The Impact of Foreign Direct Investment on Income Inequality and Growth in South Korea

Wonjae Hwang[*] and Jungin Jo[**]
University of Tennessee and Sookmyung Women's University

Abstract

Does Foreign Direct Investment (FDI) exacerbate income inequality in South Korea? If so, does rising income inequality come for the sake of economic growth? This study explores the impact of FDI on income inequality and growth in South Korea. To this end, we collect data on FDI and income inequality/economic growth at both national and provincial levels and empirically test their relationships in South Korea. The empirical results confirm our expectation that FDI magnifies income inequality. Furthermore, we fail to find a positive relationship between FDI and economic growth, implying that income inequality as a consequence of FDI does not come for the sake of economic growth in Korea. Findings suggest that more systematic research and nuanced policy design is necessary to circumvent the mechanisms at play that link the surge of FDI inflows and the exponential expansion of economic inequality.

Keywords

Foreign Direct Investment (FDI), Brown Field Investment, Income Inequality, South Korea, Economic Growth

  * Associate Professor, Department of Political Science, University of Tennessee, Knoxville. Email: whwang@utk.edu.

** Professor, Division of Global Cooperation, School of Global Service, Sookmyung Women's University, Email: junginc@sm.ac.kr.

Ⅰ. Introduction

Many of the conventional frameworks of FDI have scrutinized the association between FDI inflows and income inequality at the aggregate level, taking for granted that the surge of FDI in developing countries is associated with economic growth and narrows economic inequality (Jensen and Rosas 2007; Te Velde 2003; Kim and Trumbore 2010; Rosenau 2002). Curiously, the literature is mixed, and findings are contested. Whether the surge of FDI narrows income inequality in the recipient developing country remains largely controversial and unresolved. As income inequality has continuously risen in South Korea (Korea hereafter) in recent years, efforts to find out causes and remedies of rising inequality have been made. Income inequality in Korea (urban area) measured by Gini index has risen over time from 1980 to 2016. In synchronization with the rise of economic inequality, the importance of FDI and the role of accumulated FDI stock in the Korean economy has also continuously expanded. Surprisingly, few studies have examined the link between foreign direct investment (FDI) and income inequality in Korea, considering that a significant volume of FDI has flowed to Korea and generated significant effects on the economy. An important question here is whether FDI is responsible for rising income inequality in Korea.

Theoretical arguments and the empirical findings on the impact of FDI inflows on income inequality have become more controversial and far from conclusive. Two competing perspectives on the link between FDI and income inequality have complicated the highly inconsistent results. On the one hand, FDI reduces income inequality by brining extra capital

into the recipient country and increasing the returns to labor (Jensen and Rosas 2007; Te Velde 2003). By promoting economic growth, FDI may indirectly decrease income inequality (Kim and Trumbore 2010; Rosenau 2002). On the other hand, the pessimistic perspective argues that FDI disadvantages unskilled labor (Feenstra and Hanson 1997) or the agricultural sector and thus deteriorates wage inequality and income distribution (Basu and Gauriglia 2007). By strengthening the leverage of multinational corporations (MNCs) vis-à-vis local governments and labor unions, FDI may create negative environments for equal distribution of wealth (Kaufman and Segura-Ubiergo 2001; Levitsky 2003). Despite the importance of FDI in accounting for income inequality and various conditions that may differently affect the link across countries, relatively few studies have investigated the case of Korea.

Meanwhile, recent studies report (Basu and Guarglia 2007; Yang and Greaney 2017) that FDI may affect both income inequality and economic growth simultaneously. If FDI promotes both inequality and economic growth, income inequality can be perceived as a necessary condition for economic growth, as the Kuznets curve suggests (Kuznets 1955). On the other hand, if rising income inequality is not accompanied with economic growth, this implies that FDI has limited welfare effects on the recipient country. Therefore, it is theoretically and practically critical to understand whether FDI makes a trade-off between income inequality and economic growth. The contribution this study makes to the literature is twofold. First, by examining the impact of FDI on both income inequality and economic growth in Korea, it evaluates whether there is a trade-off between income inequality and economic growth in terms of FDI effects on the Korean economy. Particularly, by measuring income inequality in

four different ways, this study offers various ways to evaluate changes in inequality.

One of the limitations in previous studies is that most previous scholarship has overlooked the importance of exploring the link between FDI and income inequality/economic growth at sub-country level. As Jensen and Rosas (2007) point out, evaluating the link at the country level suffers from serious econometric problems. Since there are big variations across different regions in a country, analyzing the link at the country level is likely to produce incomplete and biased understanding. In this regard, the second contribution this study makes is to analyze the impact of FDI on the economy at the provincial level as well as at the national level in Korea.

The empirical results confirm our expectation that FDI increases income inequality in Korea. Furthermore, we fail to find any significant relationship between FDI and economic growth, implying that income inequality as a consequence of FDI does not come for the sake of economic growth in Korea. Despite the prominence of Merge and Acquisition (M&A hereafter) and brown field investment exacerbating downsizing, divestiture, labor market conditions, stagnant wages, and redistribution of income at the critical juncture of enduring economic inequality, it is striking that the empirical nexus between FDI and inequality is poorly understood in Korea. This is a surprisingly curious omission given that the investment commitment from the European Union, the United States, and China to Korea has rapidly increased over time since the 1997 Asian financial crisis. Findings suggest that more systematic research and nuanced policy design is necessary to circumvent the mechanisms at play that link the surge of FDI inflows and the exponen- tial expansion of economic inequality.

