IMPACT OF FOREIGN DIRECT INVESTMENT ON TAX REVENUE

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Abstract: Foreign direct investment (FDI) is recognized as one of the key factors for economic development of the country by stimulating foreign trade, technology transfer and etc. The study attempts to analyze the impact of foreign direct investment on tax revenue. The empirical part of the paper examines the relationship between FDI and tax revenues, examines the effects of foreign direct investment on different types of taxes (personal income taxes, value added taxes and corporate income taxes), using data for the period 2008 to 2017. The methods of the research include systematic and comparative analysis of the scientific literature, correlation and regression analysis. The study finds that foreign direct investment has positive and significant impact on total tax revenue, but the impact on different types of taxes differs. The results showed the biggest impact on value added tax revenues. So the study concludes the positive contribution of foreign direct investment in tax revenue.

Keywords: foreign direct investment (FDI), tax revenue, value added tax, personal income tax, corporate income tax.

Introduction

Foreign Direct Investment (FDI) is considered to be one of the key drivers for economic growth. Due to this fact, a number of studies have been done to determine its' impact on the country's economic development. Many authors (Bayar, Ozturk, 2018; Magombey, Odhiambo, 2017; Iqbal, Mahmood, 2016; Agrawal, Khan, 2011; and others) agree that FDI has a positive impact on the host country's economic growth in the following ways: promoting new jobs, increasing the local country's capital, introducing new technologies and technical experience, promoting export.

Theoretical models (including the neo-classical trade theory) focusing on the effect that FDI has on a host country's general welfare and tax revenue showed that FDI could increase national welfare, particularly through in-creased tax revenue (Faeth, 2011). Welfare and revenue from FDI can also be improved by introducing an optimal tax on foreign-owned capital. Countries could lose out on tax revenue when incentives are paid to multi-nationalenterprise (MNEs) or when transfer pricing (including other strategies tominimise taxes) is an issue (Faeth, 2011).

Problem of the research. There is a lack of the studies to analyse how FDI influence tax revenues and if the increase of FDI in separated economic branches determines the growth of tax revenues as well.

Lithuania offers tax exemptions to foreign companies and conditions have made it easier for companies to set up their businesses. The country made positive reforms in four key areas: obtaining construction permits was facilitated, connecting to electricity networks was improved, minority investors were better protected, and the tax payment system became electronic. As such, Lithuania was second in the whole of Europe and Central Asia for the number of reforms leading to an improvement in the conditions for business. So it is important to analyse how attracted FDI impacts tax revenue.

This article is **aimed at** researching the impact of FDI in host countries for tax revenues of the Lithuanian example. The aim has been detailed into the following **objectives:** 1) with reference to the scientific literature, to assess the impact of foreign direct investment on tax revenues; 2) to perform comparative analysis of foreign direct investment and tax revenue during period 2008 - 2017; 3) empirically evaluate impact of FDI on Lithuanian tax revenue, using methods such as correlation and regression analysis. **Methods** of the research include

systematic and comparative analysis of the scientific literature, correlation and comparative data analysis.

Theoretical background of the impact of FDI on tax revenues

Foreign companies transfer modern management, production management, technology engineering solutions, organisational management experience while implementing in the local market of the country. In this way, local business and country's manufacturing productivity are being promoted to grow up and develop (Kuliavienė, Solnyskinienė, 2014).

Capital is exported and imported in international (foreign) investment form. According to foreign investments it can be decided about size of the country's attractiveness for the international market, the country's economic relations with other countries (Davulis, 2003). So one of the country's economic integration into the global market indicators is foreign direct investment. However, some authors argue that the FDI positive impact on the economy of the country has only on a short period (Miyagawa, Ohno, 2009), and the distinction between the short-term level effect and long-term rate effect of FDI on the productivity of domestic firms is important. If resources must be expended in order to learn from foreign-invested firms, it is possible that the spillovers have a negative effect on the productivity of domestic firms in the short run yet a positive effect on the productivity of domestic firms in the long run, because such learning helps enhance the firm's future productive capacity (Liu, 2008).

