**Threshold result of FDI on Economic growth: case in Georgia**

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#  **Abstract**

*In today's world of increasing globalization and economic openness, foreign direct investment (FDI) is a critical factor that contributes to the dependency of economies. The volume of the global flows of foreign direct investment (FDI) has grown significantly during the last two decades. The data of variables used in this research are included from 2001 to 2021.Most of data for variables before 2001 are not available. The variables are as follows. The ratio of net FDI inflows to GDP is known as FDI. The United Nations Conference on Trade and Development (UNCTAD) Statistics are used to calculate net FDI inflows. Data for variables are derived from the World Bank databank's World Development Indicators (WDI).Treshhold regression model is utilized in the research.*

**Keywords**: GDP, FDI, Threshold Regression

**1.Introduction and literature review**

Foreign direct investment (also known as FDI) is a crucial component that contributes to the interdependence of economies in today's world, which is characterized by growing globalization and economic openness. Foreign direct investment (FDI) flows between nations have seen considerable increases in volume over the course of the last two decades. After a robust resurgence in 2021, the United Nations Conference on Trade and Development (UNCTAD, 2021) reports global FDI dropped by 12% to $1.3 trillion in 2022, mostly due to overlapping global issues such as the conflict in Ukraine, high food and energy prices, and rising public debt levels (see Figure 1)

The reduction was observed most strongly in developed economies, which suffered a 37% decline in FDI, lowering the total to $378 billion. However, flows to developing nations increased by 4%, although in an unequal manner. A few big emerging economies attracted the majority of the investment, whilst flows to the least developed countries decreased. Foreign direct investment (FDI) is increasingly playing an essential role as a global element that may bring nations together.

In developing countries, policies are increasingly being geared to encourage major inflows of foreign direct investment (FDI), even as decision-makers constantly apply methods to attract FDI in the assumption that FDI provides good productivity benefits for host economies. This is because of the notion that FDI creates positive productivity effects for host economies. Many developing countries, particularly in Asia and Africa, support foreign direct investment (FDI) and believe that it brings important benefits that are advantageous to a host country's growth and developmental efforts. Additionally, they believe that it provides a buffer against sharp reversals in portfolio inflows during periods of crisis such as the ASEAN financial crisis of 1997–1998, given its relative stability in comparison to portfolio inflows that are more liquid and are reputed for being very volatile and unstable. In general, a lot of nations hold the opinion that luring foreign direct investment (FDI) is equivalent to the possibility of boosting economic development.

In addition, a number of additional studies have uncovered evidence of policies in developing nations of Asia and Africa that encourage foreign direct investment (FDI), as well as the influence that FDI has on future economic expansion. Velde (2004), and Anyawu (2015) are some authors to consult while looking for research on Africa. See Bashir et al. (2022), Tiwari and Mutascu (2011), and OECD (2018) for more in-depth studies on Asia, particularly the patterns through which countries in Asia have removed restrictions and implemented policies to attract and promote FDI inflows.

Figure1. FDI inflows (US$) and proportion of world FDI inflows to developed and developing countries



According to the World Investment Report 2022 published by UNCTAD, foreign direct investment (FDI) flows to developing countries in Asia observed a rise of 4% to reach and was the only area registering FDI growth, while the pandemic led to a 35% decline in worldwide FDI in 2020. This is despite the fact that the pandemic caused a 35% decrease in global FDI in 2020. Developing Asia broke the record for the biggest amount of foreign direct investment (FDI) inflow ever in 2021, thanks to a surge of 19% in FDI (UNCTAD, 2022). The Foreign Direct Investment (FDI) inflows to developing nations in Asia and its subregions are shown in Figure 2 for the years 2020 and 2021.

Countries work to increase the amount of foreign direct investment they get by reducing the political risks that they face and offering appealing advantages to potential investors. These benefits may include cutting taxes and tariffs on imported products, improving protections for private property, being more forgiving in their approach to international relations, and reducing the amount of red tape that must be completed. Hayakawa et al. (2013) that a decrease in political risks, in conjunction with other measures that are favorable to foreign direct investment (FDI), is good to FDI and will enhance the amount of FDI inflows into host countries. In general, the policies reassure foreign investors that the host countries would look out for their best interests and protect the investments they make there.