II. FDI and Inequality

As Figure 1 shows, the post-tax Gini index value was below 0.27 before 1997 in Korea. After the 1997 financial crisis, however, the index value had continuously increased up to 0.32.
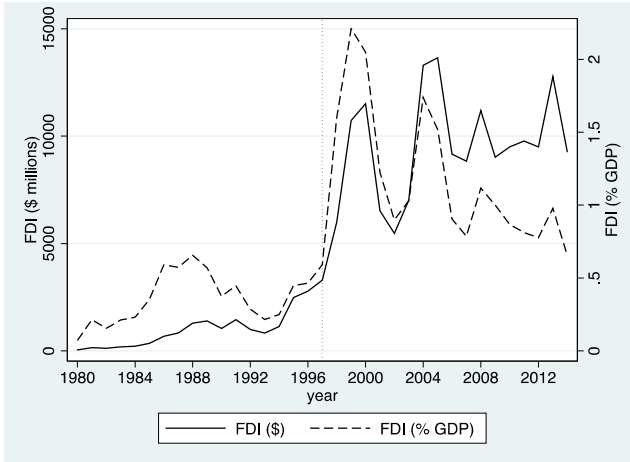
Figure 1. GINI index in South Korea (Urban, household)[†]
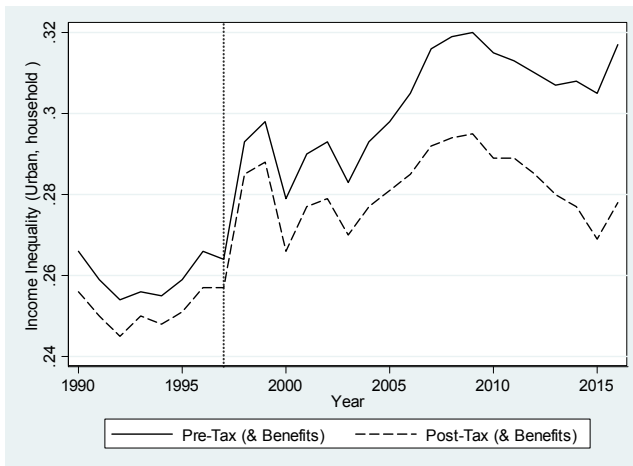
[†] Data comes from Korean Statistical Information Service (2019).

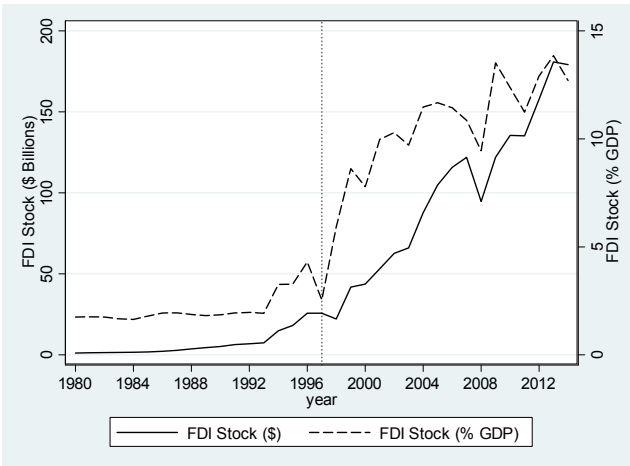As Figures 2 and 3 show, the importance of FDI in the Korean economy has also risen over time. In terms of its absolute volume, FDI has increased over time particularly after 1997. Since 2015, the volume has stayed above 10 billion US dollars per year, reaching about 17.9 billion in 2017. Figure 3 demonstrates that the level of accumulated FDI stock in the Korean economy has also consistently increased.

Figure 2. FDI inflows to South Korea[†]

Figure 3. FDI Stock in South Korea[†]

With respect to the relationship between FDI and income inequality, there are two contending theoretical perspectives: optimistic and pessimistic. Both perspectives focus on two factors as driving forces of income inequality: global market forces and domestic institutions (Bradley et al. 2003; Jensen and Rosas 2007). The optimistic perspective claims that FDI as an external market force reduces income inequality by brining additional capital into the recipient country and thus diminishing returns to domestic capital owners but increasing returns to skilled or unskilled labor hired by MNCs (Jensen and Rosas 2007). Moreover, MNCs tend to pay a wage premium over domestic firms to their employees, thus contributing to the reduction of income inequality (Moran 1998; Te Velde 2003). Jensen and Rosas (2007) report that increased FDI inflows reduce income inequality within Mexico's thirty-two states. Further empirical argument supports that FDI inflows decrease income inequality in Asia-Pacific Economic Cooperation (APEC) economies (Ravinthirakumaran & Ravinthirakumaran 2018).

In addition, FDI can reduce income inequality indirectly by promoting economic or democratic development. Economic growth generates extra resources to be used to address income inequality. According to the arguments of the climb to the top effect or the neoliberal school (Greenhill et al. 2009; Richards et al. 2001), FDI is often considered as a way to facilitate knowledge exchange, technology transfer, the creation of employment, as well as a way to improve labor productivity and market competitiveness and thus economic growth (Li 2008; Li and Liu 2005), while reducing the extent of poverty and promoting more equitable and balanced growth (Alfaro, Chanda, Kamemli-Ozcan and Sayek 2004; Cuadros, Orts, and Alguacil 2004).