Developing countries perceive FDI as a panacea for addressing their low investments, foreign exchange shortages, and tax revenue gaps, etc. and providing a wide range of incentives to attract the FDI inflows among which tax incentives assume important place. In general, there are several theoretical and empirical evidences available on the role and impact of FDI and a few on tax revenues.

Mahmood and Chaudhary (2013) studied the impact of FDI on the tax revenue in Pakistan from 1972 to 2010, using the ADF, Phillip-Perron and Ng-Perron tests and the ARDL model. In order to disclose the impact, the survey used indicators - GDP per capita and FDI as independent variables - and tax revenue was used as a dependent variable. The results showed that both GDP per capita employment and FDI have a positive and significant

impact on Pakistan's tax revenue. Okey (2013) studying economic indicators also found a positive impact of FDI on tax revenue by analyzing Sri Lanka's indicators.

Nguye, Nguyen and Goenka (2013) examined the implications of high net inflows foreign direct investment (FDI) characterized by number of entries of heterogenous multinational firms on corporate tax revenues' decline. They showed that the impact of FDI on tax revenue will depend on the competition effect, demand creation effects, technology transfer cost and the technological spillovers. They argue that the competition effect reduces production of domestic firms and thereby, lowers the level of corporate tax revenue while the technological spillovers could be positive or negative due to the absorptive capacity of local firms.

Bunescu and Comaniciu (2014) analyzed the economic and non-economic factors affecting the tax revenues in 27 EU countries during 1995-2011 period with correlation analysis and revealed that FDI inflows had a weak positive effect on the tax revenues. On the other side Tabasam (2014) researched the interaction among tax revenues and FDI inflows in Pakistan over the period 1975-2012 using time series analysis and discovered that FDI inflows affected the tax revenues negatively. Gaalya (2015) researched the same relationship for Uganda during the period 1994-2012 with regression analysis and reached the same findings. Aslam (2015) also analyzed the long run interaction between FDI inflows and tax revenues in Sri Lanka during 1990-2013 period and found that FDI inflows made a significant positive contribution to the tax revenues.

Balkcioglu et al. (2016) researched the effect of FDI inflows on the tax payments of the firms with different technology levels in Turkey during 2004-2012 period and discovered that FDI inflows increased the tax payments by the firms and the effect was found to be highest in the firms with high technology level. Odabas (2016) researched the causal interaction between tax revenues and FDI inflows in 7 EU transition economies during 1996-2012 period using causality test of Dumitrescu and Hurlin (2012) and discovered a one-way causality from FDI inflows to the tax revenues.

Jeza, Hassen and Ramakrishna (2016) analyzed impact of FDI on tax revenue using the data for the study period (1974-2014). They propose that, offering tax incentives to attract FDI may lead to a significant revenue decline in Ethiopia. Among different tax revenue types, the corporate income tax revenue has been highly affected due to tax holiday provision.

Bayar and Ozturk (2018) analyzed the short and long run interaction among tax revenues, FDI inflows and economic growth were analyzed in 33 OECD countries during 1995-2014 period with Dumitrescu and Hurlin (2012) causality test and Westerlund-Durbin-Hausmann (2008) cointegration test. The results revealed that both FDI inflows and economic growth did not have significant effects on the total tax revenues at the panel level. However, FDI inflows affected the total tax revenues positively in Iceland, Israel, Sweden, the United Kingdom, and the United States, while FDI inflows affected the total tax revenues negatively in Austria, France, Italy, and Poland. They evaluated that the composition of FDI inflows and the level of financial incentives by host countries are determinative for the relationship between total tax revenues and FDI inflows.

Ade, Rossouw and Gwatidzo (2018) investigated the determinants of tax revenue performance in the SADC for the period 1990-2010, using panel data estimation techniques. Specifically, the aim was to ascertain the level of causality of FDI and taxation (CIT rates, VAT rates, tax policy harmonisation variables) amongst other variables on collected tax revenue in the region. The results showed that tax revenue collected in the SADC is sensitive to tax rates (VAT and CIT rates) and tax policy harmonisation variables, but insensitive to FDI inflows.

