship between FDI and the employment rate is investigated in the diploma thesis.

It is important to have high employment rate, or, in other words, to hold "healthy" unemployment rate (between 4-6%), in order not to face a decrease in consumer spending or to the upward pressure on salaries.

The diploma thesis "The impact of FDI on the employment in the Czech Republic" focuses on an investigation of the relationship between FDI and the employment rate in the Czech Republic. It also deals with the question: to what extent the inward and net FDI influence the unemployment rate in the Czech Republic (NUTS 1) as well as in individual regions (NUTS 3).

2. Objectives of Thesis and Methodology

The diploma thesis "The impact of FDI on the employment in the Czech Republic" deals with two economical indicators – FDI and employment (unemployment actually). The objectives of the diploma thesis are:

- to supply an overview of the development of FDI in the Czech Republic, the legal regulations concerning FDI, and the Czech FDI policy;
- to supply an overview of the employment in the Czech Republic, its past and recent development (considering the Czech political situation and background), its legal regulation, and the two methodological procedures that are used for computing employment (employment and unemployment rate).
- to investigate the development of both, FDI and unemployment in the Czech Republic, which consequently will be analyzed and the gathered data will be standardized;
- to investigate the impact of FDI on unemployment for both, the national and the regional level (NUTS 1, NUTS 3 respectively). The outcomes of the investigation will be also analyzed and discussed.

The final diploma thesis should result in a compact document briefly introducing to the situation concerning FDI and the employment in the Czech Republic and exploring the impact (either positive or negative) of FDI on employment in the Czech Republic.

The hypothesis of the diploma thesis: "The foreign direct investment has a positive impact on the employment (higher amount of money invested helps to decrease the unemployment rate) in the Czech Republic on both, the national and the regional level; which is apparent especially in those regions with high unemployment rate, where the newly created jobs help to decrease unemployment and to enhance living standard of households." is stated as the null hypothesis and will be either accepted or rejected at the end of the

diploma thesis, concerning the national and the regional level. The alternative hypothesis is that: "The impact of FDI on the employment is not positive at least in one region in the Czech Republic." The employment is influenced by many factors, so it is important to take it in consideration in individual regions as well as to be aware of the two methodological procedures in computing the employment and the unemployment rate.

The methodology of the diploma thesis consists of gathering relevant data from several different databases and of processing them. The several different databases include:

- the database of the Czech National Bank (data concerning FDI are retrieved),
- the database of the Ministry of Labour and Social Affairs and the Czech Statistical Office (data concerning employment on both, the national and the regional level), and
- the databases of individual regional authorities (data concerning regional situation, relations, background and development).

All gathered data was compared and standardised. Simple linear regression was chosen as a tool to investigate a relation between two variables. FDI was stated as an independent variable, employment as a dependent variable. The behaviour of two variables could show some common features or similarities and on this bases it is distinguished those relations:

- dependence, behaviour of one variable is the cause of behaviour of the other one (casual relationship of the two),
- coincidence, the two variables are, to a measure, affected by some common background, and

- independence, the similarity is caused by a more chance and there is no logical reason for it.

An instrument for description of a vicariate relationship is a continuous function of one independent variable (called regression function).

After collecting all relevant data for the Czech Republic and for regions, the scatter diagram was plotted and the regression analysis was carried out to find out the impact of FDI on employment on both levels (NUT 1 and NUTS 3). The scatter diagram provides the initial insight into the relationship between two continuous variables. After finding a straight line of best fit, the correlation coefficient is computed. It describes the strength and the direction of a linear relationship between two variables. A correlation greater than 0.8 is generally described as strong, whereas a correlation less than 0.5 is generally described as weak. These values can vary based upon the data being examined. Also coefficient of determination is derived (automatically by MS Excel) and it gives the proportion of the variance (fluctuation) of one variable that is predictable from the other variable. It allows us to determine how certain one can be in making predictions from a certain graph. It denotes the strength of the linear association between x and y and it also represents the percent of the data that is the closest to the line of best fit.

The outcomes are discussed for the Czech Republic as well as for individual regions. The null hypothesis should be accepted or rejected and after that, the conclusion is derived.

3. Literature Review

3.1. Key and Important Words Characteristics

Foreign Direct Investment (FDI)

"FDI refers to an investment made to acquire lasting interest in enterprises operating outside of the economy of the investor. Further, in cases of FDI, the investor's purpose is to gain an effective voice in the management of the enterprise."[1]

"FDI represents the possession of assets by any foreign company. The assets may be any company, factory, mines and many more."[2]

"Foreign direct investment is that investment, which is made to serve the business interests of the investor in a company, which is in a different nation distinct from the investor's country of origin."[3]

"Foreign direct investment reflects the objective of obtaining a lasting interest by a resident entity in one economy ("direct investor") in an entity resident in an economy other than that of the investor ("direct investment enterprise"). The lasting interest implies the existence of a long-term relationship between the direct investor and the enterprise, and a significant degree of influence on the management of the enterprise. Direct investment involves both the initial transaction between the two entities and all subsequent capital transactions between them and among affiliated enterprises, both incorporated and unincorporated."[4]

[1] http://www.unctad.org/Templates/Page.asp?intItemID=3146&lang=1 [2008-12-29]
[2] http://finance.mapsofworld.com/investment/foreign-direct.html [2008-12-29]
[3] http://www.economywatch.com/foreign-direct-investment/definition.html [2010-09-14]
[4] http://www.cnb.cz/en/statistics/bop_stat/bop_publications/pzi_books/ [2010-09-14]

Investment Incentives

„Investment incentives could be defined as: financial or non-financial support designed to promote investment, employment, product mix and various other aspects, or as: financial or non-financial support to encourage investment and promote the inflow of foreign capital and technology. Government schemes aimed at stimulating private sector interest in specified types of capital expenditure, or investment in areas of high unemployment or backwardness. These incentives may take the form of direct subsidies (investment grants) or corporate income tax credits (investment credit) that compensates the investors for their capital costs."[5]

Investment

"According to economic theories, investment is defined as the per-unit production of goods, which have not been consumed, but will however, be used for the purpose of future production. According to business management theories, investment refers to tangible assets like machinery and equipments and buildings and intangible assets like copyrights or patents and goodwill. In finance, investment refers to the purchasing of securities or other financial assets from the capital market. It also means buying money market or real properties with high market liquidity. According to personal finance theories, an investment is the implementation of money for buying shares, mutual funds or assets with capital risk. According to real estate theories, investment referred to as money utilized for buying property for the purpose of ownership or leasing."[6]

[5] Levá, R. [2009]: The Industrial Zones, Case Study of the Czech Republic. Bachelor Thesis. Czech University of Life Sciences, Prague, 7 p.
[6] http://finance.mapsofworld.com/investment/ [2008-12-29]

Employment

Employment is a state to being employed based on a contract between two parties – employer and employee. The level of employment is a portion of persons who are employed compared to labour force.

"As employed are considered all persons aged 15 or more who belonged to paid employed persons or were in own business during the reference week. It does not matter whether their working activity was of a permanent, temporary, seasonal or occasional character or if they held only first or second jobs. Also apprentices who receive wage, salary or remuneration like other persons are considered as employed. The same holds good for students, housepersons and other respondents engaged above all in other than economic activities and were employed in the reference period. On the other hand, persons on additional child-care leave, whose status is of a different character according to the ILO (International Labour Office) methodology, are not automatically included in the group of employed. According to the group of included persons the employed in national economy and employed in civil sector are distinguished. The latter does not include regular and temporary members of the armed forces. Crucial for the affiliation to industries is the economic activity of the workplace."[7]

Unemployment

"An economic condition marked by the fact that individuals actively seeking jobs remain unhired. Unemployment is expressed as a percentage of the total available work force. The level of unemployment varies with economic conditions and other circumstances."[8]

"The unemployed - comprise all persons aged 15+ who satisfied all of the following three conditions during the reference period:

[7] http://www.czso.cz/csu/2010edicniplan.nsf/engp/3103-10 [2010-10-21]
[8] http://www.investorwords.com/5838/unemployment.html#ixzz134dJaq4v [2010-10-21]

- were without work - i.e., were in neither employment nor self-employment,
- were actively seeking work. The active form of seeking work includes registration with a labour office or private employment exchange, checking at work sites, farms, market or other assembly places, placing or answering newspaper advertisements, taking steps to establish own business, applying for permits and licenses, or looking for a job in a different manner,
- were currently available for work - i.e., were available during the reference period for paid employment or self-employment immediately or within 14 days."[9]

3.2. Foreign Direct Investment

Foreign Direct Investment (FDI), from the investor point of view, is usually made in order to get some advantage. One of them could be cutting production costs due to cheaper labour force, lower costs concerning construction of production halls or a store house lease. These advantages, on the other hand, could be reduced by shipping costs, higher duty and taxes, etc. Many governments, as well as the Czech government, believe that FDI are important for national economies and, in order to attract foreign investors, they try to offer different types of discounts and other, let say, appealing bonuses (which are generally called investment incentives).

Investment incentives in the Czech Republic are administrated by CzechInvest (Czech agency for foreign trade, which was established by and operates under the Ministry of Industry and Trade of the Czech Republic). They try to improve the competitiveness of the Czech economy and one of their responsibilities is to attract foreign investors (especially to those regions, where the unemployment rate is high or where brown fields exist). The

[9] http://www.czso.cz/csu/2010edicniplan.nsf/engp/3103-10 [2010-10-21]

Investment Incentives Act (Act No 72/2000 Coll.) entered into force on 1 May 2000, than was amended by Act No 453/2001 and extended by Government Resolution No 573.

There are many ways how to define FDI according to different viewpoints. The most suitable definition is: "FDI is that investment, which is made to serve the business interests of the investor in a company, which is in a different nation distinct from the investor's country of origin."[10] – broad enough to cover miscellaneous kinds of FDI (the FDI division and classification is clarified consequently in the chapter Classification of Foreign Direct Investment).

FDI is made by a foreign investor. It is quite obvious that: "Foreign investor is an individual person, a private or public corporation, a government, a special interest group of individuals or companies, that establish a subject of direct investment (corporation, branch office) operating in a country distinct from the country of their origin."[11]

After an investment is made and an affiliate is established, there are two sides of the FDI relationship – a parent business enterprise and its foreign affiliate (both of them together comprise a multinational corporation, sometimes called trans-national co-operation). "The parent enterprise through its foreign direct investment effort seeks to exercise substantial control over the foreign affiliate company. "Control" as defined by the UN, is ownership of greater than or equal to 10% of ordinary shares or access to voting rights in an incorporated firm. For an unincorporated firm one needs to consider an

[10] http://www.economywatch.com/foreign-direct-investment/determinants.html [2010-09-14]
[11] http://www.businessinfo.cz/cz/clanek/podpora-investic/prime-zahranicni-investice/1000497/55083/ [2010-09-14]

equivalent criterion. Ownership share amounting to less than that stated above is termed as portfolio investment and is not categorized as FDI."[12] "Generally, FDI reflects the objective of a resident entity in one economy to obtain a lasting interest in an enterprise resident in another economy. In line with international standards (IMF/OECD) a "10% ownership criterion" should be applied to infer the existence of a lasting interest. The components of direct investment transactions are equity capital, reinvested earnings and other capital associated with various inter-company debt transactions" as was defined by the European Central Bank and the same definition is accepted also by the Czech National Bank.

3.2.1. Classification of FDI

FDI also could be classified according to different criteria. Generally (based on EconomyWatch – Economy, Finance, and Investment Reports), FDI is classified as: **Inward and Outward Investment**.

Inward FDI is a typical form of what is termed as **'inward investment'**. It is an investment made by a foreign investor whose capital occurs in local resources. "The factors propelling the growth of Inward FDI comprise tax breaks, relaxation of existent regulations, loans on low rates of interest and specific grants. The idea behind this is that, the long run gains from such a funding far outweighs the disadvantage of the income loss incurred in the short run. Flow of Inward FDI may face restrictions from factors like restraint on ownership and disparity in the performance standard."[13]

[12] http://www.economywatch.com/foreign-direct-investment/policies.html [2010-09-14]
[13] http://www.economywatch.com/foreign-direct-investment/definition.html [2010-09-14]

Outward FDI is also referred to as **'direct investment abroad'**. It is opposite to the inward FDI, in this case, the capital of a local investor is invested in some foreign resource.

Outward FDI faces restrictions:

- Tax incentives or the lack of it for firms, which invest outside their country of origin or on profits, which are repatriated,
- Industries related to defence are often set outside the purview of outward FDI to retain government's control over the defence related industrial complex,
- Subsidy scheme targeted at local businesses,
- Lobby groups with vested interests possessing support from either inward FDI sector or state investment funding bodies,
- Government policies, which lend support to the phenomenon of industry nationalization.

FDI classification by their set target is another possibility. According to this, FDI can flow to three areas:

- Greenfield investment
- Acquisitions
- Mergers.

Sometimes acquisitions and mergers are grouped together.

"**Greenfield investments** involve the flow of FDI for either building up of new production capacities in the host nation or for expansion of the existent production facilities of the host country. The plus points of this come in form of increased employment opportunities, relatively high wages, R&D activities and capacity enhancement. The flip side comes in the form of declining market share for the domestic firm and repatriation of profits made to a foreign country, which if retained within the country of origin could have led

to considerable capital accumulation for the nation."[14]

Acquisition (takeover, buyout) is a purchase of one company by another. The purchasing company remains its name and continues in its activities. Acquisition could be friendly, hostile, reverse, and backflip. It does not seem that investment through takeovers render any long run advantage to the economy of the host nation (mainly comparing to the Greenfield investment).

Merger is an agreement between two companies to continue together. They usually form a completely new company. Multinationals mostly rely on mergers to bring in FDI.

According to a direction of FDI flow, FDI could be further divided into:

- Horizontal FDI (investment is made to the same industry as the company operates in at home)
- Forward Vertical FDI (industry abroad sells the outputs of a firm's domestic production process)
- Vertical FDI (invest in the industry of foreign country)
- Backward Vertical FDI (investment in an industry abroad that provides inputs for a firm's domestic production processes)

3.2.2. Determinants of FDI

Investors make their investment decisions on the basis of collected data and information concerning the field of their interest. Among important facts (according to the EconomyWatch) belong:

- the size and the growth potential of the economy of that country where the FDI is intended to be made,
- the size and the growth potential of a market,

[14] http://www.economywatch.com/foreign-direct-investment/definition.html [2010-09-14]

- the dimensions of the host country (especially for those based on export),
- the population of a country (customer base and their purchasing power),
- a high per capita income or good spending capabilities of citizens,
- human resources (quality of workers),
- inexpensive labour force,
- natural resources (for example oil rich countries), and
- infrastructure.

3.2.3. Acts and Regulations Concerning FDI

"In 2007, the Regulation (EC) No 716/2007 came into force, stipulating the unified content, definitions and indicators for statistics of foreign affiliates in the European Union. The implementation of this Regulation has lead to substantial changes in the foreign affiliates statistics prepared and published by the Czech National Bank. Until 2006, the so called selected indicators (turnover, number of employees, value added, exports and imports) were compiled and published for all direct investment companies **with foreign ownership interest** reaching at least 10 % of voting power, for both Czech direct investment abroad and foreign direct investment in the Czech Republic.

Since 2007, in line with the principles of Regulation (EC) No 716/2007, the FATS variables have been reported only by the companies **under foreign control** which is defined as the direct or indirect control of more than half of the voting power or more than half of the shares.

The controlling country is determined according to the registered office of the "ultimate controlling institutional unit" which means the company, proceeding up a chain of control, which is not controlled by another institutional unit.

Since 2007 there has also been a division of competencies – the Czech National Bank reports data for outward statistics on foreign affiliates (i.e. foreign companies under domestic ultimate control), while inward statistics on foreign affiliates (for domestic companies under foreign control) is compiled by the Czech Statistical Office.

The structure of the disseminated tables has also been changed and is now closer to the activity and territorial breakdowns of FDI data. The scope of reported indicators has been expanded to include *personnel cost* and *gross investment in tangible goods*" [15]

3.3. Employment

To have a high rate of employment is one of the main missions for governments over the world. They usually deal with unemployment, which is caused by (Maitah, 2007):

- fluctuation of GDP (cyclical unemployment),
- time to match the right persons with the right job (frictional unemployment) – it occurs naturally due to imperfect information,
- recurring changes in the hiring needs of certain industries on monthly or seasonal basis (seasonal unemployment),
- different sectors are replaced by other sectors or certain jobs are eliminated while new types of jobs are created (structural unemployment).