It is also argued that FDI improves press freedom (Dutta and Roy 2009), empowers citizens against markets and governments (Kim and Trumbore 2010; Rosenau 2002), or improves labor or human rights (Greenhill et al. 2009; Guthrie 2006; Vogel 2005). For example, Kim and Trumbore (2010) and Richards and his colleagues (2001) report that FDI is positively associated with human rights conditions in host countries and government respect for physical integrity and political rights. By producing active and autonomous market players and encouraging political liberalization, FDI can contribute to an equal distribution of wealth in a society.

Meanwhile, the pessimistic perspective argues that FDI in fact deteriorates wage inequality and income distribution (Bucholz et al. 2009; Gissinger and Gleditsch 1999; Pan-Long 1995; Reuveny and Li 2003). Since FDI tends to employ skilled labor and goes to industries with advanced technologies, FDI mostly benefits skilled labor (Frieden 1991). By increasing wages of skilled labor relative to unskilled labor (Feenstra and Hanson 1997) or reducing the share of agricultural sector to GDP in the recipient (Basu and Guariglia 2007), FDI can magnify income inequality. High international competition enhanced by FDI often entails labor-market volatility and growth in the informal sector of the economy (Scheve and Slaughter 2005). The growth in part-time employment[1] in these countries (Buddelmeyer et al. 2005) is one of the indicators of this trend. In this situation, unskilled labor is compelled to take up part-time employment and/or informal sector employment, which results in a widening wage gap between skilled and unskilled workers (Reuveny and Li 2003). In a

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1) Part-time employment is defined as people in employment, whether employees or self-employed, who usually work less than 30 hours per week in their main job.

similar context, a recent study reports that FDI increases income inequality in developed countries, while it decreases income inequality in developing countries (Nguyen 2021).

In a similar context, 'the race to the bottom' argument explains that high competition in a globalized world economy generates pressures on countries to lower their labor standards or implement business-friendly policies in order to provide favorable business conditions for investors and remain competitive in global markets (Collinsworth, Goold, and Harvey 1994; Mosley and Uno 2007). The issue is that local governments often offer too much investment incentives to foreign firms, which surpass the benefits that foreign investments can generate to local economies (James 2010; Thomas 2011). Incentives for foreign investors include low corporate tax rates, tax holidays, subsidies, and other types of business inducements. For example, Johnson et al. (2013) report that investment incentives provided in Brazil, Germany, India, and the US cost them about $200,000 per job created by foreign investments, which is cost-ineffective.

In addition, FDI can strengthen the power of MNCs vis-à-vis local governments and labor unions, creating negative environments for low income workers (Kaufman and Segura-Ubiergo 2001; Levitsky 2003; Murillo 2001). Foreign investors increasingly utilize the threat to exit and outsourcing as a tool to leverage investment friendly tax and labor policies against local governments[2] (Haggard and Maxfield 1996). Since labor

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2) It is also true that in some cases in particular when the size of sunk costs of investment is large and the investment is not easily mobile, foreign investors may not enjoy much control power of the investment and thus lose much of their bargaining power with host governments (Kobrin 1980). However, considering that most foreign investment in Korea

costs are still seriously considered as an important factor that affects investment locations (Friedman, Gerlowski, and Silberman 1992; World Bank 2005), governments are incentivized to lower labor costs to attract foreign investment by limiting collective labor rights such as strikes and bargaining power of labor unions (Sexton 1991). Moreover, financial market liberalization has undermined the redistributive agenda of the left and weakened the political power of labor unions (Hwang and Down 2014; Levitsky 2003; Levitsky and Way 1998; Murillo 2001).[3] Growing international competition forces governments to cut labor costs by reducing social spending programs to improve domestic firms' competitiveness in the international market, thus weakening the concept of welfare state (Swank 1998; Rudra 2002).

In sum, these contenting perspectives indicate that, in order to assess the relationship between FDI and income inequality, it is important to examine economic, social, and political conditions in each country. In addition, not all regions within a country are attractive destinations of foreign investment. Due to differences in economic, political, and social conditions, the size of FDI inflows varies across different regions within a country. By ignoring variations in the size of FDI inflows and structural differences across sub-national regions, we are likely to get incomplete or biased understanding of the link between FDI and inequality. Thus, it is critical to explore the link between FDI and income inequality at the sub-country level (Jensen and Rosas 2007).

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is not made on natural resources such as oil and that foreign investment is relatively mobile, it can be said that foreign investors enjoy relatively strong bargaining power with the Korean government.

3) Relatedly, Ha (2012) reports that FDI increases income inequality in developing countries but such effects are mitigated under political leadership of leftist governments.

III. FDI and Inequality in South Korea

As discussed above, the relationship between FDI and income inequality can be evaluated largely by two factors: whether or not FDI benefits unskilled labor as well as skilled labor and whether FDI contributes to economic growth and/or democratic development.