According to Basheer, Ahmad and Hassan (2019) tax revenue is affected by both economic and financial factors of the countries, the key factors which have a significant contribution both from economic and financial factors are GDP growth, Bank capital to asset ratio, Risk premium on lending, Foreign direct investment net inflow and Cash surplus deficit. From the results, it is found that in Oman and Bahrain during 1990-2010 period the economic variables such as GDP growth, Foreign direct investment net inflow and Cash surplus deficit had a greater impact on Tax Revenue than those on financial variables.

Methodology of the research

The empirical research was based on the methods of regression and correlation analysis. For the evaluation of the FDI impact on tax revenues, the data showing FDI and tax revenues in Lithuania during the period 2008 – 2017 was engaged. Examining the impact of FDI on Lithuania tax revenue volumes were calculated correlation coefficients between tax revenue and FDI in individual sectors of the economy which are the most important Lithuania.

Evaluating impact of FDI to tax revenue in this research was performed regression and correlation analysis between FDI and different types of taxes. The taxes were chosen according to research, performed by Rudytė, Šalkauskienė, Lukšienė (2009), who performed an assessment of the efficiency of the Lithuanian tax system in accordance with the diagnostic evaluation criteria distinguished by Tanzi. They determined that the following basic taxes forms the basis of the country's tax revenue: value added tax (VAT), personal income and profit taxes.

Correlation is a statistical measure that indicates the extent to which two or more variables fluctuate together. A positive correlation indicates the extent to which those variables increase or decrease in parallel; a negative correlation indicates the extent to which one variable increases as the other decreases.

The correlation coefficient indicates whether there is a connection between variables. The more value is closer to 1, the more the connection is stronger. It is important to note that the strongest correlation is when the correlation coefficient is from 0.7 till 0.99 value. The results are presented showing their statistical reliability. The levels of reliability are as follows: if $p>0.05$ – it is statistically unreliable; if $p<0.05$ – it is statistically reliable.

FDI and tax revenue analysis in Lithuania

In recent years more and more companies have started to trade on international markes. At the same time, the internationalization of developed economies has taken a new direction through outward foreign direct investment (FDI). This dramatic increase in the exchange of goods and services – within a progressive liberalization of international economic relations – has generated considerable interest in the dynamics of trade and investments.