3.3.1. Act on Employment in the Czech Republic

Employment in the Czech Republic is embedded in the Act on Employment – Act No. 435/2004 Coll., which regulates Government employment policies whose goal is to attain full employment and to protect against unemployment. It also ensures that the Czech legislation is in

[15] CNB, Foreign Direct Investment 2008

accordance with the European Union Law. Another legal frame for employment is Labour Code (No. 262/2006 Coll. "Zákoník práce".), which regulates legal relations arising in connection with the performance of dependent work between employees and their employers.
According to the Act on Employment, the Government Employment Policy in the Czech Republic aims to:

- secure the right to work,
- monitor and assess the situation in the labour market, develop forecasts and policies concerning employment and the development of human resources in the labour market, implementing programmes and projects to support the employment of natural persons,
- coordinate measures in the field of employment and the development of human resources in the labour market,
- create and coordinate individual programmes and measures to define priorities in the field of employment and the development of human resources in the labour market,
- apply active employment policies,
- create and participate in international programmes related to the development of employment and human resources in the labour market,
- manage employment policy funds,
- provide information, counselling and brokerage services to the labour market,
- provide unemployment benefits and fund retraining schemes,
- implement measures to support and achieve equality between men and women,
- measures to promote employment of disabled persons and other groups of people who have an exacerbated position in the labour market,

- coordinate the employment of workers from abroad in the Czech Republic and from the Czech Republic abroad.

These challenging tasks are performed by entities involved in the labour market (self-governing territorial units, professional organizations, organizations for the disabled and employers' organizations). Public administration in the Czech Republic is carried out by the Ministry of Labour and Social Affairs and Labour Offices.

3.3.2. Unemployment

For each state and its economy, it is highly important to know the rate of unemployment in order to apply the right policy (usually active employment policy) in the right regions. Why? Because unemployment is a bit costly.

3.3.2.1. Computation of Unemployment

Labour force is composed of persons who currently have a job (employed) and persons who do not have it but are actively looking for it. Household workers, students, disabled persons, and retirees are not counted into labour force.

Unemployment rate (Maitah, 2007) is computed by dividing the number of unemployed persons by labour force. It looks simply, but official statistics do not include discouraged workers (persons who lost their job at least a year ago and do not look for it, because they do not believe to find any), marginally attached workers (unemployed persons who stopped looking for job for any other reason than before mentioned), and individuals working part time for economic reasons.

Up to 1 January 1997, the Ministry of Labour and Social Affairs in the Czech Republic had measured and recorded the level of **registered unemployment rate** ("it is based on exact number of job seekers who are

on the records of the district labour office of their residence, and on the number of persons employed in the national economy with a single or main employment relationship"[16]). Since that, the new methodology has been implemented. Newly, the level of registered unempoylment is calculated by taking into account so-called available job seekers – those are people immediately available for work. According to the Ministry of Labour and Social Affairs, available job seekers are persons who:

- are not in custody,
- are not in prison,
- are not performing basic substitute or civilian service,
- are not in receipt of cash maternity benefit,
- are not in receipt of material security during maternity leave,
- are not ineligible for work due to disability,
- are not included in retraining courses,
- are not performing short-term employment.

General unemployment rate is computed according to the standards of the International Labour Office.

According to the Ministry of Labour and Social Affairs of the Czech Republic, **The general level of unemployment** is based on labour forces sample inquiries and can be used for international comparisons. The general level of unemployment is regularly published by the Czech Statistical Office. EU member states use the same methodology to measure unemployment rate.

"The ILO methodology defines the unemployed as persons who were:

- out of work during the reference week, i.e. neither had a job nor were at work (for one hour or more) in paid employment or self-employment,

[16] http://www.mpsv.cz/en/1604#citmoum [2010-10-16]

- currently available for work, i.e. available for paid employment or self-employment before the end of two weeks after the reference week, and
- actively seeking work.

This methodology is uniform for all EU member states and produces internationally comparable data. It should be noted that the definition of "the unemployed" by ILO differs from the definition of "job applicants" registered by the labour offices." [17]

3.3.2.2. Instruments of Active Employment Policy

According to the Act of Labour, the active employment policy is a set of measures designed to ensure the maximum possible employment level. The instruments used to implement the active employment policy are:

- retraining,
- investment incentives,
- community service,
- socially beneficial jobs,
- a bridging contribution,
- transport contribution for employees,
- contribution towards recruitment costs,
- contribution upon a switch to a new business programme.

3.3.3. Employment in the Czech Republic

According to the Czech Statistical Office, the employment rate in the Czech Republic (percentage of the main job holders in the age group 15 – 64) in the second quarter of 2010 reached 64.9%, which is, speaking in absolute numbers, approximately 4 881 thousand persons. The male employment rate was 73.5%, which was higher than the female employment rate – 56.1%. A majority of the Czech population worked full time. The number of employees

[17] http://www.czso.cz/eng/csu.nsf/informace/azam080910.doc [2010-10-31]

decreased from 4,118.6 thousand (in the second quarter 2009) to 4,013.1 thousand (including members of producer cooperatives). Speaking in relative numbers, the employees share in total employment decline to 82.2%. This drop went hand in hand with an increase in the number of the self-employed in main job (including family workers) to final 867.7 thousand, which means 17.8% of total employment.

Still less persons move from the secondary sector to the tertiary sector. This change was significant especially in the second quarter of 2009. In the second quarter 2010, a slump in employment in the secondary sector was not so dramatic, but the trend remained the same as the previous year (comparing to the same quarter). The primary sector had a low number of employees and there was almost no fluctuation (155 thousand persons in the second quarter 2010).

In the second quarter 2010, the general unemployment rate in the Czech Republic (computed according to ILO definition[18]) was 7.2%. The registered unemployment rate was 9.0% (if we take in consideration an approach used by the Ministry of Labour and Social Affairs of the Czech Republic). The relative numbers differed, but the trend was similar for both rates (approaches, respectively). Speaking in absolute numbers, 375 thousand persons were unemployed (of which 189.2 thousand women, 185.8 thousand men). Comparing to the previous quarter, the unemployment decreased, which was caused mainly by generally better conditions for getting a job, but also by the improved situation in the labour market.

Considering education, the employment rate recorded for university graduates was 2.4%. 5.2% had persons with full secondary education with "maturita" examination. Those low numbers went hand in hand with quite

[18] http://www.czso.cz/eng/csu.nsf/informace/azam080910.doc [2010-10-31]

high unemployment rate among persons with basic education (25.2%) and persons with secondary education without "maturita" examination 8.2% (including persons with apprenticeship education).

4. The Impact of FDI (Foreign Direct Investments) on the Employment in the Czech Republic

Is Foreign Direct Investment driving engine for the post-communist still developing Czech economy? Or, is it even a vital part of the Czech economy without which Czech companies would not be able to create new working opportunities? Is Foreign Direct Investment only a question of a good marketing of the CzechBusiness and has no influence on unemployment in the Czech Republic?

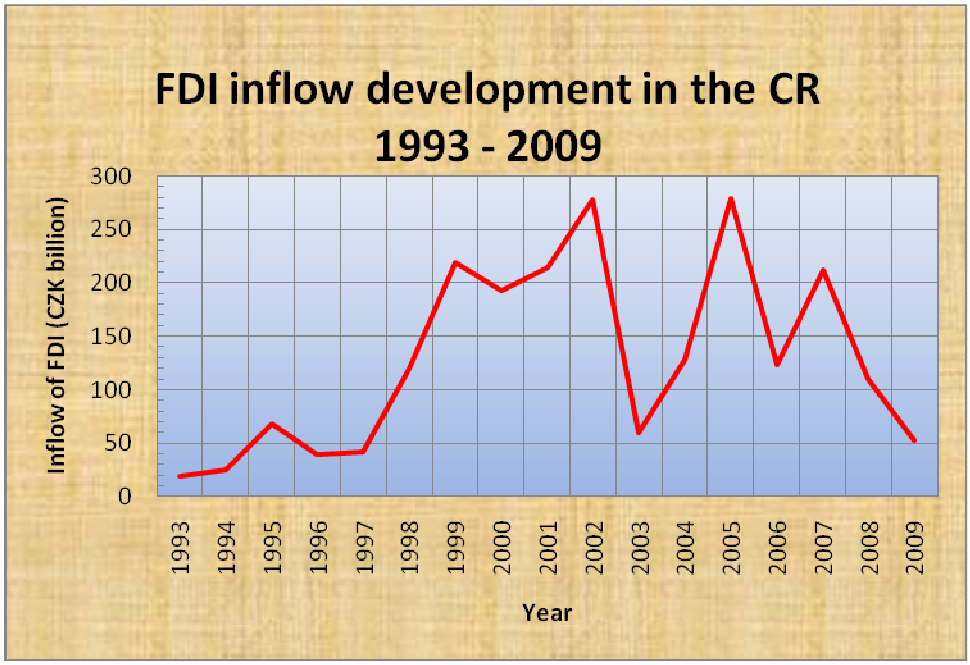
4.1. FDI in the Czech Republic

"Last year the Czech Republic was the 57th most successful country in the world with respect to attracting foreign direct investment (FDI). In 2009 FDI totalling CZK 52 bln came into the country, down 42 % on the preceding year. Compared to other developed countries this is 2 % more. According to a UNCTAD report Czech companies invested CZK 25.5 bln abroad, ranking them the 47th most active investors." [19]

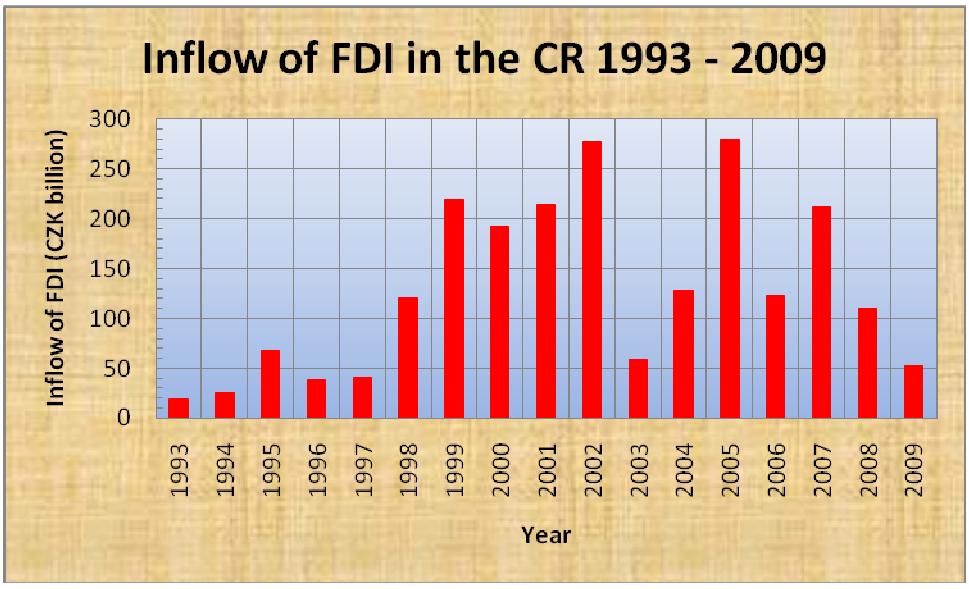
In order to investigate the situation in deep and to help in better orientation in the FDI flows, following graphs were constructed.

[19] http://www.czechtradeoffices.com/en/united-arab-emirates/news/foreign-direct-investment-fdi-in-the-czech-17039/ [2011-03-24]

The graph "FDI inflow development in the CR 1993 – 2009" ilustrates the development of foreign direct investment inflows in the Czech Republic during 1993 – 2009.



The graph "Inflow of FDI in the CR 1993 – 2009" transparently shows amounts of FDI invested in the Czech Republic in individual years and enables approximate comparison between individual years. Together with the previous graph, they provide complete overview of FDI inflow in the Czech Republic.



The inflow totally amoutnted CZK 2.18 trillion. During the first five years, the amount of invested money was increasing from CZK 19.05 billion (bln) to 41.25 bln with a jump in 1995 (CZK 67.99 bln). This, let say, slow growth was followed by rocket increas to the amount of CZK 277.69 bln in 2002, which was the second highest FDI inflow. A big part of the investment went to TPCA Kolin (joint-venture of Toyota Motor Corporation and PSA Peugeot Citroën – automotive industry). The expanding trend (1998 – 2002) was accompanied by a drop to CZK 192.42 bln (2000). However after reaching a peak in 2002, FDI dropped to CZK 59.32 bln in the consequent year and then rised again to CZK 127.84 bln (2004) and CZK 279.18 bln (2005), which was the highest amount of money directly invested from foreigners. The major parts of the FDI in those years were invested to non-manufacturing sectors (Hewlett-Packard set up its regional computer-technology supply-chain headquarters for Europe, the Middle East and Africa in 2004). After the oscilating part, there was a decreasing tendency in FDI inflow (CZK 123.43 bln in 2006, CZK 211.94 bln in 2007, CZK 110.13 bln in 2008) and it finished at the amount of CZK 51.95 bln in 2009.

The most important investor countries for the Czech Republic are: the Netherlands (31.6%), Germany (14.4%), Austria (12.1%), France (6.3%), and the United States of America (2.8%). Invesment is made mainly from European Union countries (89.2% of the total amount). Only 5.5 % of investment is done from other than European countries.

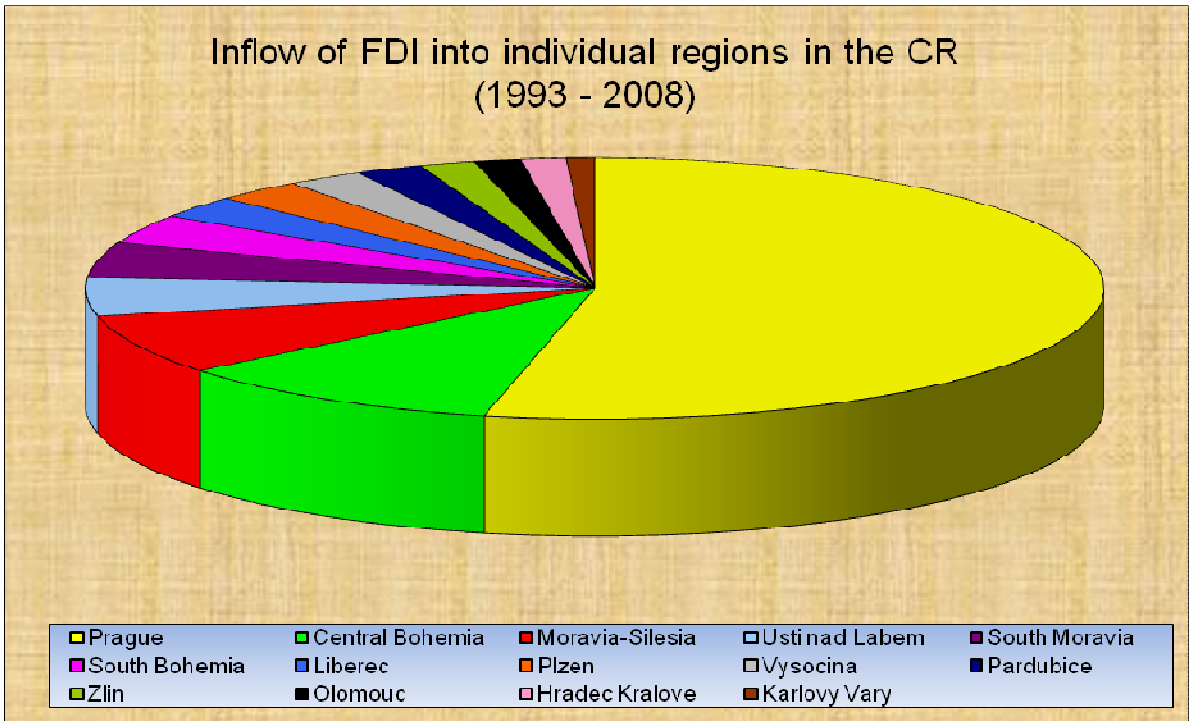
As of 31 December 1999, more than a half of FDI inflow in the Czech Republic was invested into a servise sector and 58% from this amount went to financial institutions and insurance, and trade. Also telecommunications received relatively high amount of FDI. Manufacturing obtained 45% of FDI. The most successful sectors were non-metal mineral products manufacturing, food and beverages manufacturing, motorcycle manufacturing, and tobacco

processing. The Czech economy needed to be restructuralized and modernized, but neither the volume nor the structure of FDI helped to achieve those needs.

