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THE IMPACT OF FOREIGN DIRECT INVESTMENT INFLOWS AND TRADE LIBERALIZATION ON HUMAN CAPITAL DEVELOPMENT IN EU TRANSITION ECONOMIES

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Abstract: *The globalization process gained acceleration as of 1980s and the barriers over flows of goods, services, and capital were reduced gradually by many countries. The aforementioned developments caused the considerable increases in foreign direct investments which became a significant external financing instrument especially for developing and emerging economies. In this context, the economic and non-economic effects of both foreign direct investments and trade liberalization have been researched extensively in the related literature. Given the related literature, the study explores the effect of foreign direct investment inflows and trade liberalization, two featured characteristics of the globalized world, on human capital development in 11 EU transition countries for the period of 1995-2018 through panel regression analysis. The regression analysis revealed that the impact of FDI inflows on human capital development was negative, while trade liberalization positively affected the human capital development. However, the magnitude of the both variables' impact was found to be very weak.*

Keywords: Foreign direct investment inflows, trade liberalization, human capital development, panel regression analysis.

Introduction

The liberalization and globalization processes led the countries to loosen the barriers over flows of goods, services, and capital and in turn international capital flows in terms of direct investments and portfolio investments raised significantly as of mid-1980s. The foreign direct investment inflows (FDI) peaked USD 3.136 trillion in 2017 from USD 12.558 billion in 1970,

but then decreased USD 1.195 trillion in 2018 with fluctuations due to the recent economic crises (World Bank, 2020a). In this context, FDI has become a significant external financing alternative especially for developing and emerging economies with the insufficient saving rates. Furthermore, the host countries can benefit from positive externalities of FDI such as know-how and technological spillover (Hunya, 1998). However, the negative effects of FDI such as deteriorations in financial stability and inequality and environmental degradation may emerge (Cao et al., 2017). The countries generally implement policies such as fiscal incentives, legal privileges in income transfer, and free land allocation to attract FDI given the positive effects.

The considerable increases in FDI flows and the countries' tendency towards FDI attraction motivated the scholars to investigate the economic and social impact of FDI flows especially as of 1990s. In the related literature, FDI-growth has been the most studied topic (see Lasbrey et al. (2018) and Dinh et al. (2019)). However, the effect of FDI inflows on unemployment, human capital development, competitiveness, financial development, tax revenues, environment, inequality, poverty (e.g. see Magombeyi and Odhiambo, 2017; Bayar and Sasmaz, 2017; Bayar and Ozturk, 2018; Kaulihowa and Adjasi, 2018; Bayar and Gavriletea, 2018; Demena and Afesorbor, 2020).

The paper investigates the effect of FDI and trade liberalization on human capital development. Theoretically, a two-way interaction between FDI inflows and human capital development is expected. On the one hand human capital is an important criterion for foreign investors, because higher human capital development also is a direct sign of higher level of qualified workforce and an indirect sign of better socio-economic development outlook. On the other hand FDI inflows make a contribution to the development of human capital through on-the-job training or learning or know-how and technological spillover effects (Majeed and Ahmad, 2008; Baranwal, 2019).

Trade liberalization is the process of reducing the trade barriers mainly used to protect the domestic produces. One of the widely discussed issues in the relevant literature has been the benefits and costs of trade liberalization. The propositions in favor of free trade went back to the absolute advantage of Smith (1776) and see the free trade as an important component of economic growth through raising the productivity (e.g. see Sachs and Warner (1995), Panagariya (2004)). On the other side, some economists (e.g. see Rodriguez and Rodrik (1999) and Stiglitz (2003)) criticized the trade liberalization based on unrealistic assumptions such as perfect competition and

constant return to scale and existence of externalities and asymmetric information (Talukder, 2013). In this context, trade liberalization may positively affect the human development through increasing the productivity via transfer of knowledge and technology and (Jadoon et al., 2015).

The article investigates the influence of FDI inflows and trade liberalization on human capital development in 11 EU transition economies during the 1995-2018 period through regression analysis. The EU post-communist countries economies underwent a process of economic and institutional transformation as of late 1980s to integrate with global economy. Furthermore, the transformation process accelerated with the contribution of the countries' carrying out the requirements of EU membership in 1990s. The EU transition economies attracted significant FDI inflows for the period of 2003-2007 and reached about USD 153.4 billion in 2007, but then considerable contractions in FDI inflows have seen due to the recent economic crises and was about USD 27.4 billion in 2017 (World Bank, 2020a). The paper will be one of the early studies investigating the influence of FDI and trade liberalization on human capital development for a sample of transition economies. The next section presents the relevant literature summary. The study dataset and method are explained in Section 3, and the applied section is carried out in Section 4. The article ends up with Conclusion.