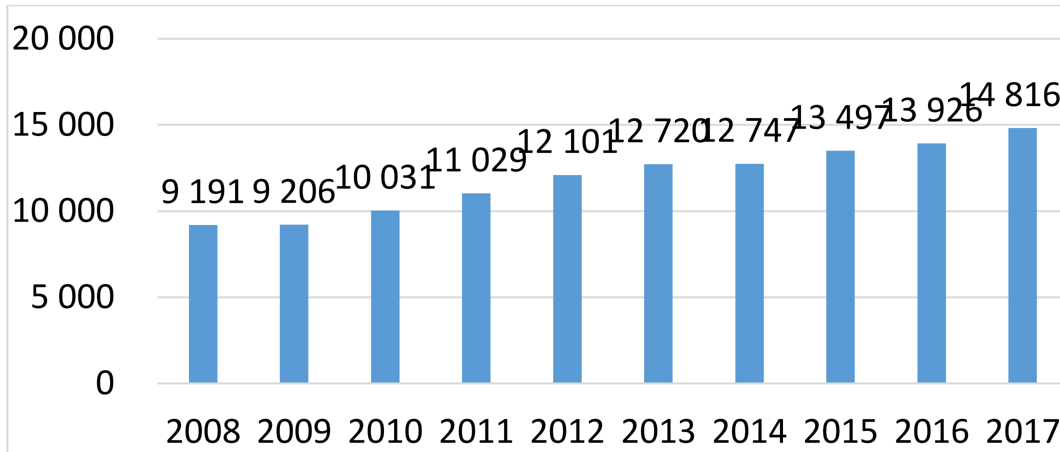

Figure 1. Foreign direct investment, million EUR

Source: Statistics Lithuania

The analysis of foreign direct investment and tax revenues indicates noticeable changes. The investment volume during the analysis period increased from 9191 million euro to 14816 million euro, so their volume increased by 61,2 percent. Integration into the European Union was one of the accelerators for growth of FDI as well. The figure shows that the largest increase in FDI recorded in 2012, because FDI in the beginning of 2011 was - 11029 million euro (an increase of 1072 million euro), while the decrease of FDI was not recorded in the analyzed period. Summing up the FDI dynamics during the analyzed period, it can be stated that the overall development shows the growing investment attractiveness of Lithuania. Lithuania offers tax exemptions to foreign companies and conditions have made it easier for companies to set up their businesses. The country made positive reforms in four key areas: obtaining construction permits was facilitated, connecting to electricity networks was improved, minority investors were better protected, and the tax payment system became electronic.

Lithuania's six Free Economic Zones (FEZ), at Kaunas, Klaipėda, Šiauliai, Kėdainiai, Panevėžys and Marijampolė, have been key for attracting FDI to the country, due to the companies located there receiving special economic and legal operating conditions. Businesses choosing to locate to one of the FEZs has zero per cent corporate income tax during their initial 10 years of operation, 7.5 per cent tax over the next six years, and no tax on dividends and real estate.

Lithuania has most attracted FDI in manufacturing, trade, transport, financial intermediation and real estate sectors. In these areas during the period invested on average about 70% of all incoming FDI in Lithuania.

The manufacturing industry was a branch which attracts largest amount of FDI till 2014. In 2008, investment in this area amounted to 2.1 billion euro, or even 22.4 % of the total FDI in Lithuania received. Most of this area has attracted investments in 2012, when investment reached 3.1 billion euro limit, or even 26 % of total FDI. It may be noted that FDI in the manufacturing industry increased especially after Lithuania's accession to the EU. The opening up of the EU's border led to reduced barriers and facilitated trade with other EU countries. In Lithuania made items has become easier to export to other Community countries. Investors considered that possibility and trusted Lithuanian market. From 2014 the leading branch which attracts largest amount of FDI is Financial and insurance activities. In 2017 investment in this area amounted to 3.9 billion euro, or even 26.4 % of the total FDI in Lithuania received.

