ELIT
Economic Laboratory Transition
Research Podgorica

Montenegrin Journal of Economics

Tung, L.T. (2022), "Impact of foreign direct investment on inequality in emerging economies: Does the Kuznets curve hypothesis exist?", *Montenegrin Journal of Economics*, Vol. 18, No. 1, pp. 161-168.

Impact of Foreign Direct Investment on Inequality in Emerging Economies: Does the Kuznets Curve Hypothesis Exist?

LE THANH TUNG[1]

[1] Associate Professor, Policy and Applied Economics Research Group, Faculty of Economics and Public Management, Ho Chi Minh City Open University, Ho Chi Minh City, Vietnam; e-mail: tung.lt@ou.edu.vn

ARTICLE INFO

Received February 04, 2021
Revised from April 12, 2021
Accepted May 12, 2021
Available online March 15, 2022

JEL classification: C23, D31, F21, F41

DOI: 10.14254/1800-5845/2022.18-1.13

Keywords:

FDI,
Inequality,
Income distribution,
Kuznets curve,
Emerging economy,
Developing country,
Sustainable development

ABSTRACT

This paper aims to test the Kuznets hypothesis regarding the existence of the inverted U-curve in the relationship between FDI and income inequality with an international sample. Some economists have recently expressed concern that the globalization of the production process can promote inequality and create social problems. Whether foreign resources might be related to unequal income distribution in emerging economies remains an open question. In order to fill the research gap, the paper tries to examine the impact of foreign direct investment on inequality in 33 emerging economies between 1980 and 2019. There are two methods including OLS and 2-SLS estimations are employed to estimate the coefficients of the variables. Where the 2-SLS methodology employs instrumental variables to solve the endogenous phenomenon in the study function. The results indicate that both the FDI-inequality nexus and the income-inequality nexus are nonlinear effects that confirm the Kuznets curve hypothesis and that improved infrastructure and trade openness can reduce inequality in this group of economies. Finally, the result also suggests that emerging economies need to persevere to FDI attracting strategy because there is a threshold that FDI will ultimately reduce inequality in these economies.

INTRODUCTION

Foreign direct investment (FDI) has been an integral factor of the international economic system and a major catalyst in development in many developing countries during the past few decades. Because of their robust economic growth and close links with globalization, a number of developing countries have been ranked in a list of emerging economies. The emerging economies are playing a significant role in supporting world economic growth, and they are expected and forecast to be a new pillar of the global economy in the coming decades (Wilson and Stupnytska, 2007). In the context of globalization and internationalization of the production process is rasing, obviously, the role of the group of emerging economies is increasingly important in promoting the global economy to continue its development trend (Baffes et al., 2018). The group of emerging economies continually receives attention from the largest global financial institutions. According to the International Monetary Fund, the group of emerging and

developing economies accounts for about 60% of the global GDP, a significant increase compared to less than half a decade ago. In particular, these economies have contributed more than 80% to global growth since the 2008 financial crisis, helping save more jobs in advanced economies. In addition, the group of emerging countries is the main engine driver behind the dramatic reduction of poverty globally (IMF, 2016). Emerging economies are also the driving force behind the consumption of goods world wide. According to the World Bank, the rapid growth of this group in the past 20 years has boosted the demand for goods on the global market. The largest group of emerging markets accounts for nearly all of the increased demand in global metal consumption and nearly 2/3 of the increase in energy consumption (Baffes et al., 2018). Besides, emerging markets are always places with many potential investment opportunities as well as large investment returns (Thompson, 2020).

However, unequal income distribution and inequality have increased in many countries, causing social unrest (Ravallion, 2019). Inequality has become one of the major concerns of policymakers who are attempting to boost economic growth. There are debates about the impact of FDI on inequality in host countries, for instance whether an increase in FDI can increase inequality (Wu and Hsu, 2012), reduce inequality (Ucal et al., 2015), or have no statistically significant impact (Franco and Gerussi, 2013), or increase regional inequality within countries (Lessmann, 2013). Accordingly, the impact of FDI on inequality is still an important question in both academic and policy circles. In addition, most previous results have been focused on the linear relationship between FDI and inequality, skipping the non-linear impact of FDI on inequality in developing countries (e.g., Choi, 2006; Lessmann, 2013; Wong, 2015; Majeed, 2017). In particular, there is no evidence that considers groups of emerging economies. These are playing an important role in the world economy, yet there is an empirical gap in the literature regarding the impact FDI and inequality is having on them. The present study not only tests the impact of FDI on inequality using a linear model but also explores the non-linear impact of FDI by testing the Kuznets curve. A further contribution of the present study is in its use of the most recent data from 33 emerging economies in the period 1980-2019.