Literature Review

The economic effects and determinants of FDI flows have been one of the extensively studied issues in the globalized world. In this paper, we explore the effect of FDI on human capital development which is relatively untouched topic in FDI related literature. The empirical literature on the nexus between FDI inflows and human capital development differs from the research subject, because a mutual interaction between two variables is theoretically expected. In the study, we explore the effect of FDI inflows on human capital development which is a significant determinant of economic growth. However, human capital may become a significant determinant of location selections for foreign investors.

The empirical literature on the influence of FDI on human capital development generally reached a positive influence (e.g. see Sharma and Gani, 2004; Arcelus et al., 2005; Reiter and Steensma, 2010; Muhammad et al., 2010; Lehnert et al., 2013; Agusty and Damayanti, 2015; Gökmenoğlu et al., 2018). But a limited number of studies reached an insignificant or negative

influence of FDI on human capital development (Nembot Ndeffo, 2010; Cao et al., 2017; Zhuang, 2017; Baranwal, 2019).

In this context, Sharma and Gani (2004) analyzed the influence of FDI inflows on human capita development in 34 countries from low and middle income countries for the period of 1975-1999 through regression analysis and discovered that FDI inflows had a positive influence on human capital development in both groups of countries. On the other side, Arcelus et al. (2005) explored the impact of FDI on the main components of human development index through DEA (Data Envelopment Analysis) method and revealed that the countries were more efficient in use of FDI gained more improvement in human capital development.

Reiter and Steensma (2010) explored the effect of FDI on human development under FDI policy and corruption in 49 developing countries for the period 1980-2005 through regression analysis and disclosed that FDI contributed to the human development in case the host countries restrict foreign investors to enter some sectors and the impact of FDI on human development was negatively affected by higher corruption levels. On the other side, Muhammad et al. (2010) analyzed the influence of FDI on human capital development in Pakistan for the period of 1975-2008 through regression analysis and revealed that FDI positively affected human capital development.

Lehnert et al. (2013) analyzed the effect of FDI on human development in 175 countries for the period of 1997-2007 and discovered that FDI inflows had a positive effect on human development. On the other side, Agusty and Damayanti (2015) explored the influence of FDI inflows on human capital development in 124 developing countries through regression analysis and discovered that FDI inflows positively affected human development. Gökmenoğlu et al. (2018) also analyzed the effect of FDI on human development in Nigeria during 1972-2013 period through Johansen cointegration test and Toda-Yamamoto test and revealed that FDI positively affected human capital development in the long run and also a two-way interaction between two variables.

Nembot Ndeffo (2010), Cao et al. (2017), Zhuang (2017), and Baranwal (2019) reached an insignificant or negative influence of FDI on human capital development. In this regard, Nembot Ndeffo (2010) analyzed the impact of FDI inflows on human capital development in 32 Subsaharan African countries for the period of 1980-2005 and revealed no significant effects of FDI inflows on human capital development. On the other side, Cao et al. (2017) researched the

influence of FDI inflows on human development in 23 Asian countries through regression analysis and revealed no significant effects of FDI on human development. Zhuang (2017) also researched the impact of FDI on human capital development in 16 East Asian countries for the period of 1985-2010 through panel data analysis and disclosed that FDI positively raised the secondary schooling, but decreased the tertiary schooling. Baranwal (2019) also investigated the effect of FDI on human capital development in India for the period 2001–2015 through dynamic regression analysis and revealed no significant effects of FDI on human capital development.