Between 1997 and 2000, enterprises with foreign capital invested to new machinery and devices more than domestically owned enterprises did, which was a great step forward. The EFC also spent greater amount of money on inforamation and communication technologies, especially in processing industry. The main drawback was that the investment was made in those regions where the unemployment rate was lower and regions, which suffered from high unemployment, continued in looking for a solution of their gloomy situation.

As of 31 December 2008, 53.7% of FDI inflow went to service sector and 34.6% to manufacturing. The highes share of the total amount of money invested was placed in branche of financial institutions and insurance (18.8%), which was followed by real estate and business activities (16.3%), trade and repairs (9.8%), and motor vehicles (8.8%). The most successful region in obtaining FDI was Prague followed by Central Bohemian Region and Moravia-Silesia Region. The unequal division of FDI inflow is clearly demonstrated by the graph "Inflow of FDI into individual regions in the CR (1993 – 2008)", which highlites the unflinching position of the capital city.

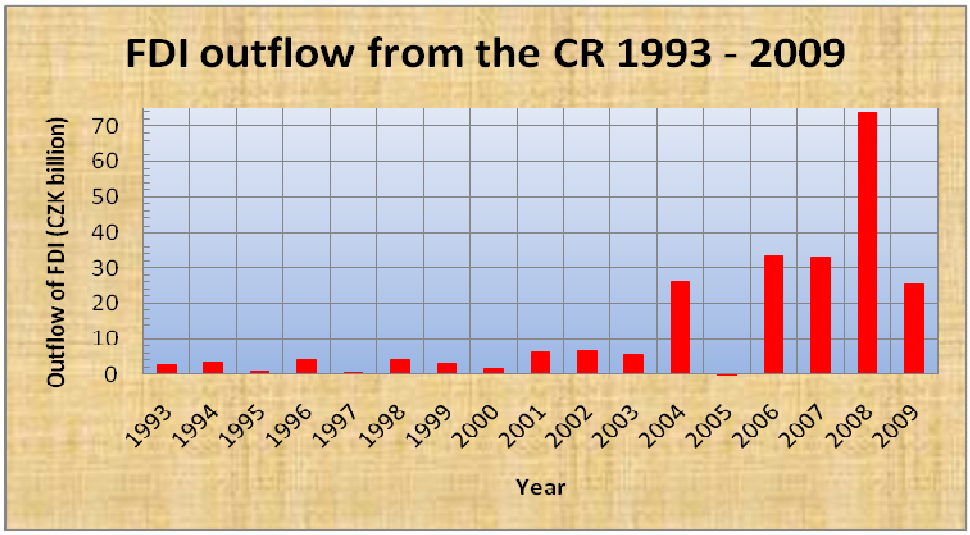
The cake graph is based on the table "Inflow of FDI into individual regions in the CR (1993 – 2008)" place below.



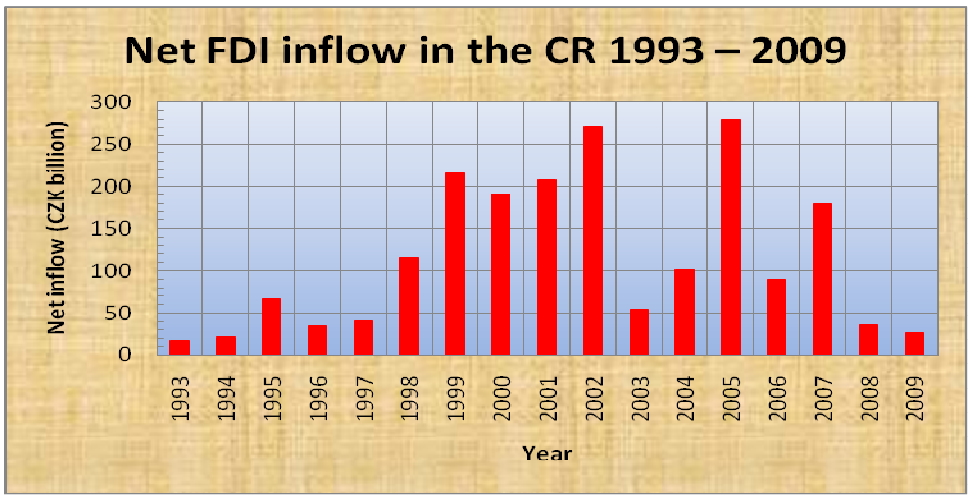
The concrete amounts for each region are computed there, as well as the portions from the whole amount of FDI.

Inflow of FDI into Individual Regions in the CR (1993 - 2008)		
Region	Portion (%)	Total amount (CZK)
Prague	53,493	1,169,592,668
Central Bohemia	10,600	231,762,150
Moravia-Silesia	7,436	162,578,250
Usti nad Labem	4,750	103,853,222
South Moravia	4,382	98,814,354
South Bohemia	3,635	79,469,403
Liberec	2,774	60,645,956
Plzen	2,765	60,454,684
Vysocina	2,441	53,378,244
Pardubice	2,138	46,749,803
Zlin	1,758	38,430,379
Olomouc	1,473	32,217,276
Hradec Kralove	1,440	31,488,005
Karlovy Vary	0,916	20,020,559
Total		2,186,454,953

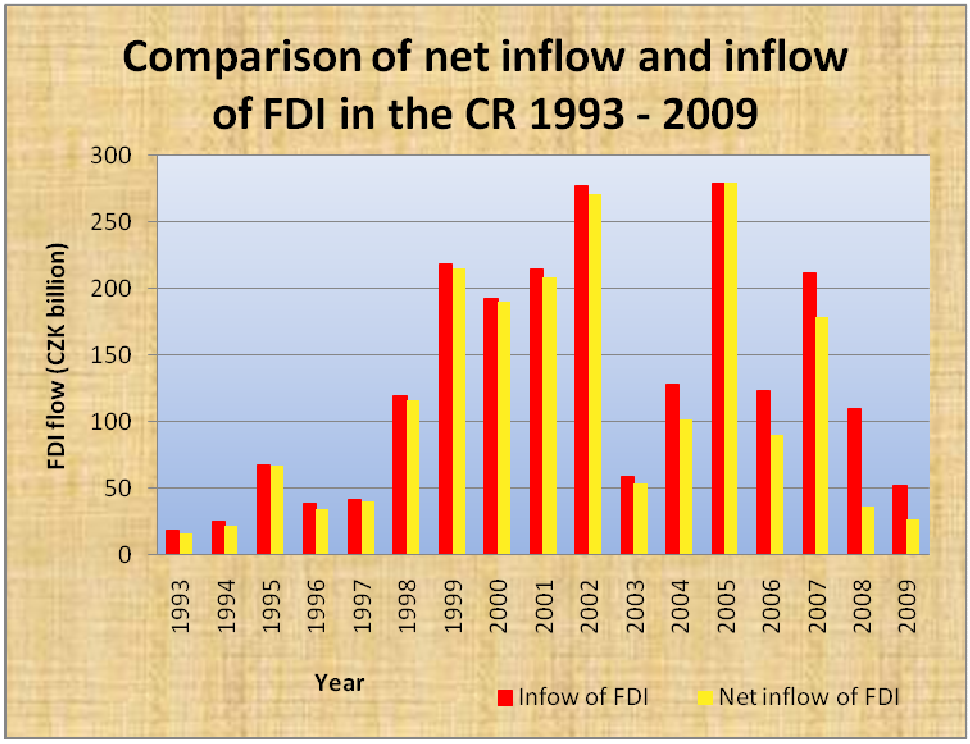
To complete this overview, the graphs "FDI outflow from the CR 1993 – 2009" and "Net FDI inflow in the CR 1993 – 2009" are placed below. The first one illustrates FDI outflow from the Czech Republic in individual years. The Czech foreign direct investment did not cross the boarder of CZK 6.76 bln between 1993 – 2003. During 2004, 2006, 2007, and 2009, Czech companies directly invested CZK 26.07 bln, CZK 33.17 bln, 32.88 bln, and CZK 25.54 respectively. In 2005, there was a drop in investment and, moreover, the amount of outflow was in negative numbers, which means that there was a loss or disinvestment. On the other hand, the greatest outflow of investment was in 2008 (amounted CZK 73.8 bln).



The second graph shows net FDI inflow, which is simple difference of FDI inflow and outflow.



In orderder to clarify the trend and relation between FDI inflow in the Czech Republic and FDI outflow from the same country, the graph "Comparison of net inflow and inflow of FDI in the CR 1993 – 2009" was added.



It is obvious that until 2003, the annual FDI outflow was relatively small comparing to the annual FDI inflow in the same years, so there is no greater difference between net FDI inflow and FDI inflow between 1993 and 2003. But since 2004, the FDI outflow rose and it resulted in countinuous divergence between the two flows. The greatest difference was in 2008, when the FDI inflow almost equaled CZK 111 bln, but the net FDI inflow fell on the amount of CZK 36.33 bln (one third of the annual FDI inflow). There was not such a great difference in the consequent year but still, the FDI outflow reached the amount of CZK 26.41 bln (more than half of the annual FDI inflow, which was CZK 51.95 bln).

4.2. (Un)Employment in the Czech Republic

During the communist reign, the employment in the Czech Republic was completely in hands of government, but the situation changed after the fall of communist regime. In 2004, the Czech Republic joined the European Union and in 2007, it became a part of the Schengen area. Those milestones influenced Czech economy as well as its policy and employment.

4.2.1. International Comparison of the Czech Republic

The Czech Republic belongs to countries with employment slightly above average, if we make international comparison, but still the employment rate (the share of the number of employed on the total country population at the productive age) for the age group 15 – 64 was higher than the average of the EU-27. The great difference is if we split the group for male and female. The male employment rate for the age group 15 – 64 in 2009 was 73.7%, which was by 2.7% higher than EU average, but the female employment rate for the same group was 56.5% (by 2.2% lower than EU average). The variance was even more visible for the age group 56 – 64, where the male employment rate was 58.9% (EU average was 54.9%) and the female employment rate was only 34.8% (EU average was 37.9%).

Quite similar situation was in the case of unemployment rate. In 2009, the general unemployment rate did not cross the EU average and remained lower for both, male and female group (6.5% compared to EU average 9.1%, 8.6% compared to 9.0% respectively).

4.2.2. Czech Labour Market

In spite of the fact that the Czech Republic is one of the most successful post-communist countries, the situation on its labour market is not uniform. Among considerable regional differences, which are evident if we compare northern regions with Central Bohemia or with Prague, there are also developmental changes in individual sectors highly influencing employment

structure of persons with particular education. The service sector is on the rise, as well as electrical-engineering sector, optical instruments, rubber processing, wood processing and automotive industry. On the other hand, leatherworking, textiles and garment manufacturing are on the decline.

Regions with the lowest unemployment rate are Prague, Central Bohemia Region and Southern Bohemia Region. Karlovy Vary Region, Zlin Region and Usti nad Labem Region suffer from high unemployment, which is mainly caused by an industry transformation and not sufficient retraining.

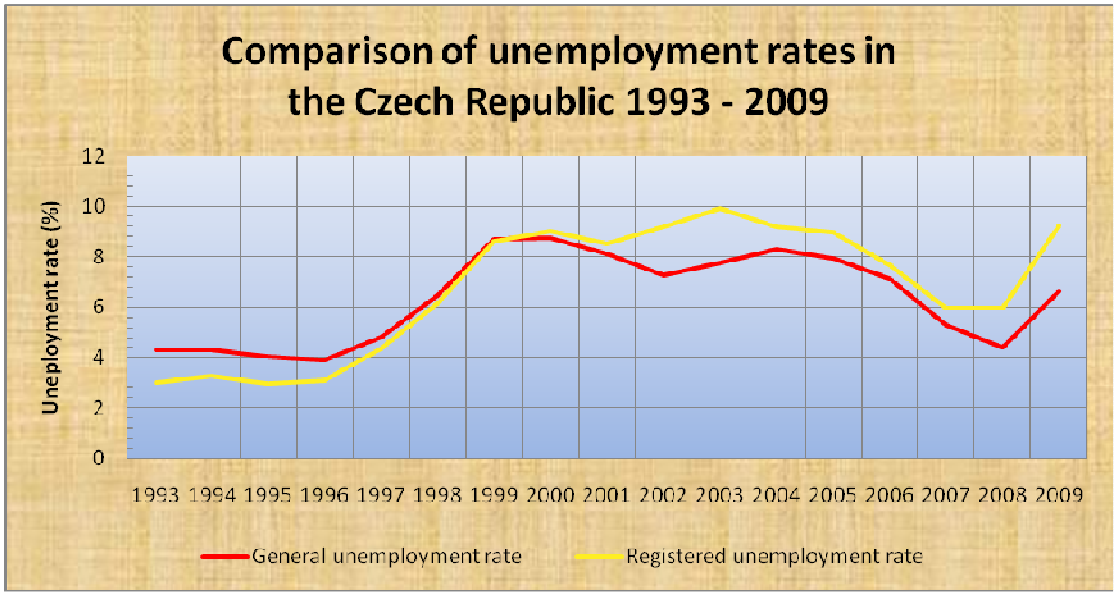
The Czech labour force includes skilled and well-educated workers available at lower cost (comparing with the western economies). The number of university students is still increasing and more over, the Czech Republic has a high percentage of science and engineering students, which could be an advantage for attracting foreign investors.

The highest number of job applicants has secondary education with apprenticeship certificate, followed by those with basic education and full secondary education including vocational. On the other hand, persons with higher professional education or bachelor/doctoral degree have the lowest numbers of job applications. If we consider age of job applicants, there are almost no differences in individual 5-year ranges between 20 and 59. In 2009, it fluctuates between 71,811 and 53,764 job applicants (aged 20 – 24 years, 40 – 44 years respectively).

4.2.3. Unemployment Rate in the Czech Republic

As it was already said, there are two methodologies how to measure unemployment and there are also two rates expressing the unemployment – general unemployment rate (according to the International Labour Office) and registered unemployment rate (computed on the basis of data from Regional

Labour Offices). The graph "Comparison of unemployment rates in the Czech Republic 1993 – 2009" represents the development of unemployment rates in the Czech Republic and compares the general unemployment rate with the registered unemployment rate in the Czech Republic during the same time period simultaneously.



Until 1999, the registered unemployment rate had been lower than the general unemployment rate. But after this year, situation changed and the registered unemployment rate remains still slightly higher than the general unemployment rate. It is obvious that both unemployment rates (general and registered) have the same decreasing or increasing tendency, except that in 2002.

The registered unemployment rate is computed from the job applicants in individual regions or districts and since the foreign direct investment should have an impact especially on the number of job seekers, it should be used this type of unemployment for computation. But I decided to use both of them and consequently compare them.

4.3. Impact of FDI on Employment in the Czech Republic

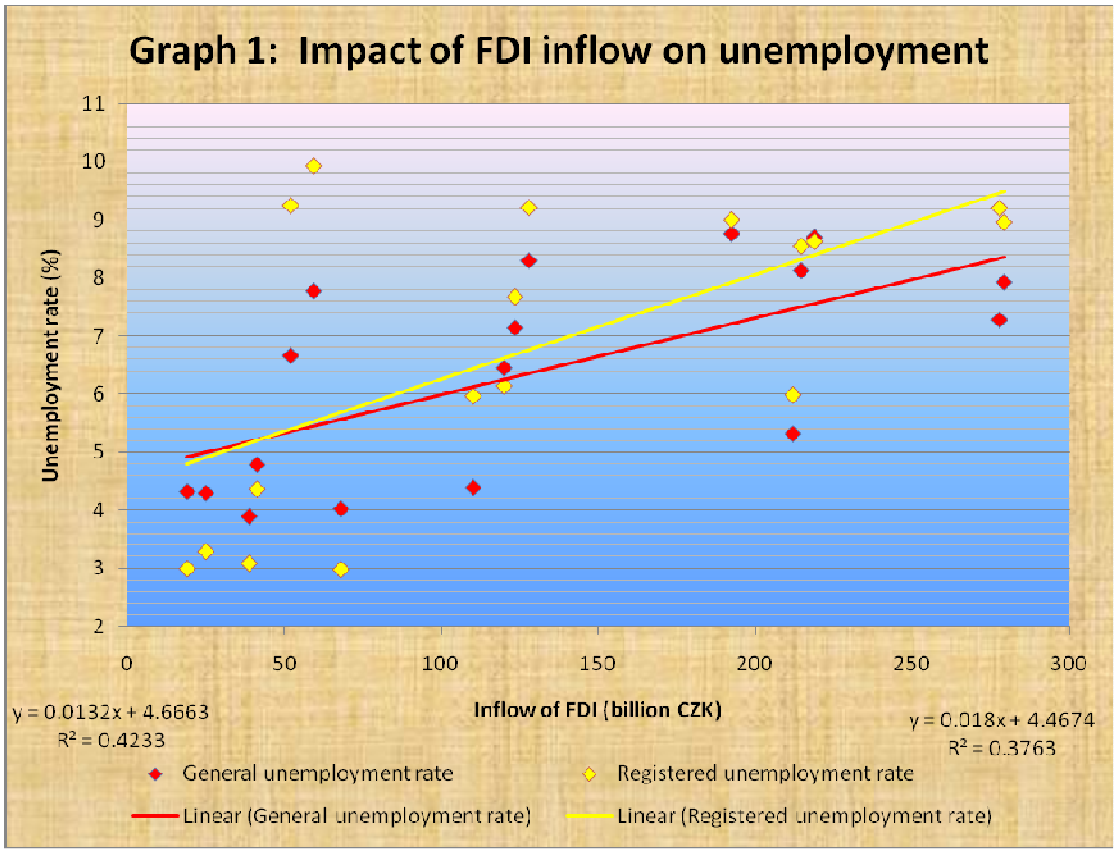
This subchapter includes:

- the computation of the impact of foreign direct investment on the employment in the Czech Republic (using the inflow of FDI as well as the net inflow of FDI), and
- the comparison of results using two methods of unemployment rate computation.

