

**FDI INFLOWS, FDI POLICY LIBERALIZATION,
AND INCOME INEQUALITY IN EAST ASIA**

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ABSTRACT

Over the period 1980 – 2015, foreign direct investment (hereafter FDI) has become more significant in connecting East Asia and the global market. Meanwhile, income inequality has been growing in this region. Although existing literature has achieved noticeable progress in identifying the inequality-inducing effect of FDI inflows both theoretically and empirically, evidence is still inconclusive. This dissertation contributes to the scholarship by providing new time-series evidence from East Asia confirming the inequality-inducing effect of FDI inflows. But this dissertation makes another important contribution by introducing FDI policies to the scholarship. By employing the nested analysis approach, this dissertation sheds light on how FDI policy liberalization conditions the distributional effect of FDI inflows. Time-series cross-section analyses indicate that FDI inflows have deteriorated income inequality in East Asia, and this relationship is conditional on FDI policy liberalization. Liberalized FDI policies intensify the inequality-inducing effect of FDI inflows.

Building on case studies on China and Korea, I demonstrate that the conditional effect of liberalized FDI policies can be achieved via two channels: regional distribution and sectoral distribution of FDI inflows. The Chinese case shows that an increasingly equal regional distribution of FDI inflows due to policy liberalization leads to rising income inequality. The Korean case indicates that when liberalized policies open more economic sectors to foreign investors, FDI inflows become more skewed toward service sectors, also resulting in growing income disparities. Thus, the positive relationship between FDI

inflows and income inequality is not merely an economic phenomenon, but rather a joint product of political and economic forces.

As FDI policy liberalization becomes a dominant policy paradigm, and FDI inflows continue to be a significant way of economic integration between East Asia and the world, income gaps are likely to further deteriorate in this region. How to make FDI inflows more beneficial to society has become a pressing issue for the governments in this region.

Keywords: FDI Inflows, FDI Policy Liberalization, Income Inequality, East Asia

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List of Abbreviations

CJV	Contractual Joint Enterprise
CV	The Coefficient of Variation
NBS	National Bureau of Statistics of China
ECMs	Error Correction Models
EJV	Equity Joint Enterprise
FCIPA	The Foreign Capital Inducement and Promotion Act, Korea
FDI	Foreign Direct Investment
FIE	Foreign-invested Enterprise
FIPA	The Foreign Investment Promotion Act, Korea
FTZ	Free Trade Zone, Korea
IMF	International Monetary Fund
KOSIS	Korean Statistical Information Service
LNA	Large-N Analysis
MOF	Ministry of Finance, Korea
OECD	Organization for Economic Cooperation and Development
SEZ	Special Economic Zone, China
SNA	Small-N Analysis
SWIID	The Standardized World Income Inequality Database
TSCS	Time-series Cross-sectional
UNCTAD	United Nations Conference on Trade and Development
USD	United States Dollar (Currency)
V-Dem	Varieties of Democracy Project
WFOE	Wholly Foreign-Owned Enterprise
WTO	World Trade Organization

Chapter One Introduction

Background and Research Questions

Since the 1980s, globalization has made nations more closely connected. As an increasingly significant component of globalization (Goldberg & Pavcnik, 2007), FDI inflows have been grown remarkably. This tendency is particularly influential in East Asian developing countries. According to the United Nations Conference on Trade and Development (hereafter UNCTAD)¹, only 7.16 percent of global FDI flew into East Asian developing countries in 1980, but the share increased to 21.39 percent in 2015. Over the past four decades, East Asia has received an increasing portion of global FDI inflows, even though noticeable declines occurred in the first few years after the Asian Financial Crisis of 1997.

In the meantime, this region has witnessed an upward trend of within-country income inequality sweeping across nations, based on findings from the World Inequality Report of 2018² and data from the Standardized World Income Inequality Database (hereafter SWIID). Widening income inequality has attracted considerable attention from both scholars and policymakers. Scholars have distinguished two stages of income inequality, that is, market inequality and net inequality. The main difference is that market inequality refers to the distribution of pre-tax and pre-transfer incomes, while net inequality accounts for government taxes and transfers (Solt, 2020). Given that FDI inflows have more direct influence on market inequality, this dissertation makes use of the market Gini index from the SWIID to indicate income inequality.

¹ Author's calculations based on FDI data from the UNCTAD. Data can be accessed at <https://unctadstat.unctad.org/wds/TableViewer/tableView.aspx?ReportId=96740>.

² World Inequality Report Executive Summary 2018 can be accessed at <https://wir2018.wid.world/files/download/wir2018-summary-english.pdf>

Do FDI inflows affect income inequality in East Asia? The parallel tendencies of growing FDI inflows and rising income inequality suggest a positive answer. Yet, evidence from this region is still sparse. A considerable size of literature has examined the distributional effect of FDI inflows in a broader scope, that is, developing countries in the world. Although there are still debates, many recent studies found that FDI inflows lead to an escalation in income inequality. Three mechanisms are proposed to link FDI inflows and rising income inequality: enterprise-based wage premiums, skill-based wage premiums, and wage polarization between occupations within service sectors³. This dissertation is to identify whether the inequality-inducing effect of FDI inflows is also present in East Asia. In this part, I contribute to the ongoing scholarship by providing new time-series evidence.

However, this dissertation moves beyond a simple confirmation of the relationship between FDI inflows and income inequality in East Asia. Most previous studies on the distributional effect of FDI inflows have been largely conducted through the lens of economics, leaving little room for the influence of the government. In these studies, it appears that the distributional effect of FDI inflows is a purely economic phenomenon. I contend this perspective by arguing that the distributional effect of FDI inflows is not a purely economic phenomenon, but rather a joint product of political and economic forces. More specifically, I propose that FDI policies are deeply involved in the distributional process of FDI inflows. Inspired by previous studies, I propose a synthesized theoretical framework linking FDI inflows, FDI policies, and income inequality. FDI policies do not directly shape income distribution, but rather intensify or mitigate the inequality-inducing effect of FDI inflows by influencing regional and sectoral distribution of FDI inflows.

³ A detailed discussion of these three mechanisms are presented in Chapter Two.

The second part of my analyses on East Asia is to demonstrate the impact of FDI policies on the distributional effect of FDI inflows based on statistical and historical evidence from this region.

Therefore, this dissertation aims to answer the following questions: Do FDI inflows affect income inequality in East Asia? Do FDI policies influence the distributional effect of FDI inflows? If so, how? Both FDI inflows and FDI policies have been investigated separately in the literature of globalization and neoliberalism. This dissertation aims to bridge these two scholarly lines and provide a more comprehensive picture of how governments are involved in the distributional effect of FDI inflows.

Research Design: Nested Analysis

To answer my research questions, I employ the nested analysis approach proposed by Lieberman (2005). Nested analysis is a synthetic approach combining large-N analysis (hereafter LNA) and small-N analysis (hereafter SNA). As the first step of nested analysis, LNA is used to examine the applicability of theories and the corresponding hypotheses. Then, SNA is exercised to verify and collaborate on the validity of the theories confirmed by LNA or develop new theories when statistical evidence does not support theories proposed in LNA. This integrated approach of LNA and SNA is expected to maximize their potentials of theory-development and to improve the validity of causal inference, according to Lieberman.

Based on the framework of nested analysis, this dissertation consists of two parts: time-series cross-sectional analysis (hereafter TSCS analysis) and case study. By serving the function of LNA, TSCS analysis examines the relationship between FDI inflows and the involvement of FDI policies in this relationship. Data analyzed in this part come from a variety of public data sources and

government bureaus of statistics. The dataset covers nine high and low middle-income countries/territories in East Asia in 1980, as defined by the World Bank: Hong Kong, Indonesia, the Republic of Korea (hereafter Korea), Malaysia, Philippines, Singapore, Taiwan, and Thailand (The World Bank, 1980). Although the People's Republic of China (hereafter China) was still a low-income country in 1980, it is included in this dissertation because its connection with the world via FDI and trade has expanded remarkably over the past few decades. China is often treated as an outlier, which needs to be excluded from cross-national studies. I challenge this practice based on my statistical analyses reported in Chapter Three. Although the Chinese case is found to be influential in some cases, statistical results do not fundamentally change due to inclusion or exclusion of it. The results of statistical analyses not only reveal that FDI inflows are harmful to equal income distribution, but also indicate that the government is not absent in the relationship between FDI inflows and income distribution. More specifically, it shows that FDI policy liberalization exacerbates the inequality-inducing effect of FDI inflows.

To illustrate how FDI policy liberalization has affected first FDI inflows and then income inequality, I conduct case studies on China and Korea. The analyses are reported in Chapter Four and Chapter Five, respectively. These two nations are selected based on three reasons: how well they fit statistical models, the variation in FDI policy liberalization, and data availability. First, these two cases provide contextual knowledge to confirm the conditional effect of FDI policies. Lieberman (2005) suggests that in this case, the selection of cases should be based on whether they are well predicted by statistical models. After running TSCS models, residuals are imputed to show how well each country fits the statistical models. In general, the Korean case performs better fitness with relatively smaller residuals, while China has larger residuals. Although the Chinese case does

not meet this criterion suggested by Lieberman, I argue that if analysis on a case, which does not well fit the regression line, still offers some support for a particular causal model or theory, the validity of that model or theory may be fairly high. Thus, it is still meaning to select China. Second, these two countries have witnessed the largest changes regarding FDI policies in East Asia, which fit the second criterion set by Lieberman (2005). Rapid changes in FDI policies are reflected in the *de jure* financial globalization index from the KOF dataset indicates. With FDI policies as a major component⁴, this policy index in China has increased by 34.68 points between 1980 and 2015, while the change in Korea is the second largest, although smaller, with a value of 25.20 points over the same period. Such noticeable policy changes make them the candidates from which we can draw lessons. Third, my choice of these two cases is also dictated by data constraints due to the need of time-series analysis. Publicly accessible data about these two nations cover longer time spans than those from other nations.

Case studies on China and Korea reveal that FDI policy liberalization leads to rising income gaps via two channels: greater regional openness and sectoral openness toward service sectors. The analyses on China emphasize the impact of a wider distribution of FDI inflows on income inequality, while the Korean case provides more evidence highlighting the importance of sectoral distribution of FDI inflows. How relevant are these findings to other countries? I argue that these two channels are important in understanding the consequences of liberalized FDI policies in the entire region of East Asia and more broadly other regions as well.

