Impact Foreign Direct Investment on Development of Main Economic Activities of Host Country : Case of Lithuania

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Abstract

The aim of the paper is to make an economic analysis of foreign direct investment in Lithuania during year period 2000-2006, making emphasize on the impact of FDI structure by economic activity on the growth of sector's output, and the general FDI influence on Lithuanian economic growth. Authors formulate hypotheses, fulfill quantitative analysis in order to test hypotheses, and give economic interpretation of the results.

Introduction

Due to globalization, boundaries between countries almost „disappeared". All countries interact with each other in the form of trading goods (exports, imports), migration of people, spread of culture, ideas, and technologies and so on. An extraordinary and growing role in global business is performed by foreign direct investment (FDI). It can provide a firm with new markets and marketing channels, cheaper production facilities, and access to new technology, products, skills and financing. For a host country or the foreign firm which receives the investment, it can provide a source of new technologies, capital, processes, products, organizational technologies and management skills, and as such can provide a strong impetus to economic growth. There is a lot of literature, discussing FDI impact on growth. Most of authors have found positive impact of FDI on economic growth in developing and developed countries (Balasubramanyam, Salisu, Sapsford 1999), (Choe, 2003), (Gholami, Lee, Heshmati, 2005), (Karbasi, Mohamadi, Ghofrani, 2005). Alfaro states, that the inflows of FDI to economic sectors (manufacturing and services) exert different effects on economic growth (Alfaro, 2003). Some authors (Bhagwati, 1973, Singer, 1950, Prebisch, 1968) and others accentuated and negative aspects of FDI. However there is a lack of literature on analysis of FDI impact on economic growth by economic activity (e.g. financial intermediation sector, manufacturing sector, wholesale and retail sector and so on). Besides, countries of developing economies, including Lithuania, seek to attract FDI and mostly highlight positive FDI effect on growth. Amount of FDI in different economic activities in Lithuania is not equal. However government pays attention just to attract foreign investment, regardless to which sectors of economic activity these investments will be directed. Keeping in mind that there might be not only positive but also negative aspects of FDI it was a demand to analyze whether FDI in Lithuania influences national economy on the whole, and especially to analyze the relationship between FDI and output in separate economic activities.

Overview: Foreign Direct Investment (FDI) in Lithuania

The impact of foreign direct investment on economic growth (i.e. on GDP, assuming GDP as a measure of economic growth) is controversial. According to Statistics Lithuania the highest percentage of GDP was observed in manufacturing (20.5%), wholesale and retail trade (15.2%), transport storage post and telecommunications (11.5%), real estate and renting (9.1%) and construction (7.3%) sectors. Each of the rest sector's have smaller percentage shares of GDP, and all together compound 19.9% (electricity, gas and water supply-3.4%; financial intermediation-2.7%; hotels and restaurants-1.2%; agriculture, hunting, forestry and fishing-5.2%; mining and quarrying-0.5%; education, health and social work-4.5%; other community, social and personal service activities-2.4%).