Researchers and those responsible for developing policy in Asia have shown a substantial level of interest in financial development (FD) over this time period (Huynh and Tran, 2022). Foreign direct investment (FDI) may be able to stimulate economic development through affecting the accumulation of capital, saving rate, behavior of saving, investment information, volume of FDI inflows, and the optimization of capital allocation, according to a substantial body of research (Majeed et al. 2021). This research was published in both English and Chinese. It is a widely held belief that a more advanced financial system will, over the course of time, result in a faster pace of economic growth. According to Sobiech 2019 , foreign direct investment (FDI) plays a crucial role in developing countries, which are also the receivers of FDI inflows. Developing nations are also the recipients of FDI outflows. Although there have been a significant number of studies that have concentrated on the impact of foreign direct investment (FDI) on a range of areas of the economy, such as economic development, institutional quality, the shadow economy, air pollution, and income inequality...As was said before, there have only been a few number of studies done on the impact that foreign direct investment (FDI) has on domestic direct investment (Aibai et al., 2019), especially in the context of Asia (Sobiech, 2019 ; Aibai et al., 2019). In addition, the social, financial, and economic settings of the different countries that have been examined have led to conclusions that are varied and, at times, conflicting. This is because of the many countries that have been researched. The amount of foreign direct investment (FDI) flowing into Asia is growing, but this window of opportunity must be taken advantage of for Asia as a whole to get all of the benefits that are available to it. As a consequence of this, doing study on the influence that FDI has on FD in order to optimize the good benefits that both FDI and FD have on economic growth is crucial for the whole of the post-pandemic period. The major objective of this research is to investigate the influence that foreign direct investment (FDI) has had on FD in Asian countries between the years 2001 and 2020. The understanding that the requirements and the problems that have not been addressed in prior studies drove this study. This research was motivated by the realization that earlier studies had not covered.

According to Pradhan et all. (2018), the domestic financial market must provide appropriate regulations and financial infrastructures in order to effectively take advantage of the advantages of FDI on growth. This is a must in order to fully capitalize on the opportunities presented by FDI. In order to make the most of the potential good benefits that FDI will have on FD, it is vital to do this. Inflows of foreign direct investment (FDI), according to the political economy argument, motivate the emergence of market-friendly laws to protect investors and achieve better governance, which in turn leads to a more developed financial market and promotes the growth of the domestic economy (Soumaré & Tchana, 2015). To be more specific, the political economy argument contends that more foreign direct investment (FDI) would lead to an increase in market-friendly laws, which will better protect investors and lead to improved governance.

Figure 2 FDI inflows to developing countries in Asia, 2020-2021



**Sources:** World Investment Report 2022 (UNCTAD 2022)

As the results of the study by Sahina and Egeb (2015) who used a Bootstrap causality analysis to conduct their assessment of the relationship between foreign direct investment and economic growth in Bulgaria, Greece, and Macedonia. They found that there was a positive correlation between the two variables. They arrived at the conclusion that foreign direct investment (FDI) was favorable to the projections of financial development in Turkey, Greece, and Bulgaria. In the meanwhile, Majeed et all (2021) researched the effect of foreign direct investment (FDI) on foreign direct investment in a sample of 102 Belt and Road Initiative countries. Foreign direct investment (FDI) and trade openness are two factors that have a significant influence on foreign direct investment (FD), according to the findings of a study that was conducted by Baltagi et all (2008). This study focused on developing countries in addition to industrialized countries. They came to the conclusion that Foreign Direct Investment (FDI) is beneficial to FD in Asia, Europe, and Latin America; however, it is detrimental to FD in Africa due to the continent's weak financial structure. Henri, Luc, and Larissa (2019) used a sample of 49 African nations throughout the period of 1990-2016 and used the Pooled Mean Group technique to find that over the long term, foreign direct investment (FDI) has a positive and substantial impact on foreign direct investment (FD), but over the short term, the effect of FDI on FD is negative. These findings were found by employing the sample of 49 African nations throughout the period of 1990-2016.