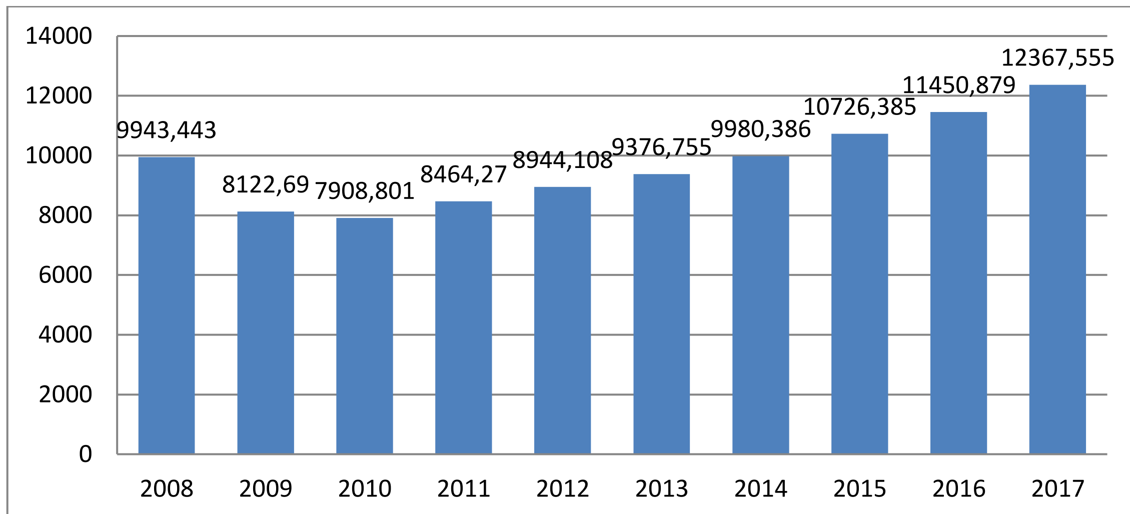

Figure 2. Lithuanian tax revenue, million EUR

Source: Statistics Lithuania

In 2008, the world was shaken by an economic crisis whose negative effects had impact on the economic situation in most countries. During the analyzed period, the tax revenue volume increases, decrease was recorded only in 2009 and 2010. Comparing FDI and tax revenue volume trends, it is noted that FDI grew faster than investment. During the analysis period, tax revenue increased by 24.4 per cent.

In order to justify the assumption that FDI has an impact on tax revenue volumes it was performed correlation and regression analysis.

The estimated correlation coefficient between tax revenue and FDI of 0.796 (p-value <0,05) shows that between the indicators is a strong linear relationship. By calculating the correlation coefficient can be calculated slope of the regression equation: the sign means "dependency direction", and size - changes the scale of what it is, the more changes the dependent, the independent amount of change at the same pace.

Using Microsoft Excel function Slope, this factor is 1.08. This means that FDI increased by 1 euro, tax revenue will increase by 1.08 euro.

Examining the impact of FDI on Lithuania tax revenue volumes were calculated correlation coefficients between tax revenue and FDI in individual sectors of the economy which are the most important Lithuania.

Table 1. Tax revenue and FDI in individual sectors of the economy in Lithuania, million Eur

Years	FDI	Tax revenue	Electricity, gas, steam and air conditioning supply	Financial and insurance activities	Manufac-turing	Wholesale and retail trade; repair of motor vehicles and motorcycle
2008	9190,33	9943,443	679,65	1545,21	2060,45	1300,9
2009	9206,19	8122,69	483,19	1716,13	2339,24	1316,47
2010	10030,97	7908,801	618,04	1877,74	2682,5	1305,91
2011	11028,93	8464,27	583,32	2156,98	2931,08	1418,78
2012	12100,64	8944,108	647,61	2397,6	3144,74	1395,46
2013	12719,9	9376,755	599,59	2945,5	3136,06	1379,69
2014	12746,53	9980,386	278,8	3686,49	2476,19	1511,25

2015	13496,82	10726,385	265,66	3532,09	2761,85	1611,2
2016	13925,59	11450,879	290,71	3867,28	2579,36	1847,32
2017	14816,47	12367,555	306,34	3916,28	2779,27	2018,12
Corr. coeff. R		0,796	0,708332	0,956223	0,471512	0,853828
P-value		0,005892	0,021871	0,000015	0,16891	0,001668

Source: Statistics Lithuania

According to contents of table is clear that, there is a very strong and significant direct connection between foreign direct investment and tax revenue, but the calculation analysis of indicators by economic branches shows that the results are a little bit different. In this paper it was identified four economic branches with the largest FDI. Correlation coefficient showed that in Financial and insurance activities and Wholesale and retail trade branches exist a direct link between FDI and tax revenue (0.956 and 0.854).

In summary, that despite the fact that foreign direct investment and revenue volumes have a very strong direct link, not all economic sectors felt the same connection.

The Republic of Lithuania implements a business-friendly taxation policy, and the taxation system is adapted to the legislation of the European Union. Since 1990, the Lithuania's taxation system has drastically changed to support foreign investments and labour market development.

Taxes and other payments are collected to the budget based on the order by the Supreme Council; however, regional and city councils act separately in matters of tax collection. In Lithuania, basic principles of tax payment and their regulation is governed by the Law on Tax Administration stipulating the rights and obligations of a tax administrator and tax payer, as well as the tax calculation procedure and chargeable amounts.