The distribution of inward FDI stock differs from GDP. Inward FDI stock expressed as percentage from total country's FDI stock in manufacturing sector (39.58%), in transport storage post and telecommunications sector (13.68%), and in wholesale and retail trade sector hold strong positions (similarly as GDP percentage to corresponding sectors). In opposite to GDP, FDI hold very strong positions in electricity, gas and water supply sector (12.53%) and financial intermediation sector (12.32%). The weakest share of FDI was estimated in agriculture, mining and quarrying, education, health and social work sectors. Talking about FDI intensity (that is FDI to GDP ratio), we can see that the highest intensity is estimated in following sectors: financial intermediation (148.68%), electricity, gas and water supply (148.68%), manufacturing (77.76%), mining and quarrying (53.59%), transport storage post and telecommunications (47.73%). Despite different estimates of percentage of FDI and percentage of GDP in sectors of wholesale and retail trade, real estate and renting, and hotels and restaurants, the FDI intensity to these sectors is very similar (29.17, 28.17, 29.3 % respectively).The greatest share of FDI appears in manufacturing sector and the percentage share of FDI in manufacturing sector was increasing continually since 2002 and reached 33.99% in 2005. The second sector, which has big share of FDI stock, is wholesale and retail trade sector. However the share of this sector's FDI was steadily decreasing from 24.53 % in 2000 up to 15.96% in 2005, thus the slump during period 2000-2005 was 8.6 %. The third greatest share of FDI was estimated in financial sector. The percentage share of this sector's FDI has steadily increased since 2000 to 2003, and even surpassed the share of wholesale and retail trade sector in 2003 by 2.3%. However, since 2003 the share of FDI had sharp decrease, and in year 2005 dropped to 14.44 %, and it become similar to the level, estimated at the beginning of the period – in year 2000 (13.65%). Post and telecommunications estimated biggest share of sector's FDI in 2000 (17.94%), mainly due to Telecom privatization in 1998, and than had decreased up to 11.28% in 2005. The lower shares of FDI were estimated in real estate and renting, electricity gas and water supply, and transport and storage sectors. FDI in first two mentioned sectors had slight increase during the period 2000-2005, whereas FDI in transport and storage sector was decreasing since 2002, and dropped to 3.05% in 2005. However the percentage of FDI remained greatest among other manufacturing sectors and amounted 10.31% in 2005. Notwithstanding this fact, the manufacturing of refined petroleum and chemical products has increased constantly and it reached 20.17% in year 2006 and surpassed

the percentage share of FDI of manufacture of food, beverages and tobacco sector. The manufacture of textile had a big share of FDI stock expressed in percents at the beginning of the period. However, after the strong growth till year 2001 (3.76%), the rate of the sector had a sharp slope and decreased twice up to 1.62% in year 2005. This occurred mainly due to hard competition from foreign textile manufacturers, mostly from Asia, which offered cheaper production (because of cheaper labor force). The rest manufacturing sectors, indicated in the figure, had the similar variation, except manufacture of rubber and plastic products, which had a huge growth in 2005 (sectors FDI stock increased up to 10%).

The analysis of FDI and statistical data indicated that FDI is getting increasing importance on economic growth. However, the economy is a composite of various sectors of activities, named as economic activities, and flows of FDI to these economic activities are not equal. Therefore it is important to analyze, which sectors of economic activities attract the greatest parts of FDI, and have the greatest impact on economic growth. The table 1 indicates economic activities by percentage of FDI stock in 2005-2006 (i.e. share of certain sector's FDI stock, as percentage from total FDI stock of all sectors). The percentage of FDI stock was calculated in order to indicate the economic sectors, where FDI stock is greatest (the total sum of all FDI by economic activities equals 100%). The results show that the greatest share of FDI stock goes to manufacturing, wholesale and retail trade, repair of motor vehicles, motorcycles and personal and household goods, financial intermediation and transport and storage, post and telecommunications. The lowest percentage of FDI stock was estimated in education, health and social work, agriculture, hunting, forestry and fishing, mining and quarrying, construction, hotels and restaurants.

Foreign direct investment: impact on economic growth

Hypotheses and findings

The amount of foreign direct investment in Lithuania is constantly increasing. Besides, there is widely spread opinion, that FDI is beneficial and can boost economic growth. The Lithuanian government and related institutions in Lithuania accentuated the importance of attracting FDI in Lithuania (FDI was stressed in the „Long term strategy of economic development in Lithuania, till year 2015", prepared by Ministry of Economics). It was assumed that FDI might positively influence economic growth.

The hypothesis was formulated: Foreign direct investment induces Lithuanian economic growth. The hypothesis was tested by correlation analysis, where the foreign direct investment stock was denoted as independent variable and gross domestic product was denoted as dependent variable. The regression line indicates strong and positive relation between GDP and FDI stock. The results of correlation analysis indicated that correlation coefficient R equals 0.98 and estimated t statistics equals 10.53 and is bigger than tabulated t (2.78), for 4 degrees of freedom using 5% level of significance. It means that there is strong and positive relation between GDP and FDI stock. Therefore we could state that increasing amounts of FDI stock induce Lithuanian economic growth. The coefficient of determination R^2 equals 0.97 and indicates that 97 % of economic growth can be explained by the growth of FDI stock, and other factors hold only 3%. The results of correlation analysis approved the hypothesis, and indicated that foreign direct investment induces Lithuanian economic growth.