Foreign direct investment (FDI) also benefits local economies by exposing them to cutting-edge methods and technologies used in countries like the developed world. Many nations have opened their doors to foreign investors in an effort to attract the largest possible amount of foreign direct investment (FDI) because they recognize the potential benefits of exposing and adopting cutting-edge technology and intellectual know-how for their economies. Furthermore, developing nations in Asia, Africa, and the Americas have come to see FDI as a source of economic growth and development, as shown by their pro-FDI economic policies. Wong and Tang (2011) suggest that FDI improves employment in manufacturing and services, which supports growth, while Kholdy and Sohrabian (2008) find that FDI may speed up financial development even when corruption is widespread.

Foreign direct investment (FDI) increases have helped certain economies expand, while others have not performed as well and may even be in decline. Foreign direct investment (FDI) arrangements are likely to create both winners and losers in the host states, according to research by Bjorvatn and Eckel (2003). Furthermore, despite the fact that Li and Liu (2005) argue in favor of foreign direct investment (FDI), especially in wealthy nations, Sumner (2005) argues that excessive FDI inflows could be a curse in disguise if the conditions under which they are allowed expose developing countries to negative trade-offs.

In recent years, the opportunity costs of significant foreign direct investment (FDI) inflows have drawn the attention of researchers and brought to divergent viewpoints on the benefits of FDI. The opportunity costs of high FDI inflows include, among other things, substantial tax revenues.

The growth research confirms that the favorable impacts of FDI on the growth of host nations are sometimes equivocal, lending credence to these divergent viewpoints. For example, Hanson (2001) contends that there is scant evidence that foreign direct investment (FDI) results in beneficial spillovers for host nations. This foreign direct investment (FDI) growth puzzle has been the subject of extensive research. Instead of providing conclusive answers, these studies have prompted the need for more research by suggesting that FDI may not be sufficient to spur growth on its own and that additional factors must be present before FDI may have a beneficial effect on economic development.

Although Lipsey Robert (2002) believes that FDI has some beneficial benefits on host economies, G€org and Greenaway (2004) show that the consequences are overwhelmingly negative. Meanwhile, Carkovic and Levine (2002) demonstrate that FDI does not have a direct impact on growth. They demonstrate that the exogenous component of FDI has no significant beneficial influence on growth, and that the advantages of FDI are dependent on other growth variables within a nation.

One such theory is that a country's absorptive capacity, or favorable internal conditions, plays a crucial role in releasing the beneficial benefits of FDI on GDP. This theory is based on the idea that FDI not only offers investible money but also serves as a conduit for countries to obtain access to new technologies that help them raise total factor productivity, which increases GDP. Following this logic, if favorable domestic elements to optimize the absorption of sophisticated technologies are missing, there will be no major gain in productivity and, as a result, notable economic development is improbable. Based on this, the disparity in domestic absorptive capacity between nations may help to explain why the impact of FDI on growth varies so greatly.

Absorptive capabilities are advocated by Xu (2000), and Alfaro et al. (2004). They claim that country-specific factors such as schooling level, domestic financial market development, and other domestic variables play vital roles in establishing a good FDI-growth nexus. Alfaro et al. (2004) emphasize the role of financial institutions and argue that a lack of development of local financial markets can limit an economy's ability to capitalize on potential FDI spillovers, concluding that countries with well-developed financial markets benefit more from FDI.

Numerous studies in the literature imply that domestic absorptive features such as human capital, develop financial markets, trade openness, income levels, and technological gap are necessary for positive spillovers from FDI. For the benefits of foreign direct investment (FDI) to percolate across an economy's many sectors, a highly educated labor force is necessary, as stated by Bornstein et al. (1998). In other words, when host nations achieve certain levels of human capital, FDI encourages growth. Their research suggests that FDI's benefits are realized not just via capital accumulation but also through the spread of technology. Foreign direct investment (FDI) is most helpful to nations that already have robust domestic financial markets, according to research by Alfaro et al. (2004).

In general, the empirical research listed above that has examined the FDI-growth nexus indicates that the positive spillover effects of FDI derive from a collection of favorable domestic behaviors. Human capital, domestic financial market development, trade openness, basic income levels, macroeconomic stability, growth in population, and so on all have a role. In this work, I use these absorbent capacities to analyze how much they affect the FDI-growth nexus in Georgia. This means I assess how high or low these parameters may go to change the effect of FDI on growth in Georgi, and the implications of these findings. As models that divide data samples into regimes of high and low absorptive capacities based on whether the threshold variables exceed their estimated threshold values, threshold regression models are a suitable empirical framework for such analysis when the threshold variables and values are the domestic absorptive capacities and levels. The threshold values are estimated based on the information at hand. To the best of our knowledge, this research is the first to apply the panel threshold paradigm to the challenge of estimating the growth effect of FDI in Georgia by including all absorptive capabilities.