It will be generously supported by graphs.

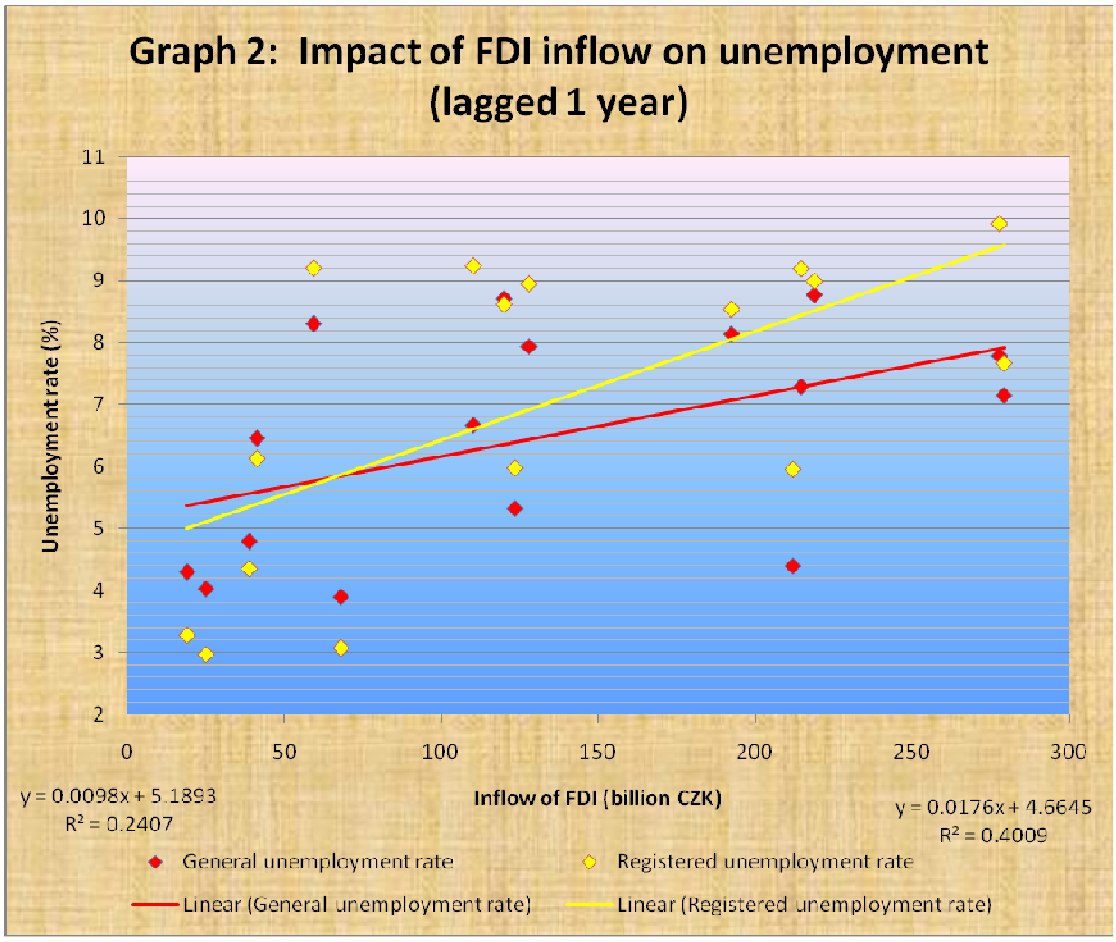
Let me start with the computations. Simple linear regression is used because I investigated if there is an impact or direct influence of FDI on employment in the Czech Republic. Firstly, the amount of inflow of FDI in the Czech Republic was chosen as the independent variable (expressed in billions of CZK) and the unemployment rate in the Czech Republic as the dependent variable (using both – the general unemployment rate, as well as the registered unemployment rate). Secondly, the net inflow of FDI in the Czech Republic was chosen for computation and the dependent variable remains unchanged. The inflow of FDI or the net inflow of FDI is represented by the x axis in the following graphs, and the unemployment rate is represented by the y axis. There are two regression lines in each graph, the red one expresses the relationship between inflow of FDI or net inflow of FDI and the general unemployment in the Czech Republic and the yellow one expresses the relationship between inflow of FDI or net inflow of FDI and the registered unemployment rate.

The Graph 1("Impact of FDI inflow on unemployment") is the first graph describing a relationship between FDI inflow and unemployment. It compares annually the amount of FDI inflow and the unemployment rate in the Czech Republic.



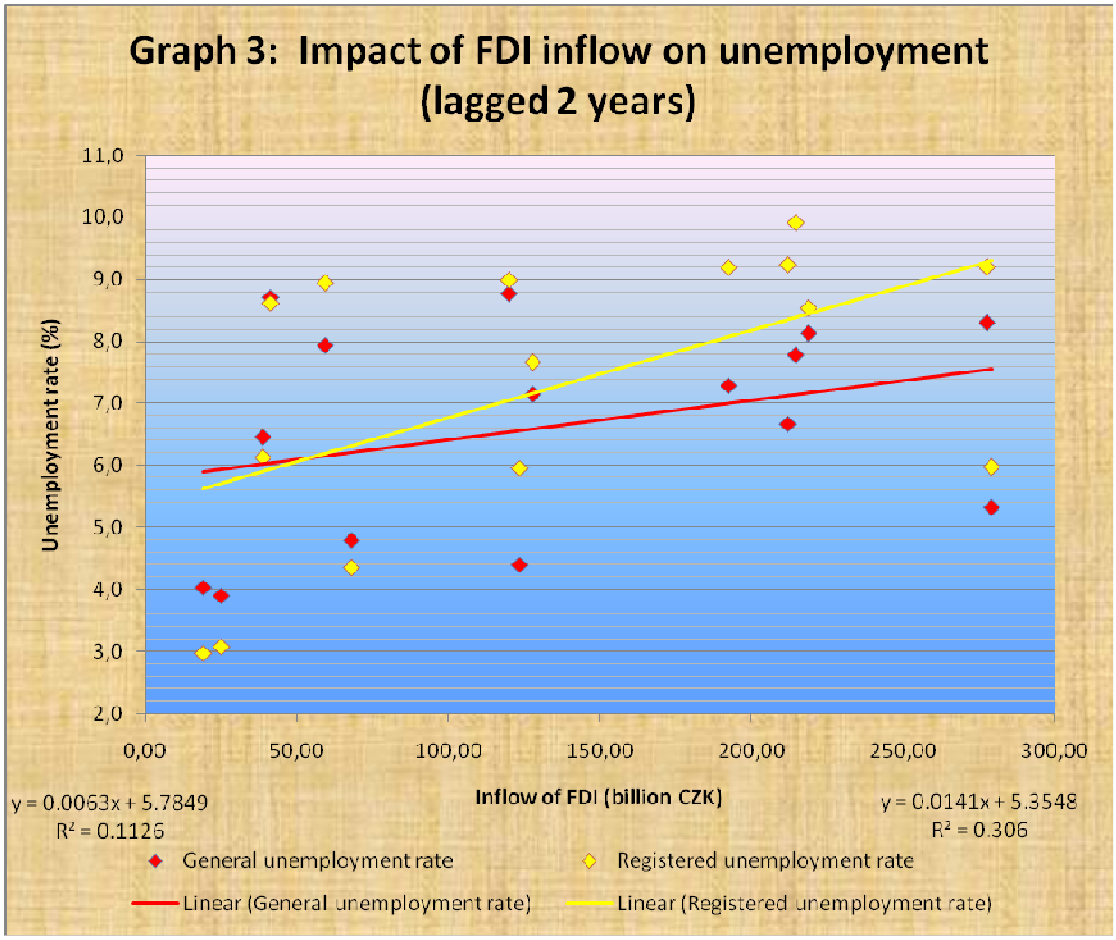
It is obvious that there is inverse relationship in both cases than it was assumed. The regression line for general unemployment rate is y = 4.6663 + 0.0132x, the coefficient of correlation (R) is 0.65, which means neither strong nor weak correlation, and the coefficient of determination (R^2) is 0.4233, which is not strong dependency. The regression line for registered unemployment rate is y = 4.4674 + 0.018x, R = 0.61 and the R^2 is 0.3763. It is steeper than general unemployment rate line and has lower coefficient of determination.

The Graph 2 is similar to the Graph 1, but the unemployment is one year lagged.



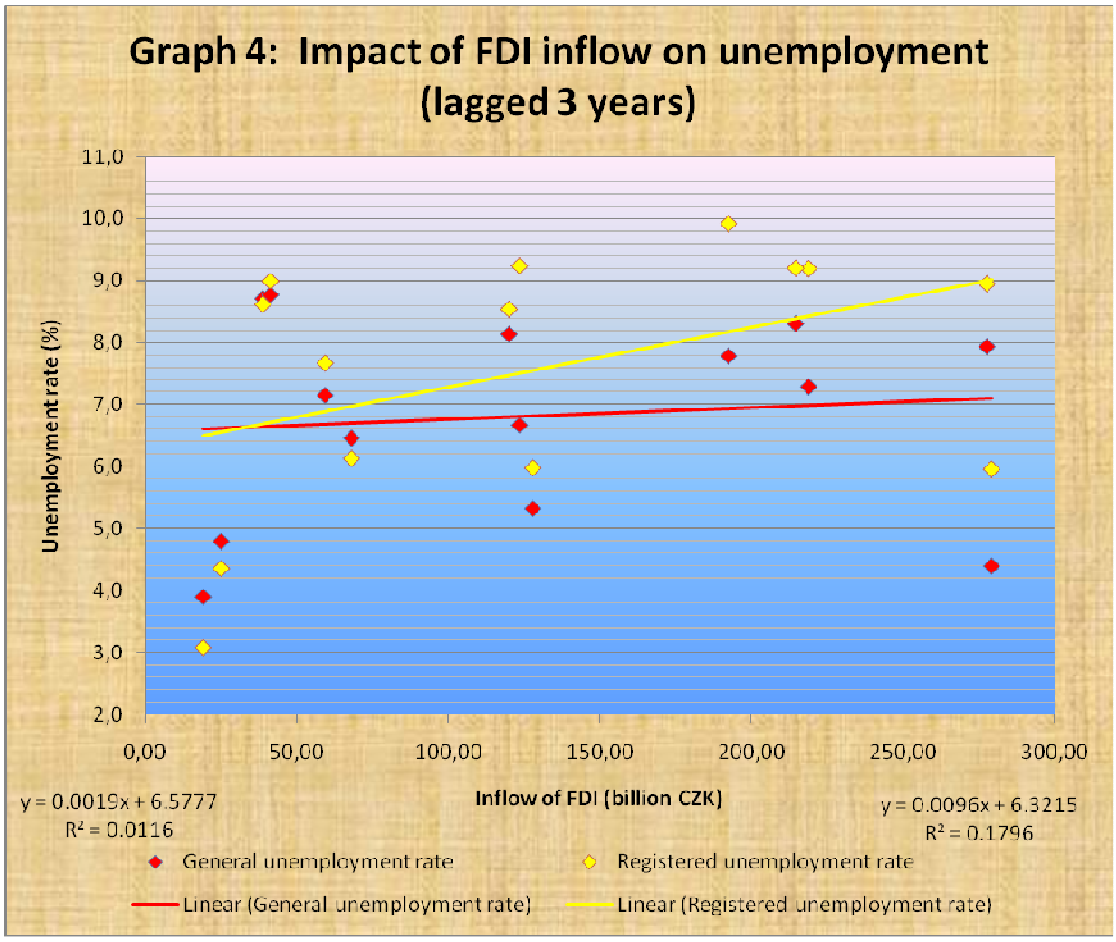
General unemployment regression line is y = 5.1893 + 0,0098x with R = 0.49 and R^2 = 0.2407. It is flatter than it is in the Graph 1 where the unemployment is not lagged, which is better for the assumed hypotheses, on the other hand, the R^2 is much lower and R seems to be weak. Registered unemployment regression line is y = 4.6645 + 0.0176x with R = 0.63 and R^2 = 0.4009. The slope of the line is almost the same, but the R^2 is higher than in the Graph 1.

The Graph 3 has the unemployment rate lagged by two years in order to investigate, if the impact of FDI inflow is after two years from the money investment or not.



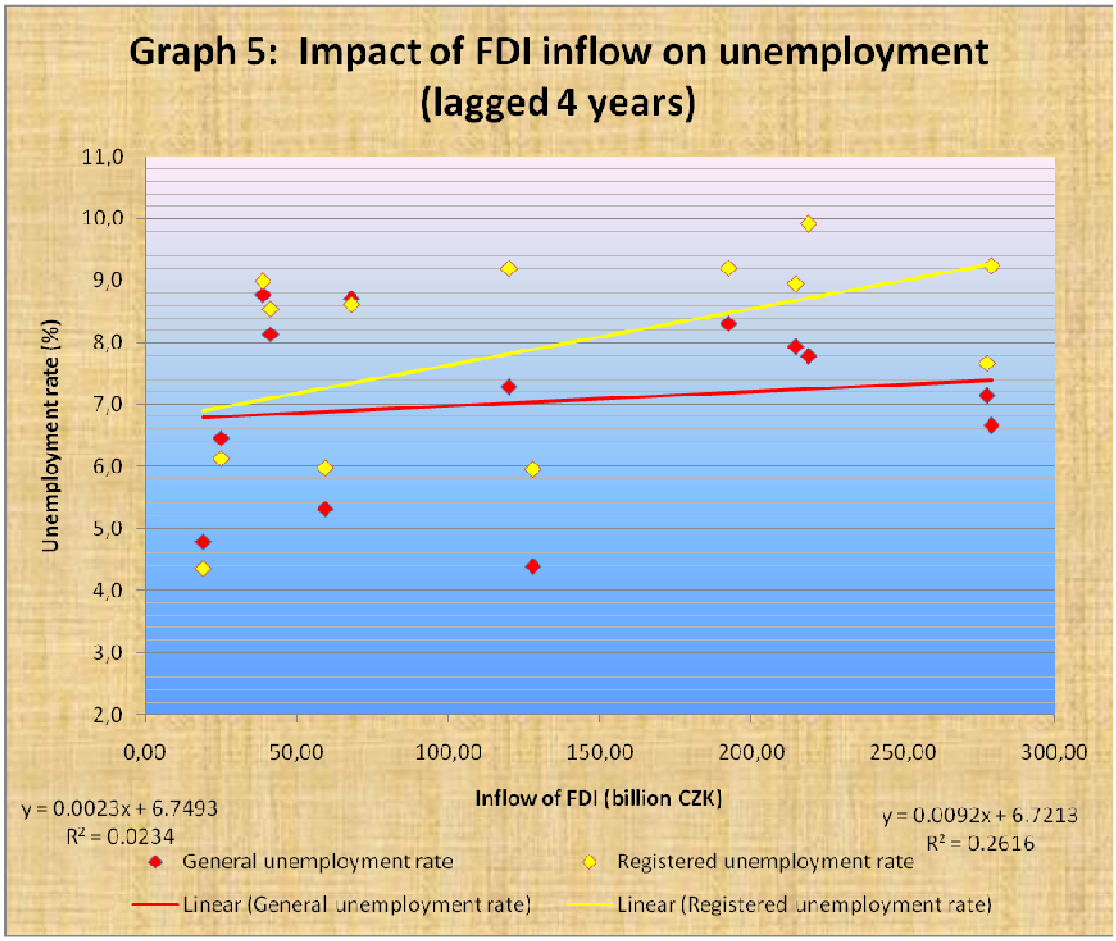
General unemployment regression line has still flatter tendency and is y = 5.7849 + 0.0063x, but R^2 has the same tendency and is equal to 0.1126 (R = 0.34). So it is still closer to the assumption, but the coefficient of determination is worse and worse. Registered unemployment regression line is y = 5.3548 + 0.0141x with R = 0.55 and R^2 = 0.306. The line is flatter compared to the previous graph, but the coefficient is lower.