On purpose to analyze the FDI effectiveness in Lithuania by economic activity, the criterion of FDI intensity was selected. The FDI intensity was denoted as ratio of FDI to GDP, expressed in percentage (i.e. relationship between inward FDI stocks by economic activity, million LTL to GDP at current prices by economic activity, million LTL). Afterwards, the criterions of "attractive" and "unattractive" economic activities were selected, in order to find out which economic activities are most attractive for investment and which are least attractive. It was assumed, that "attractive" economic activities will be those, where calculated FDI intensity ratios will be highest; and vice versa – "unattractive" economic activities will be those, where FDI intensity ratios will be lowest. According to this percentage it is assumed that attractive economic activities are those, which amount the ratio of FDI intensity higher than 21%. In order to decide which activities amount higher than 21% intensity ratios, we look at the end of the period 2006.The attractive activities, according to calculations of year 2006 are: financial intermediation (181,15%); electricity, gas and water supply (48,68%); manufacturing (77,76); mining and quarrying (53,59); transport, storage and communications (post and telecommunications) (47,73%); wholesale and retail trade; repair of motor vehicles, motorcycles and personal and household goods (29,17%); hotels and restaurants (29,03); real estate, renting and business activities (28,17%). Other economic activities were noted as unattractive. They are: other community, social and personal service activities (15,89 %); construction (6,55 %); agriculture, hunting, forestry and fishing (5,46 %); education; health and social work (0,74 %). While the results of the previous hypothesis, tested by correlation analysis, indicated positive and strong FDI impact on economic growth it is important to find out when the relationship between FDI and economic growth is the strongest. According to the calculated FDI intensity ratios, it was assumed that FDI in attractive economic activities would more influence output in these economic activities. Therefore the following hypothesis was made in order to test the impact of FDI by economic activities on GDP by economic activities.

 Hypothesis has been formulated: foreign direct investment would have the higher impact on economic growth in attractive economic activities than in unattractive economic activities. The hypothesis was tested with a help of correlation-regression analysis. The independent variables of the analysis were divided into two groups: attractive economic activities (financial intermediation; electricity, gas and water supply; manufacturing; mining and quarrying; transport, storage and communications; wholesale and retail trade; repair of motor vehicles, motorcycles and personal and household goods; hotels and restaurants; real estate, renting and business activities), and unattractive economic activities (other community, social and personal service activities; construction; agriculture, hunting, forestry and fishing; education; health and social work). The gross domestic product was denoted as dependent variable of the analysis. The results of the correlation-regression analysis (Table 2 and Table 3) indicated that positive correlation coefficients were estimated in almost all attractive economic activities except hotels and restaurants sector. However the calculated t statistics was higher than tabulated t not in all attractive economic sectors, therefore the correlation coefficient was significant only in the following economic sectors: wholesale and retail trade; repair of motor vehicles, motorcycles and personal and household goods, manufacturing, real estate, renting and business activities, transport, storage and communications, electricity, gas and water supply. It means that increasing amount of FDI in these sectors will increase economic growth. In other attractive economic sectors the calculated t statistics was lower than tabulated t, therefore the correlation coefficients in these sectors were not significant. The results indicate, that mining and quarrying and financial intermediation may not influence economic growth. The negative correlation coefficient in hotels and restaurants sector is not significant therefore the negative impact on economic growth is not robust.The coefficients of determination R^2 were strong in five