First, regional distribution of FDI inflows is not unique to China as one of the largest and the most diverse countries in the world. As the case study of China shows, FDI policy liberalization

⁴ I provide more details of this index in Chapter Three.

in China resulted in greater regional openness to foreign investors and then more equal distribution of FDI inflows across provinces. Although FDI policies in other countries may not open or close certain regions to foreigners as China did before, regional distribution of FDI inflows is not immune to government policies in East Asia. To reduce poverty and achieve ethnic equality, the Malaysian government has tried to use FDI and other economic tools to narrow economic gaps between more developed states and less developed states (Abdul Karim & Fleming, 2012; Hassan, 2004). In the Philippines, government investment in special economic zones, highways, and ports is found to be influential in regional allocation of FDI. Government influence on regional allocation of FDI is also found to be present in contexts outside East Asia. For example, Bobonis and Shatz (2007) found that in the United States, unitary taxation and state foreign offices influence the location of FDI across states, even though general investment incentives seem to be less influential. It is also suggested that government spending, particularly those on education, health, and infrastructure, could affect the location of foreign investment in the United States (Coughlin et al., 1991; Kandogan, 2012), the United Kingdom (Fallon & Cook, 2010), Turkey (Deichmann et al., 2003), and Spain (Villaverde & Maza, 2012).

Second, the trend of increasing FDI inflows to service sectors has been present in East Asia and the developing and developed countries in other areas. According to a report published by the UNCTAD in 2003⁵, service sectors have surpassed manufacturing sectors in receiving inward FDI in both developing and developed countries since the 1990s. In the early 2000s, service sectors have received around 60 percent of the global FDI inflows, while the share of manufacturing sectors declined from 40 percent in 1990s to 35 percent in 2003. My case study Korea confirms

⁵ The report can be found at <https://unctad.org/en/pages/PressReleaseArchive.aspx?ReferenceDocId=4238>.

this sectoral shift. In other East Asian economies examined in this dissertation, this tendency is also present (Negara & Firdausy, 2011; Sussangkarn et al., 2011). The 2008 World Investment Report⁶ by the UNCTAD shows that the shares of service sectors in Indonesia, Malaysia, Philippines, Thailand, and Vietnam have been larger than the shares of manufacturing since the early 2000s. According to the UNCTAD report published in 2003⁷, one reason that contributed to the growth of FDI in services was greater sectoral openness in all kinds of economies. Thus, with an emphasis on sectoral distribution of FDI inflows, the findings from my case study of Korea are of great relevance to other East Asian economies and more broadly other regions.

Arguments in Brief and Contributions

My analyses conclude that FDI inflows have become an influential driving force of rising income gaps between 1980 and 2015 in East Asia. Statistical results indicate that FDI inflows exacerbate income inequality both in the short and long terms. But this relationship is by no means immune to the influence of FDI policies. FDI policies are found to be a contributor to rising income inequality. When FDI policies become more liberal, the inequality-inducing effect of FDI becomes more pronounced. I argue that this conditional effect of FDI policies is materialized through two channels: regional distribution and sectoral distribution of FDI.

Case studies on China and Korea provide details linking FDI policy liberalization, FDI inflows, and growing income gaps. My analyses demonstrate that China's policy openness to FDI has led to an increasingly equal regional distribution of foreign capital across provinces. Rising significance of FDI inflows in the local economies intensifies the inequality-inducing effect of FDI

⁶ The report can be found at https://unctad.org/en/Docs/wir2008_en.pdf.

⁷ The report can be found at <https://unctad.org/en/pages/PressReleaseArchive.aspx?ReferenceDocId=4238>.

inflows. As for the Korean case, sectoral distribution of FDI inflow is more influential. As policy restrictions began to be eased in the early 1990s, service sectors became more accessible to foreign investors. Since then, most FDI inflows have been received by service sectors. This trend continued after the drastic policy liberalization following the 1997 Financial Crisis. This sectoral shift of FDI inflow alters income distribution. As more FDI flows into service sectors, wage differentials produced by FDI inflows become more influential, resulting in widening income gaps.

This dissertation makes three important contributions to the ongoing debates on the distributional effect of FDI inflows. First, this dissertation provides new evidence, particularly time-series evidence, to the literature on East Asia. Previous studies on East Asia fall short of providing comprehensive empirical evidence on the relationship between FDI inflows and income inequality. Income distribution in this region began to attract scholarly attention in the late 1970s. Back then, scholars and practitioners were particularly interested in how Korea and Taiwan could have achieved the so-called “growth with equity” (Fei et al., 1979; Ranis, 1978; Rao, 1978). A smaller size of recent literature, which began to study East Asia as a whole, is weak in providing empirical evidence showing how FDI inflows are associated with income inequality. In his paper, Feng (2011) studied four East Asian cases including China, Japan, Korea and Taiwan, but he only proposed explanatory factors such as more equitable wages in large-scale manufacturing and public education to explain the trends of income inequality in these four cases. Chi and Kwon (2012) provided a broader review of existing theories on income inequality from political, economic, and demographic perspectives, although there are only two cases, namely Korea and Taiwan, in their study. However, for some reason, they tested the correlation between income inequality and each explanatory variable derived from theories separately. It is difficult to assess

whether FDI has more explanatory power than other factors. One of the earliest studies on the distributional effect of FDI inflows in less-developed countries by Tsai (1995) found that only the region of East Asia appears to be harmed by FDI inflows during the 1970s. There were eight less-developed countries covered in Tsai's study: Hong Kong, Indonesia, Korea, Malaysia, the Philippines, Singapore, Taiwan, and Thailand. This dissertation expands this scholarship by adding China to the sample and covering a much longer time span from 1980 to 2015. In particular, I employ time-series techniques to gauge the short- and long-term effects of FDI on income inequality. Time-series evidence from my analyses will help us obtain more comprehensive understanding of the distributional effect of FDI inflows.

Second, this dissertation offers evidence showing how FDI policies are involved in the relationship between FDI inflows and income distribution. A considerable size of literature has discussed the relationship between FDI inflows and income inequality across nations. But the influence of government is largely missing or implicitly examined. Even though the literature of developmental state has documented that East Asian governments are influential in their economic development and globalization (Amsden, 1992; Haggard, 1990; Rodan, 2016; Stubbs, 2009; Wade, 2004; Woo-Cumings, 1999), studies on the distributional effect of FDI inflows in East Asia still largely overlook the influence of government (An & Bosworth, 2013; Fields, 1994; Fields & Yoo, 2000). This dissertation explicitly examines the influence of government via FDI policies. I demonstrate how liberalization of FDI policies has first altered the extent to which East Asia is integrated into the world economy and then shaped income distribution. I conclude that the distributional effect of FDI inflows is not only determined by economic forces, but also shaped by policies forces.

Third, this dissertation not only provides time-series evidence showing the relationship between FDI policy liberalization and income inequality, but also explores how policy liberalization shapes income distribution. A growing literature has focused on the statistical assessment of the distributional effect of FDI policies under the name of neoliberalism and economic freedom. My analyses follow this scholarly line and confirm the deleterious effect of FDI policy liberalization. But this dissertation moves beyond just confirmation. How policy liberalization shapes income distribution comprises an important part of this dissertation. Building on existing findings on FDI inflows and income inequality, I argue that FDI policy liberalization intensifies the inequality-inducing effect of FDI via regional distribution and sectoral distribution. An equal regional distribution of FDI inflows reinforces enterprise-based and skill-based wage premiums, and more FDI into service sectors amplifies wage polarization between occupations within service sectors. With increasingly liberalized policies, these two mechanisms become more pronounced, leading to growing income inequality. My analyses on these two mechanisms enrich our understanding of how policy liberalization conditions the inequality-inducing effect of FDI inflows.

The second and third contributions jointly offer a new theoretical way of understanding globalization and neoliberalism. On the one hand, the scholarship on the distributional effect of globalization has largely overlooked or implicitly examined the impacts of policy liberalization. On the other hand, since the early twenty-first century, a growing literature has discovered the adverse effects of neoliberal policies on income distribution (Alfredo Filho & Johnston, 2005; Davis-Hamel, 2012; Huber & Solt, 2004; Johnston, 2005; Stiglitz, 2002). However, the mechanisms between liberalized policies and income distribution are not yet fully unfolded. This

dissertation proposes a more comprehensive way by combining these two scholarly lines. In my synthesized theoretical framework, I argue that policy liberalization does not directly shape income distribution, but rather indirectly affects income distribution by influencing the distribution of FDI inflows across geographies and sectors. The distributional outcomes of neoliberalism are a combination of economic and policies forces. The inequality-inducing effect of FDI inflows results from three economic mechanisms: enterprise-based wage premiums, skill-based wage premiums, and wage polarization between occupations within service sectors. These mechanisms become more pronounced when policy liberalization creates greater regional openness and a sectoral shift favoring service sectors. By investigating income inequality through the lens of economic forces and policy forces, this dissertation provides a more comprehensive theoretical approach for future studies on globalization and neoliberalism.

The Organization of This Dissertation

This dissertation is arranged as follows. In Chapter Two, I first review the research on FDI inflows and income inequality. A considerable size of literature has examined how FDI inflows contribute to income inequality, but empirical evidence is still inconclusive. This dissertation provides new time-series evidence from East Asia, confirming the inequality-inducing effect of FDI inflows. Moreover, I argue that the relationship between FDI inflows and income inequality is not immune to the influence of the government. Inspired by previous studies, I propose that FDI policy liberalization conditions the inequality-inducing effect of FDI inflows. A synthesized theoretical framework is proposed to bring FDI policy liberalization to the ongoing debates on FDI inflows and income inequality.

To estimate the relationship between FDI inflows and income inequality and the conditional effect of FDI policy liberalization, I employ TSCS estimators, specifically error correction models (hereafter ECMs), to analyze data collected from various public sources and government statistics bureaus. Results are presented in Chapter Three. Results show that FDI inflows have contributed to growing income inequality over the period 1980 – 2015. But this relationship between FDI and income inequality is not purely economic. I find that FDI policy liberalization also contributes to rising income inequality in East Asia. More specifically, more liberal FDI policies intensify the inequality-inducing effect of FDI inflows.

To demonstrate how FDI policies, particularly liberal measures, have altered the allocation of FDI and then led to rising income gaps, I conduct case studies on China and Korea. Analyses are presented in Chapter Four and Chapter Five, respectively. A historical review of FDI policies in both countries shows how policy liberalization has created opportunities for FDI inflows to spread across geographies and economic sectors. Time-series analyses on these two nations further provide evidence showing regional and sectoral distribution of FDI matters for income distribution. An equal regional distribution of FDI inflows and FDI inflows to services are detrimental to equal income distribution. When combining the results of policy reviews and time-series analyses, I conclude the FDI policy liberalization indirectly affects income inequality by shaping regional and sectoral distribution of FDI. Although policy liberalization may not directly cause an escalation in income inequality, it intensifies the inequality-inducing effect of FDI.

Lastly, in the concluding chapter, namely Chapter Six, I first provide a summary of the findings from statistical analyses and case studies and explain how these findings contribute to the literature. I also discuss two limitations of this dissertation regarding the measurement of FDI

policies and case studies on China and Korea. Theoretical and practical implications are drawn to conclude this dissertation.