The methodology of threshold regression modeling is widely used in the fields of finance and economics. Primary goal in this paper is to use the concept of thresholds to test whether the empirical relationship between FDI and growth in Georgia is affected to sample splitting, where the sample split is based on a list of selected variables that are representative of key economic characteristics serving as the threshold variables. It can infer that the threshold variable enabling the sample split affects the association between FDI and growth if it is discovered evidence that such a split produces different results for the relationship between FDI and growth across the split samples. There is a "cutoff" value for the threshold variable beyond which the correlation between FDI and growth begins to weaken. An example would be if FDI slowed growth when inflation was over x percent but helped when it was below x percent. On the other hand, it's possible that foreign direct investment (FDI) has the same effect on growth whether inflation is above or below x percent, meaning that it either speeds up or slows down growth.

Azman-Sainiet al. (2010a, b) examined in 91 countries between 1975 and 2005 by using the threshold technique. Findings has shown that the threshold method is a successful tool for analyzing the nonlinear relationship between FDI, FD, and growth. In the same construct, Chen and Quang (2014) reveal in their research to investigate foreign direct investment (FDI) and economic growth on the data of 80 countries between 1984 and 2007 by applying panel threshold regression to examine the effect of global financial integration on economic growth. In particular, they determined a single FD threshold value that moderates the nonlinear interaction between FDI and equity liabilities in investment portfolios. Baharumshah et al. (2017) used panel threshold regression on 80 cross-sections of developed, emerging, and developing countries from 1975 to 2007 and found that the development of the local financial sector has a strong threshold effect on the linkages between FDI and growth.

If you want to know what kind of economic conditions or causes will lead to a positive FDI-growth nexus, the threshold technique can help you figure that out. Could the good impacts of FDI on growth, to the extent that they exist, be stifled by high inflation, causing FDI to have a negative influence on growth? Does Georgia have a tipping point for when foreign direct investment (FDI) leads to economic expansion, in terms of either trade openness or population growth? Threshold analysis provides the most fruitful context for addressing these concerns.

Trade openness (TO): According to Rajan and Zingales (2003), when a country is open to trade, it fosters rivalry in its home markets, lowers the profit of its established domestic enterprises, compels them to raise their investment, and demands the use of foreign finance sources. However, the need for external investment does not necessitate an upgrade to the financial system. Instead, sector incumbents may be permitted to use their own finance or apply for government loan subsidies, albeit this would lead to less openness in the financial system because of unnecessary government meddling. According to Rajan and Zingales' findings (Rajan & Zingales, 2003), industry incumbents may not be able to stimulate financial development just via trade liberalization. The environment is better when trade and financial openness are combined because industrial firms are less stressed by the competition brought on by trade openness, which results in financial requirements, than they are when financial openness is absent and industrial incumbents may not be opposed to financial development (Rajan & Zingales, 2003).

Inflation (INF): Azariadis and Smith (1996) theorized that because of the greater tax on financial assets like bank deposits, a higher inflation rate limits the willingness of lenders to offer extra cash to borrowers at the existing market interest rate. Thus, rising inflation results in lower expected incomes and less incentive to engage in investment activities.

According to Kim & Lin (2010), there is both a positive short-run association and a negative long-run relationship between inflation and financial development. Inflation reduces the dependability and accessibility of financial information, according to Rousseau and Yilmazkuday (2009). Thus, lenders would prioritize short-term profit over long-term investment, which will cause credit to be directed toward loans that are more likely to be used to fund ongoing expenses than long-term capital projects.

Population growth (PG): Population size is also strongly tied to measures of financial development since small nations often have greater percentages of liquid liabilities and private credit, which have the ability to significantly affect total outcomes (Huang, 2010).