The Graph 4 describes the same situation as pevious graphs 1,2, and 3, but the unemployment is laggey by 3 years.



In both cases, the R^2 is terribly low – 0.0116 for the general unemployment rate (R = 0.11) and 0.1796 for the registered unemployment rate (R = 0.42). General unemployment regression line is the flattes: y = 6.5777 + 0.0019x, but has the lowest coefficient of determination. Registered unemployment regression line is steeper than the general one: y = 6.3215 + 0.0096x.

The Graph 5 has the unemployment lagged by 4 years.

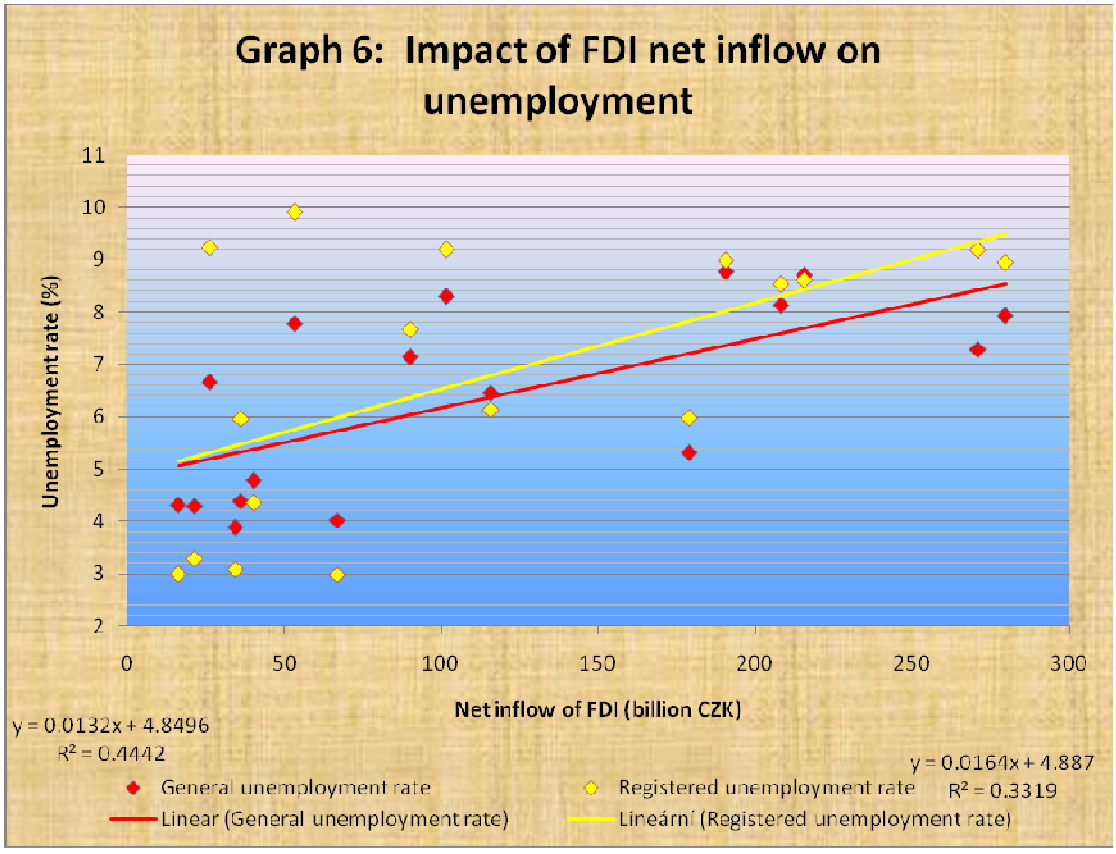


It is obvious that coefficient of determinations are higher than in previous case, but still are very low (0.0234 for general unemployment rate and 0.2616 for registered unemployment rate). Coefficients of regression are: 0.15 and 0.51 respectively. Even the declining tendency of general unemployment regression line is disrupted and it is steeper than it was in the case of 3 lagged years (y = 6.7493 + 0.0023x). The declining tendency suggested that if we lagged unemployment rate by more years, the flatter linear regression line is obtained and if we lagged it enough, it could support the assumption that with higher amount of FDI invested in the Czech Republic, the lower unemployment rate should be. But now, I can say that even it would be true, it cannot be proven by linear regression.

Different situation is in the case of registered unemployment rate. The regression line is still increasing (y = 6.7213 + 0.0092x), but the declining tendency of slope remains.

The Graph 5 was the last one which used FDI inflow as the independent variable. The following graphs use net FDI inflow.

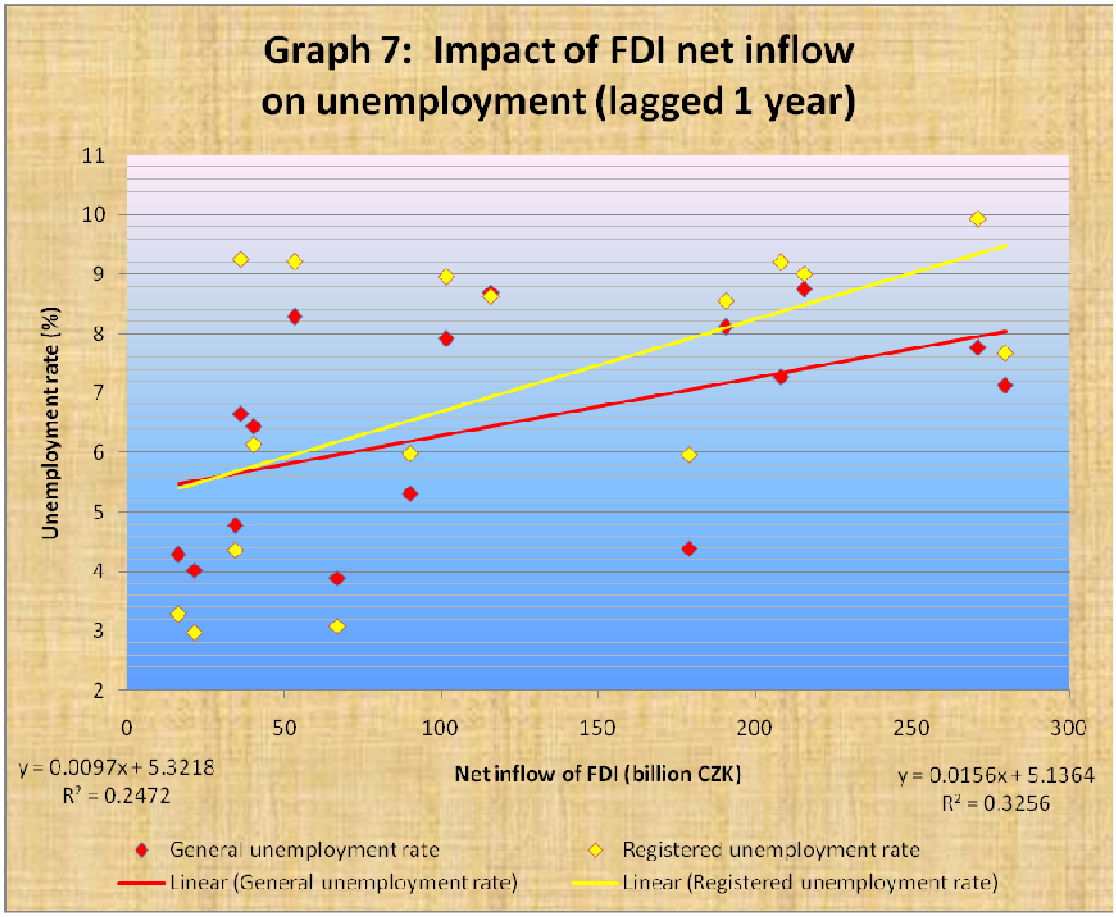
The Graph 6 is similar as the Graph 1; the difference is that the net inflow of FDI is used instead of the inflow of FDI.



Regression lines are y = 4.8496 + 0.0132x with R = 0.67and R^2 = 0.4442 for general unemployment rate and y = 4.887 + 0.0164x with R = 0.58 and R^2 = 0.3319 for registered uneployment rate. The two lines do not cross each other as it was in the case of FDI inflow, but still the regression

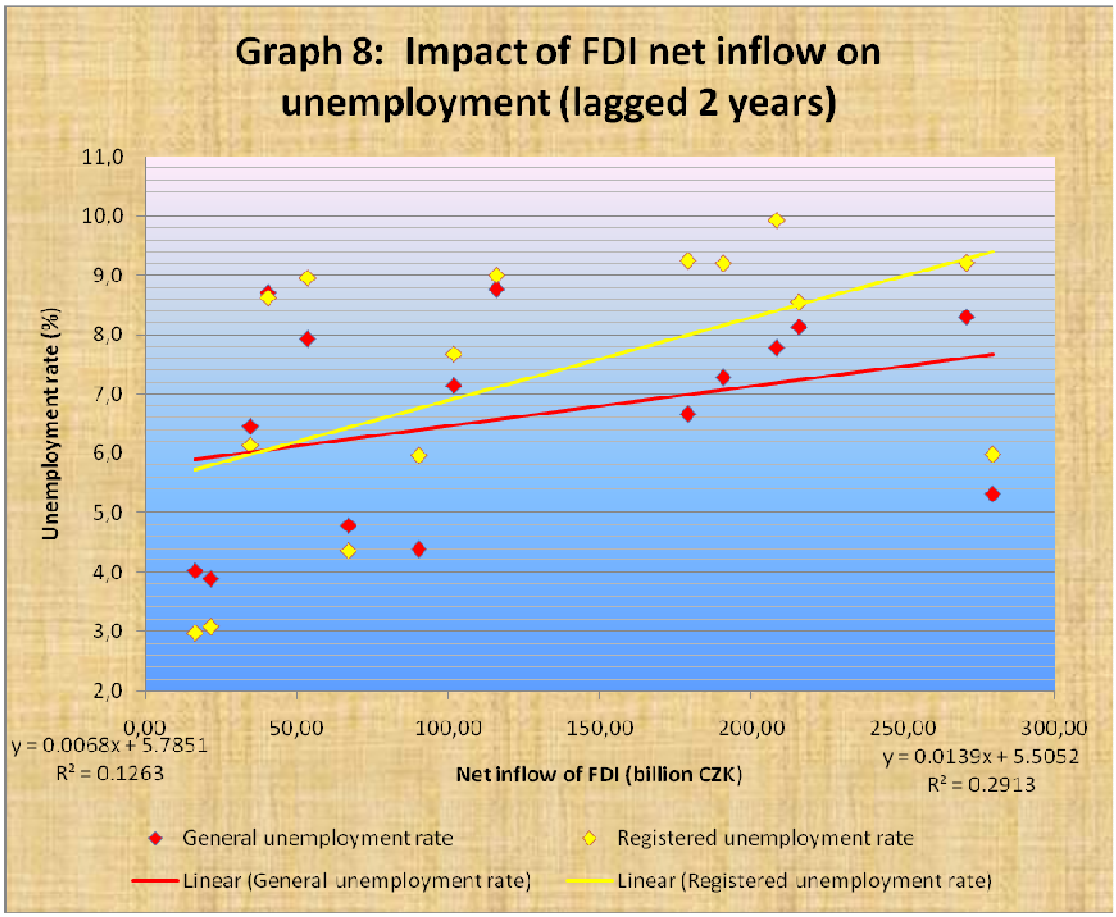
line for registered unemployment rate is steeper and has lower coefficient of determination.

The Graph 7 is similar to the graph 6 but the uneployment rate is also one year lagged.



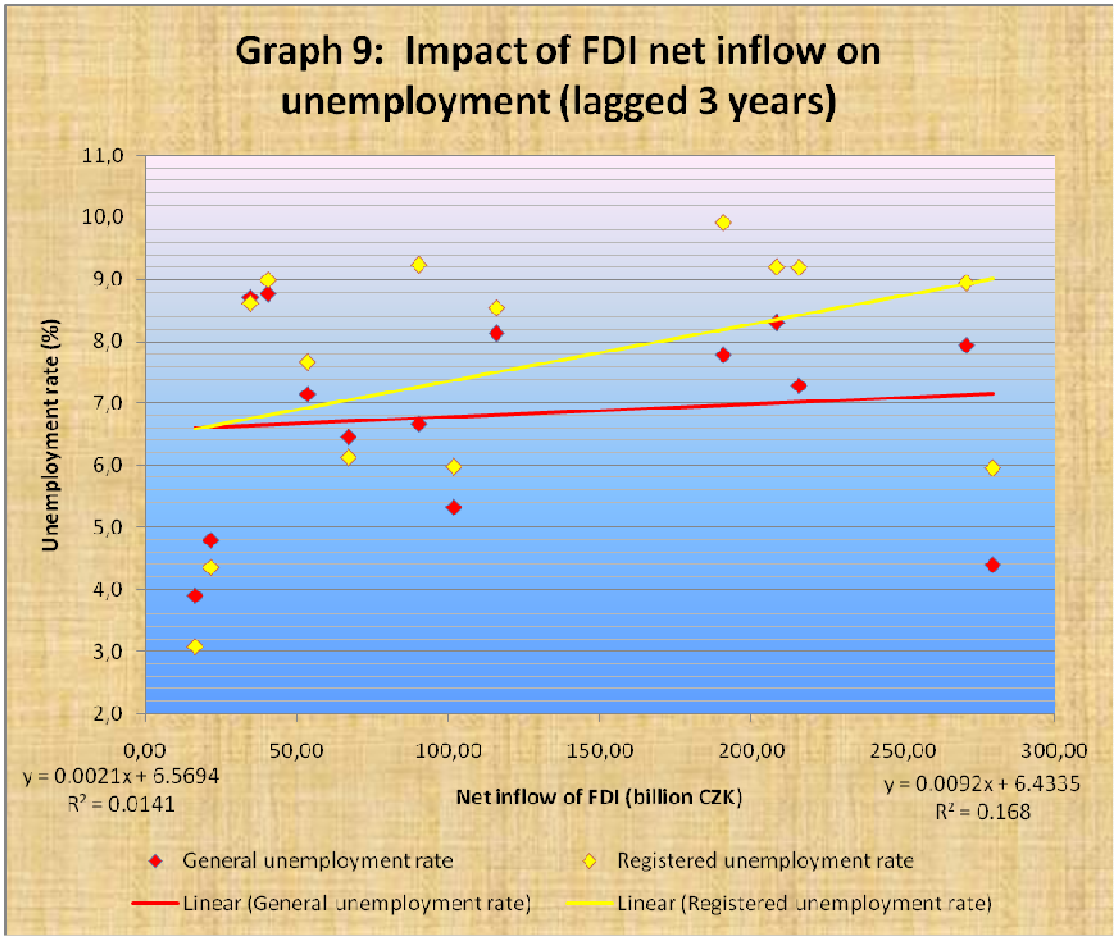
General unemployment regression line is y = 5.3218 8 0.0097x with R = 0.50 and R^2 = 0.2472. Registered unemployment regression line is y = 5.1364 + 0.0156x with R = 0.57 and R^2 = 0.3256.

Unemployment rate is lagged by 2 years in the Graph 8.