Chapter Two Literature Review and Theoretical Framework

As an increasingly significant component of globalization, FDI refers to the investment that allows foreigners to control assets in the host country (Huang, 2003). The influence of FDI inflows on income inequality in the developing world has been widely studied (e.g. Alderson & Nielsen, 2002; Beer & Boswell, 2002; Evans & Timberlake, 1980; Goldberg & Pavcnik, 2007; Mahutga & Bandelj, 2008; Tsai, 1995). Early studies propose that FDI inflows create economic opportunities and increase returns to labor based on traditional trade theories (Leamer & Levinsohn, 1997; Stolper & Samuelson, 1941), resulting in narrower income gaps between the haves and the have-nots. In contrast, most recent studies have found evidence that FDI perpetuates, rather than mitigates, income inequality. The details of these two strands of literature are presented in the first section of this chapter. The ambiguity of the relationship between FDI inflows and income inequality requires empirical evidence. This dissertation provides new time-series evidence from East Asia to this ongoing scholarship.

But this dissertation moves beyond just providing new evidence of the relationship between FDI inflows and income inequality. This dissertation also aims to bring FDI policies to the scholarship. Existing literature has achieved significant progress on developing theoretical arguments and collecting empirical evidence regarding the distributional effect of FDI inflows. However, the influence of government is largely implicitly examined, if not overlooked, in previous studies. To fill this gap, my analyses add FDI policy liberalization to the fast-growing literature. A detailed summary is provided in the second section.

In the third section, I develop a synthesized theoretical framework incorporating FDI policies and FDI inflows. I argue that FDI policy liberalization conditions the distributional effect of FDI

inflows. Liberalized FDI policies affect how FDI inflows are allocated across geographies and sectors in receiving countries. Improvements in regional openness and sectoral openness to FDI are hypothesized to amplify the inequality-inducing effect of FDI inflows, leading to rising income inequality. The relationship between FDI inflows and income inequality is a joint product of economic and policy forces.

I close this chapter with a review of alternative theories on income inequality, which will be controlled in statistical analyses reported in Chapter Three. These theories explaining income inequality have been proposed from political, economic, and sociodemographic perspectives. Potentially influential factors that need to be controlled include regime institutions, government education spending, international trade, economic development, unemployment rate, the elderly population, and education attainment.

FDI Inflows and Income Inequality: Theories and Empirical Evidence

The distributional effect of FDI inflows in the developing world has been under heated debates (e.g. Beer & Boswell, 2002; Bornschier & Ballmer-Cao, 1979; Bornschier et al., 1978; Mahutga & Bandelj, 2008). One strand of the literature states that FDI inflows equalize income distribution due to growing economic opportunities for workers, diminishing returns to capital, and increasing returns to workers. In contrast, another strand of literature points out the adverse effect of FDI inflows. Rather than being an income equalizer, foreign capital exacerbates income inequality via several mechanisms, which are explained in detail below. The complex relationship between FDI and income inequality makes empirical studies in great need. Yet, a consensus has not been reached.

On the one hand, for scholars who emphasize the inequality-reducing power of FDI inflows, they argue that foreign investment equalizes income distribution by providing economic opportunities for unskilled workers or for those who would not otherwise have them (Jensen & Rosas, 2007; Obstfeld, 1998; Stern & Barua, 1994). This argument aligns with traditional trade theories based on the Stolper–Samuelson theorem in the Heckscher–Ohlin model (Leamer & Levinsohn, 1997; Stolper & Samuelson, 1941). When FDI inflows concentrate in labor-intensive sectors in countries with abundant unskilled or low-skilled workers, they raise the relative demand for these workers and hence drives up wages for them, resulting in narrower wage gaps between skilled and unskilled/low-skilled workers. By investigating the subnational units of Mexico between 1990 and 2000, Jensen and Rosas (2007) found increasing FDI inflows are associated with decreases in income inequality. Both diminishing returns to capital and rising returns to labor contribute to the convergence of the incomes of workers and capital holders. This theoretical prediction, however, is found to be inapplicable to East Asia. By examining five East Asian countries/political entities including Korea, Hong Kong, the Philippines, Singapore, and Thailand over the period 1985 – 1998, Te Velde and Morrissey (2004) did not obtain evidence supporting the inequality-reducing effect of FDI inflows. In addition, they found FDI inflows have intensified income inequality in Thailand, after controlling domestic factors including wage setting and supply of skills.

On the other hand, there is a growing size of literature concluding that FDI inflows perpetuate income inequality in the developing countries. Three mechanisms are proposed to link FDI inflows and income inequality. First, FDI inflows create income differentials between foreign-invested enterprises (hereafter FIEs) and domestic (or indigenous) enterprises. Due to the advantages of

abundant capital, advanced technology, and higher productivity, FIEs can generate more profits and pay higher salaries to their employees, especially skilled workers, compared to their domestic counterparts. Three other reasons are also proposed to explain why FIEs pay higher wages: higher cost for labor due to government restrictions or the segmented labor market, internal fairness policies to reduce income disparities between FIEs and branches in other nations, reducing labor turnover and then preventing intangible and firm-specific assets like managerial skills from leakage (Chen et al., 2011). Empirically, the existence of a foreign wage premium is fairly consistent in existing literature in developing and developed countries (Aitken et al., 1996; Beer & Boswell, 2002; Chen et al., 2011; Feliciano & Lipsey, 2006; Girma et al., 2001; Lipsey & Sjöholm, 2004; Moran, 1998, 2002). For example, Chen et al. (2005) found FIEs in China offer much higher wages than domestic enterprises based on the analyses on a Chinese household survey conducted in 1995. It may be questioned that whether higher wages offered by FIEs are attributed to industries and urban areas where FIEs are located. But even after controlling these industrial and location characteristics, a foreign wage premium is still present and significant as reported in existing studies (Te Velde, 2003).

Second, skill biases of international capital have appeared in many works on FDI inflows and income inequality. Goldberg and Pavcnik (2007) noticed that the rising demand for skilled workers is broadly associated with increasing flows of international capital. Studies on Latin America and East Asia also document rising demands for skilled workers due to growing FDI inflows (Feenstra & Hanson, 1997; Te Velde & Morrissey, 2004; Te Velde, 2003). Rising demand for skilled workers first drives up wages for this group of workers and then increases income gaps between them and their unskilled peers. For example, Feenstra and Hanson (1997) showed that growth in

FDI inflows significantly contributed to larger wage shares of skilled labor by increasing the demand for skilled labor during the 1980s in Mexico.

Third, a small group of literature argues that FDI generates larger income gaps through service sectors. This mechanism relies on the heterogeneity of service sectors. Evans and Timberlake (1980) pointed out that service sectors cover a wide range of occupations from rich doctors and lawyers to poor domestic servants. Bogliaccini and Egan (2017) further developed this reasoning by distinguishing services sectors with high and low skill requirements. When FDI flows into service sectors that require high skills, the need for skilled labor drives up wage premiums for skilled labor. When FDI enters service sectors with low skill requirements, foreign investors may reform the previous labor contracts by forcing former employees into informal employment. Combining the effects of FDI on these two types of service sectors, expansion in service sectors is accompanied with a more polarized structure of occupations and associated wages. Thus, increasing FDI inflows into services are likely to result in rising income gaps. Based on the analyses on 60 middle-income countries over the period 1989 – 2000, Bogliaccini and Egan (2017) concluded that FDI inflows in services, compare than FDI inflows in other sectors, are more likely to exacerbate income disparities.

Although the aforementioned three mechanisms are not always directly tested, empirical evidence confirming that FDI inflows deteriorate income inequality has been discovered widely (e.g. Alderson & Nielsen, 1999; Basu & Guariglia, 2007; Beer & Boswell, 2002; Choi, 2006; Dixon & Boswell, 1996; Evans & Timberlake, 1980; Figini & Görg, 2011; Mahutga & Bandelj, 2008; Reuveny & Li, 2003; Taylor & Driffield, 2005; Tsai, 1995). For instance, Mahutga and Bandelj (2008) documented drastic increases in FDI inflows in Central and Eastern Europe and

found that these changes imposed a robust and positive effect on income inequality. Beer and Boswell (2002) employed a panel analysis of 65 nations during the period from the 1980s to the early 1990s. Their analyses show that foreign investment largely benefits the top 20 percent of the income-earning population over the poorer 80 percent. Basu and Guariglia (2007) also documented the differences in benefits generated by FDI inflows along the rich-poor line in their panel study of 119 developing countries.

Situating FDI Policies in Existing Debates

As I discussed above, the distributional effect of FDI inflows is a complex issue. Theoretical discussion and empirical analyses have received growing scholarly attention. Yet, existing studies have largely overlooked the role of government in shaping the distributional effect of FDI inflows. Although FDI is often treated as an economic phenomenon, governments are not absent from this process of economic integration. Some studies have investigated how governments are involved in attracting foreign capital. For example, policies, such as tax concessions, guarantees of profit repatriation, and easier procedures of laying off employees, are implemented to favor foreign capital (London & Robinson, 1989; O'Hearn, 1989).

A close examination of East Asia reveals how governments have utilized policy tools to promote FDI. For example, between the 1960s and 1970s, FDI into Korea was heavily restricted by the government due to top political leaders' concern of foreign control (Nicolas et al., 2013). Since the early 1990s, the Korean government began to proactively relax the previous restrictive FDI policies. China has also been proactive in attracting foreign investment by using various policies tools including removing restrictions, providing tax incentives, and streamlining approval

procedures (Fetscherin et al., 2010; Huang, 2003; Ng, 2013). In addition, ever since its independence, FDI has been a vital tool for the Malaysian government to develop its economy (Athukorala & Wagle, 2011). Since the late 1960s, the government policy agenda has placed great emphasis on attracting FDI inflows and allocating foreign capital to promote export-oriented manufacturing sectors. FDI has been part of the Malaysian national economic development plans with the goals of economic development and ethnic equality (Athukorala & Menon, 1996; Gomez & Saravanamuttu, 2013; Mohamad, 2005). Thus, FDI inflows not only indicate to what extent East Asia has been integrated into the global market, but also imply government influence in shaping globalization.

Inspired by the histories of economic development from countries in East Asia, this dissertation brings public policies, specifically FDI policies, to the scholarship. Studies on the distributional effect of FDI policies are often conducted under the name of neoliberalism. Neoliberalism, a broad and debate-provoking concept, is described as a political project that prioritizes a market-oriented economic system against state intervention in the market or any types of collective-oriented system including Keynesianism, welfare states, and planned economy (Tickell & Peck, 2003; Venugopal, 2015). Thatcherism and Reaganism are two widely known forms of neoliberalism found in the United Kingdom and in the United States. As many policy issues have been placed on the agenda by the advocates of neoliberalism¹, I primarily focus on liberalization of FDI policies.

¹ According to Peck and Tickell (2002, 167-8), these policy issues include: trade liberalization, financial liberalization, privatization of production, deregulation, foreign capital liberalization (eliminating barriers to foreign direct investment), secure property rights, unified and competitive exchange rates, diminished public spending (fiscal discipline), public expenditure switching (to health, schooling, and infrastructure), tax reform (broadening the tax base, cutting marginal tax rates, less progressive tax), a social safety net (narrowly targeted, selective transfers for the needy), and flexible labor markets.