**2. Methodology and Data**

Hansen (2000) created the panel threshold model, which is now commonly used to examine nonlinear associations. Using these models, we can check to determine whether there is any inconsistency between the regression coefficients across distinct subsets of the data. Numerous researches have used the fixed effects threshold model to simulate economic expansion.Khan and Senhadji (2001) applied the same model to examine the relationship between the inflation threshold and GDP growth. Adam and Bevan (2005) utilized fixed effects threshold model to examine the relationship between the budget deficit and GDP growth

Azman-Sainiet al. (2010) used a fixed effects threshold model to look into whether or not a certain degree of financial development was necessary to determine the FDI-growth link. In this thesis, the fixed effects threshold model is utilized to study the impact of natural resources on the FDI-growth connection.

Model has a threshold variable (TRHt) that divides the sample in half based on whether or not the country's TRHt is above or below the threshold value.

$$Yt=a+βXt+η\left(\genfrac{}{}{0pt}{}{FDIt, TRHt \leq γ}{FDIt, TRHt>γ}\right)+et$$

Yt represents the growth rate of real GDP per person and FDI. It represents the net FDI intake into the nation, while et stands for error term. The group of control variables used in the model is called Xt. The choice of the control variables is based on the research on economic growth, and they comprise the starting GDP, domestic investment, human capital, inflation, trade openness, government debt, financial development indicator and population growth rate. Studies have demonstrated that the beginning level of GDP is a significant predictor of economic growth and that nations with lesser economic development tend to expand more quickly than countries with higher economic development.

Numerous studies have discovered a beneficial effect of human capital on economic growth. Gross secondary enrolment (enrollment) is used in this study as a measure of human capital. The potential benefits of openness to foreign commerce on economic growth have been well studied. I also use exports plus imports as a percentage of GDP as an indicator of trade openness because the majority of these research utilized trade volume as a percentage of GDP as a control variable. Inflation has been employed in many growth studies and has been proven to slow economic growth. The quality of institutions and governance is often regarded as a key factor in economic growth, along with a number of other control factors.

In addition to other control elements, the quality of institutions and governance is viewed as crucial to a country's economic growth. International Country Risk Guide (ICRG) governance indicators [3, 4] are extensively used in the scholarly literature. Corruption and the prevalence of violent crime are only two of the ICRG indicators used to gauge governance quality in this piece. There is a widespread belief that more people in the world will have a negative impact on the economy. The Solow growth model states that as growth rates increase, capital per worker and, by extension, capital per unit of output decrease.

Several researchers have found that rising populations dampen economic growth. These researchers include Bucci (2015).Gui-Diby (2014), Jude and Levieuge (2017), and Alfaro et al. (2004).

**2.1. Data**

The data of variables used in this research are included from 2001 to 2021.Most of data for variables before 2001 are not available. Therefore, this periods in this current research are chosen. The variables are as follows. The ratio of net FDI inflows to GDP is known as FDI. The United Nations Conference on Trade and Development (UNCTAD) Statistics are used to calculate net FDI inflows. Data for variables are derived from the World Bank databank's World Development Indicators (WDI) . Table 1 has a brief summary of the variables.

Data on enrolment (gross secondary enrollment rate) are collected from the World Bank Institute for Statistics database's Sustainable Development Goals (SDGs) report. Similarly, statistics on corruption and regulation quality, government effectiveness and economic stability are acquired from the World Bank database. The table contains detailed definitions of each variable and data source.

The table1 displays descriptive statistics about the data utilized in the analysis. The table shows that both the rate of GDP growth and the net FDI inflow vary significantly, since the standard deviation in both cases is more than the mean values of the variables.

Table 1 Descriptive Statistics

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | (1) | (2) | (3) | (4) | (5) |
| VARIABLES | N | mean | sd | min | max |
|  |  |  |  |  |  |
| debtq | 84 | 37.66 | 12.37 | 18.93 | 67.50 |
| fdigrwq | 84 | 8.729 | 3.797 | 3.172 | 19.06 |
| gdppercapq | 84 | 5.713 | 5.066 | -8.110 | 24.02 |
| gdpq | 84 | 5.232 | 4.905 | -8.008 | 23.26 |
| humancapq | 84 | 47.22 | 2.057 | 45.12 | 51.43 |
| infq | 84 | 6.164 | 3.799 | -3.300 | 15.55 |
| insindexq | 84 | 55.33 | 9.914 | 34.22 | 65.77 |
| popq | 84 | -0.451 | 0.430 | -1.891 | 0.165 |
| povertyq | 84 | 29.44 | 8.902 | 17.10 | 62.52 |
| privasectorindq | 84 | 44.41 | 3.482 | 37.92 | 49.90 |
| tradeopenq | 84 | 12.17 | 5.289 | 4.600 | 27.74 |
| unempq | 84 | 15.18 | 3.296 | 10.07 | 21.04 |
|  |  |  |  |  |  |