In order to justify the assumption that FDI has an impact on tax revenue volumes it was performed correlation and regression analysis among FDI and different types of taxes.

Table 2. FDI and value added, personal income and corporate income taxes in Lithuania, million Eur

Years	FDI	Value added tax	Personal income tax	Corporate income tax
2008	9190,33	2593,043	2118,067	887,784
2009	9206,19	1960,85	1097,094	489,272
2010	10030,97	2180,499	1004,967	276,26
2011	11028,93	2443,756	1092,69	252,871
2012	12100,64	2520,82	1159,734	432,917
2013	12719,9	2611,225	1249,824	476,662
2014	12746,53	2764,438	1325,393	499,767
2015	13496,82	2888,216	1439,5	573,882
2016	13925,59	3026,282	1547,842	627,648
2017	14816,47	3309,606	1626,751	631,03
Corr. coeff. R		0,8767136	0,1129131	0,1017422
P-value		0,000869	0,756128	0,779729

Source: Statistics Lithuania

Analyzing impact on tax revenue, the impact on different types of taxes were analysed. For this research were chosen taxes which forms the basis of the country's tax revenue: value added tax (VAT), personal income and profit taxes. According to content of 2 table is clear, that there is a very strong an statistically reliable direct connection between FDI and value added tax (0,8767). On the other hand, statistically reliable impact on personal income tax and corporate income tax during 2008-2017 period was not found.

Conclusion

- The analysis of the scientific literature has revealed that the increase of FDI leads to the increase of tax revenue. FDI inflows also may contribute to the development of financial sector, raising the competitiveness and tax revenues indirectly.
- The volume of FDI during the period 2008 – 2017 in Lithuania altered in accordance with the economic cycle: from 2008, FDI in the country was only increasing as a result of the recovery from difficult economic situation worldwide, company's share

capital and reinvestment reduction; from 2008 to 2017, the volume of FDI in Lithuania increased by almost 61.2 % as a result of the recovery of developed economies and investment promotion inside the country during the post-crisis period;

- During the analyzed period, the tax revenue volume increases, decrease was recorded only in 2009 and 2010. Comparing FDI and tax revenue volume trends, it is noted that FDI grew faster than tax revenue. During the analysis period, tax revenue increased by 24.4 percent and FDI increased by 61,2 percent;
- The estimated correlation coefficient between tax revenue and FDI of 0.796 shows that between the indicators is a strong linear relationship. The result of correlation between FDI and tax revenue proves results of Mahmood and Lee (2019), Balkcioglu et al. (2016), Bayar and Ozturk (2018), that FDI has a positive and significant impact on tax revenue, so the FDI is helpful in raising general welfare through raising the tax revenue to the government.
- Correlation coefficient showed that in Financial and insurance activities and Wholesale and retail trade branches exist a strong direct link between FDI and tax revenue (0.956 and 0.854).
- Correlation coefficient showed that there is a very strong and statistically reliable direct connetion between FDI and value added tax. But statistically reliable impact on personal income tax and corporate income tax during 2008-2017 period was not found. It shows that the corporate income tax revenue probably has been affected due to tax holiday provision. This issue was not addressed in this paper and needs further investigation.

References

Ade, M., Rossouw, J., & Gwatidzo, T. (2018). Determinants of tax revenue performance in the Southern African Development Community (SADC).

Agrawal, G., Khan, A. (2011). Impact of FDI on GDP: A Comparative Study of China and India. *International Journal of Business and Management,* 6(10), 71-79 [online]. [cit. 2018-11-26]. Available: http://dx.doi.org/10.5539/ijbm.v6n10p71

Aslam, A.L.M. (2015). *A case study of Cointegration relationship between Tax Revenue and Foreign Direct Investment: Evidence from Sri Lanka.* Second International Symposium -2015, pp 246-251.

Balıkçıoğlu, E., Dalgıç, B., Fazlıoğlu, B. (2016). Does Foreign Capital Increase Tax Revenue: The Turkish Case. *International Journal of Economics and Financial Issues*, *6*(2).