Empirical examination of FDI policies and income inequality in a cross-national context has largely appeared in recent studies. Most of them have been conducted under the title of economic freedom, which consists of FDI policy liberalization, trade liberalization, and other market-oriented policy reforms. Although liberalization of FDI policies is not explicitly investigated in these studies, their findings may be applicable to FDI policies as their measures of economic freedom always comprise FDI policies. Similar to studies on FDI inflows, a consensus has not been reached regarding the relationship between FDI policy liberalization and income inequality.

On the one hand, FDI policy liberalization is found to be associated with severer income inequality. By comparing the levels of income inequality and changes in Gini index between 1982 and 1995, Huber and Solt (2004) pointed out the inequality-inducing effect of neoliberalism in Latin America. They found that higher levels of policy liberalization are associated with higher levels of income inequality and poverty, and more radical liberalization reforms are associated with rapid escalation in income inequality. By conducting a case study on Chile, Davis-Hamel (2012) demonstrated how policy reforms based on the orthodox neoliberalism had amplified income inequality from 1973 to 1990. Statistical analyses with broader regional coverage also confirm the inequality-inducing effect of FDI policy liberalization. By using the Economic Freedom Index (hereafter EFI)² covering 66 countries over the period 1975 – 1985, Berggren (1999) found that higher levels of economic freedom, particularly financial deregulation and trade liberalization, are associated with severer income inequality. A recent study by Bergh and Nilsson (2010) confirmed this positive relationship with more extensive coverage of high- and middle-

² The EFI data are accessible at <https://www.fraserinstitute.org/studies/economic-freedomf>.

income countries over the period 1970 – 2005. But they also note that the finding may result from a large share of developed countries in their sample.

Policy liberalization is not always found to be detrimental to equal income distribution. By employing a fixed-effects estimator in their analyses of 108 countries over the period 1971 – 2010, Sturm and De Haan (2015) found policy liberalization, measured by the EFI, exerts no impacts on income distribution. In addition, a non-linear relationship between economic freedom and income inequality is also proposed in studies. In their study of 138 countries between the 1960s and the 2010s, Apergis and Cooray (2017) proposed an inverted-U shape relationship, in which income inequality first increases and then declines after economic freedom passes a threshold of around 5.4 on a 0–10 scale.

A Synthesized Theoretical Framework

Inspired by the extensive literature on the distributional effect of FDI inflows and the growing literature on FDI policy liberalization, I propose a synthesized theoretical framework that combines FDI inflows and FDI policies. I argue that FDI policies do not directly alter income distribution, but rather condition the relationship between FDI inflows and income inequality in East Asia. Not only do FDI policies shape how much foreign investment is allowed to enter receiving countries, but they also influence how FDI inflows are allocated across geographies and sectors. Liberalization of FDI policies results in greater regional and sectoral openness, which intensify the inequality-inducing effect of FDI inflows.

On the one hand, with more regions open to foreign investors, FDI inflows become widely distributed across the host nation and then become a significant part of local economies with the nation. Due to enterprise-based and skill-based wage premiums, an increasing presence of FDI

inflows across exacerbates income inequality. Thus, FDI policy liberalization intensifies the inequality-inducing effect of FDI inflows via an equal regional distribution of foreign capital. Studies on China have long advocated for a more open investment environment to reduce regional inequality, which is defined as differences in economic development between provinces. This policy suggestion is based on the finding that the uneven distribution of foreign capital across provinces increases regional inequality (Frank, 1967; Stack, 1980; Zhang & Zhang, 2003). My analyses offer a different perspective. An equal regional distribution of FDI inflows due to more open policies exacerbates, rather than mitigates, income inequality. Although my argument is not incompatible with existing studies on regional inequality in China, it suggests that unfavorable distributional outcomes may occur due to increasingly liberalized policies.

On the other hand, with more economic sectors becoming accessible to foreign investors, service sectors become more popular than manufacturing industries by receiving large shares of FDI inflows. Due to the diversity within service sectors, rising FDI inflows drive up wages for skilled labor and decrease wage for unskilled labor, leading to a polarized wage structure within service sectors (Bogliaccini & Egan, 2017; Evans & Timberlake, 1980). With rising inflows of foreign capital into service sectors, wage differentials between service occupations become more pronounced, contributing to the overall income inequality.

In sum, the synthesized theoretical framework I propose bridges the two scholarly lines on the distributional effect of FDI inflows and FDI policies. I argue that there is a need to connect FDI policies with the mechanisms through which FDI increases income inequality. Prior studies have provided empirical support for the relationship between FDI policy liberalization and rising income inequality. But they do not explain how these two are connected. I suggest that FDI policy

liberalization amplifies the inequality-inducing effect of FDI inflows through regional distribution and sectoral distribution of FDI inflows. When the significance of foreign capital increases across geographies and economic sectors in host economies, the inequality-inducing effect of FDI inflows through enterprise-based wage premiums, skill-based wage premiums, and polarized wage structure within service sectors becomes more influential, resulting in rising income disparities.

Controlling Alternative Theories on Income Inequality

In Chapter Three, by using TSCS analysis, I examine how FDI inflows affect income distribution and how FDI policies are involved in this relationship. Scholars have achieved significantly advance in explaining income inequality. Explanations have been offered from political, economic, and sociodemographic perspectives. In this section, I provide a review of these alternative theories, which will be controlled in statistical analyses presented in the next chapter. Theories I review in this section are related to regime institutions, government education spending, international trade, economic development, unemployment rate, the elderly population, and education attainment.

1) Regime Institutions and Government Education Spending

Regime institutions have long remained at the center of the scholarship on income inequality, particularly in cross-national studies (For an overview of regime types and income inequality, check Acemoglu et al., 2015). Democratic regimes are conceived to be associated with lower income inequality from two perspectives. On the one hand, political elites seek political powers by gaining a wide range of support from ordinary citizens. To achieve that, elites need to use various ways, including policy decisions, to satisfy voters' need to then gain loyalty from them.

This mechanism is more likely to appear when the emergence of democratization is primarily attributed to (re)distributional issues (Acemoglu & Robinson, 2000, 2001, 2005; Boix, 2003; Meltzer & Richard, 1981). On the other hand, democratic institutions empower average citizens via political parties, elections, and social mobilization (Gradstein & Milanovic, 2004; Lee, 2005; Lenski, 2013; Muller, 1988; Rueschemeyer et al., 1992; Simpson, 1990). Based on these two perspectives, democracy is believed to equalize income distribution, especially when a country has a longer history of democratic experience (Muller, 1988).

In contrast to democracies, authoritarianism is conceived to be a type of regime that favors elites with unequal distribution of economic resources, benefits the powerful rich minority, and allocates fewer resources on the rest of society (Brown & Hunter, 1999). The aforementioned studies on democratic regimes largely confirm this expectation as they examine democratic regimes against authoritarian regimes. There is evidence, however, showing authoritarian regimes pursue relatively equal redistribution under certain circumstances. For example, Albertus (2015) challenged the conventional wisdom that democracy is more efficient on land redistribution. Based on the cross-national analyses on the agrarian reforms in Latin America, Albertus demonstrated that successful implementation of land reform necessitates the concentration of power, which is most often found under authoritarianism. Due to the effectiveness of enacting land reforms, inequality reduction becomes more plausible in authoritarian regimes. Albertus's work reminds us that the heterogeneity of authoritarianism deserves more careful consideration. It has been demonstrated that right authoritarianism would be associated with narrower income disparities (Huber et al., 2006; Schamis, 1991).

Although it is possible that certain authoritarian regimes could improve income distribution, I hypothesize that democratic institutions are more likely to impose pro-poor policies that mitigate the adverse effects of FDI such as income inequality (Dreher et al., 2008; Garrett, 2000; Kaufman & Segura-Ubiergo, 2001; Lee, 2005; Menendez, 2016). On the one hand, government policies, such as public investment in education and health (Barros et al., 2010; Esquivel et al., 2010; Kahhat, 2010; Morgan & Kelly, 2013) and improvements in basic infrastructure (Calderón & Chong, 2004; Trotter, 2016), directly affect the distribution of market incomes. On the other hand, redistributive policies, such as taxes and transfers, potentially affect income inequality in the long run as well. Not only does government redistribution provides immediate benefits to individuals and then equalizes the distribution of disposable incomes, but it only has implications on the distribution of market incomes over time. By influencing earning capacities of individuals and households, redistribution can also affect the future distribution of market incomes, which is called the second-round effects of redistributive policies (Anderson et al., 2017; Chu et al., 2000; Gregorio & Lee, 2002).

It is often argued that government spending on education reduces income inequality due to the accumulation of human capital. By receiving more education, individuals, especially the poor, improve their earning ability, which in result narrows income gaps. Under the circumstances of economic growth, government investment in education results in an equal distribution of the economic pie to society (Rudra, 2004). In their study on Latin America and the Caribbean, Morgan and Kelly (2013) showed that when government spending on education and health care reaches a relatively high level, economic growth leads to more egalitarian income distribution. The logic of the conditional effect of education spending on economic growth is also applicable to the

relationship between FDI and income inequality. As I discussed above, one mechanism, by which FDI intensifies income disparities, relates to rising demand for skilled labor due to increasing inflows of FDI. When the supply of skilled workers does not match the demand, wages for skilled labor rises, resulting in wider income gaps between groups with different skill levels. To increase the supply of skilled workers, government investment in education plays a vital role. Asian countries have long acknowledged the importance of education in economic development and have been significant in education provision (ADB, 2009; Haggard, 1990). It has been documented that East Asian governments have delivered more efforts on providing education, particularly primary and secondary education (Haggard & Kaufman, 2008; Lee & Francisco, 2012).

However, a growing literature, particularly those from economics, has provided evidence showing the adverse effects of education (Abdullah et al., 2015; Anderson et al., 2017). There is evidence showing that the urban middle-income groups in developing countries benefit most from government investment in education (Davoodi et al., 2003; Tanzi, 1974). This could happen in the expansion of both secondary and tertiary education. As for secondary education, children from disadvantaged backgrounds may still be in short of insufficient resources for the school or fall behind their peers due to weaker intellectual support from their parents. Furthermore, expansion in higher education seems to be disproportionately beneficial to high-income families (Blanden & Machin, 2004; Jimenez, 1986). Similar concerns appear in East Asia as well. Byun and Kim (2010) argued that government policies related to school choice and tracking in Korea contribute to higher education inequality, which in turn leads to widening income gaps. The expansion of higher education in China since 2000 has generated greater income gaps because of higher returns to

college graduates and rising spending differences between elite and mass universities (Carnoy, 2011).

2) Economic and Sociodemographic Explanations

Since the 1970s, trade liberalization has become a sweeping force in many developing countries (Goldberg & Pavcnik, 2007). With the removal of trade barriers, these countries are increasingly exposed to international markets. The distributional effects of international trade have been widely investigated by scholars, yet theories and empirical evidence are still ambiguous. There is little consensus on the relationship between international trade and income inequality.