Based on the data descriptive in table 1 discovered for the sample of the consideration, the FDI as GDP's mean value is 8.7 percent. From 2001 to 2020, FDI net inflows as a proportion of GDP have been on average 8.2%. In terms of FDI net inflows as a percentage of GDP. In addition, the average government debt as a proportion of GDP is 37 %, the average inflation rate is 6.16%, and the average population growth rate is -0.45 percent. Correlation matrix doesn’t illustrative any strong correlation between variables used in the research (see table 2).

**3. Result of Analyzing**

Table 3 OLS result shows how FDI contributed directly to GDP growth. As can be seen in Column (1), FDI seems to have a non-favorable effect on economic growth per capita. The coefficient on FDI is much smaller and less significant after controlling for more factors, as shown in Column (b). This suggests that the direct effect of FDI on development is weakened under various circumstances and that the degree of relevance of the FDI-growth nexus may change depending on how well variables are controlled for. This finding precisely captures a common difficulty encountered when attempting to analyze the FDI-growth nexus in the empirical growth literature. There is some theoretical support for the idea that FDI is growth-enhancing, but this isn't necessarily borne out in the data.

Table 2 Correlation Matrix



At the 1% to 5% significance levels, FDI inflows have positive effect on GDP per cap. This conclusion is supported by the findings from Henri, Luc, and Larissa (2019) and Hajilee and Nasser (2015). The strong association between FDI and financial growth shows that governments have established adequate and efficient rules in order to accommodate and make use of the quantity of FDI inflows. Because of this, FDI will be able to successfully help these countries' financial performance.

The trade openness as well as the changes in population both have a negatively effect on economic growth. These findings are not supported by Rajan and Zingales (2003), one may draw the conclusion that Georgia is not performing well in integrating trade openness, population expansion. This is one of the conclusions that can be drawn from their research (see table 3).

In Georgia, inflation and private sector development have a positive connection; this indicates that a country that has a rise in its inflation rate would also experience a increase in the advancement of its growth in economy. The finding that inflation had a positive impact on economic growth in Georgia is consistent with the findings of Bittencourt (2012) and Rousseau and Yilmazkuday (2009). These researchers all came to the conclusion that inflation had this effect.

Government debt is determined to have no influence on economic growth in Georgia, and there is no correlation between the FDI and the proportion of final government debt over GDP.

**3.1. Result of threshold nexus GDP per cap growth-FDI as GDP**

One possible component of the nonlinear relationship is that the connection between FDI and growth changes before or after a certain value of one of the explanatory variables in the regression equation. In this case. I apply the threshold regression analysis to address this in the next section.

**Table 3 OLS result**

|  |  |  |
| --- | --- | --- |
|  | (1) | (2) |
| VARIABLES | OLS | OLS |
|  |  |  |
| FDI | 1.019\*\*\* | -0.537\*\* |
|  | (0.118) | (0.233) |
| Debt  |  | -0.0448 |
|  |  | (0.0729) |
| Trade openness |  | -0.764\*\*\* |
|  |  | (0.201) |
| Unemployment  |  | -1.554\*\*\* |
|  |  | (0.288) |
| Inflation |  | 0.318\*\*\* |
|  |  | (0.101) |
| Human Capital | -0.307 | -2.503\*\*\* |
|  | (0.305) | (0.548) |
| Institutional Index | -0.672\*\*\* | 0.317 |
|  | (0.145) | (0.259) |
| Population | -13.68\*\*\* | -11.40\*\*\* |
|  | (2.187) | (2.527) |
| Poverty | -0.567\*\*\* | -0.458\*\*\* |
|  | (0.117) | (0.165) |
| Private sector development | 1.566\*\*\* | 0.332 |
|  | (0.409) | (0.693) |
| Constant | -10.54 | 137.2\*\*\* |
|  | (16.92) | (40.09) |
|  |  |  |
| Observations | 84 | 84 |
| R-squared | 0.648 | 0.824 |