In the related literature, some scholars have researched the role of human capital in FDI attraction. The empirical literature on the influence of human capital development represented by different indicators such as human capital development index, literacy rate, primary/secondary/tertiary school enrolment rates on the FDI attraction has stayed inconclusive. In this context, Root and Ahmed (1979), Schneider and Frey (1985), and Narula (1996) revealed the human capital as an insignificant determinant of FDI. However, relatively more scholars discovered human capital as a significant positive determinant of FDI (Majeed and Ahmad, 2008; Mollaesmaeili-Dehshiri et al., 2012; Kim and Park, 2013; Dorożyńska and Dorożyńska, 2014; Cleeve et al., 2015; Kheng et al., 2017). The relevant literature revealed that the studies investigating the interaction between human capital and the FDI inflows for early periods especially before 1980s reached the insignificant relationship between the variables, but the recent studies discovered a significant interaction between human capital and the FDI inflows. The aforementioned contradiction was resulted from the FDI composition, that is to say, early FDI inflows generally flowed the industries with cheap and unskilled labor, but the recent FDI inflows have been in terms of technology intensive and service industries (Noorbakhsh et al., 2001; Dunning, 2002; Ritchie, 2002). Lastly, the limited number of empirical studies verified the positive impact of trade liberalization on human capital development (Effiom et al., 2011; Jadoon et al., 2015).

Data and econometric methodology

The article investigated the effect of FDI inflows and trade liberalization on human capital development in 11 EU transition economies during the 1995-2018 period by panel regression analysis.

The dependent variable of human development was proxied by human development index of UNDP (United Nations Development Programme) (2020) and the index is geometric mean of normalized indices for life expectancy, education index, and gross national income per capita. On the other side, FDI inflows were represented by FDI inflows as a percent of GDP and extracted from World Bank (2020b). Lastly, trade liberalization was proxied by sum of export and import as a percent of GDP and provided from World Bank (2020c). All the variables were annual and the relevant data availability led us to determine the study period as 1995-2018.

Table 1: Data description

Variables	Description	Source
HDI	Human development index	UNDP (2020)
FDI	FDI, net inflows (% of GDP)	World Bank (2020b)
TRADE	Total trade (% of GDP)	World Bank (2020c)

The sample of the econometric analysis consisted of Bulgaria, Croatia, Czechia, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Slovakia, and Slovenia. The econometric analyses were implemented through the software of Stata 14.0 and Gauss 10.0. The main characteristics of the dataset were shown in Table 2. The average human development index was about 0.8 in the sample and nearly same level among the countries. The average FDI inflows was about 4.78% of GDP in the sample, but changed among the countries. The average trade volume was about 110.38% of GDP and varied considerably among the countries.

Table 2: Summary statistics of the dataset

Characteristics	HDI	FDI	TRADE
Mean	0.801943	4.781557	110.3890
Median	0.808000	3.650797	105.0463
Maximum	0.902000	54.64873	190.1551
Minimum	0.673000	-41.45758	43.67839
Std. Dev.	0.051441	7.169832	34.01315
Skewness	-0.367207	2.372114	0.217218
Kurtosis	2.426330	28.33920	2.131242

The impact of FDI inflows and trade liberalization on human capital development is analyzed through regression analysis. First, the analysis was made through fixed effects model regarding the results of Breusch and Pagan (1980) LM test, Chow (1960) F test and Hausman test, but the problems of serial correlation and heteroscedasticity led us to make a selection among Parks-Kmenta estimator, Beck-Katz estimator, and Driscoll-Kraay estimator giving more robust results in case of serial correlation and heteroscedasticity. Driscoll-Kraay estimator yields more robust estimations in case of $N > T$, while Parks-Kmenta estimator yields more robust estimations in case of $T > N$ (Tatoğlu, 2013). In this study, we preferred the Parks-Kmenta estimator considering the dataset characteristics.

Empirical analysis

In the econometric analysis, first cross-sectional dependence was tested with Breusch and Pagan's (1980) LM test, Pesaran's (2004) LM CD test, and the LM_{adj} test of Pesaran et al. (2008) and the test consequences were reported in Table 3. The null hypothesis suggesting the cross-sectional independence was denied at 1% significance level. So the tests pointed out the presence of cross-sectional dependence among three series.

Table 3: Results of cross-sectional dependency tests

Test	Test statistic	P value
LM	340.6	0.0000
LM_{adj} .*	68.94	0.0000
LM CD*	16.91	0.0000

*two-sided test

The stationarity analysis of the series was examined with Pesaran (2007) CIPS (Cross-sectionally augmented IPS (Im- Pesaran-Shin (2003)) unit root test taking notice of cross-sectional dependence and the test consequences were reported in Table 4. The test consequences revealed that all the series were $I(0)$.