On the one hand, international trade is argued to raise the returns to abundant factors of production according to the Stolper–Samuelson theorem in the Heckscher–Ohlin model (Leamer & Levinsohn, 1997; Stolper & Samuelson, 1941). This theorem suggests that in developing countries where labor, particularly unskilled labor, is relatively abundant, trade openness is expected to increase the return to labor, resulting in more equal income distribution. In contrast, in developed countries, where capital is the relatively abundant factor of production, trade liberalization is expected to bring higher returns to capital, leading to deterioration in income inequality. Thus, international trade is believed to have the ability to narrow income gaps (Adams, 2004; Beer & Boswell, 2002; Jensen & Rosas, 2007; Prechel, 1985; Reuveny & Li, 2003; Stack, 1980; Stolper & Samuelson, 1941; Tsai & Huang, 2007). This theory seems applicable to the early history of East Asia, thanks to abundant low-skilled labor in the 1970s and 1980s (Koo, 1984; Te Velde & Morrissey, 2004; Wood, 1995, 1997).

On the other hand, scholars have argued that international trade largely benefits skilled workers, instead of unskilled workers. Thanks to technological diffusion from developed countries to developing countries, rising demand for skilled labor increase wages premium between skilled-workers and unskilled-workers (Lee & Vivarelli, 2004; Meschi & Vivarelli, 2009). Instead of reducing income gaps, trade further penetrates income discrepancy between these groups of workers (Atkinson, 2001; Feenstra & Hanson, 2003; Forbes, 2000; Jensen & Rosas, 2007; Stiglitz, 1998). Another mechanism, through which trade increases income inequality, is that trade-participating firms offer a wage premium compared to non-participants (Egger & Kreickemeier, 2009; Helpman et al., 2017; Helpman et al., 2010).

Studies on economic growth have provided contradictory findings as well. After Kuznets's pioneering work on the inverted-U shape relationship between economic growth and income inequality (Kuznets, 1955), there have been numerous studies on this front (e.g. Acemoglu & Robinson, 2002; Fields, 1994; Gallup, 2012; Glaeser, 2008; Nielsen & Alderson, 1995). Studies on East Asia, however, have cast doubt on the applicability of the Kuznets Curve in this region. In particular, Korea and Taiwan are often treated as counter-examples or outliers against what Kuznets proposed (An, 2003; Chi & Kwon, 2012; Ranis, 1978).

Unemployment rate is commonly found to be positively associated with income inequality by previous studies (Bradley et al., 2003; Moller et al., 2003). The elderly population refers to individuals at age 65 or above. Without a job and incomes, a large share of the aging population is likely to raise income gaps (An & Bosworth, 2013; Dong et al., 2018; Lin et al., 2015; Ohtake & Saito, 1998). Education tends to be an income equalizer because higher educational achievement generally raises earning ability and thus leads to higher incomes (Coady & Dizioli, 2018; Gregorio

& Lee, 2002). This is particularly relevant in East Asia as studies have stressed the significant role of education in economic development of this region (Bloom et al., 2000; Collins et al., 1996; Mingat, 1998; Permani, 2009). However, recent studies have expressed concerns that higher education in East Asia may generate higher, not lower, inequality due to unequal access to colleges and intensified job competition (Mok, 2016; Yeung, 2013).

Chapter Three TSCS Analysis

In this chapter, I explore whether FDI inflows affect income inequality in East Asia and the conditional effect of FDI policies on this relationship over the period 1980 – 2015 by using TSCS analysis. As I discussed in Chapter Two, I hypothesize that FDI inflows worsen income inequality in East Asia. The results of TSCS analyses confirm my hypothesis. FDI inflows exacerbate income inequality both in the short- and long terms. This relationship between FDI and income inequality seems to be conditional on FDI policy liberalization. Statistical results, although not statistically significant, show that FDI policy liberalization intensifies the inequality-inducing effect of FDI inflows. When policy liberalization is conducted rapidly, increases in FDI inflows will generate stronger negative influence on income distribution, resulting in severer income gaps. To understand how FDI policy liberalization and FDI inflows are associated with rising income inequality, I turn to case studies on China and Korea in Chapter Four and Chapter Five.

This chapter is arranged as follows. The first section provides details on data sources, measures, hypotheses, and estimation method. Robustness checks without potentially influential cases are also conducted to identify the consistency of the results. In the second section, statistical results from error correction models are reported to demonstrate the distributional effect of FDI. The third section presents statistical results showing the conditional effect of FDI policies are also presented in this section. I close this chapter with a discussion of the move to case studies.

Data and Hypotheses

Data analyzed in this chapter are compiled from various open data sources, including the World Bank, the International Monetary Fund (hereafter IMF), the United Nations, and

government bureaus of statistics. The details of these data sources are presented in Appendix 1. My dataset covers nine countries and territories with a total of 324 country-years. Income inequality is measured by the market Gini index from the SWIID Version 8.3. This index measures the distribution of market income or the so-called “pretax, pre-transfer income”, which refers to the amount of money earned by households excluding government cash or in-kind benefits (Solt, 2020).

Market Gini ranges from 0 to 100, with higher numbers indicating larger income gaps. The SWIID incorporates and standardizes observations collected from major cross-national datasets¹ and domestic sources from individual countries to create comparable data across countries. To reduce the uncertainty of income data due to conceptual and practical difficulties in data collection, multiple-imputation techniques are used to obtain the final measure of inequality. As a result, the SWIID provides inequality data with more extensive coverage and greater comparability than any other existing datasets, such as the *All the Ginis* dataset from the World Bank and Gini index from the World Inequality Database (WID).

FDI inflows are operationalized as annual FDI inflows as a percentage of GDP. Data come from the UNCTAD. With more recent scholarly works suggesting a positive relationship between FDI and income inequality since the 1980s, I hypothesize that FDI inflows increase income inequality in East Asia over the past four decades. According to the literature, the inequality-inducing effect of FDI is realized via three mechanisms: enterprise-based wage premiums, skill-based wage premiums, and wage polarization between occupations within service sectors.

¹ Including the Luxembourg Income Study (LIS) and the UNU-WIDER databases.

To indicate the liberalization of FDI policies, I make use of the *de jure* financial globalization index² from the KOF globalization index dataset (Dreher, 2006; Gygli et al., 2019). This index encompasses three components of investment restrictions, capital account openness, and international investment agreements³. By definition, FDI policies are not the only policy area quantified in this index, which may raise concerns about whether this index can serve as an appropriate indicator of FDI policies. In other words, it is hard to identify the influence of FDI policies given the broad definition of the *de jure* financial globalization index. I use two ways to mitigate the gap between FDI policy liberalization and the *de jure* financial globalization index. This first way I use is to focus on the interaction term between the *de jure* financial globalization index and FDI inflows. When the interaction is found to be influential, policies that are involved should be mainly related to FDI. In a sense, I use the interaction to single out FDI policies from other financial policies measured in the *de jure* financial globalization index. In the meanwhile, the influence of other financial policies should be reflected in the coefficient for the *de jure* financial globalization index, not the coefficient for the interaction term. Of course, the use of interaction term between FDI policies and FDI inflows is not just to solve this conceptual and measurement issue, but also to test the hypothesis I propose in Chapter Two that FDI policies condition the distributional effect of FDI inflows.

The second way is to employ a correlation test to gauge between the *de jure* financial globalization index and the FDI Regulatory Restrictiveness Index published by the OECD. The

² This index is named *KOFFiGldj* in the KOF Globalization Index dataset.

³ According to the KOF, these three components are defined as follows. Investment restrictions refer to prevalence of foreign ownership and regulations to international capital flows. Capital account openness is based on Chinn-Ito index of capital account openness. International investment measures Number of Bilateral Investment Agreements (BITs) and Treaties with Investment Provisions. They contribute to the *de jure* financial globalization with weights of 32.2, 38.7, and 29.1 respectively.

OECD index is strictly defined to measure the restrictiveness of a country's FDI rules by examining four main types of restrictions on FDI: Foreign equity limitations, screening or approval mechanisms, restrictions on the employment of foreigners as key personnel, and operational restrictions⁴. This index ranges from 0 to 1, with higher number indicating more restrictions and lower numbers meaning more openness. By definition, the OECD index is preferable than the *de jure* financial globalization index because of its narrower focus on FDI policies. But the OECD index suffers from its limited coverage, including 69 countries for the following years: 1997, 2003, 2006, and 2010 – 2018. Thus, when it is applied to this dissertation, there are only 45 country-years. This is the primary reason I do not use it in regression models. But it is still a useful indicator to test whether the policy indices I used to FDI policies, particularly when they encompass a wider range of foreign investment policies, do not deviate too much from what I want to indicate. A correlation test shows a Pearson's R statistic with a value of -0.43 between the *de jure* financial globalization index and the OECD FDI restrictiveness index. This moderate relationship suggests that the *de jure* financial globalization index can still reflect the changes in FDI policies.

As I discussed in Chapter Two, because income inequality is a multi-faced issue, I also account for alternative theories from political, economic, and sociodemographic perspectives. Control variables include regime institutions, government education spending, international trade, economic growth, unemployment rate, the elderly population, and education attainment.

Electoral competition index⁵ from the Varieties of Democracy Project (V-Dem) (Coppedge et al., 2019; Pemstein et al., 2019) is adopted to measure regime institutions. This index measures

⁴ The data can be obtained at <https://www.oecd.org/investment/fdiindex.htm>.

⁵ This index is named *v2x_polyarchy* in the V-Dem dataset. It consists of five components: freedom of association, clean elections, freedom of expression, elected officials, and suffrage.

how each country performs in promoting electoral competition and voting rights based on evaluations from country experts. The index ranges from 0 to 1, with higher numbers meaning better performance. I make use of this index because electoral competition is understood as an essential democratic institution as defined by Dahl (1973). Government spending on education is measured by national education spending as a percentage of GDP. Data come from the World Bank and government statistics, including Mainland China and Taiwan.

International trade is measured by total yearly volumes of imports and exports as a share of GDP. Per capita GDP⁶ indicates the levels of economic development in each country. Unemployment rate indicates the share of unemployed individuals in the total labor force. The elderly population is indicated by the share of individuals aged 65 and above in the total population. Educational attainment is measured by human capital index from the Penn World Table Version 9.1 (Feenstra et al., 2015). This index is computed based on the average years of schooling from various data sources, including Barro and Lee (2013), Cohen and Leker (2014), and the United Nations Educational, Scientific and Cultural Organization (UNESCO). It also incorporates an assumed rate of return to education based on Mincer equation estimates (Caselli, 2005; Psacharopoulos, 1994). This index is chosen over the average years of schooling used in Barro and Lee (2013) because of longer time coverage.

Analysis and Estimation

The data used here cover nine countries and territories from 1980 to 2015, with totally 324 country-years. Because the time length (T) is larger than the number of units (N), my dataset is a

⁶ GDP per capita is adjusted for purchasing power parity in 2011 international dollars.