Standard errors in parentheses \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

According to the results in Table4, FDI decrease GDP in Georgia when inflation rates are below 6.19 significant, but when inflation rate is above threshold value of 6.19%, FDI negatively and significantly effect on GDP per cap. The positive effect of FDI on growth, however, tends to increase and might turn negative when inflation above the threshold value of 6.19%. This finding is expected increasing inflation rates are in a worse position to benefit from FDI inflows than those with declining inflation rates. This finding suggests that large amounts of foreign direct investment (FDI) can increase growth rates in low-inflation rate. Bringing in large quantities of FDI without addressing low inflation at home might increase economic growth development. Therefore, in order to take advantage of the growth benefits of FDI, it is more sensible to implement policies that aim and achieve moderate levels of inflation before applying pro-FDI measures. As a country's per capita income rises, the correlation between FDI and economic development weakens and finally disappears. This occurs when the person's income is more than the predetermined limit. Based on these indicators, it appears that low-income countries like Georgia would gain the most from FDI. Since the scale of the effect of FDI on growth is bigger in the low regime than in the high regime, this conclusion also suggests that the relationship between FDI and economic growth is stronger for low-income countries like Georgia.

Table 4 The results of Threshold regression

|  |  |  |  |
| --- | --- | --- | --- |
|  | (1) | (2) | (3) |
| Threshold values | **Low Regime****R< 6.19(βL)** | **High Regime****R > 6.19(βH)** | **Differences****(βH)- (βL)** |
| Inflation |  0.752\*\*\* | -0.169\*\*\* | 0.92 |
|  | (0.163) | (0.17) |  |
|  |  |  |  |
|  | **Low Regime****R< -0.6 %(βL)** | **High Regime****R > -0.6 %(βH)** |  |
| Population | 0.473\*\*\* | 1.309\*\*\* | 0.836 |
|  | (0.120) | (0.265) |  |
|  |  |  |  |
|  | **Low Regime****R< 50(βL)** | **High Regime****R > 50(βH)** |  |
| Human capital | 0.294\*\* | 3.618\*\*\* | 3.316 |
|  | (0.118) | (0.487) |  |
|  |  |  |  |
|  | **Low Regime****R< 34 (βL)** | **High Regime****R > 34 (βH)** |  |
| Poverty | 0.497 | 0.378\*\* | -0.119 |
|  | (0.198) | (0.157) |  |
|  |  |  |  |
|  | **Low Regime****R< 52(βL)** | **High Regime****R > 52(βH)** |  |
| Institual index | 0.371\*\* | 0.587\*\*\* | 0.216 |
|  | (0.161) | (0.184) |  |
|  |  |  |  |
|  | **Low Regime****R< 6.17(βL)** | **High Regime****R > 6.17(βH)** |  |
| Trade openness | -0.757 | 0.279 | 1.03 |
|  | (0.526) | (0.189) |  |
|  |  |  |  |
|  | **Low Regime****R< 48(βL)** | **High Regime****R > 48(βH)** |  |
| Private sector dev. | 0.290\*\* | 3.525\*\*\* | 3.25 |
|  | (0.119) | (0.478) |  |
| Observations | 84 | 84 | 84 |

 Standard errors in parentheses \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

The relative importance of human capital, openness, and population growth on the relationship between FDI and growth is calculated in rows of second and three through seven in table 4. Human capital statistics suggest that a threshold of above 50 is affecting strongly and significantly on growth of economy. So as human capital index increases, FDI effect is stronger on GDP per cap. Under this threshold, FDI is unable to stimulate economic expansion. The result of findings shows evidence that FDI can boost development only if the human capital is reaching above 50. Because foreign direct investment (FDI) is shown to boost economic growth in Georgia with human capital in the high threshold regime, human capital in the host country influences the FDI-growth relationship. This result is consistent with the findings of Bornstein et al. (1998).