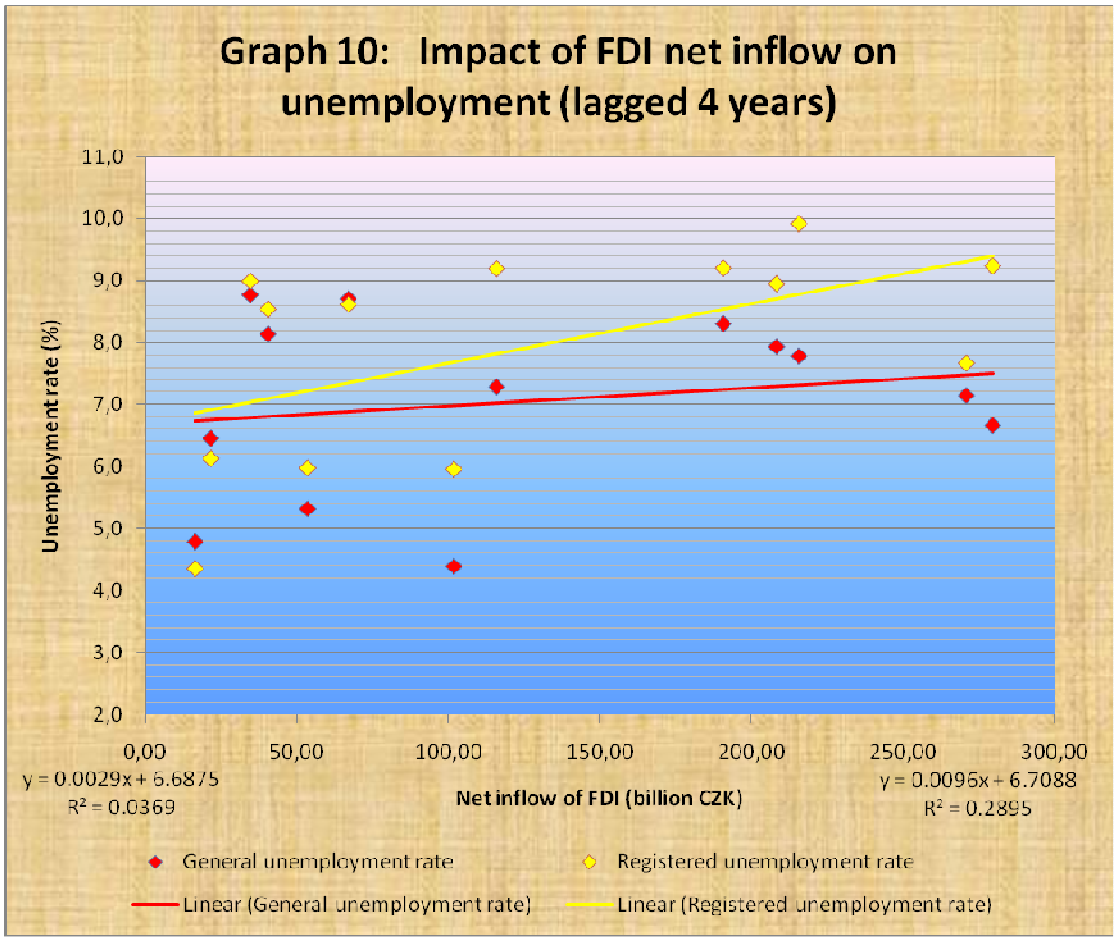
Stil lower and lower coefficients of determination (0.1263 for general unemployment rate and 0.2913 for the registered unemployment rate) as well as coefficents of regression (0.36 and 0.54) suggest that this is not a provable relationship.

The Graph 9 represents the relationship between net inflow of FDI and the general unemployment rate and the registered unemployment rate, which are lagged by 3 years.



As in the case of FDI inflow and unemployment lagged by 3 years, the general unemployment regression line is the flattest (y = 6.5694 + 0.0021x), but also the coefficient of determination is the lowest (0.0141), R = 0.12. The slope of registered uenmployment regression line is lower than in previous graphs (y = 6.4335 + 0.0092x), but it is still very steep and coefficient of determination is very low (0.168), R = 0.41.

The Graph 10 is the last one which describes the relationship between unemployment rates and the net inflow of FDI.



The situation concerning general unemployment regression line is repeating – the declining tendency of the slope is broken and the line is steeper than in the previous case ($y = 6.6875 + 0.029x$) with $R = 0.19$ and $R^2 = 0.0369$. The registered unemployment regression line is steeper as well ($y = 6.7088 + 0.0096x$), but it has higher coefficient of determination (0.2895), which is still very low, $R = 0.54$.

4.4. Impact of FDI on Employment in Regions

In order to find out the impact of FDI on employment in smaller area than the Czech Republic, the Capital City of Prague, Central Bohemia Region, Usti nad Labem Region, Zlin Region, and Olomouc Region were chosen to execute the same procedure as was used for the whole country and the deeper investigation of each region was conducted. Because the impact of FDI on employment was not proven for the whole country, the investigation continued. As it was already mentioned, the Czech Republic has great regional differences, so there could be an impact on the regional level (NUTS 3) which is not provable on the country level (NUTS 1).

Data gathered are since 2000, because data for districts were uploads and stored until this year. Moreover, the regional data gathered for the year 2000 is a sum of all FDI made in individual regions till 2000, so it represents only a total amount of FDI and it cannot be included in computations. The last regional data concerning FDI flows was from 2008, so this is the upper bound year for data collection.

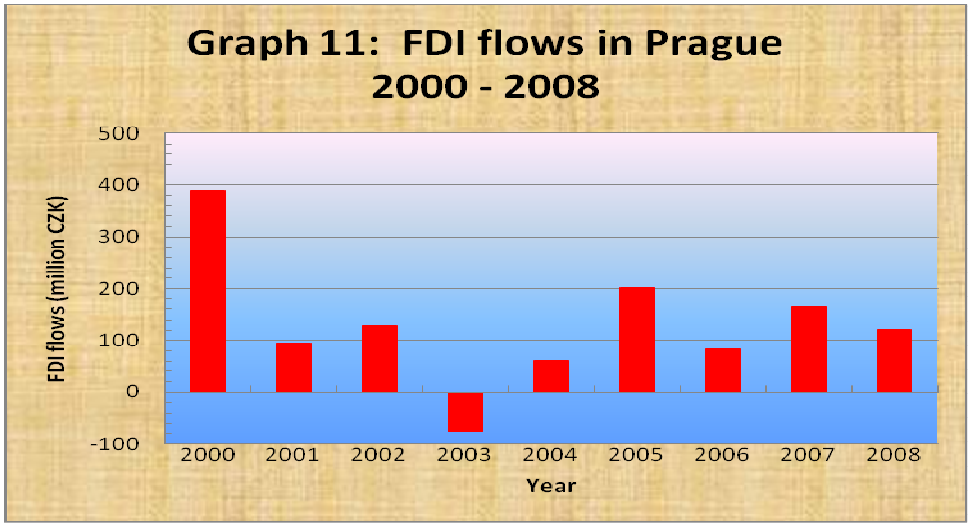
4.4.1. The Capital City of Prague

The Capital City of Prague is placed in the heart of the Czech Republic. It is considered as an independent region because of its population (1.25 million of inhabitants). Prague belongs among important and developed regions even within the EU. It is due to its long-term historical development and the geographical location plays important role. As an economic centre and a centre for intermediation of impacts of multinational economic relation the Capital City of Prague has unique position within the Czech Republic from the economic point of view. It is a typical metropolis with higher level of GDP production (higher level of wages, location of headquarters, and concentration of central bodies).

From the viewpoint of unemployment, there is the smallest number of unemployed persons (speaking in both – relative and absolute numbers). The registered unemployment rate fluctuates between 2.14 % (in 2008) and 4.02 (in 2003). Job positions in Prague are not opportunities only for its inhabitants but also for inhabitants from wide surroundings, who daily commute to the Capital City. Labour force in Prague has higher professional skills compared to other regions (more than 30% of employed are persons with a university degree). The most successful branches are construction and tourism (tourist from abroad represent more than 90% of all accommodated guests). The Capital City of Prague also plays important role in education, health and culture.

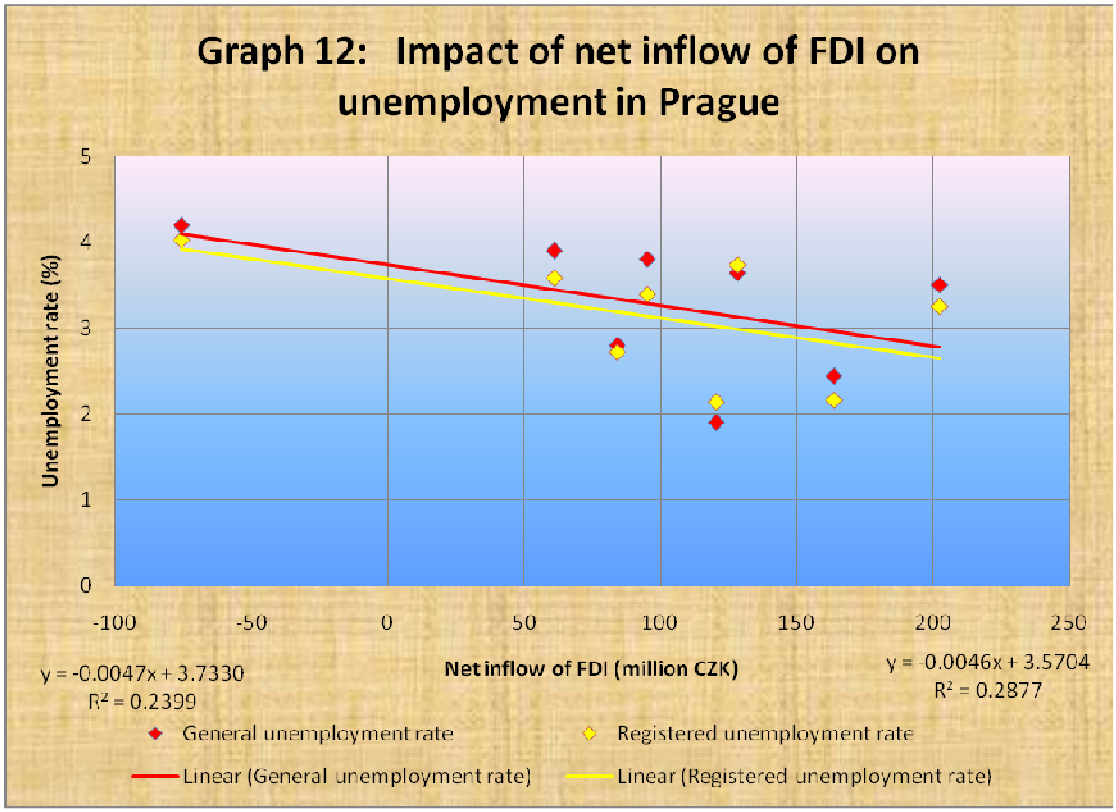
Concerning FDI, Prague is the region which obtains more than a half of the amount directly invested in the Czech Republic from abroad. This data could be distorted by the fact that head offices of many firms are located in Prague and the investments are recorded as flows in Prague, but then could be allocated to different regions. The total amount of FDI invested in Prague between 2000 and 2008 was almost CZK 1.17 bln (1 169 592 668).

The investment flows are shown in the Graph 11.



The amount of investment in 2000 is only a starting point (it represents all FDI in Prague till this year). From this reason, the data concerning 2000 are ommited and computation is done only for 2001 – 2008 time period. There is an FDI inflow each year (the highest amount was invested in 2005), except the year 2003, which was the only one when the investment outflow occured.

The Graph 12 investigeates the relationship between the FDI flows and unemployment in Prague.



There are two almost similar regression lines, in the Graph 11. The red Linear regression line ($y = 3.733 – 0.0047x$ with $R = -0.49$ and $R^2 = 23.99\%$) represents the relationship between general unemployment rate and FDI flows in Prague. It seems that the yellow Linear regression line ($y = 3.3081 – 0.0012x$ with $R = -0.54$ $R^2 = 28.77\%$), which concerns registered unemployment rate and FDI flows, goes along the red line, because it has

almost the same slope (0.000 1 difference). It could be said that both regression lines support the hypothetical assumption – the higher net FDI inflow, the lower unemployment – but the coefficient of determination is still low. On the other hand, there could be seen at least an impact of FDI flows on employment comparing to the Czech Republic.

4.4.2. Usti nad Labem Region

The Usti nad Labem Region is mountainous region with a lot of peaks and river origins. It is varied as for natural conditions as well as from the point of view of its economic structure, density of settlement and condition of the environment. Industrial activity from the past had and still has an unfavourable influence on the quality of the environment. Damaged nature recovers only thanks to a costly recultivation. Emission situation is also well-known. The economic importance used to be based on its raw materials (large deposit of brown coal, quality glass and foundry sands and building stone). The whole region could be divided into four distinct areas that differ one from another. The first one is in the foothills of the Ore Mountains, which has highly developed industrial production concerning energy industry, coal mining, mechanical engineering, and chemical and glass industry. Area around Litoměřice and Louny is known for hops and vegetable production, as well as for fruit production. Area around Děčín is neither an area with concentration of heavy industry nor an agricultural area and its economic activities as well as population are limited by the mountain range. The last area around Šluknovsko is a typically peripheral territory with its remoteness and difficult accessibility to other parts.

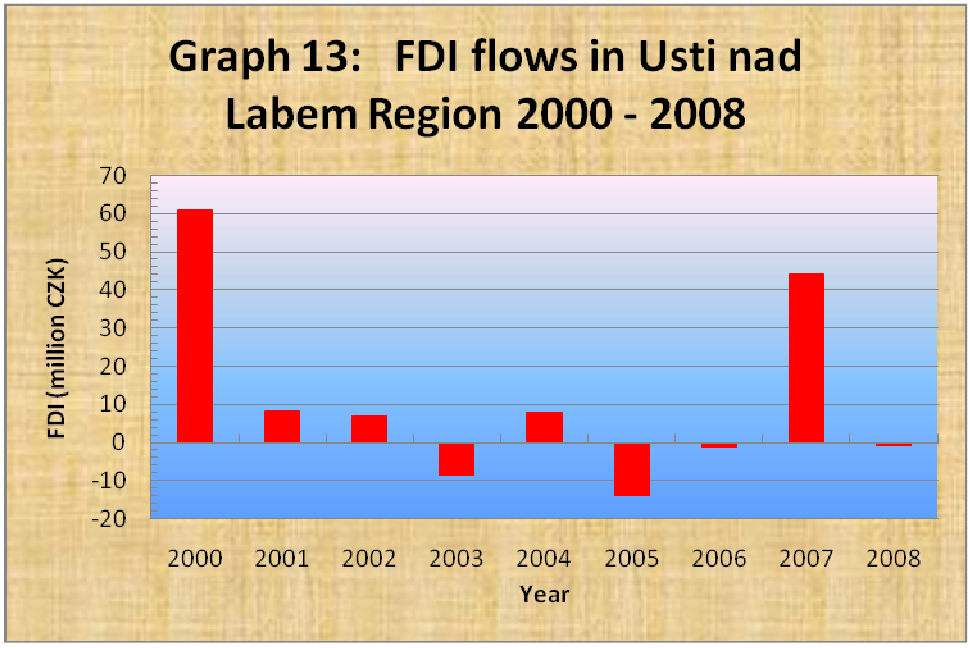
The Usti nad Labem region represents the opposite extreme to the Prague, concerning unemployment. This industrial region concentrated on coal extraction, but it suffers from high rate of unemployment after the coal reserves depletion and is unable to re-employ unskilled job applicants. Among

the most important employers are coal mining companies (Mostecká uhelná společnost, Severočeské doly), petrochemical company (Chemopetrol), and Regional Health, Inc (Krajská zdravotní, a. s.).

Most persons are employed in the processing industry. Decrease of coal mining, restructuring of enterprises, slowing down of productions and agriculture cause that in the national comparison the Usti nad Labem Region has in the long-term the highest registered unemployment rate, which oscillates between 10.26% (2008) and 17.13% (2002).