TSCS dataset or a long panel. Two issues arise related to TSCS data: heterogeneity across units and serial correlation across time. Heterogeneity concerns distinctive characteristics associated with individual units, while serial correlation refers to the correlation between current values and past values of a variable. Although unit heterogeneity is typically present at the national level, the existence of serial correlation needs some proof. If serial correlation does not exist, fixed effects models, as a commonly used static panel data estimator, can be employed to handle cross-national unique attributes. Otherwise, dynamic panel data estimator is more appropriate.

A particular concern about serial correlation is that whether data are unit root, which is also called nonstationary or integrated. With unit root present, previous values of a variable accumulate, almost entirely, into the present and future values. When a unit-root variable is regressed on another one, a significant relationship is likely to occur. However, this relationship could be either meaning or spurious. If these two variables are cointegrated, the significant result reveals a long-term equilibrium relationship between them. This is particularly helpful for understanding long-term trends and making policy decisions. If the two variables are unrelated or not cointegrated, the significant relationship is spurious, indicating false relationship largely due to integrated values. To test whether regression results are meaning or spurious, researchers not only need to identify whether data are unit root but also test whether cointegration is present. Test results, which are reported in Appendix 2, show the existence of both integration and cointegration in most variables of interest.

To analyze these integrated data, I employ error correction models (ECMs). As articulated in De Boef and Keele (2008) and practiced in Morgan and Kelly (2013), the ECM is a very flexible model, in which both integrated and stationary data can be analyzed. I also use robust-cluster

standard errors to account for cross-national variation. The logic of ECMs is indicated by the following equation:

$$\Delta Y_t = \alpha_0 + \alpha_1 Y_{t-1} + \beta_1 \Delta X_t + \beta_2 X_{t-1} + \epsilon_t$$

In this equation, Y refers to the variable of interest, that is, market Gini in this dissertation, while X refers to a vector including all independent variables or regressors. In an ECM, the dependent variable is ΔY_t , which is the difference between the current value of Y and the previous value of Y . Y_{t-1} denotes the value of Y at the time of $t-1$. ΔX_t refers to the difference between the current value of X and the previous value of X , while X_{t-1} denotes the value of X at the time of $t-1$.

When interpreting regression outputs, there are two parameters for each independent variable: β_1 for ΔX_t and β_2 for X_{t-1} . These two parameters indicate the short-term effect (β_1) and the long-term effect (β_2) of X , respectively. Although β_1 is named the short-term effect, it does not mean the influence of X on Y is short-lived. Instead, it indicates the initial impact on Y of X given a change happened in X . The interpretation of β_1 is as straightforward as parameters in OLS estimator, which requires no further calculation. In contrast, extra computation is needed for the long-term effect of X . To obtain the size of the long-term effect, we need to divide β_2 by α_1 , which is the parameter of the lagged Y . Thus, β_1 and β_2 indicate the impacts of X on Y in the short and long terms, respectively. If either coefficient is statistically significant, it is appropriate to conclude a significant relationship between X and Y .

Findings: FDI Inflows and Income Inequality

This section reports the statistical results of ECMs. To test the sensitiveness of the findings, I also run robust checks by excluding cases including China (CHN), Hong Kong (HKG), and

Singapore (SGP). As income gaps have worsened much faster in China than in other nations, China is likely to be an influential case in the analyses. Hong Kong and Singapore are also tested due to their unique nature of the small size and heavy reliance on economic globalization. It shows that results from the models without these cases do not fundamentally differ from those from the full sample. The results are reported in Table 3.1.

Table 3.1 FDI Inflows and Income Inequality			
Variables	Full Sample	Model 1	
		Without CHN	Without HKG and SGP
Market Gini _{t-1}	-0.02*** (0.00)	-0.01* (0.00)	-0.02*** (0.00)
Δ FDI	0.0004* (0.0002)	0.00017 (0.0001)	0.0006* (0.0003)
FDI _{t-1}	0.0006* (0.0003)	0.0001 (0.0002)	0.0009** (0.0003)
Δ Electoral competition index	-0.42 (0.30)	-0.26 (0.26)	-0.54 (0.34)
Electoral competition index _{t-1}	0.02 (0.16)	0.24 (0.17)	-0.03 (0.14)
Δ Govt. Education spending	-0.04** (0.01)	-0.03** (0.01)	-0.02 (0.01)
Govt. Education spending _{t-1}	-0.07** (0.03)	-0.06** (0.02)	-0.03 (0.02)
Δ Trade	0.0013 (0.0008)	0.0016 (0.001)	0.0008 (0.0021)
Trade _{t-1}	0.00003 (0.0004)	0.0001 (0.0005)	-0.0033 (0.0017)
Δ Logged GDP p.c.	1.02* (0.45)	0.35 (0.38)	0.49 (0.57)
Logged GDP p.c. _{t-1}	-0.04 (0.04)	0.08 (0.10)	0.03 (0.06)
Δ Unemployment rate	0.05 (0.03)	0.03 (0.02)	0.05 (0.03)
Unemployment rate _{t-1}	0.01 (0.02)	0.01 (0.02)	0.01 (0.01)

Table 3.1 Continued

Δ Elderly population	-0.48** (0.20)	-0.13 (0.16)	-0.47 (0.24)
Elderly population _{t-1}	0.04** (0.01)	0.01 (0.02)	0.02 (0.02)
Δ Human capital index	-0.50 (0.60)	-0.68 (0.50)	-3.28 (2.29)
Human capital index _{t-1}	-0.12** (0.05)	-0.20*** (0.04)	-0.12 (0.12)
Constant	1.29*** (0.29)	0.18 (0.90)	0.96* (0.43)
Observations	315	280	245
R-squared	0.38	0.26	0.46

Error correction models, cluster-robust standard errors in parenthesis. Two-tailed significance levels.

*** p<0.01, ** p<0.05, * p<0.1

As the results reported in Table 3.1 show, FDI drives up income inequality in both short and long terms. Taking the full sample of Model 1 as an example, in the short term, a 1-percent⁷ increase in yearly FDI inflows results in a 0.0004-point increase in the Gini index. Although the coefficient seems to be small, the influence on income inequality should not be overlooked given that FDI has increased rapidly in East Asia. For instance, FDI into China has grown by 5.52 percent from 128.50 billion USD in 2014 to 135.61 billion in 2015. This increase is expected to result in a rise of 0.002 point⁸ in the Gini index. On the other hand, to obtain the long-term effect of FDI, I divide the coefficient for the lagged FDI (0.0006) by the absolute value of the coefficient for the lagged market Gini (-0.02) and get a result of 0.03⁹. This means that when annual FDI inflows increase by 1 percent, the Gini index increases by 0.03 point in the long run. Using the same

⁷ Yearly inflows of FDI is measured in percentage form, that is, its unit is percentage.

⁸ This number is obtained by the following calculation: $0.0004 \times 5.52 = 0.002$

⁹ This number is obtained by dividing the coefficient for the lagged FDI with the absolute value of the coefficient for the lagged market Gini, that is, $0.0006 / |-0.02| = 0.03$.

example from China, a 5.52-percent increase in FDI between 2014 and 2015 will result in a 0.17-point¹⁰ increase in the future.

The deleterious effect of FDI on income inequality is relatively consistent in robustness checks when excluding China, Hong Kong, and Singapore, as shown in Table 3.1. China is indeed an influential case. When excluding China from the sample, both the short- and long-term distributional effects of FDI become smaller and insignificant, indicating that FDI seems to be less harmful to other East Asian developing countries. This change may result from rapid growth in FDI inflows and the Gini index at the same time. But the inequality-inducing effect of FDI is still present in those areas. When excluding Hong Kong and Singapore, FDI remains to be detrimental to income distribution. Even though these two areas have received large amounts of FDI compared to other countries in East Asia over the past four decades, the exclusion of them does not weaken the influence of FDI. To the contrary, FDI becomes slightly more influential in both short and long terms without these two areas. Thus, when combining the results from the full sample and robustness checks, I conclude that FDI inflows contribute to rising income inequality in East Asia developing countries.

Findings: The Conditional Effect of FDI Policy Liberalization

To estimate how FDI policies condition the inequality-inducing effect of FDI inflows, I add an interaction term between differenced FDI inflows and the differenced *de jure* financial globalization index. As I proposed in the synthesized theoretical framework, I argue that when FDI policies become more liberal, increases in FDI inflows become more detrimental to equal

¹⁰ This number is obtained by the following calculation: $0.03 \times 5.52 = 0.17$.

income distribution. I used the first difference of both variables to indicate changes. A positive value of the differenced *de jure* financial globalization index indicates liberalized FDI policies, and a positive value of the differenced FDI inflows indicates increases in FDI inflows.

Results reported in Table 3.2 confirm my expectation. The positive coefficient for the interaction term shows that when FDI policies become more liberal as indicated by larger numbers of the *de jure* financial globalization index, the inequality-inducing effect of FDI inflows becomes stronger. This conditional effect of FDI policies is relatively consistent in robustness checks. When China is excluded from the sample, the coefficient for the interaction remains at the same level with statistical significance. Hong Kong and Singapore are relatively influential because when they are dropped from the sample, the distributional effect of FDI policies becomes insignificant.

Table 3.2 Policy Liberalization and Income Inequality

Variables	Model 2		
	Full Sample	Without CHN	Without HKG and SGP
Market Gini _{t-1}	-0.02*** (0.00)	-0.01*** (0.00)	-0.02** (0.01)
Δ FDI * Δ <i>de jure</i> Financial index	0.00004* (0.00002)	0.00004* (0.00002)	0.00003 (0.000002)
Δ FDI	0.0005* (0.0002)	0.0002 (0.0001)	0.0006 (0.0004)
FDI _{t-1}	0.0006* (0.0003)	0.00004 (0.0001)	0.0009* (0.0004)
Δ <i>de jure</i> Financial index	0.0023 (0.0023)	0.0046 (0.0025)	0.0037* (0.0018)
<i>de jure</i> Financial index _{t-1}	0.0042 (0.0027)	0.0053** (0.0020)	0.0085** (0.0024)
Δ Electoral competition index	-0.33 (0.21)	-0.09 (0.19)	-0.36** (0.12)
Electoral competition index _{t-1}	-0.13 (0.20)	0.18 (0.16)	-0.34 (0.21)

Table 3.2 Continued

Δ Govt. Education spending	-0.03** (0.01)	-0.03** (0.01)	-0.01 (0.01)
Govt. Education spending _{t-1}	-0.09*** (0.02)	-0.07*** (0.01)	-0.03 (0.02)
Δ Trade	0.0013 (0.0009)	0.0015 (0.0010)	0.0012 (0.0016)
Trade _{t-1}	-0.0003 (0.0004)	-0.0003 (0.0004)	-0.0042* (0.0020)
Δ Logged GDP p.c.	1.12* (0.47)	0.45 (0.38)	0.69 (0.51)
Logged GDP p.c. _{t-1}	-0.03 (0.03)	0.09 (0.07)	-0.06 (0.06)
Δ Unemployment rate	0.04 (0.03)	0.02 (0.03)	0.03 (0.04)
Unemployment rate _{t-1}	0.00 (0.01)	-0.00 (0.01)	-0.01 (0.01)
Δ Elderly population	-0.67** (0.25)	-0.25 (0.14)	-0.73** (0.27)
Elderly population _{t-1}	0.04** (0.01)	0.00 (0.01)	0.02 (0.01)
Δ Human capital	-0.97 (0.60)	-1.08* (0.44)	-4.00 (2.95)
Human capital _{t-1}	-0.07 (0.06)	-0.15** (0.05)	0.10 (0.16)
Constant	1.31*** (0.28)	-0.10 (0.61)	1.22** (0.30)
Observations	280	245	210
R-squared	0.51	0.43	0.61

Error correction models, cluster-robust standard errors in parenthesis. Two-tailed significance levels.