1. FDI and Unskilled Labor

With respect to the first factor, it is hard to say that FDI has benefited unskilled labor in Korea in recent years. In comparison to developing countries like Mexico (Jeansen and Rosas 2007), Korea has continuously increased the share of capital-intensive items in the total exporting products. Also, Korea's exports are concentrated on the manufacturing sector such as automobiles, cell phones, and semi-conductors (Hwang 2017).[4] This implies that Korea's international trade is likely to benefit workers in capital-intensive industries, mostly skilled workers, rather than unskilled workers in labor-intensive industries. Likewise, FDI inflows are likely to be concentrated on capital-intensive industries, benefiting mostly skilled labor and thus contributing to wage inequality. If we look at Figure 4, this point is confirmed.

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[4] The share of top seven biggest exporting items in the total export has continuously increased from less than 50 percent in 1980s to 77 percent in 2010 (Hwang 2017).

Figure 4. Changes in the Size of the Middle Class in South Korea[†]
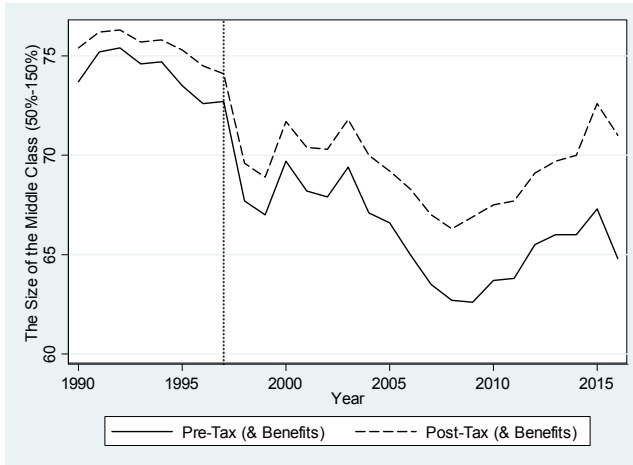
† The middle class is defined as a class of people who earns 50 percent to 150 percent of the median income in the country. Data comes from Korean Statistical Information Service (2019).

The figure shows changes in the size of the middle class[5] from 1980 to 2016. The size of the middle class has decreased over time, implying that more people belong to a class lower than the middle class. This figure implies that rising income inequality in Korea is caused by decreases in the size of the middle class.

Increases in part-time employment contribute to the shrinking middle class to some extent. The part-time employment rate increased from 4.33 percent in 1996 to 13.46 percent of employment in 2011 in Korea. With respect to temporary employment,[6] although the size has declined in

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5) In this paper, the middle class is defined as a class of people who earns 50 percent to 150 percent of the median income in the country.
6) Temporary employment includes wage and salary workers whose job has a pre-determined termination date.

recent years, for example, from 27.34 percent in 2005 to 20.62 percent in 2017 in Korea, the temporary employment rate in Korea is still much higher than most of other OECD countries (e.g., the OECD mean is 11.24 percent). Another important indicator that shows labor workers' wage change is the unit labor cost index, which measures nominal wage/production per labor per month in manufacture sectors. Although this index is often viewed as a measure of price competitiveness, it also shows how much labor is paid for per unit of output produced. According to a report by Korea Productivity Center (2015), the unit labor cost index decreased from 120 in 1995 to about 100 in 2011.

In sum, these indicators show that unskilled labor in Korea has been worse off in recent decades based on "high employment protection for regular workers in big business at the expense of marginal workers without appropriate social protection" (Yang 2006: 205). These changes can be explained partly by variance of labor cost cut and labor market flexibility which are influenced by growing international competition and pressures from MNCs and business sectors.

2. FDI and Economic Development

If rising income inequality enhanced by FDI is positively associated with economic growth, income inequality may not be a serious distress to the host economy.[7] However, if rising income inequality is not associated with high economic growth, this implies that income inequality inequality as a consequence of FDI does not come for the sake of

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[7) However, since Korea has achieved a relatively high level of economic development, the so-called Kuznets-curve effects cannot properly explain rising income inequality in Korea in recent decades.

economic growth. In this case, FDI can only magnify the perpetuation of widening income inequality (Girling 1973). How does FDI affect economic growth?

In the case of Korea, many scholars primarily adopted the conventional approach taking for granted that FDI is one of the major economic pillars driving the Korean economy. FDI can serve as a channel through which advanced technology and managerial skills can be transferred to the host economy, promoting economic growth. However, some scholars have challenged the validity of the positive nexus between FDI and economic growth, suggesting, "Throughout Korea's economic development, FDI has played a negligible role" (Kim and Hwang 2000: 284). Kim and Hwang (2000) argue that FDI does not have a positive effect on productivity based on the aggregate data in six manufacturing sectors, food, textiles and clothing, chemicals and petroleum, metals, and machinery, and electrical and electronics from 1974 to 1996 in Korea.

One of the key reasons why FDI is unlikely to contribute to economic growth in Korea is because the main type of FDI inflows is mergers and acquisitions (M&A). From Figures 1 and 4, we notice that the 1997 Asian financial crisis was a critical juncture that drove dramatic increases in income inequality and the decline of middle class in Korea. Interestingly, right after the 1997 financial crisis, the volume of FDI also surged to a great extent, as shown in Figures 2 and 3. The synchronization of the 1997 Asian financial crisis and the explosion of FDI demonstrates two things with respect to the link between FDI and economic growth. First, the financial crisis created opportunistic environments for foreign investors. As part of conditions of the IMF loans, the Korean government imple-mented structural adjustment policies by opening financial capital markets,

deregulating foreign investments, and promoting further privati- zation. These changes have increased FDI inflows but at the same time have weakened the government and labor vis-à-vis multinational corporations.