When private sector credit is at above 48 or less, the positive coefficient of 0.29 and 3.52 suggests a positive and significant relationship between FDI and economic growth. However, when private sector credit is above 48 percent or more, the coefficient becomes stronger and insignificant, indicating either FDI has impact on growth or the impact is positive. This implies that private sector credit over the anticipated threshold level may actually increase efficiency and result in the effect of FDI on growth turning positive in Georgia, indicating that the effectiveness of the financial system, rather than its size, may be more significant. Georgia should take prudence when making loans to the private sector, as findings illustrates.

Our results for trade openness suggest that certain checks and balances must still be in place if FDI is to be growth-enhancing, even when high openness is advised. I find that openness over the projected threshold value of 6.17 percent doesn’t sustain the growth-enhancing impacts of FDI since the coefficient of the effect of FDI on growth, although positive but not significant, when openness is below or above the threshold of 6.17 percent. My thesis investigates also if population increase in Georgia influences the relationship between FDI and growth. So far, the research has neglected the contingent role that population increase may play, regardless of whether such a role is good. In recent decades, there has been widespread conviction that rapid population expansion is detrimental to economic development (see Heady and Hodge, 2009). As a consequence, it remains unclear how population expansion influences the impact of FDI on economic development. My results suggest that when population growth decrease an estimated 0.6 percent threshold, FDI has a positive influence on economic development. For population growth below this level, the effect of FDI on growth is even positive and stronger. As a result, population decrease improves the relationship between FDI and growth in SSA. In order to capitalize on the growth benefits of FDI, the low population expansion in Georgia may be seen as a strength rather than a disadvantage.

Finally, increase in poverty enhances relation nexus of GDP per cap and FDI growth. The threshold of 34 is above, the poverty is positive and significant. In the same construct, Institutional quality increase the FDI effect on GDP per cap. It transvalues is above 52, its coefficient and significancy increase as well.

However, when human capital and private sector credit are above their thresholds and when inflation and population growth are below their thresholds, FDI increases growth in Georgia. This is the most consistent finding in the threshold analysis of the FDI-growth nexus, which provides some consensus in table 4 as to where the results largely agree. The findings that are robust or qualitatively unchanging are of more importance in determining the consistent finding, as they provide sufficient evidence or confirmation that the inferences or conclusions produced are more likely to be believable.

Table 5 Threshold result as lag of FDI

|  |  |  |
| --- | --- | --- |
|  | **Low Regime****R< -0.13(βL)** | **High Regime****R > -0.13(βH)** |
| VARIABLES |  |  |
|  |  |  |
| FDI | -0.475 | -0.304 |
|  | (0.289) | (0.206) |
| Debt | -0.595\*\*\* | -0.307\*\*\* |
|  | (0.111) | (0.0757) |
| Unemployment | -1.355\*\*\* | -1.098\*\*\* |
|  | (0.309) | (0.223) |
| Constant | 50.06\*\*\* | 38.02\*\*\* |
|  | (10.49) | (7.217) |
|  |  |  |
| Observations | 83 | 83 |

Standard errors in parentheses \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Table 5 reveals the consistent result of OLS results. Lagged of FDI decrease the effect of current FDI effect on GDP per cap. Debt and unemployment are at same time decreasing the effect of FDI on economic growth.

**4. Conclusion**

Threshold model estimate has emerged as a promising new method for investigating the connection between foreign direct investment (FDI) and economic development in recent years. This strategy operates on the premise that there is no universal correlation between foreign direct investment and economic growth. That is to say, there is a possible crossover point between data sets when the nexus between foreign direct investment and economic development shifts. This paper applies the threshold models of Caner and Hansen (2004) and Hansen (1999) to examine the connections between FDI and economic growth using data from 2001q1 to 2001q4. The seven threshold variables used are per capita income, institutional index, poverty, trade openness, inflation, human capital, and private sector development.

Findings demonstrate that FDI accelerates economic development in Georgia until they reached certain thresholds of inflation, population growth, human capital, and credit to private sector, and that this evidence is mostly consistent and durable even after accounting for the endogeneity of FDI. This research shows that the positive effect of FDI on growth is conditional on the presence of other factors that operate as a crucial economic stimulant. The results conclude that FDI promotes growth in Georgia when inflation and private sector credit are below their threshold levels and when human capital and population growth are above their threshold levels.

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