*** p<0.01, ** p<0.05, * p<0.1

Figure 3.1 charts the conditional effect of FDI policies on the relationship between FDI inflows and income inequality based on the full sample of Model 2. Each line in this figure represents a certain level of changes in FDI policies, with positive values indicating liberalization and negative values meaning the opposite. The horizontal axis indicates yearly changes in FDI

inflows as a share of GDP, while the vertical axis indicates how much changes will appear given certain changes in FDI inflows and FDI policies.

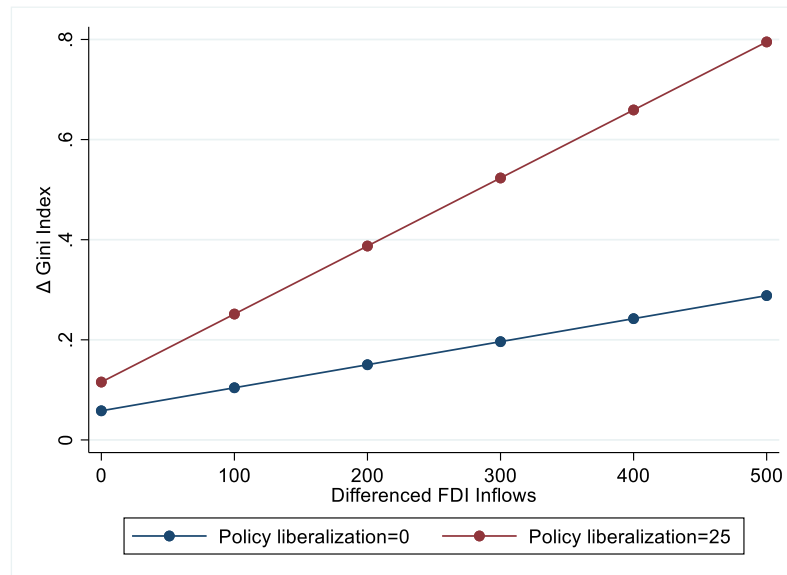


Figure 3.1 Conditional Effect of FDI Policies

Note: Calculations by the author from estimates in Model 2 with the full sample, Table 3.2.

As Figure 3.1 shows, when there is no change toward policy liberalization as indicated by the blue line, the inequality-inducing effect of FDI inflows is still present but weaker. When there is a significant increase in policy liberalization, such as a 25-point increase¹¹ indicated by the green line, FDI inflows become particularly deleterious. For example, when FDI inflows maintain at the same level, that is no increase in FDI inflows, a 25-point increase in policy liberalization will lead to a 0.12-point increase in the Gini index. In comparison, under the same situation, if there is no policy liberalization, income inequality will only deteriorate by 0.06 point. The conditional effect

¹¹ A 25-point increase in policy liberalization is the largest yearly change in the sample.

of FDI policies becomes even stronger when large increases in FDI inflows occur. For example, when there is a 500-percent increase in FDI inflows, a 25-point change toward policy liberalization will result in a 0.80-point increase in the Gini index. In contrast, the impact on income inequality will be a 0.29-point increase when there is no change in FDI policies.

Analyses presented above demonstrate that FDI policy liberalization is indeed involved in the distributional effect of FDI inflows. As FDI policies become more liberalized, FDI inflows become more harmful to equal income distribution. The conditional effect of FDI policy liberalization is particularly strong when FDI inflows increase rapidly. But the aforementioned analyses do not offer explanations about how policy liberalization condition the inequality-inducing effect of FDI inflows. I propose that policy liberalization affects income distribution through two channels: regional distribution and sectoral distribution of FDI inflows. With significant liberalization in policies, FDI inflow not only become widely dispersed across geographies but also begin to flood into services and technology-intensive industries. As FDI inflows become an unseparated part of receiving nations, they affect income distribution by three mechanisms I discussed above: inter-enterprise wage-premiums, skill-based wage-premiums, and wage polarization between occupations within service sectors. As FDI inflows become equally distributed across the host economy due to policy liberalization, inter-enterprise wage premiums and skill-based wage premiums become more pronounced, leading to rising income inequality. When FDI inflows are allowed to enter service sectors because of liberalized policies, wage polarization between occupation within service sectors becomes influential, resulting in growing income disparities as well. In other words, FDI policy liberalization intensifies the inequality-inducing effect of FDI inflows via regional openness and sectoral openness.

Moving to Case Study

To demonstrate how policy liberalization first shapes regional and sectoral distribution of FDI and then influence income distribution, I conduct case studies on China and Korea in Chapter Four and Chapter Five, respectively. There are three reasons why these two nations are chosen. First, these two cases are analyzed to illustrate how FDI policy liberalization shapes the inequality-inducing effect of FDI. In this case, Lieberman (2005) suggests the selection of cases should be based on whether they are well predicted by statistical models. The selection of Korea satisfies this criterion, given that its residuals in both Model 1¹² and Model 2¹³ are the smallest. China is the opposite case because its residuals are the largest in both two models. I argue that if analysis on a case that does not well fit statistical models still offers some support for a particular causal model or theory, the validity of that model or theory may be extremely high. The analyses presented in Chapter Four show that the Chinese case does support the conditional effect of FDI policy liberalization. Thus, the selection of China is still helpful for theory development.

Second, these two countries have witnessed the largest policy changes regarding FDI in East Asia. This perfectly fits the second criterion set by Lieberman (2005) that the selected cases for SNA should have the widest variation on the key independent variable(s). As the KOF dataset reports, the *de jure* financial globalization index in China has increased by 42.45 points between 1980 and 2015, while the change in Korea is even larger with a value of 47.14 points. Such noticeable policy liberalization potentially provides more historical details and offers strong

¹² The average residuals for each case are: China (0.11), Hong Kong (0.03), Indonesia (0.2), Korea (0.004), Malaysia (-0.06), the Philippines (-0.02), Singapore (0.04), Taiwan (-0.04), and Thailand (-0.07).

¹³ The average residuals for each case are: China (0.11), Hong Kong (0.01), Indonesia (-0.43), Korea (-0.02), Malaysia (-0.04), the Philippines (-0.02), Singapore (0.03), and Thailand (-0.02). Taiwan is missing due the *de jure* financial globalization index does not cover it.

support for my argument that FDI policy liberalization conditions the distributional effect of FDI inflows.

Third, my choice of these two cases is also dictated by data constraints. My analyses on these two nations combine a review of FDI policy changes and time-series analyses. By tracing the changes in FDI policies over the past four decades, I present the nature of policy liberalization in both nations. Based on the historical details and the synthesized theoretical framework I proposed in Chapter Two, I employ time-series analyses to identify the mechanism, by which FDI policy liberalization shapes the inequality-inducing effect of FDI inflows. Because publicly accessible data about these two nations cover longer time spans than those from other nations, these two cases are preferable than other cases.

Chapter Four China: Policy Liberalization and Income Inequality

Over the past four decades, China has experienced glaring income inequality, with achieving impressive economic growth at the same time. Income inequality, indicated by the market Gini index¹ from the SWIID, started at a level of 30.8 in 1980, making China one of the most equal societies in East Asia. Thirteen-five years later, the Gini index has reached 46.9, pushing China to become one of the most unequal societies in the world. Figure 4.1 displays the sharp upward trend of income inequality between 1980 and 2015. As it shows, income disparities began to deteriorate rapidly in the mid-1980s. After reaching an unprecedented level of around 47 in the early 2010s, the upward trend of income inequality finally slowed down and levelled off.

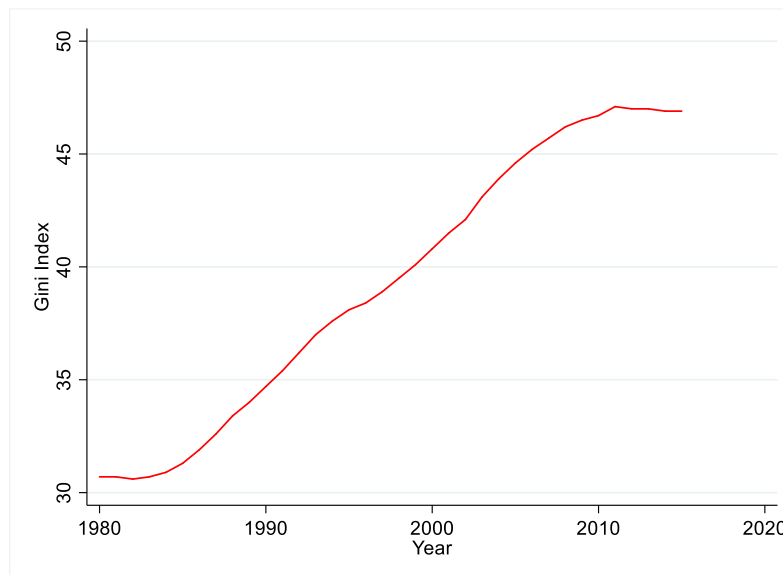


Figure 4.1 Income Inequality in China

Data Source: SWIID.

¹ This Gini index ranges between 0 and 100, with higher numbers indicating severer inequality.

Soaring income inequality has attracted considerable scholarly attention (Some recent studies include Davis & Wang, 2009; Knight & Song, 2003, 2005; Wang, 2008; Whyte, 2012, 2014; Xie, 2016; Xie & Zhou, 2014). It is widely acknowledged that China's income inequality is featured by two characteristics: rural-urban division and regional disparities². Regional disparities refer to unequal economic development and associated income gaps across provinces and municipalities (for simplicity, I use provinces in the following discussion) located in the eastern, middle, and western region³. Existing studies have identified several institutional factors that contribute to China's fast-escalating income inequality: the household registration system (*Hukou* system) and associated discrimination against rural residents (Liu, 2005; Lu & Wang, 2013; Sicular et al., 2007; Wang, 2005), favorable policies for urban areas (Lu & Gao, 2011; Yang, 1999), earlier openness policies in the eastern provinces (Litwack & Qian, 1998; Tsui, 2007), and communist legacies like work unit (*Danwei*) (Whyte, 2014; Xie & Wu, 2008).