The paper has five sections in its content. Section 2 shows the literature review of the relationship between FDI and inequality. The econometric model and estimation strategy are presented in Section 3. The empirical results are analysed and discussed in Section 4. Finally, a short summary is then provided.

1. A BRIEF REVIEW OF THE RESEARCH TOPIC

The distribution of social wealth is an important issue in every country. Inequitable distribution of wealth is a good condition for the outbreak of the conflict, violence and social unrest. Therefore, the impact of production globalization on national outputs as well as income distribution is an important issue that needs to be studied (Ravallion, 2019). The impact of FDI on income inequality has been one of the hottest research topics as globalization has deepened since the 1990s. There have been a number of empirical studies focusing on this relationship, however, the results are inconsistent, even conflicting.

In an early study, Tsai (1995) investigated FDI inflows into less-developed countries (LDCs) and their effects on income distribution in host countries. The results of the study have shown a statistically significant correlation between FDI and inequality, suggesting that foreign investment inflows may exacerbate income inequality in recipient countries. However, the level of impact according to the geographic region of the receiving countries. Bhandari (2007) performed a quantitative analysis of the effects of FDI on inequality in transition countries in Eastern Europe and Central Asia in 1990-2002. However, the author concluded that there was no evidence that FDI inward could affect income inequality in the countries. Basu and Guariglia (2007) examined the interaction between FDI, inequality and economic growth in host countries. The research results show that FDI promoted both inequality and growth. In addition, FDI also reduces the proportion of the agriculture sector in GDP in the host countries. The conclusion is that FDI was the engine of growth in countries having modern industrial sectors.

Foreign direct investment is an important external resource from out-side not only enhancing economic growth but also creating new jobs. Çelik and Basdas (2010) argue that although FDI can create more jobs for countries with an abundant workforce, during periods of recession FDI outflows tend to decrease and put unemployment and thus exacerbate problems of inequality in host countries. The au-

thors also conclude that the effects of FDI on inequality are different across country groups. Franco and Gerussi (2013) identify whether international trade and FDI inflows may affect income distribution in a sample of transition countries. The results support the evidence that there is no relationship between FDI and inequality, however, international trade is found to be the cause of inequality in income distribution in countries. this family. The study results also confirmed that the educational system was an important determinant of the impact of FDI on income inequality in host countries. Wu and Hsu (2012) employ the endogenous threshold regression model to explore the impact of FDI on inequality. The authors conclude that FDI increases income inequality in host countries with low levels of absorption capacity. On the other hand, FDI has a small effect on income inequality in the case of countries with better absorption. Thus, the characteristics of countries absorbing FDI are also factors affecting the relationship between FDI and inequality.

In an empirical study, Lin et al. (2013) examined the impact of FDI on income inequality regarding to the interactive role of human capital in 73 countries in the period of 1960-2005. The threshold regression method was applied in this study. The authors found that a threshold of human capital causes the relationship between FDI and inequality to change in different directions. Besides, Herzer et al. (2014) analyse the relationship between FDI and income gaps in Latin American countries. The results imply that FDI positively affects income inequality in these countries. Besides, the authors conclude that there was no evidence for reverse causality between these variables. Furthermore, Ucal et al. (2015) conduct a study on the relationship between FDI-inequality in Turkey. The authors found the existence of a long term cointegration relationship between the variables. In addition, the results confirm FDI has a negative impact on inequality in both the short and long run in this country.

Developing countries are the popular objects of foreign direct investment flows. Cho and Ramirez (2016) explored the relationship between FDI and income inequality with a small sample including seven Southeast Asian countries. The authors assert that FDI inflows tend to increase income inequality in the short run but decrease it in the long run. However, their results also show that FDI is good for host countries through the technology transfer way. Therefore, the authors imply that the good effect of FDI is stronger than the harmful effect for host countries. Thus, developing countries need to accept the negative impact of FDI as a trade-off in the development process. Jensen and Rosas (2017) used data from Mexico for the period 1990-2000 to analyse the effect of FDI on inequality. The authors found an inverse relationship between the value of FDI and the degree of inequality. This evidence may be due to a better connection between high-skilled and low-skilled workers. In addition, the demand for indigenous workers will be higher when external capital flows are available and this can help reduce income inequality in a recipient country.