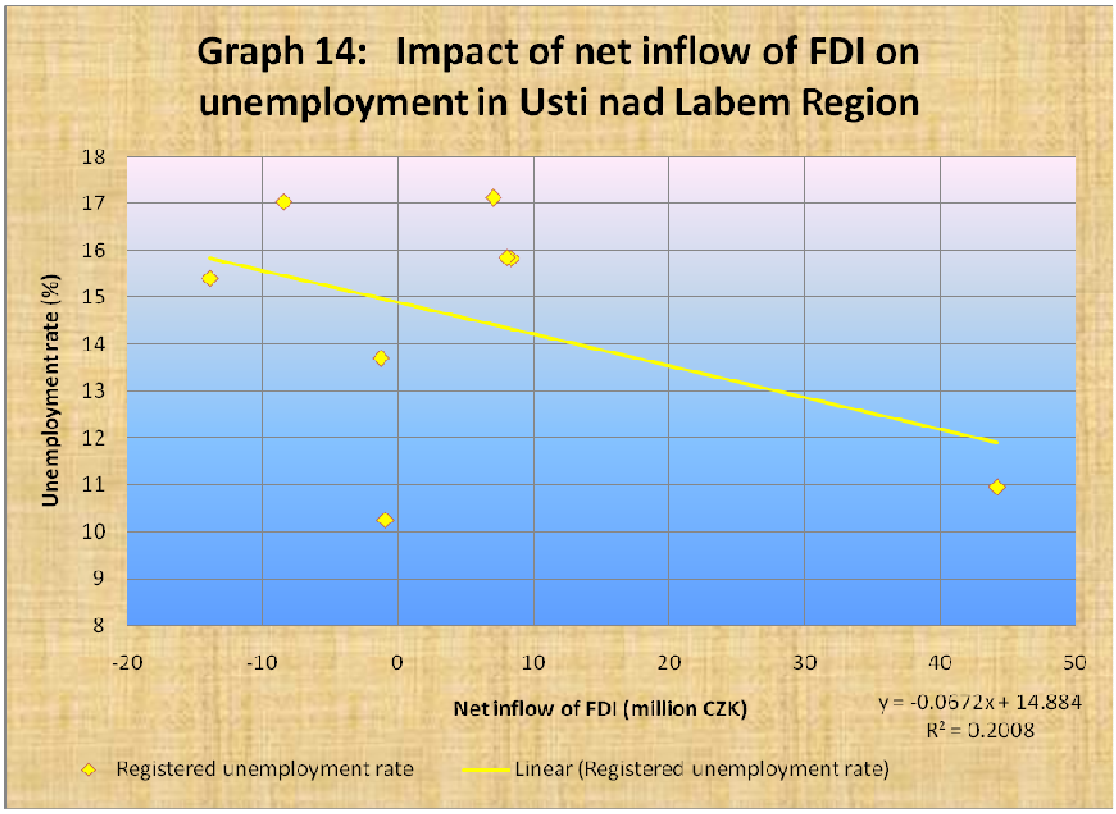
..

The FDI flows in Usti nad Labem region are pictured in the Graph 13.



The total FDI net inflow in Usti nad Labem region till 2000 was CZK 60.95 mil. The FDI flows oscillates between CZK – 13.92 mil and CZK 8.38 mil, except the year 2005 (CZK 44.20 mil). If the data from 2005 was ommited, the FDI inflow would equal the FDI ouflow in this region.

Puting data concerning FDI flows and registered unemployment, the outcome is represented by the Graph 14.



The regression line (y = 14.884 – 0.0672x) is steeper than it was for the Prague region, but it has lower coefficient of determination (20.08%), R = -0.49, which means negative, but still weak relationship. It is not a strong support of the hypothesis, but at least, it does not reject it.

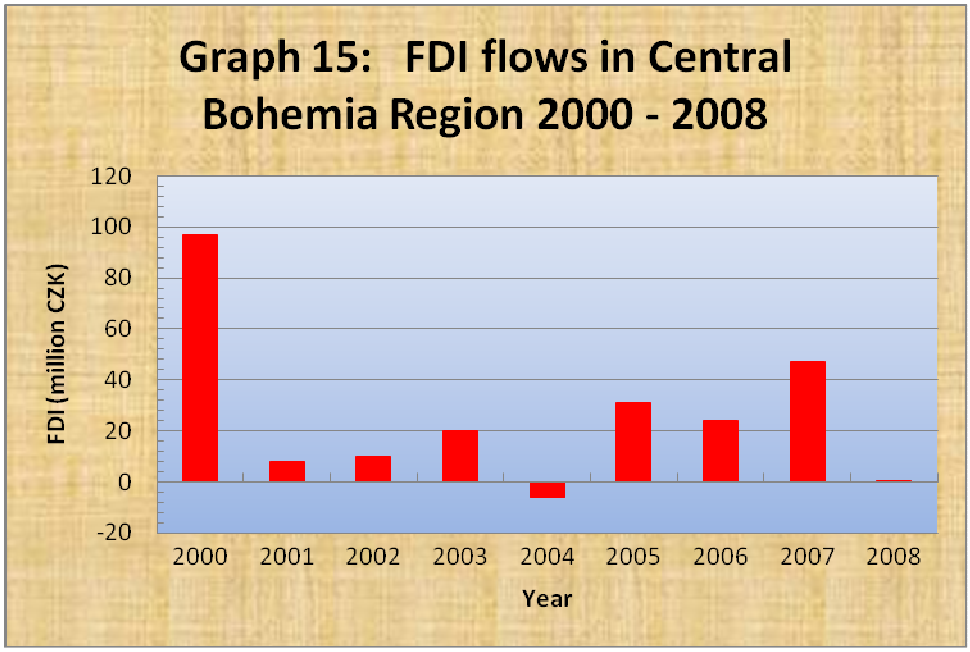
4.4.3. Central Bohemia Region

The Central Bohemia Region surrounds the Capital City of Prague and ranks among the biggest regions of the Czech Republic due to its area (10,015 km^2), number of municipalities and population (1.247 million of inhabitants). The Region's position, close ties with the Capital City and dense transportation network significantly influence its economic characteristic. The Region is an important source of labour force for Prague – it supplements the Prague's industry, supplies Prague with food, and provides to Prague its recreation potential.

Good natural conditions in the north-eastern part of the region is a base for agricultural production profits, especially at crop production, growing of wheat, barley, beef, and also in growing fruits, vegetables and flowers (especially in parts close to towns). Industry sector is focused on engineering, chemical industry and food industry. Škoda Auto a. s. (automobile factory) is an enterprise of a national importance. Other factory, which manufactures small cars, is TPCA Czech, s. r. o. Kolín. Glass industry, ceramics manufacture and printing industry belong also to important branches in this Region. Traditional industrial branches as coal mining, steel industry and leather manufacture undergo a recession. Comparing the branch structure of employment of the Region and the branch structure of the Czech Republic, the number of employees in manufacturing rises well above the country average, while the number of employees in construction and services is rather low.

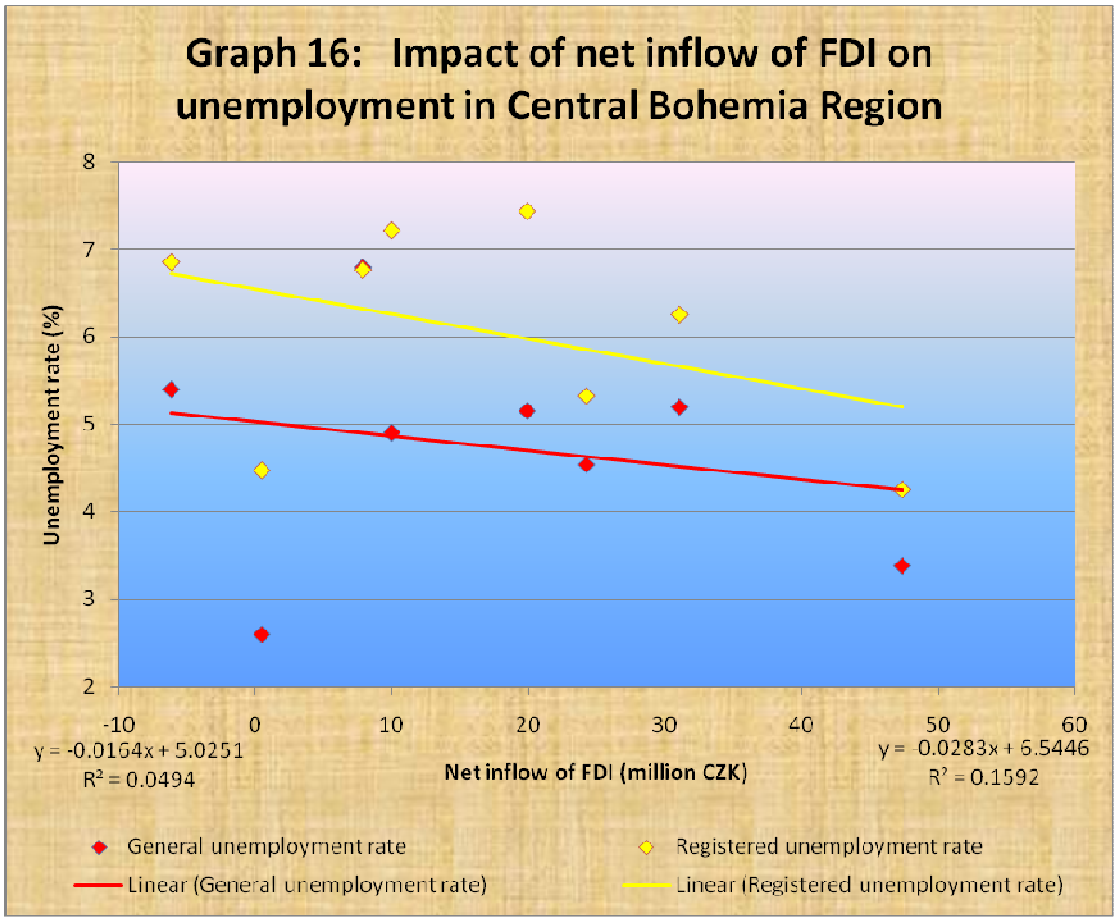
The registered unemployment rate fluctuates between 4.47% (2008) and 7.43% (2003) and is lower than the national average for a long-term. Despite that, there are differences in unemployment within the Region, which is also caused by proximity of some parts of the Region to Prague.

The Region is quite successful in FDI attraction (the total FDI inflow was CZK 231,762,150 as of 31 December 2008). The net FDI inflow is shown in the Graph 15.



The starting position in 2000 was CZK 97.035 mil. There was a net FDI inflow each year, except in 2004, when there was a net FDI outflow amounting CZK 6.154 mil. On the others hand, the 2007 was the most successful year (CZK 47.36 mil net FDI inflow). Important project, that was realized on the basis of the foreign direct investment, was the TPCA factory construction in Kolín. The unfabourable impact on the landscape and nature in that area was strongly criticised, but on the other hand, the TPCA Czech, s. r. o. belongs to significant employers in the Region (with 3500 employees).

The hypothesis is also weakly supported in the Central Bohemia Region, as it is described in the Greph 16.



The regression line (y = 6.5446 – 0.0283x) is steeper than the Prague's regression line, but it has lower coefficient of determination (15.92% compared to 28.87% of Prague) and regression coefficient is lower as well (-0.40 compared to -0.54).

The Central Bohemia Region is the second in the Czech Republic (considering the total amount of FDI inflow as well as the number of inhabitants). It managed to attract such crucial investment as was made in Kolín, which strongly affecteded the local unemployment, but it has only weak impact on the unemployment of the whole Region.

4.4.4. Zlin Region

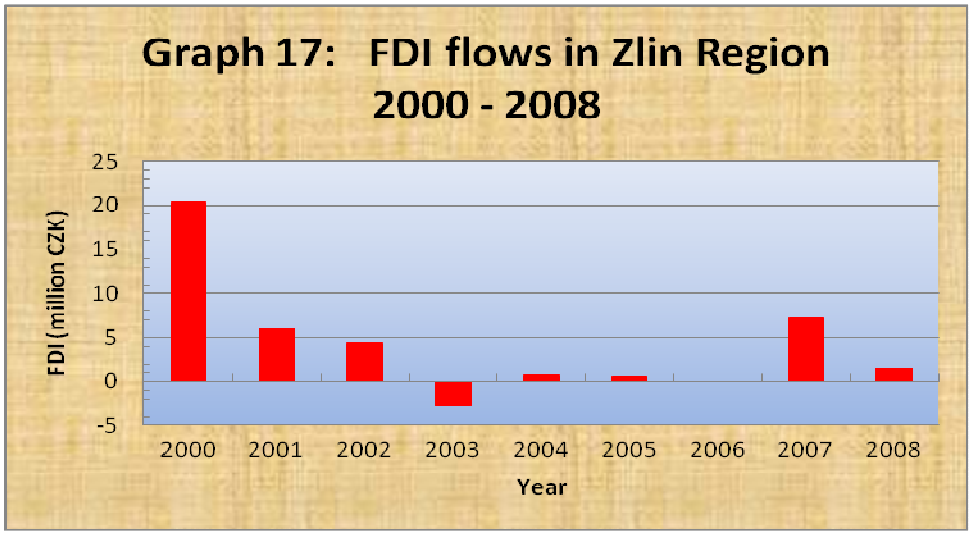
The Regions consists of hilly countries and mountain ranges, as well as flat fertile areas. The soils are mostly poor in minerals (except of poatassioum and magnesium) with lack of humus. On the other hand, there are locations with brown and black fertile soilin the surroundings of the Morava River. Due to this conditions, it is quite hard to cultivate anything in the highlands and a half of the total area is non-agricultural land.

Economy is based primarily on capitalisation of input raw materials and semi-finished products. The Region has industrial potential in manufacturing enterprises, which are mainly focused on metalworking, wood processing, electrical and textile production, but the potential stil remains unutilised due to low level of modernisation of production.

The Region takes advantage of number of nuture, cultural and historc monuments. Thanks to those conditions, it is typical touristic region which offers mounatins, garden architecture, spas, wine valleys, series of religious monuments and historically valuable buildings in the same time.

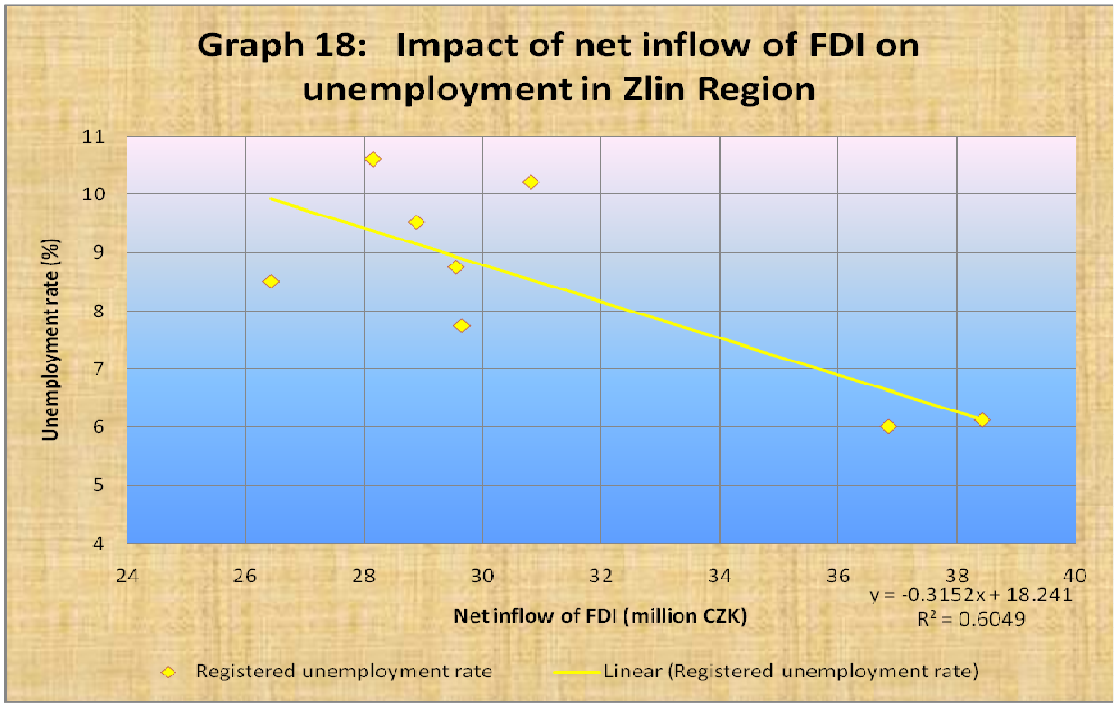
The registered unemployment rate fluctuates between 6.02% (2007) and 10.61% (2003). The total amount of FDI in the Zlin Region is not high (CZK 38,430,379), which ranks it as eleventh region considering FDI position.

The FDI flows are shown in the Graph 17.



Until 2000, the Zlín Region had collected CZK 20,328,300 as FDI. Two years of net FDI inflow followed, but there was an FDI outflow in 2003 and there was almost no net FDI inflow in consequent three years (did not cross the border of CZK 750,000). On the other hand, the net FDI inflow in 2007 was the highest (CZK 7,201,646) in the Region.

The impact of unemployment is recorded in the Graph 18.



The regression line (y = 18.241 – 0.3152x) is the steepest from all regions in the Czech Republic witr correlation coefficient -0.78 and the coefficient of determination (60.49%) is the highest as well. The hypothesis is proved in this region.