Second, it is striking that the type of FDI came to Korea after the financial crisis was mostly brown-field investment (mainly M&A) rather than green-field investment. Green field investment to serve for long-term strategic purpose such as establishing a manufacturing facility or securing distribution channels was insignificant in comparison. In other words, the main purpose of FDI was not to establish new physical facilities and operations but to purchase existing ones. According to United Nations Conference on Trade and Development (UNCTAD) report (2017), Korea received about $0.5 billion of M&A in 1996. However, the volume of M&A increased significantly to about $4 billion in 1998 and $10.5 billion in 1999. Between the late 1990s and 2003, M&A increased remarkably and monopolized foreign investment in Korea. A wave of fire sales and takeovers of Korean companies by American and other foreign corporations surged when Korean policymakers signaled the further opening of capital market and liberalized cross-border M & A and foreign acquisition of Korean firms. The explosion of brown field investment and FDI "has to do with exploitation of financial distress of local firms, not the greater productive skills of the buyers" (Shin, Acharya, and Yorulmazer 2011: 167). The new surge of the foreign acquisitions and fire sales stretched diverse sectors from automobiles to paper companies and banking. Although the share of M&A in the total FDI inflows to Korea has declined in recent years, M&A is still the dominant form of foreign investment in Korea. For example, M&A explain about 59 percent in 2014 and 72.4 percent in 2015 of the total FDI in Korea.

Since the primary goal of transnational M&A is to acquire the host country's existing resources or organizational and technical skills (Klimek 2011), this type of investment may be weakly associated with productivity of the overall economy or economic growth (Calderón, Loayza, and Servén 2004). This is because M&A sales in many cases do not expand the host country's capital stock but just represent rents accruing to previous owners (Harms and Méon 2018). Harms and Méon (2018) find that transnational M&A have no significant effects on economic growth, while green-field investment enhances it. With respect to the employment effects of M&A, scholars report that this type of investment has a negative impact on employment (Conyon, Girma, Thompson, and Wright 2002; Lehto and Böckerman 2008). For example, in their study of 442 mergers occurred in United Kingdom between 1967 and 1996, Conyon et al. (2002) report that the average employment reduction was 19 percent for related mergers, while it was 8 percent for unrelated mergers.

In particular, if transnational M&A are significantly motivated by cost savings through economies of scale, this type of investment is likely to lead to downsizing and reduced employment. In addition, since transnational M&A are often motivated by the desire of foreign firms to exploit local firms' complementary capabilities including technical know-how, patent rights, and undervalued assets caused by financial crises (Nocke and Yeaple 2007), this investment is followed by transfer of technologies and managerial skills from local to foreign firms, radical restructuring, mass layoffs, and 'asset stripping' (Ahmadjian and Robbins 2005; Chang 2008; Meyer and Estrin 2001). Ahmadjian and Robbins (2005) show that an increase in foreign portfolio investment in the Japanese firms between 1991 and 2000 produce downsizing and asset divestiture.

Furthermore, the Korean government's capacity to regulate foreign investment has diminished over time due to increased international competition and deregulation trends at the international level. The proliferation of bilateral investment treaties (BITs) and the agreement on the trade related investment mechanisms (TRIMs), which ban host governments' imposition of certain investment requirements such as local content requirement and foreign exchange restriction, have complicated governments' efforts to promote economic growth or welfare policy by weakening their negotiation strength over investment contracts.

Evaluating the link between FDI and democratic development is hard to be done. Nevertheless, by examining the origin of FDI, we can get an idea about how FDI is associated with democratic development. That is, if foreign investment comes from countries that maintain higher democratic standards and welfare policy than does Korea, positive spillover effects can be expected, as the climb to the top argument suggests. On the other hand, if FDI comes from countries that have lower levels of democratic development than Korea, it is unlikely that foreign investment generates positive spillover effects on the Korean society.

Between 1985 and 2013, the biggest foreign investor to Korea was the US, explaining about 28.6 percent of the total FDI inflows (Hwang 2017). However, the amount of FDI from developing countries such as China and Malaysia has continuously increased in recent years. For example, foreign investment from OECD explained about 82.3 percent of the total FDI inflows in Korea in 2001. The share declined to 60 percent in 2010 and 52 percent in 2020 (Minister of Trade, Industry and Energy 2021). In this regard, FDI is unlikely to generate positive effects on democratic development in Korea.

In sum, we argue that as FDI inflows increase, income inequality is likely to increase in Korea. We also expect that FDI does not promote economic growth. To test our arguments, we set up the following hypotheses.

Hypothesis 1. Holding others constant, as FDI inflows increase, income inequality is likely to increase in Korea.

Hypothesis 2. Holding others constant, FDI inflows to Korea are not likely to promote economic growth.