More recently, Majeed (2017) uses a sample of 65 developing countries for an empirical analysis of the FDI-inequality nexus relationship. The results show that FDI has the effect of narrowing inequality in countries with high investment in human capital, strong financial sectors as well as high levels of economic development. Bogliaccini and Egan (2017) argue that FDI in service sectors increased income inequality more than in other sectors. The differences in the FDI-inequality relationship by industry can be explained by the diversity of skills of workers in each sector. Fazaalloh (2019) investigates the impact of FDI on income inequality in Indonesia. The finding shows that FDI has a direct and insignificant impact on income inequality. Besides, FDI has indirect and negative effects on income inequality, through the mediating role of economic growth. However, the author also confirms that the indirect effects of FDI on inequality through education and trade are statistically insignificant. Finally, the non-linear relation between FDI-inequality nexus can not be identified in the study. Khan and Nawaz (2019) perform a quantitative test of the relationship between FDI and income inequality for the Commonwealth of Independent States (CIS). The authors conclude that the relationship between FDI and inequality is represented by an inverse U curve. In detail, education has an important role which is shown in the interaction with trade openness and FDI. This finding shows that host countries will have many benefits from positive aspects of FDI when the quality of education is better. In a recent study, Josifidis et al. (2020) focus on the influence of FDI on income distribution in some post-communist new EU member states. The authors find a nonlinear relationship between FDI and income distribution in the countries in this region.

Overview, despite the important role of emerging economies for the world economy (see Wilson and Stupnytska, 2007; Baffes et al., 2018; Thompson, 2020), however, from the best of our knowledge,

there is no evidence that has conducted a quantitative analysis of the effects of FDI on inequality with a homogeneous group of emerging economies. The previous results use groups of developing countries with diverse levels of socio-economic development. So the empirical results make it much difficult for policy-makers to study, schedule, and implement relative socio-economic policies. Finally, my research also tests the Kuznets curve hypothesis for the FDI-inequality nexus in emerging economies, which is a contribution to filling the experimental gap that has not been done in previous studies.

2. ECONOMETRIC MODEL AND DATA

2.1 Model

The empirical model is used to investigate the impact of FDI on income inequality and employed the Kuznets curve theory. It incorporates both linear and non-linear functions to test the FDI-inequality nexus, which is denoted by FDI and FDI squared, respectively. The empirical model is presented in the following econometric function.

$$GINI_{i,t} = \beta_1 + \beta_2 GINI_{i,t-1} + \beta_3 FDI_{i,t} + \beta_4 FDI\_square_{i,t} + \beta_5 logIncome_{i,t} + \beta_6 logIncome\_square_{i,t} + \beta_7 logLabour\_force_{i,t} + \beta_8 Infrastructure_{i,t} + \beta_9 Inflation_{i,t} + \beta_{10} Openness_{i,t} + \varepsilon_{i,t} \quad (1)$$

Where t represents time periods with $t \in [1, T]$, and i represents cross-sectional units with $i \in [1, N]$. GINI represents the inequality levels in the economies. To solve the potential mis-specification problem in the econometric model, the first lagged value of GINI was added to the right-hand side of Equation (1). The addition of the first lagged value of GINI was done in some previous studies (Ucal et al., 2015; Khan and Nawaz, 2019). The estimated process employed OLS and 2-SLS techniques. The 2-SLS included instrumental variables used to handle the endogenous phenomenon in the econometric equation. The OLS result is compared with the 2-SLS for discussion.

2.2 Data

Based on the emerging economies list, a dataset was collected from the World Development Indicators for the period from 1980 to 2019 (World Bank, 2020). The list of 33 emerging economies includes Argentina, Bulgaria, Brazil, Chile, China, Colombia, Dominican Republic, Ecuador, Egypt, Hungary, Indonesia, India, Kenya, Lebanon, Morocco, Mexico, Malaysia, Nigeria, Pakistan, Peru, Philippines, Poland, Romania, Russian Federation, Senegal, South Africa, Thailand, Tunisia, Turkey, Ukraine, Uruguay, Uzbekistan, and Vietnam. An exception was the GINI variable, which was sourced mainly from the World Development Indicators database. Some missing values were found in the UNU-WIDER-World Income Inequality Database. There were seven variables in the panel data form. The descriptive statistics of the variables are presented in Table 1.