attractive economic sectors. The results of correlation-regression analysis in unattractive economic activities did no support the hypothesis because the estimations indicated that the increase of FDI stock influences economic growth. The high coefficients of determination R^2 in these unattractive economic activities indicate that economic growth might be conditioned by the FDI stocks in certain unattractive economic activities. The negative correlation coefficient (R=-0.60) was estimated only in education; health and social work sector. However the coefficient is not significant (t statistics 1.52 t tabulated 2.78), which means that the negative impact on growth in education, health and social work sector is no robust. The hypothesis was supported only partially, because positive and significant correlation coefficients were observed both in attractive economic activities and in unattractive economic activities (except the case of hotels and restaurants sector and education, health and social work sector). The highest correlation coefficient was calculated in attractive economic activity. However, other positive and significant correlation coefficients estimated in unattractive activities (other community, social and personal service activities; and agriculture, hunting, forestry and fishing sectors), were lower than significant correlation coefficients in attractive economic activities. However, it is not possible to state that the higher impact of FDI on economic growth is in all attractive activities, because the analysis indicated, that in some cases the relationship between FDI and GDP is equal in attractive and unattractive activities.

The previous tested hypothesis indicated that FDI induces economic growth, besides the impact of FDI in attractive economic activities on economic growth in attractive activities is partly higher than impact of FDI in unattractive activities on growth in unattractive activities.

The measure of economic growth was expressed in term of GDP. As we have already analyzed GDP and FDI on the whole and by sector (activity), it would be advantageous to analyze how GDP is distributed among enterprises, ranked by economic activities. The purpose is to find out if there is a relationship between the FDI intensity by economic activity and GDP, created by one enterprise of that economic activity. First of all the hypothesis is formulated and then the ratio of GDP to number of enterprises is going to be calculated.

The highest shares of GDP for one sector's enterprise are created in the sectors, which contain highest FDI intensity ratios. The calculated ratios of GDP to number of enterprises were sorted into "attractive" and "unattractive", according to the division of attractive and unattractive economic activities, made in earlier sections of the paper, in relation to FDI intensity ratio. The highest amounts of calculated ratios in 2005 were estimated in attractive economic sectors: financial intermediation (2946.48 thousands LTL), electricity, gas and water supply (9822.36 thousands LTL), mining and quarrying (5377.97 thousands LTL), manufacturing (1369.08 thousands LTL). However, other sectors, which were denoted as attractive (wholesale and retail trade, repair of motor vehicles, motorcycles and personal and household goods; hotels and restaurants; real estate, renting and business activities), had estimated lower proportions. Some unattractive activities, e.g. agriculture, hunting, forestry and fishing, and construction had even surpassed attractive economic activities. But the data for agriculture, hunting, forestry and fishing sector, which was denoted as unattractive activity may be inaccurate, because the number of enterprises, provided by Lithuanian department of statistics, may not include all subjects of this sector (not all farmers have established enterprises, but they all produce some agricultural production or provide some services, and hereby their activities contribute to the growth of GDP). Thus due to the lower denominator (i.e. the number of enterprises) in the ratio of GDP to number of enterprises, the GDP proportion for agriculture, hunting, forestry and fishing sector's enterprise might be incorrectly boosted. It could be stated that hypothesis was supported, because the highest shares of FDI were calculated in the same economic activities, where FDI intensity ratios were the highest. These activities are: financial intermediation; electricity, gas and water supply; mining and quarrying; manufacturing. In addition, these economic activities, according to distribution (under analysis of FDI intensity ratios), depend to attractive economic activities. Besides, one of the lowest shares of GDP for one enterprise, were calculated in unattractive economic activities.