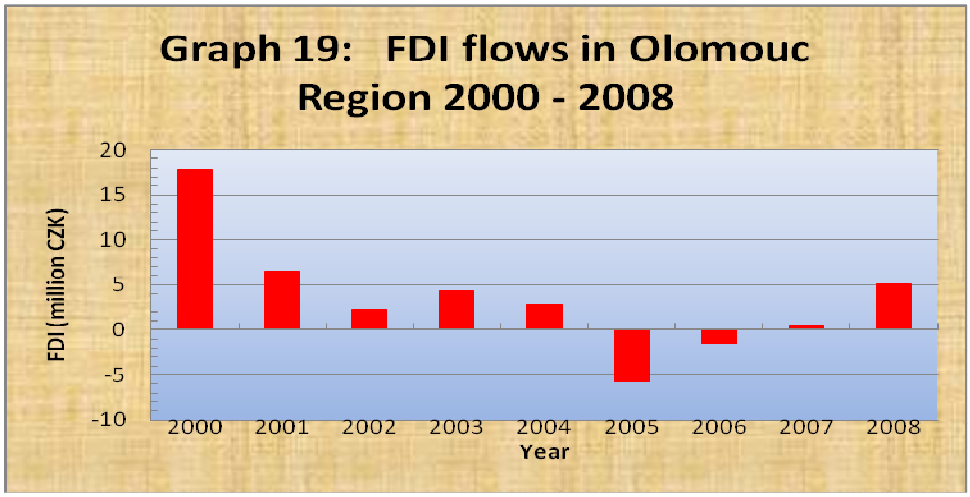
4.4.5. Olomouc Region

Previous regions supported or at least did not reject the hypothesis, but not in this case.

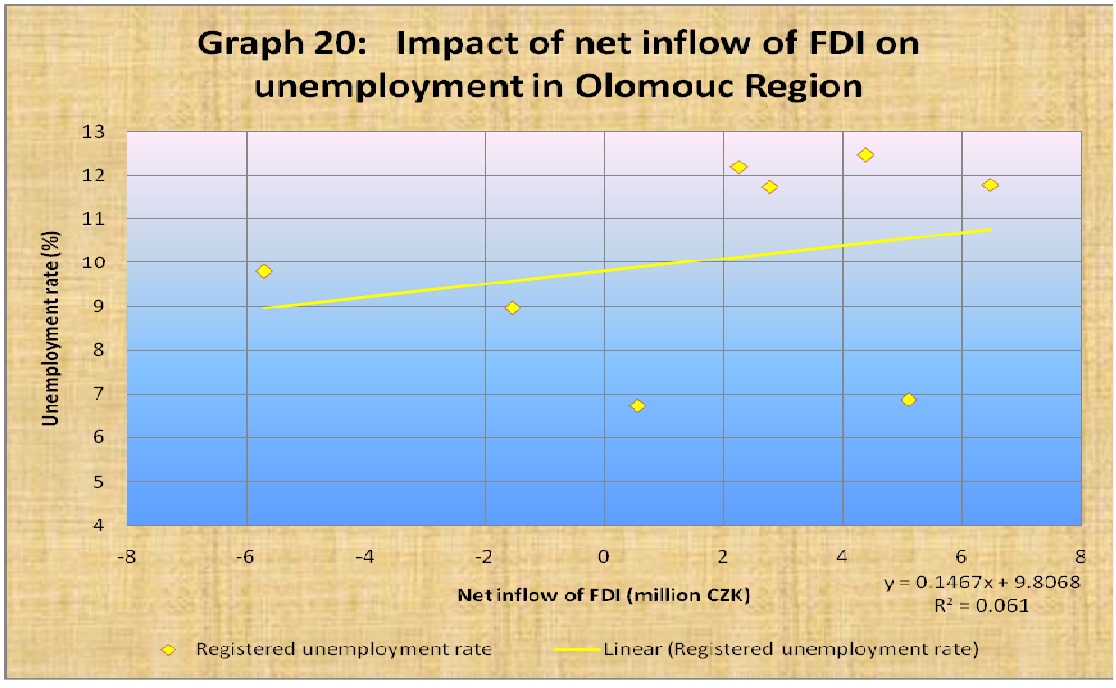
The Olomouc Region consists of the northern mountanious part and the southern lowland part. From the economic point of view, the Olomouc Region is an industrial are with developed services, but, as in each Region in the Czech Republic, there are differencies in individual areas. Economy of the southern part is more stable and diverse, however the nothern part belong to economically weaker (it is cause by its position, transport accessibility, and disturbance of social and economic life after the Second World War). The lowlands of the Region belong to areas with the most fertile land, thanks to that, the yields of barley, wheat, repe and industrial sugar beet reach the highest amount of the Czech Republic. Agricultural production is followed by food enterprises. Other industrial enterprises focuse on textile and clothing industry, manafacture of machinery, optics and optical equipment. Constraction plays also important role as an employer. The service sector is important especially in hilly parts of the Region.

The registered unemployment rate used to be quite high (above 11.7% from 2000 to 2004), but it declined, mainly thanks to the development of the Region, to 6.87% in 2008.

The FDI inflow as of 31 December 2008 totaled CZK 32,217,276 and the annual net FDI inflow is presented in the Graph 19.



Until 2008, the net FDI inflow was almost 18 million of CZK. The annual flow is not identical, years of net FDI inflow (2001 – 2004, 2007 – 2008) are replaced by the negative net FDI inflow (FDI outflow in 2005 and 2006). Due to the small amount of FDI inflow and high share of domestically owned enterprises, the impact of FDI on employment in the Olomouc Region seems to be opposite than I would expected, as it is shown in the Graph 20.



The regression line (y = 9.8068 + 0.1467x) has upward tendency, so it would hold that the higher amount of FDI invested in the Olomouc Region, the higher unemployment it has to face. The coefficient of determination is low (6.1%), so it is cannot be proven almost any relationship between the FDI inflow and unemployment in the Region.

4.4.6. Regions in the Czech Republic

Previous regions were chosen because of their uniqueness in one or more factors:

- the Capital City of Prague due to the lowest registered unemployment rate, the highest amount of FDI inflow, and the density of population as well as density of skilled labour force,
- the Usti nad Labem Region due to the highest registered unemployment rate,
- the Central Bohemia Region due to the frequently spoken FDI in the TPCA Czech in Kolín,
- the Zlin Region due to the steepest regression line and the highest coefficient of determinetion (which supports the hypothesis), and
- the Olomouc Region due to the regression line, which supports the hypothesis at least.

In order to compare situation in all regions of the Czech Republic, the four tables follows. They include information about the total amount of FDI, which was invested in each Region, the slope of regression line, which was computed for the relationship between net FDI inflow and the unemployment rate in each Region, the corelations coefficient, which represent the strengt and the direction of the regression line, and the coefficient of determination of each regression line.

The Table 1 orders individual Regions according the total amount of FDI that flowed in each Region during the time period 2000 – 2008.

Table 1: FDI position of Regions in the Czech Republic

Region	FDI	Slope	R	R^2 (%)
Capital city of Prague	1,169,592,668	-0.0046	-0.5364	28.77
Central Bohemia Region	231,762,150	-0.0283	-0.3990	15.92
Moravia-Silesia Region	162,578,250	-0.0359	-0.1792	3.21
Usti nad Labem Region	103,853,222	-0.0672	-0.4481	20.08
South Moravia Region	98,814,354	-0.0177	-0.1622	2.63
South Bohemia Region	79,459,403	-0.0022	-0.0173	0.03
Liberec Region	60,645,956	0.0652	0.2629	6.91
Pilsen Region	60,454,684	-0.0352	-0.1414	2.00
Vysocina Region	53,378,244	-0.0031	-0.0245	0.06
Pardubice Region	46,749,803	0.0089	0.0539	0.29
Zlin Region	38,430,379	-0.3152	-0.7778	60.49
Olomouc Region	32,217,276	0.1467	0.2470	6.10
Hradec Kralove Region	31,488,055	-0.1519	-0.4200	17.64
Karlovy Vary Region	20,020,559	-0.2055	-0.2135	4.56

It is obvious that the most successful Region was the Capital City of Prague as it was already spoken about. Its regression line has a negative slope and the second highest coefficient of determination.

More interesting for our investigation is the Table 2. Individual Regions are ordered acoording to the slope of their regression line (from the negative most steeper, to the postitive most steeper).

Table 2: FDI position of Regions in the Czech Republic

Region	FDI	Slope	R	R^2 (%)
Zlin Region	38,430,379	-0.3152	-0.7778	60.49
Karlovy Vary Region	20,020,559	-0.2055	-0.2135	4.56
Hradec Kralove Region	31,488,055	-0.1519	-0.4200	17.64
Usti nad Labem Region	103,853,222	-0.0672	-0.4481	20.08
Moravia-Silesia Region	162,578,250	-0.0359	-0.1792	3.21
Pilsen Region	60,454,684	-0.0352	-0.1414	2.00
Central Bohemia Region	231,762,150	-0.0283	-0.3990	15.92
South Moravia Region	98,814,354	-0.0177	-0.1622	2.63
Capital city of Prague	1,169,592,668	-0.0046	-0.5364	28.77
Vysocina Region	53,378,244	-0.0031	-0.0245	0.06
South Bohemia Region	79,459,403	-0.0022	-0.0173	0.03
Pardubice Region	46,749,803	0.0089	0.0539	0.29
Liberec Region	60,645,956	0.0652	0.2629	6.91
Olomouc Region	32,217,276	0.1467	0.2470	6.10

Eleven out of fourteen Regions has a regression line with negative slope and only three Regions has their regression line with positive slope. Omitting the coefficient of determination, this would support the hypothesis in elevent cases, which is 78.57%. But only one Region has the coefficient of determination higher than 50% (Zlin Region, 60.49%), another four Regions have coefficent of determination higher than 15% (Capital City of Prague, 28.77%, Usti nad Labem Region, 20.08%, Hradec Kralove Region 17.64%, and Central Bohemia Region, 15.92%).

Data in the Table 3 are ordered according to regression coefficient from the greatest negative to the greatest positive. There is not strong relationship between FDI and the employment in any region. Zlin Region is approching the strong relation, but it does not reach it.

Table 3: FDI position of Regions in the Czech Republic				
Region	FDI	Slope	R	R^2 (%)
Zlin Region	38,430,379	-0.3152	-0.7778	60.49
Capital city of Prague	1,169,592,668	-0.0046	-0.5364	28.77
Usti nad Labem Region	103,853,222	-0.0672	-0.4481	20.08
Hradec Kralove Region	31,488,055	-0.1519	-0.4200	17.64
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South Moravia Region	98,814,354	-0.0177	-0.1622	2.63
Pilsen Region	60,454,684	-0.0352	-0.1414	2.00
Vysocina Region	53,378,244	-0.0031	-0.0245	0.06
South Bohemia Region	79,459,403	-0.0022	-0.0173	0.03
Pardubice Region	46,749,803	0.0089	0.0539	0.29
Olomouc Region	32,217,276	0.1467	0.2470	6.10
Liberec Region	60,645,956	0.0652	0.2629	6.91

Regions that are ordered according to the coefficient of determination are in the Table 4.

Table 4: FDI position of Regions in the Czech Republic				
Region	FDI	Slope	R	R^2 (%)
Zlin Region	38,430,379	-0.3152	-0.7778	60.49
Capital city of Prague	1,169,592,668	-0.0046	-0.5364	28.77
Usti nad Labem Region	103,853,222	-0.0672	-0.4481	20.08
Hradec Kralove Region	31,488,055	-0.1519	-0.4200	17.64
Central Bohemia Region	231,762,150	-0.0283	-0.3990	15.92
Liberec Region	60,645,956	0.0652	0.2629	6.91
Olomouc Region	32,217,276	0.1467	0.2470	6.10
Karlovy Vary Region	20,020,559	-0.2055	-0.2135	4.56
Moravia-Silesia Region	162,578,250	-0.0359	-0.1792	3.21
South Moravia Region	98,814,354	-0.0177	-0.1622	2.63
Pilsen Region	60,454,684	-0.0352	-0.1414	2.00
Pardubice Region	46,749,803	0.0089	0.0539	0.29
Vysocina Region	53,378,244	-0.0031	-0.0245	0.06
South Bohemia Region	79,459,403	-0.0022	-0.0173	0.03

Zlin Region is the only one that could prove the hypothesis. Other four Regions with coefficient of determination higher than 15% supports the

hypothesis. Other cases have coefficient of determination lower than 7%, which does not prove or support the hypothesis, but, at lieast, it does not reject it.

5. Conclusion

The ultimate goal of the paper was to find out the impact of FDI on the employment in the Czech Republic. In order to do that, the paper firstly explores the theoretical background of FDI in the Czech Republic (chapters: Classification of FDI, Determinants of FDI, and Acts and Regulations Concerning FDI), and of employment in the Czech Republic (chapters: Act on Employment in the Czech Republic, Unemployment – Computation of Unemployment, and Instruments of Active Employment Policy, and Employment in the Czech Republic).

The practical part starts with investigation the FDI environment in the Czech Republic, its flows, countries of origin, and the sectors, where the investments mainly flows. The Czech Republic is one of the most successful post-communist countries with transitioning economy in attracting FDI. For the reason of attracting foreign investors, the CzechInvest was established. It is a Czech agency for foreign trade, which operates under the Ministry of Industry and Trade of the Czech Republic. The FDI inflows are changing annually, but always are greater than FDI outflows in the same year, which results in the fact that the Czech Republic has FDI net inflow each year. As of December 2008, the inflow totally amoutnted CZK 2.18 trillion. 53.7% of FDI inflow went to service sector and 34.6% to manufacturing. The highes share of the total amount of money invested was placed in branche of financial institutions and insurance (18.8%), which was followed by real estate and business activities (16.3%), trade and repairs (9.8%), and motor vehicles (8.8%).

Considering the employment, the Czech Republic belongs to countries with employment slightly above average, if we make international comparison, but still the employment rate (the share of the number of employed on the total country population at the productive age) for the age group 15 – 64 was

higher than the average of the EU-27. The great difference is if we split the group for male and female. The male employment rate for the age group 15 – 64 in 2009 was 73.7%, which was by 2.7% higher than EU average, but the female employment rate for the same group was 56.5% (by 2.2% lower than EU average). The variance was even more visible for the age group 56 – 64, where the male employment rate was 58.9% (EU average was 54.9%) and the female employment rate was only 34.8% (EU average was 37.9%).

Quite similar situation was in the case of unemployment rate. In 2009, the general unemployment rate did not cross the EU average and remained lower for both, male and female group (6.5% compared to EU average 9.1%, 8.6% compared to 9.0% respectively).

There are two approaches or unemployment rates (registered and general), which measure the level of unemployment. In our case, the registered unemployment rate is computed from the job applicants in individual regions or districts and since the foreign direct investment should have an impact especially on the number of job seekers, it should be used this type of unemployment for computation. But I decided to use both of them and consequently compare them on national level (NUTS 1).

The simple linear regression is used for computation because it is investigated if there is an impact or direct influence of FDI on employment in the Czech Republic. Firstly, the amount of inflow of FDI in the Czech Republic was chosen as the independent variable (expressed in billions of CZK) and the unemployment rate in the Czech Republic as the dependent variable (using both – the general unemployment rate, as well as the registered unemployment rate). Secondly, the net inflow of FDI in the Czech Republic was chosen for computation and the dependent variable remains unchanged.

The hypothesis cannot be accepted on the national level because the simple linear regression shows an opposite impact of FDI on the employment. Even if the impact on employment was lagged by 1, 2, 3, and 4 years, the slope of regression lines does not change direction. The coefficients of determination and regression are small, which means that there is only weak relationship between the two variables and only little of cases could be represented by computed equations.

Different situation is on the regional level (NUTS 3). There are three regions that almost copy the national situation (Pardubice Region, Olomouc Region, and Liberec Region) – positive relationship between FDI and the unemployment rate, R equals to 0.0539, 0.247, and 0.2429 respectively, and the coefficient of determination does not exceeds 7%, which altogether means that the hypothesis is not proved and the direct relationship almost does not exist. Other regions have negative relationship, but also low both coefficients, except the Zlin Region (R = -0.7778, which means strong negative relationship, and R^2 = 60.49%).

Finally, the employment or unemployment rate is influenced by many factors and FDI is one of them. The impact of FDI on employment cannot be proved on the national level (NUTS 1), but the impact seems to be positive, which exceptions, on regional level (NUTS 3). The hypothesis can be proven neither nationally nor regionally by the simple linear regression method. Econometric model would be better but it also would be general, because it would not consider qualitative factors influencing unemployment as the qualitative research of individual region would give.

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