Table 4: Results of CIPS unit root test

Variables	Constant		Constant + Trend	
	Test statistic	P value	Test statistic	P value
HDI	-3.151	0.001	-1.945	0.026
FDI	-3.513	0.000	-2.178	0.015
TRADE	-1.874	0.030	0.404	0.057

Optimum lag length was specified as 1 taking notice of Schwarz information criterion.

* indicated that it is significant at 5%

The impact of FDI inflows and trade liberalization on human capital development is analyzed by regression analysis. First, the analysis was made through fixed effects model regarding the results of Breusch and Pagan (1980) LM test, Chow (1960) F test and Hausman test presented in Table 5.

Table 5: Panel Regression Pretests for Model Selection

Test	p value	Decision
Chow (F)	0,000	Fixed effects model is efficient model.
LM	0.0000	Random effects model is efficient model.
Hausman	chi2(2)= 41.74 P value=0.0000	Fixed effects model is efficient model.

First, the impact of FDI inflows and trade liberalization on human capital development was analyzed through fixed effects model and the estimations were reported in Table 6. The results revealed that FDI had no significant effects on human capital development, but trade liberalization positively affected human capita development. However, the results of Wooldridge (2002) autocorrelation test and Greene (2003) heteroskedasticity test uncovered the problems of autocorrelation and heteroscedasticity. Therefore, we estimated the same model with a relatively more robust estimator of Parks-Kmenta due to the existence of the correlation between the units, heteroscedasticity and autocorrelation problems and the results were reported in Table 6. The results disclosed that FDI inflows negatively affected human capital development, but trade liberalization positively affected human capital development. However, the magnitude of the impacts was very weak for both FDI and trade liberalization. 1% increase in FDI inflows led a 0.00634% of decrease in the human capital development. On the other side, 1% increase in trade liberalization led a 0,02681% of increase in the human capital development.

Table 6: Regression Estimations

Independent Variables	Fixed Effects Model		Parks-Kmenta Estimator	
	Coefficient	P value	Coefficient	P value
FDI	-0.0001578	0.515	-0.0000634	0.012
TRADE	0.0015696	0.000	0.0002681	0.000
CONS	0.6294318	0.000	0.7681171	0.000
	F(2,251)= 208.89 Prob > F= 0.0000		Wald chi2(1)= 102.88 Prob > chi2= 0.0000	
Wooldridge autocorrelation test	(2002) F value=915.461, P value=0.0000			
Greene heteroskedasticity test	(2003) chi2 (11) = 632.94, Prob>chi2 =0.0000			

The effects of both FDI and trade liberalization on human capital development stayed very low, but the impact of trade liberalization was relatively higher than the impact of FDI. Theoretically a positive impact of FDI on the human development is expected depending of FDI type and relatively more empirical studies have reached a positive influence of FDI on human development. However, FDI inflows flowing to the sectors with cheap and unskilled labor may not have a significant effect on human capital development. In this context, our finding is consistent with Nembot Ndeffo (2010), Cao et al. (2017), Zhuang (2017), and Baranwal (2019) and be resulted from low technological level of FDIs. On the other side, the positive impact of trade liberalization on human capital development is consistent with theoretical considerations and empirical findings of Effiom et al. (2011) and Jadoon et al. (2015).

Conclusion

The FDI flows have increased considerably in the world with the accelerating liberalization and globalization processes and become a crucial external financing instrument for developing and emerging economies and countries tried to attract FDI flows through following fiscal incentives and granting privileges to the multinational corporations. The aforementioned developments motivated the scholars to study on economic and non-economic impacts of FDI flows. In this paper, we analyze the effect of FDI and trade liberalization on human capital development in EU transition economies regarding the limited relevant literature and no studies at the research topic for transition economies.

The impact of FDI and trade liberalization on human capital development was explored through Parks-Kmenta estimator considering the existence of autocorrelation heteroskedasticity problems in fixed effects model. The regression estimations revealed that FDI inflows negatively affected human capital development, but trade liberalization positively affected human capital development and the impact of trade liberalization on human capital development was found to be relatively higher than the FDI. However, the magnitude of the both impacts was very weak. In the light of our findings, the countries should design their policies to attract FDI with high technology and know-how for promotion of human capital, a significant determinant of economic growth.

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