Ⅳ. Research Method

To test the hypotheses, we examine yearly observations in Korea from 1990 to 2016. In addition, we test the hypotheses at eight different provinces from 2000 and 2017.[8] The main dependent variable is income inequality. To measure income inequality, we utilize four different methods: Gini coefficients, income quintile scale factor, relative poverty rate, and the middle class size. These measures have been frequently used as indicators of income inequality in previous studies. Gini coefficients measure the distribution of income among people. A Gini coefficient of zero expresses perfect equality, while a Gini coefficient of one indicates maximal inequality among people. Income quintile scale factor is a ratio between the average income among the top 20 percent of population

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8) Due to limited data availability, we cannot collect data from all sixteen provincial-level divisions. Eight provincial regions include Seoul, Incheon, Pusan, Kyunggi, Chungnam, Jeonbuk, Kyungnam, and Jeju.

with the highest income and the average income among the bottom 20 percent of population with the lowest income. The relative poverty rate is the percentage of population who earn less than 50 percent of the median income. The middle class size is the percentage of population who earn more than 50 percent but less than 150 percent of the median income. By utilizing all these measures, this study offers various ways to evaluate changes in inequality. Income inequality data comes from Korean Statistical Information Service (2019).

Another dependent variable in the second hypothesis is economic growth. Economic growth is measured in two ways at the national level, annual GDP growth rate and annual GDP per capita growth rate, and in one way at the provincial level, gross regional domestic product (GRDP). Data on these variables at the national level comes from OECD (2019). Data at the provincial level comes from Statistics Korea (2019).

The key explanatory variable is FDI inflows to Korea. We measure FDI inflows in two ways: the volume (a natural logged form of $ current US millions) and the share of GDP. In addition, since FDI by definition is a long-term investment, it can stay in a country in multiple years. To explain the impact of accumulated FDI on income inequality, we include FDI stock in two ways: the volume (a natural logged form of $ current US billions) and its share of GDP. FDI data comes from UNCTAD (2017) and Statistics Korea (2019).

Income inequality may have a time-serial trend. To control for the potential autocorrelation issue, we include a lagged term of the dependent variable in all models.[9] Economic performance can be associated with

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9) The augmented Dickey-Fuller unit root tests show that the inequality variable in some

FDI inflows and also affects income inequality. To control for economic performance at the national level, we include GDP per capita.[10] A natural logged form of this variable is used. OLS regression with robust (Huber-White) standard errors is used for all models. It is possible that inequality in a recipient may also affect FDI inflows (Jensen and Rosas 2007). The existence of reverse causality may cause biased and inconsistent estimates of the model. To deal with this potential endogeneity issue, we employ an instrumental variable method with the two-stage least-squares (2SLS) regression as a robustness test. A good instrumental variable should be a strong predictor of FDI inflows but not theoretically associated with inequality in a recipient. As an instrument for FDI, we utilize the inter-capital geographical distance between Korea and the twenty richest economies in the world weighted by their GDP per capita, which is well known as a good instrument for FDI (Pinto and Zhu 2016).[11] To save space, we do not report the results in this paper. But, the results remain virtually the same.

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models follows a unit-root process. To address a high order of autocorrelation, we estimated our models using Newey-West standard errors with four lags of autocorrelation as a robustness test. The substantive results remained the same.

10) To control for the effects of the 1997 financial crisis on inequality, we also include a dummy variable for the years of 1997 and 1998 in the models. The results remain virtually the same.

11) The remoteness variable is calculated by the sum of the inverse of bilateral inter-capital distance between Korea (*i*) and one of the twenty richest countries (*j*) multiplied by its GDP per capita (based on purchasing power parity, constant 2011 international dollars).

V. Results and Implications

As Table 1 shows, FDI inflows in terms of both the dollar value and as a percentage of GDP have significant positive effects on Gini coefficients. As the volume of FDI increases from its 10 percentile value (about $1 billion) to it 90 percentile value (about $12.7 billion), the Gini coefficient is likely to increase by about 0.022. Considering that the Gini coefficient in the sample ranges from 0.254 to 0.32 (the mean value is 0.291), this is a significant impact. FDI stock variables have the same effects.

Table 1. The Impact of FDI on Income Inequality (Gini Coefficients), 1990–2016[†]

	Model 1.1	Model 1.2	Model 1.3	Model 1.4
Gini_1	0.5644***	0.6279***	0.5049***	0.4762**
	(0.1244)	(1.0000)	(0.1514)	(0.1995)
FDI	0.0087**			
	(0.0037)			
FDI (% GDP)		0.0081*		
		(0.0046)		
FDI Stock			0.0161***	
			(0.0056)	
FDI Stock (% GDP)				0.0029**
				(0.0012)
GDP Per Capita	0.0048	0.0142**	-0.0185	-0.0031
	(0.0086)	(0.0053)	(0.0135)	(0.0088)
Constant	0.0061	-0.0349	0.1483	0.1580
	(0.0516)	(0.0383)	(0.0879)	(0.0991)
N	25	25	25	25
R-Squared	0.874	0.861	0.886	0.88
F-statistics	147.58***	93.01***	187.75***	176.12***

[†] OLS (ordinary least squares) estimation with robust (Huber-White) standard errors: standard errors in parentheses; two-tailed tests; ***$p \leq 0.01$, **$p \leq 0.05$, *$p \leq 0.10$

When we measure income inequality by using the income quintile scale factor, FDI flows appear not to have statistically significant effects on income inequality. However, FDI stock variables still show very strong positive relationships with income inequality, as shown in Table 2.