Table 1. Definition and descriptive statistics of variables

Variable	Definition	Obs	Mean	Standard deviation
Dependent variable				
GINI	Inequality index	897	41.2	9.87
Independent variable				
FDI	Foreign direct investment, net inflow (% GDP)	1174	2.50	3.71
Log income	Log of GDP per capita (PPP - current international USD)	923	3.83	0.31
Log labour force	Log of total labour force	924	7.24	0.61
Infrastructure	Fixed telephone subscriptions (per 100 people)	1247	10.6	9.01
Inflation	GDP deflator (annual %)	1178	51.4	293
Openness	Sum of exports and imports to GDP (%)	1168	61.4	34.8

Source: Author calculated from the study data

3. EMPIRICAL RESULT AND DISCUSSION

Following the estimation strategy, the econometric function (1) was regressed using two methods including OLS and 2-SLS. The latter was used to treat endogenous problems, and the instrumental variables were selected by the first lagged values of the independent variables. To test the Kuznets inverted U-curve hypothesis for the FDI-inequality nexus, four kinds of models were employed. In particular, models 1 and 3 tested the linear impact hypothesis while models 2 and 4 tested the non-linear impact hypothesis. The estimated results are presented in Table 2.

The regression results show a number of interesting findings. First, the tests show that the selection of estimated models is appropriate. In particular, the Hausman test implies that the fixed effects results are better than random effects, while the Wu-Hausman test confirms that the null hypothesis of endogenous phenomena in the estimated functions can be rejected in both models 3 and 4. Second, after comparing the OLS and 2-SLS regression results, the non-linear models are shown to be more consistent than the linear models. Obviously, in the results describing linear impact (models 1 and 3), all of the coefficients of FDI and income variables are not statistically significant, which implies that linear models are not suitable. Additionally, the coefficients are significant and R-squared values are also higher in the non-linear models; these results confirm the appropriateness of using the non-linear model (models 2 and 4) to investigate both the FDI-inequality nexus and the income-inequality nexus in emerging economies. The impact of FDI on inequality was non-linear, which means that the Kuznets curve was confirmed in the case of emerging countries. Because it provides the first evidence for this group of economies, the findings are significant for both academic as well as in policy practice for good treatment the social problem such as income inequality (Ravallion, 2019). They suggest that emerging economies need to persevere in their efforts to attract FDI. Although inequality may increase, this will reach a threshold, after which it will decrease; that is, further FDI will ultimately reduce inequality in these economies. The estimated result is supported by the previous studies which imply that there exists a threshold in the FDI-inequality nexus (Wu and Hsu, 2012; Lin et al., 2013). With a unified sample of emerging economies, obviously, my result has a contribution to the empirical knowledge framework regarding the relationship between FDI and inequality in host economies.

Besides, the Kuznets curve was also confirmed in the impact of income on inequality in emerging economies. The trade-off situation is that an increase in income can lead to an increase in inequality; this occurs at the early stages of economic development. However, an inverse impact will be felt later on. The estimated result of my paper is supported by the result of Majeed (2017). Besides, my present study provides new evidence for policy-makers in the respective emerging economies, where income per capita and FDI inflows are forecast to increase continually in the future. My finding once again emphasizes that emerging economies need to continue to attract more and more FDI inflows and focus on solutions to have more benefits than social costs (see Cho and Ramirez, 2016; Khan and Nawaz, 2019). My finding once again emphasizes that emerging economies need to continue to attract more and more FDI inflows and focus on solutions to have more benefits than social costs. Besides, FDI inflows are continuously having a role as the engine of economic growth in emerging countries having modern industrial sectors.