Some authors argue that foreign direct investment can have negative impact on economic growth; besides they suggest that domestic companies (host countries) may suffer from the competition of foreign capital companies. In companies with foreign ownership, wages are generally higher than in domestic firms. Therefore foreign-owned companies offer better compensation packages to attract people employed in local-capital based companies, thus reducing competitiveness of local firms (Dunning, 1994). Foreign investor can buy out its local competitors, thus acquiring a 100 percent market share (Walters, Blake, 1992). In relation to competition from foreign companies it was questioned if foreign capital companies negatively affect Lithuanian companies. The purpose was to test if there is a risk that foreign companies could drive out Lithuanian companies from the market. The hypothesis was formulated: If the sector (economic activity) is attractive, then foreign capital companies will crowd out domestic companies. The table 4 indicates the estimations of ratio expressed as division of number of FDI enterprises to number of GDP enterprises. The ratio was calculated in order to check the hypothesis. The higher the ratio means the higher the competition of foreign companies and the bigger risk that foreign companies will crowd out domestic companies. The estimated ratios supported the hypothesis, and indicated that the ratios are higher in attractive economic activities than in unattractive economic activities. According to these ratios we can conclude that the highest concentration of foreign investment companies is in energetic and financial sector, and therewith in real estate, renting and business activity sectors and at last in manufacturing sector. The obtained results in unattractive economic activities also supported hypothesis, because the estimated ratios indicated that the risk to be crowded out by foreign investment companies is lowest in the unattractive sectors. The highest ratios of number of FDI enterprises to number of GDP enterprises in mining and quarrying and financial intermediation sectors may be explained by the fact, that the biggest companies in this sector (e.g. banks in financial intermediation sectors and oil-extracting companies in mining sector) were privatized till year 2002 and have big shares of FDI stock. A little bit lower FDI to GDP enterprises ratios to electricity, gas and water supply sector may be explained by the fact that one of the biggest companies in energetic sector are state-owned or waiting for privatization and therefore the share of foreign capital in this sector is lower. The lowest ratios from attractive economic activities were estimated in hotels and restaurant sector. It could be explained by the fact, than participant of hotel and restaurant sectors are usually small enterprises. To conclude, we could state that hypothesis was tested and the results of calculated ratios supported the hypothesis, and indicated that the risk that Lithuanian companies may be crowded out by domestic companies is higher for those companies, which belong to attractive economic activities.

Conclusions

The hypotheses as concerns FDI in Lithuania and related subjects impact on the whole country's economic growth, and the growth of separate economic activities, were formulated. The impact of structure of FDI by economic activity and GDP by economic activity was highlighted.

The first hypothesis "Foreign direct investment induces Lithuanian economic growth" was tested by correlation analysis, where the foreign direct investment stock was denoted as independent variable and gross domestic product was denoted as dependent variable. The results of correlation analysis approved the hypothesis, and indicated that foreign direct investment induces Lithuanian economic growth.

The second hypothesis "Foreign direct investment will have the higher impact on economic growth in attractive economic activities than in unattractive economic activities" was tested with a help of correlation-regression analysis. The independent variables of the analysis were attractive economic activities and unattractive economic activities. The gross domestic product was denoted as dependent variable of the analysis. The analysis supported the hypothesis only partially, because positive and significant correlation coefficients were observed both in attractive economic activities and in unattractive economic activities (except the case of insignificant correlation coefficients in hotels and restaurants sector and education, health and social work sector).

The following hypothesis "The highest shares of GDP for one sector's enterprise are created in the sector's which contain highest FDI intensity ratios". The estimated and compared ratios supported hypothesis, because the highest shares of FDI were calculated in the same economic activities, where FDI intensity ratios were the highest, that is certain attractive economic activities.

The purpose of the last hypothesis "If the sector (economic activity) is attractive, then foreign capital companies will crowd out domestic companies" was to test if there is a risk that foreign companies could drive out Lithuanian companies from the market. The hypothesis was tested by the calculation of ratio between FDI enterprises and GDP enterprises. The results of calculated ratios supported the hypothesis, and indicated that the risk that Lithuanian companies may be crowded out by domestic companies is higher for those companies, which belong to attractive economic activities. We have stressed, that foreign companies may reduce competitiveness of domestic companies, or even crowd-out domestic companies, from the market.

To conclude, it might be stated that according to the results of quantitative analysis there are two aspects of FDI, as concerns positive and negative influences of FDI. On the one hand, the results of the analysis indicated that FDI positively induces Lithuanian economic growth, and on the other hand, it was observed that FDI negatively effect domestic companies due to the competition of foreign companies. Besides the results of various analyses indicated the relationship of attractive economic activities, as concerns FDI intensity ratio, with attractive economic activities in other analyzed subjects. The similar relationships were observed among unattractive economic activities.