Table 2. The Impact of FDI on Income Inequality (Income Quintile Scale Factor: IQSF), 1990–2016 †

	Model 2.1	Model 2.2	Model 2.3	Model 2.4
IQSF_1	0.7785*** (0.0936)	0.8059*** (0.0872)	0.7534*** (0.1008)	0.7088*** (0.1245)
FDI	0.1540 (0.1001)			
FDI (% GDP)		0.1422 (0.1303)		
FDI Stock			0.2898** (0.1245)	
FDI Stock (% GDP)				0.0560** (0.0215)
GDP Per Capita	0.1149 (0.3032)	0.2824 (0.2131)	-0.3140 (0.4163)	-0.0138 (0.2889)
Constant	-1.2880 (2.0343)	-1.8365 (1.6981)	1.1368 (2.7123)	1.1339 (2.4841)
N	25	25	25	25
R-Squared	0.927	0.923	0.932	0.932
F-statistics	172.64***	146.97***	243.93***	321.89***

† OLS (ordinary least squares) estimation with robust (Huber-White) standard errors: standard errors in parentheses; two-tailed tests; ***$p \leq 0.01$, **$p \leq 0.05$, *$p \leq 0.10$

Similar results are found in the analysis of the link between FDI and poverty level changes in Table 3. As FDI inflows or FDI stock increase, the percentage of people who live less than 50 percent of the median

income is likely to increase. For instance, an increase of FDI inflows from its 10 percentile to 90 percentile value one will increase the percentage of population who earn less than 50 percent of the median income by about 1.7 percent.

Table 3. The Impact of FDI on Income Inequality (Relative Poverty Rate), 1990−2016[†]

	Model 3.1	Model 3.2	Model 3.3	Model 3.4
Poverty_1	0.6694*** (0.1543)	0.7177*** (0.1309)	0.6173*** (0.1542)	0.5758*** (0.1804)
FDI	0.6733* (0.3843)			
FDI (% GDP)		0.6470 (0.4825)		
FDI Stock			1.3588** (0.5006)	
FDI Stock (% GDP)				0.2653*** (0.0934)
GDP Per Capita	0.6467 (1.1072)	1.3008 (0.9299)	-1.3273 (1.3418)	-0.0654 (1.0409)
Constant	-7.9308 (8.5846)	-9.5793 (7.7022)	2.6944 (9.2203)	3.5243 (8.9216)
N	25	25	25	25
R-Squared	0.917	0.913	0.927	0.929
F-statistics	117.31***	111.03***	142.8***	206.52***

[†] OLS (ordinary least squares) estimation with robust (Huber-White) standard errors: standard errors in parentheses; two-tailed tests; ***$p \leq 0.01$, **$p \leq 0.05$, *$p \leq 0.10$

In terms of the impact of FDI on the size of the middle class, as the volume of FDI inflows and stock increases, the size of the middle class is likely to reduce. As the volume of FDI increases from its 10 percentile

to it 90 percentile value, the size of the middle class is likely to reduce by about 3.8 percent.

Table 4. The Impact of FDI on Income Inequality (the Middle-Class size), 1990-2016[†]

	Model 4.1	Model 4.2	Model 4.3	Model 4.4
Middle-Class_1	0.6302*** (0.1231)	0.7051*** (0.1040)	0.6357*** (0.1590)	0.6955*** (0.1848)
FDI	-1.5239** (0.6598)			
FDI (% GDP)		-1.3830 (0.8241)		
FDI Stock			-2.3358** (1.0555)	
FDI Stock (% GDP)				-0.3201 (0.1973)
GDP Per Capita	-0.1880 (1.3827)	-1.6977 (1.0936)	3.2830 (2.3039)	0.9140 (1.5720)
Constant	40.066** (17.709)	37.593** (16.580)	18.553 (18.880)	14.599 (20.852)
N	25	25	25	25
R-Squared	0.899	0.889	0.897	0.885
F-statistics	102.80***	90.76***	142.54***	146.01***

[†] OLS (ordinary least squares) estimation with robust (Huber-White) standard errors: standard errors in parentheses; two-tailed tests; ***$p \leq 0.01$, **$p \leq 0.05$, *$p \leq 0.10$

These results generally support our theoretical expectation. FDI promotes income inequality probably by increasing the gap between skilled and unskilled labor and reducing the size of the middle class. At the provincial level, we are able to collect data only on the relative poverty rate from eight different provincial regions. Table 5 shows the results. In both fixed and random effects models, FDI does not have significant

effects on income inequality in terms of the relative poverty rate.

Table 5. The Impact of FDI on Inequality (Relative Poverty Rate) at the provincial level, 2000–2017[†]

	Model 5.1 (Fixed Effects)	Model 5.2 (Random Effects)
Poverty_1	0.720*** (0.121)	0.936*** (0.026)
FDI_1	-0.0001 (0.0002)	-0.0002 (0.0002)
GRDP Per Capita	0.0000 (0.0001)	-0.0000 (0.0003)
Unemployment	0.0011 (0.0011)	0.0005 (0.0003)
Growth	-0.0002 (0.0006)	-0.0002** (0.0001)
Constant	0.0049 (0.0079)	0.0030 (0.0035)
N	81	81
No. of Provinces	8	8
F-statistics	12.25***	2.52

[†] OLS (ordinary least squares) estimation with robust (Huber-White) standard errors: standard errors in parentheses; two-tailed tests; ***$p \leq 0.01$, **$pp \leq 0.05$, *$pp \leq 0.10$

Tables 6 and 7 show the test results of the second hypothesis at the national level. As expected, FDI appears not to promote economic growth in any model. Instead, in general, FDI inflows and stock variables are likely to have negative effects on GDP or GDP per capita growth in Korea. For instance, an increase of FDI inflow from its 10 percentile to it 90 percentile value, GDP growth rate is likely to decrease by about 4.55 percent.