The present study provides additional useful evidence. First, it shows that improved infrastructure can play an important role in reducing inequality, helping to share economic opportunities amongst households at different levels within the population. There are some previous studies regarding the impact of infrastructure on income inequality and showed that this macro variable can help to reduce the income gaps in host countries (eg., Cho and Ramirez, 2016). The challenge of emerging economies, therefore, is to develop infrastructure and to encourage investment. Furthermore, a higher FDI inflow can lead to higher private investment in emerging economies. In addition, trade openness, that is, the degree to which a country engages in international trade will help to reduce inequality in emerging economies. My finding is consistent with some previous results (eg., Cho and Ramirez, 2016). Obviously, international trade, an indicator of increasing globalization over the past few decades, has lifted many countries out of poverty. Income is distributed more equally amongst populations when the host economy participates more in global markets. This finding indicates that policymakers in emerging economies should promote and increase openness as a tool to reduce inequality.

Table 2. Estimated results

Dependent variable: Inequality (GINI)				
Independent variables	*OLS*	*OLS*	*2-SLS*	*2-SLS*
	Model 1	*Model 2*	*Model 3*	*Model 4*
GINI (-1)	0.475* (12.52)	0.461* (12.15)	0.858* (44.70)	0.847* (42.61)
FDI	0.051 (1.42)	0.211* (3.00)	0.064 (1.74)	0.278* (3.99)
FDI squared		-0.004* (-2.57)		-0.005* (3.55)
Log income	1.202 (1.06)	58.29* (4.56)	1.140 (1.54)	25.25* (2.22)
Log income squared		-7.254* (-4.48)		-3.105* (-2.11)
Log labour force	-10.347* (-3.68)	-12.44* (-4.44)	-0.122 (-0.45)	-0.037 (-2.88)
Infrastructure	-0.007 (-0.20)	-0.070 (-1.77)	-0.052* (-2.20)	-0.067* (-2.84)
Inflation	0.01 (1.66)	0.0008 (1.32)	0.001 (1.09)	0.001 (1.22)
Openness	0.012 (1.16)	0.019 (1.87)	-0.014* (-2.82)	-0.014* (-2.88)
Constant	91.86* (4.87)	-4.707 (-0.17)	3.873 (1.12)	-43.11* (-1.95)
Period fixed effects	Yes	Yes	Yes	Yes
Country fixed effects	Yes	Yes	Yes	Yes
R squared	0.2704	0.2187	0.8192	0.8248
F statistics	33.26 (0.00)	30.35 (0.00)	2877.2 (0.00)	2989.1 (0.00)
n (countries)	33	33	33	33
Observations	652	652	635	635
Hausman test	135.64 (0.000)	100.07 (0.000)		
Wu-Hausman test			3.027 (0.029)	3.532 (0.014)

Source: Author calculated from the study data.*indicates significance at 0.05 level. The t statistical values are in parentheses below the coefficients.

CONCLUSION

Foreign direct investment is a very important resource for developing countries in supporting economic growth and creating new jobs. Besides, the increase of foreign direct investment flows helps to put the globalization. However, foreign direct investment can exacerbate the inequality in income distribution in host countries. The present study aimed to fill the empirical gap with regard to the impact of the FDI on inequality in emerging economies. Using the most recent data on 33 emerging economies between 1980-2019, it focused on testing the Kuznets curve hypothesis for the FDI-inequality nexus. The empirical results confirm the Kuznets inverted U-curve through the existence of a non-linear impact on the FDI-inequality nexus. The Kuznets curve was also found in the income-inequality nexus. The initial negative impact of FDI on inequality is inevitable, but policymakers need to persevere to pass a threshold, at which point the impact will begin to be positive. Finally, to reduce inequality further, countries must improve their infrastructure and maintain an openness to global trade.

ACKNOWLEDGMENTS

This research is funded by Ho Chi Minh City Open University under the Grant number E2020.12.01

REFERENCES

Baffes, J., Kabundi, A., Nagle, P., Ohnsorge, F. (2018), "The Role of Major Emerging Markets in Global Commodity Demand*", Policy Research Working Paper,* WPS 8495, World Bank Group.

Basu, P., Guariglia, A., (2007), "Foreign Direct Investment, inequality, and growth", *Journal of Macroeconomics*, Vol. 29, No. 4, pp. 824–839.

Bhandari, B. (2007), *"Effect of Inward Foreign Direct Investment on Income Inequality in Transition Countries"*, *Journal of Economic Integration*, Vol. 22, No. 4, pp. 888-928.