Basheer, M., Ahmad, A., & Hassan, S. (2019). Impact of economic and financial factors on tax revenue: Evidence from the Middle East countries. *Accounting*, *5*(2), 53-60.

Bayar, M. U. S. Y., Ozturk, O. F. (2018). Impact of foreign direct investment inflows on tax revenues in OECD countries: A panel cointegration and causality analysis. *Theoretical and Applied Economics, Volume XXV, No. 1(614), 31-40.*

Bunescu, L., Comaniciu, C. (2014). Analysis of correlation between tax revenues and other economic indicators in European Union member states. *Studies in Business & Economics*, *9*(1).

Davulis, G. (2003). Ekonomikos teorija. V.: Lietuvos teisės universitetas.

Faeth, I. (2011). Foreign Direct Investment in Australia: Determinants and Consequences. Custom Book Center, University of Melbourne.

Gaalya, M.S. (2015). Trade liberalization and tax revenue performance in Uganda. Modern Economy, 6(02), p. 228. <http://file.scirp.org/pdf/ME_2015021114525929.pdf>

Iqbal, Z., & Mahmood, A. (2016). ARDL Approach for Determinants of Foreign Direct Investment (FDI) in Pakistan (1961-2013): An Empirical Study. *Global Journal of Quantitative Science*, *3*(2).

Jeza, M.T., Hassen, A.A., Ramukrishua, G. (2016). The impact of foreign direct investment (FDI) flows on aggregate and disaggregate tax revenues in Ethiopia: a BOUNDS test with a structural break. *Asian- African Journal of Economics and Econometrics, Vol. 16, No. 2, 171 -201.*

Kuliavienė, A., Solnyskinienė, J. (2012). The evaluation of the impact of foreign direct investment on Lithuanian economy using Lag-analysis. *ECONOMICS AND MANAGEMENT:* 2014. 19 (1), p. 16-24.

Liu, Z. (2008). Foreign direct investment and technology spillovers: *Theory and evidence // Journal of Development Economics.* Vol. 85, p. 176-193.

Magombeyi, M. T., & Odhiambo, N. M. (2017). Causal relationship between FDI and poverty reduction in South Africa. *Cogent Economics & Finance*, *5*(1), 1357901. https://doi.org/10.1080/23322039.2017.1357901

Mahmood, H. and Chaudary, A. R. (2013). Impact of FDI on Tax Revenue in Pakistan, Journal of Commerce and Social Sciences, Vol. 7 (1), 59- 69.

Mahmood, H., Lee, J. (2019). Impact of Foreign Direct Investment on Tax Revenue in Pakistan. Information Communication and Society. 10. 59-69.

Miyagiwa, K., Ohno, Y. (2009). Multinationals, Tax Holydays, and Technology Transfer. *Japanese Economic Review*, 60(1), 82-96.

Nguyen H. T. T., Nguyen, M. H., Goenka, A. (2013). *How does FDI affect corporate tax revenue of the host country?* (No. 13-03). Centre d'Études des Politiques Économiques (EPEE), Université d'Evry Val d'Essonne.

Odabas, H. (2016). Foreign direct investment inflows on tax revenues in the transition economies of European Union, *Global Journal on Humanites & Social Sciences.* [Online]. 02, pp 17-22. Available from: http://www.world-education-center.org/index.php/pntsbs

Okey, M. K. N. (2013). Tax revenue effect of foreign direct investment in West Africa. *African Journal of Economic and Sustainable Development*, *2*(1), 1-22.

Rudytė, D., Šalkauskienė, L., & Lukšienė, L. (2009). Lietuvos mokesčių sistemos vertinimas pagal V. Tanzi diagnostinius rodiklius.

Tabasam, F. (2014). Impact of Foreign capital Inflows on Tax Collection: A Case Study of Pakistan. Issues, 2(2). <http://www.globalcentre.org/uploads/JGSI%202-2%20Farhana%20T.%20P%2051-60.pdf>