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Table 1: Economic activities by percentage of FDI stock, 2005- 2006

Section	2005	2006
Agriculture, hunting, forestry and fishing	0,79	0,70
Mining and quarrying	0,86	0,66
Manufacturing	33,99	39,57
Electricity, gas and water supply	7,41	12,53
Construction	1,20	1,18
Wholesale and retail trade; repair of motor vehicles, motorcycles and personal and household goods	15,96	11,03
Hotels and restaurants	1,20	0,88
Transport and storage	3,05	1,43
Post and telecommunications	11,28	12,25
Financial intermediation	14,44	12,36
Real estate, renting and business activities	8,50	6,38
Education; health and social work	0,15	0,12
Other community, social and personal service activities	1,17	0,91

Source: Department of Statistics to the Government of the Republic of Lithuania; author's calculations.

Table 2: FDI stock by attractive economic activity

	Wholesale and retail trade; repair of motor vehicles, motorcycles and personal and household goods	Manufacturing	Real estate, renting and business activities	Transport, storage and communications	Electricity, gas and water supply	Mining and quarrying	Financial intermediation	Hotels and restaurants
t Stat	24,2970	9,7647	7,9489	6,1603	3,9135	1,2897	1,2018	-0,5191
T tabulated	2,7764	2,7764	2,7764	2,7764	2,7764	2,7764	2,7764	2,7764
R	0,9966	0,9797	0,9698	0,9511	0,8905	0,5419	0,5151	-0,2512
R^2	0,9933	0,9597	0,9405	0,9046	0,7929	0,2937	0,2653	0,0631

Table 3: FDI stock by unattractive economic activity

	Construction	Other community, social and personal service activities	Agriculture, hunting, forestry and fishing	Education; health and social work
t Stat	10,2874	3,3813	3,2342	-1,5076
t tabulated**	2,7764	2,7764	2,7764	2,7764
R	0,9816	0,8607	0,8505	-0,6020
R^2	0,9636	0,7408	0,7234	0,3623

1) FDI stands for foreign direct investment stock by economic activity, mill. Litas
2) GDP stands for Gross Domestic Product at current prices, mill. Litas
3) ** Level of significance is 5%.
Source: Department of Statistics to the Government of the Republic of Lithuania; author's calculations.

Table 4: Ratio of number of FDI enterprises to number of GDP enterprises

Year	2000	2001	2002	2003	2004	2005	2006
Economic activity	Ratio of FDI enterprises to GDP enterprises (in attractive economic activities)						
Financial intermediation	n.d.	n.d.	0,0798	0,0621	0,0559	0,0931	0,1126
Electricity, gas and water supply	n.d.	n.d.	0,0238	0,0570	0,0598	0,0677	0,0659
Mining and quarrying	n.d.	n.d.	0,1212	0,1406	0,1692	0,2000	0,2000
Manufacturing	n.d.	n.d.	0,0497	0,0564	0,0631	0,0658	0,0708
Transport, storage and communications (Post and telecommunications)	n.d.	n.d.	0,0253	0,0243	0,0303	0,0353	0,0394
Wholesale and retail trade; repair of motor vehicles, motorcycles and personal and household goods	n.d.	n.d.	0,0389	0,0435	0,0448	0,0475	0,0485
Hotels and restaurants	n.d.	n.d.	0,0188	0,0231	0,0250	0,0257	0,0277
Real estate, renting and business activities	n.d.	n.d.	0,0423	0,0581	0,0704	0,0714	0,0783
Economic activity	Ratio of FDI enterprises to GDP enterprises (in unattractive economic activities)						
Other community, social and personal service activities	n.d.	n.d.	0,0032	0,0053	0,0047	0,0045	0,0042
Construction	n.d.	n.d.	0,0251	0,0282	0,0267	0,0285	0,0275
Agriculture, hunting, forestry and fishing	n.d.	n.d.	0,0114	0,0173	0,0237	0,0282	0,0277
Education; health and social work	n.d.	n.d.	0,0015	0,0022	0,0024	0,0024	0,0022

n.d. indicates, that no data is available.
Source: Prepared by authors with reference to data from Department of Statistics to the Government of the Republic of Lithuania