Bogliaccini, J.A., Egan, P.J.W. (2017), *"Foreign direct investment and inequality in developing countries: Does sector matter?"*, *Economics & Politics*, Vol. 29, No. 3, pp. 209-236.

Çelik, S., Basdas, U. (2010), "How Does Globalization Affect Income Inequality? A Panel Data Analysis", *International Advances in Economic Research*, Vol. 16, No. 4, pp. 358-370.

Cho, H.C., Ramirez, M.D., (2016), "Foreign Direct Investment and Income Inequality in Southeast Asia: a Panel Unit Root and Panel Cointegration Analysis, 1990–2013*", Atlantic Economic Journal*, Vol. 44, pp. 411–424.

Choi, C. (2006), "Does foreign direct investment affect domestic income inequality?", *Applied Economics Letters*, Vol. 13, No. 12, pp. 811-814.

Fazaalloh, A. M. (2019), "Is foreign direct investment helpful to reduce income inequality in Indonesia?". *Economics and Sociology*, Vol. 12, No. 3, pp. 25-36.

Franco, C., & Gerussi, E. (2013), "Trade, foreign direct investments (FDI) and income inequality: Empirical evidence from transition countries", *The Journal of International Trade & Economic Development: An International and Comparative Review*, Vol. 22, No. 8, pp. 1131-1160.

International Monetary Fund (2016), *The Role of Emerging Markets in a New Global Partnership for Growth*. www.imf.org/news/articles/2015/09/28

Jensen, N. M., Rosas, G. (2017), "Foreign Direct Investment and Income Inequality in Mexico, 1990–2000", *International Organization*, Vol. 61, No. 03, pp. 467–487.

Josifidis, K., Supic, N., Doroskov, N., (2020), "Foreign Direct Investment and Income Distribution: Evidence from Post-Communist New EU Member States", *Eastern European Economics*, Vol. 58, No. 6, pp. 497-516.

Imran Khan, I., Zuhaba Nawaz, Z. (2019), "Trade, FDI and income inequality: empirical evidence from CIS", *International Journal of Development Issues*, Vol. 18, No. 1, pp. 88-108.

Herzer, D., Hühne, P., Nunnenkamp, P. (2014), "FDI and Income Inequality—Evidence from Latin American Economies", *Review of Development Economics*, Vol. 18, No. 4, pp. 778–793.

Lessmann, C. (2013), "Foreign direct investment and regional inequality: A panel data analysis", *China Economic Review*, Vol. 24, pp. 129-149.

Lin, S-C., Kim, D-H., Wu, Y-C. (2013), "Foreign direct investment and income inequality: Human capital matters", *Journal of Regional Science*, Vol. 53, No. 5, pp. 874-896.

Majeed, M.T. (2017), "Inequality, FDI and economic development: evidence from developing countries", *The Singapore Economic Review*, Vol. 62, No. 5, pp. 1039-1057.

Ravallion, M. (2019), "Global inequality when unequal countries create unequal people", *European Economic Review*, Vol. 111, pp. 85-97.

Thompson, S. (2020), "Investment opportunities in Emerging markets", *Global Banking & Finance Review*, https://www.globalbankingandfinance.com/investment-opportunities-in-emerging-markets/

Tsai, P-L. (1995), "Foreign Direct Investment and Income Inequality: Further Evidence", *World Development*, Vol. 23, No. 3, pp. 469-483.

Ucal, M., Haug, A.A., Bilgin, M. H. (2015), "Income inequality and FDI: evidence with Turkish data", *Applied Economics*, Vol. 48, No. 11, pp. 1030-1045.

VNU-WIDER. (2020), *World Income Inequality Database*, https://www.wider.unu.edu/project/ wiid-world-income-inequality-database

Wong, M.Y.H. (2016), “Globalization, spending and income inequality in Asia Pacific”, *Journal of Comparative Asian Development,* Vol. 15, No. 1, pp. 1-18.
Wilson, D., Stupnytska, A. (2007), *The N-11: More Than an Acronym,* Global Economics Paper No. 153, Goldman Sachs.
Wu, J-Y., Hsu, C-C. (2012), “Foreign direct investment and income inequality: Does the relationship vary with absorptive capacity?”, *Economic Modelling*, Vol. 29, pp. 2183-2189.
World Bank. (2020), *World Development Indicators*, https://data.worldbank.org/indicator