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Table 6. The Impact of FDI on Economic Growth (GDP Growth), 1990–2016[†]

	Model 6.1	Model 6.2	Model 6.3	Model 6.4
GDP Growth_1	-0.1217 (0.3328)	0.0616 (0.3018)	-0.1698 (0.2516)	-0.2288 (0.2503)
FDI	-1.8180** (0.8575)			
FDI (% GDP)		-0.6573 (1.9407)		
FDI Stock			-1.6971** (0.7620)	
FDI Stock (% GDP)				-0.4887** (0.1844)
Constant	21.5363** (8.8159)	5.4624** (2.3703)	24.577** (9.746)	10.660*** (3.104)
N	25	25	25	25
R-Squared	0.155	0.019	0.198	0.227
F-statistics	3.94**	0.08	3.32*	4.74**

[†] OLS (ordinary least squares) estimation with robust (Huber-White) standard errors: standard errors in parentheses; two-tailed tests; ***$p \leq 0.01$, **$p \leq 0.05$, *$p \leq 0.10$

Table 7. The Impact of FDI on Economic Growth (GDP Per Capita Growth), 1990–2016[†]

	Model 7.1	Model 7.2	Model 7.3	Model 7.4
GDPPC Growth_1	-0.1342 (0.3214)	0.01667 (0.2995)	-0.1755 (0.2515)	-0.2254 (0.2516)
FDI	-1.5697* (0.7658)			
FDI (% GDP)		-0.5544 (1.8579)		
FDI Stock			-1.4721* (0.719)	
FDI Stock (% GDP)				-0.4204** (0.1742)
Constant	18.634** (7.723)	4.897** (2.155)	21.302** (9.105)	9.154*** (2.851)

	Model 7.1	Model 7.2	Model 7.3	Model 7.4
N	25	25	25	25
R-Squared	0.125	0.009	0.165	0.188
F-statistics	3.10*	0.05	2.55	3.61**

[†] OLS (ordinary least squares) estimation with robust (Huber-White) standard errors: standard errors in parentheses; two-tailed tests; ***p ≤ 0.01, **p ≤ 0.05, *p ≤ 0.10

Table 8. The Impact of FDI on Economic Growth (GRDP) at the provincial level, 2000−2017[†]

	Model 8.1 (Fixed Effects)	Model 8.2 (Random Effects)
Economic Growth_1	-0.094 (0.132)	0.256 (0.195)
FDI_1	-0.012 (0.253)	-0.182 (0.236)
GRDP Per Capita	-0.136 (0.059)	0.011 (0.034)
Unemployment	0.659 (0.576)	0.130 (0.398)
Constant	5.805 (4.083)	4.528 (3.548))
N	81	81
No. of Provinces	8	8
F-statistics	1.72	2.52

[†] OLS (ordinary least squares) estimation with robust (Huber-White) standard errors: standard errors in parentheses; two-tailed tests; ***p ≤ 0.01, **p ≤ 0.05, *p ≤ 0.10

Table 8 also shows that FDI does not promote economic growth at the provincial level. FDI has a negative impact on economic growth, although statistically insignificant.

These findings are very striking. Unlike the conventional wisdom shared by most scholars and policy makers, it appears that foreign investment

does not contribute to the Korean economy. While FDI promotes income inequality, it does not generate positive effects on economic growth. Rising income inequality is not always a bad indicator of the economy in particular in developing countries. However, if income inequality is driven by the shrinking middle class and not accompanied with economy growth, it poses a serious threat to the economy.

The results imply that the link between FDI and income inequality needs to be examined carefully case by case. Since each country is unique in its economic or social conditions such as factor endowments, labor skill levels, economic development, and domestic political conditions, the driving factors of FDI and its main type could vary across countries. Consequently, FDI can be detrimental to the host economy in terms of its effects on income inequality and/or economic growth.

Ⅵ. Conclusions

The Korean government has pursued financial liberalization policy, expecting that such liberalization in foreign direct investment market would generate positive effects on the economy. However, this study shows that FDI promotes income inequality in various channels. The results also show that FDI is not positively associated with economic growth.

If FDI does not promote economic growth, then why do governments around the world compete for FDI? There are two possible explanations. First, policy decisions may be driven more by ideological belief than

economic analyses of the benefits and costs FDI can bring about. If investment market policy is driven too much by ideological belief or fervor, governments tend to overlook necessary conditions to be ready to maximize benefits and minimize costs of FDI before hosting it. Second, relatedly, governments tend to ignore different types of FDI (e.g., greenfield vs. brownfield FDI) and their diverse effects on the economy. Not all types of foreign investment are beneficial to the economy. The nature and motive of foreign investment are vastly different across firms, countries, and regions. In this regard, further studies will benefit by examining different types of FDI and their effects on income inequality in Korea. In addition, efforts to find out detailed causal mechanisms through which FDI negatively affects the Korean economy would be necessary.

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