The effect of FDI inflows on income inequality have been investigated in recent studies, mostly written by economists. There are generally two theoretical arguments about how FDI inflows shape income distribution in China. The first theory argues that the uneven distribution of FDI inflows across geography increases regional inequality, which is a significant component of the overall income inequality. Strictly speaking, this theory is not targeting foreign capital itself, but rather the distribution of it. It assumes that foreign capital is more productive than domestic capital. Due to China's gradual openness policies to foreign investors, regional inequality is

² For a detailed discussion on the rural-urban division, check Yang and Cai (2003) and Guang et al. (2010). For a overview of existing discussion on regional disparities, check Kanbur and Zhang (2005).

³ There are 31 provincial-level administrative units in Mainland China: 22 provinces, 4 municipalities (Beijing, Tianjin, Shanghai, and Chongqing), 5 autonomous regions (Guangxi, Inner Mongolia, Tibet, Ningxia, and Xinjiang). According to National Bureau of Statistics, there are 12 units in the eastern region, 9 units in the middle region, and 10 units in the western region.

primarily attributed to the differences in the amount of foreign investment, instead of foreign investment itself. An early study by Chen and Fleisher (1996) found that FDI inflows generated disparities in economic development between coastal and non-coastal regions from 1978 to 1993. However, the inequality-rising effect of FDI inflows began to weaken since the mid-1990s, which is arguably due to China's development programs designed to benefit the western provinces. Similar findings are also reported in later studies (Fleisher et al., 2010; Kanbur & Zhang, 2005; Wan et al., 2007; Zhang & Zhang, 2003). By analyzing the largest panel dataset including all the provinces from 1979 to 2003, Wei et al. (2009) confirmed that the uneven distribution of FDI inflows, not FDI inflows *per se*, significantly contribute to regional growth differences in China.

Another group of scholars have focused on inter-enterprise wage differentials, more specifically higher incomes offered by FIEs. Multiple reasons, mostly from economics, have been proposed to explain why that is the case: advanced technologies that make FIEs more profitable, higher compensation for labor due to government restrictions or the segmented labor market, internal fairness policies to reduce income disparities between FIEs and branches in other nations, and reducing labor turnover to prevent the leakage of intangible and firm-specific assets like managerial skills (Chen et al., 2011). Empirical evidence has mostly shown the existence of a foreign wage premium (Chen et al., 2005; Chen et al., 2011; Knight & Song, 2003; Zhao, 2002).

This dissertation adds policy liberalization to the ongoing debates on the relationship between FDI inflows and income inequality. Specifically, I make two arguments about how FDI policy liberalization contributes to rising income inequality in China. First, building on studies on inter-enterprise wage differentials, I argue that FDI policy liberalization significantly deteriorates income inequality in China via an equal regional distribution of FDI inflows. Because of

enterprise-based and skill-based wage premiums, increasing FDI inflows due to FDI policy liberalization amplify wage differentials across enterprises and across skill-levels, ultimately exacerbating the overall income inequality. This argument is quite different from, although not incompatible with, the first group of literature focusing on FDI inflows and differences in economic development across provinces in China. Results of time-series analyses support my argument. As China becomes more open to foreign investors, the regional distribution of FDI inflows has become more equal. This trend has contributed to rising income inequality in China over the past three decades.

Another argument I make is that FDI policy liberalization also exacerbates income inequality when it opens service sectors to foreign investors. Studies have shown the effect of FDI on wage polarization within service sectors (Bogliaccini & Egan, 2017; Evans & Timberlake, 1980). Based on their findings, I posit that when liberalized FDI policies open service sectors to foreigners in China, the inequality-inducing effect of FDI inflows on wage polarization will get enhanced, leading to severer income inequality. Although FDI policy liberalization does not directly cause wage differentials with service sectors and later rising income inequality, it contributes to growing income gaps by creating opportunities for FDI inflows to enter service sectors.

To empirically test my arguments about policy liberalization, regional and sectoral distribution of FDI, and income inequality, I review the history of FDI policies in China and run time-series analyses. My analyses are presented in the following two sections. The first section describes the evolvement of FDI in China with respect to FDI policies. Policy changes are reflected in the dynamics of FDI, including annual inflows, regional distribution, and sectoral distribution. With FDI policies becoming more open to the international investment community, FDI inflows have

become more equally allocated across provinces in China, and an increasing amount of foreign capital has been directed toward service sectors. The second section provides statistical evidence showing an equal regional distribution of FDI and more FDI inflows to services exacerbate income inequality. I conclude this chapter with a summary.

The Development of FDI in China

As a key part of China's opening-up and economic reforms, FDI has undergone drastic changes since 1979. In 1980, the first year after the passing of the first foreign investment law, the yearly inflow of FDI was 57 million USD, according to the UNCTAD⁴. In 2015, that number reached 135.61 billion USD. Along with sharp increases in FDI inflows, FDI policies have been noticeably liberalized. Major policy changes include opening more sectors to FDI, relaxing restrictions on maximum foreign ownership, providing attractive tax incentives, and streamlining administrative procedures. Four decades after the first equity joint venture, Beijing Air Catering Corporate, approved in 1980, FDI has become a significant part of the Chinese economy and has been widely praised as one pillar of China's economic success (e.g. Baharumshah & Thanoon, 2006; Tang et al., 2008; Yao & Wei, 2007).

In this section, I first summarize the evolvement of China's FDI policies⁵. By examining these policies, I demonstrate how China has become increasingly open to foreign investors in a relatively short period. Highlights will be given to ownership restrictions, regional openness, and sectoral openness because they indicate how widely and deeply FDI has been present in the Chinese economy. The second half of this section reports the changes in the amount of FDI inflows and the

⁴ FDI data can be obtained at <https://unctadstat.unctad.org/wds/TableViewer/tableView.aspx?ReportId=96740>.

⁵ For a more thorough review of China's FDI policies, check Chen (1997) and Ng (2013).

allocation of FDI inflows across regions and industries based on data from the National Bureau of Statistics of China (hereafter NBS)⁶.

1) FDI Policies in China

Over the period from 1979 to 2019, FDI into China has been administrated under three laws and multiple related amendments and policies: The Sino-Foreign Equity Joint Venture Law (EJV Law) in 1979, the Wholly Foreign-Owned Enterprise Law (WFOE Law) in 1986, and the Sino-Foreign Cooperative Joint Venture Law (CJV Law) in 1988. These three laws and related amendments have provided guidance to foreign investors and have managed FDI inflows until the newly made Foreign Investment Law came into effect on January 1st, 2020⁷.

There are three major forms of foreign direct investment in China: equity joint ventures (EJVs), cooperative joint ventures (CJVs), and wholly foreign-owned enterprises (WFOEs). First, EJVs are set up with joint capital by foreign investors and domestic partners. According to the EJV law, foreign investment needs to be at least 25 percent of the total capital when forming an EJV. This number is much higher than those in other countries, such as 10 percent in the United States (Huang, 2003). EJV is the earliest form of FDI in China and has accounted for most FDI inflows during the 1980s. Second, CJVs were given legal status in 1988 under the CJV Law, although this form of FDI had already appeared before the passing of the CJV law. The occurrence of CJVs was mainly due to the strict requirements of forming and operating EJVs, including the required threshold of foreign capital, restrictions on profits and losses, and strict legal procedures. CJVs were also set up by foreign investors and domestic partners but with more flexibility. This form of

⁶ The Chinese National Bureau of Statistics can be accessed at <http://www.stats.gov.cn/>.

⁷ Because the influence of this new law still remains to be seen, it is not studied here.

FIEs was particularly welcomed during the 1980s. Lastly, foreign capital was given the whole ownership according to the WFOE Law of 1986, although not all economic sectors were accessible to exclusive foreign ownership. According to the WFOE Law, whole ownership is allowed when the enterprises are beneficial to the Chinese economy and adopt advanced technologies and equipment, or when they are expected to export all or most of their products. Although this law legalizes wholly foreign ownership, the number of WFOEs is still subject to how many economic sectors and industries are open to foreign investors.

Although the three FDI laws were enacted in the 1980s, not all provinces were open to the international investment community. It takes about 20 years to open China from the initial four Special Economic Zones (hereafter SEZs) to the western provinces. In 1980, four cities, namely Shenzhen, Zhuhai, Shantou, and Xiamen, were approved by the central government as the SEZs. The first three are located in Guangdong province, and the last is in Fujian province. Being viewed as a pioneering laboratory for more extensive economic reforms, these SEZs were given the highest levels of autonomy to manage their economies, like offering attractive tax incentives to foreign investors (Chen, 1997).

After observing the rapid accumulation of FDI inflows, particularly from overseas Chinese in Hong Kong, Macao, and Taiwan, and its positive influence on economic growth, Chinese leaders announced the opening of another fourteen coastal cities⁸ and Hainan Island in 1984. As being located in the Pacific Rim, these areas were expected to make China more open to its East Asian neighbors and the globe as well. In these coastal cities, the Economic and Technological

⁸ Dalian, Qinhuangdao, Tianjin, Yantai, Qingdao, Lianyungang, Nantong, Shanghai, Ningbo, Wenzhou, Fuzhou, Guangzhou, Zhanjiang, and Beihai.

Development Zones (ETDZs) were established to attract FDI. Similar, but less generous compared to the SEZs, tax incentives were offered in these ETDZs to foreign investors.

It did not take long for China to extend the open-door policy to the neighboring coastal areas later and the entire coastal region under the Coastal Development Strategy in 1988 eventually. After the landmark “Southern Tour” to the southern opened areas and the SEZs, Deng Xiaoping explicitly supported for a market-oriented reform and more areas opened for FDI. As a result, cities in the inland provinces, including almost all provincial capitals⁹, major cities, border cities and counties in the west and the north, became open to FDI in the following years. Across China, various types of economic development zones were established to offer tax incentives, simplified administrative procedures, and other favorable treatments. It has been documented that almost 2,000 economic development zones were set up in 1992 (Shirk, 1994).

With respect to sectoral openness, there has been significant liberalization over the past four decades. Between 1979 and 1995, although foreign investors had gained legal access to the Chinese market, the scope of industries, where FDI could enter, was not transparent to the international investment community. The first Foreign Investment Industry Guidance Catalogue (hereafter the Investment Catalogue) was promulgated in 1995. The Investment Catalogue classified industries into four categories: encouraged, permitted, restricted, and prohibited. Foreign investment was encouraged in areas including agriculture, manufacturing, advanced technology and equipment, sustainable development, and where it is beneficial for the western and middle region of China. Restricted areas were where a maximum shareholding was set up for foreign capital. Restrictions were designed to protect domestic producers, rare minerals,

⁹ Except for Lhasa in Tibet and Urumqi in Xinjiang.

and industries prioritized by state development plans. Prohibited areas included sectors related to national security, environment protection, public health, land protection, military facility and equipment, special technologies possessed by China, etc. Sectors that did not fall into these three categories were open to foreign investors with subjection to administrative requirements.

From 1995 to 2015, the Investment Catalogue has been amended eight times¹⁰. A general trend emerges from these amendments: substantive liberalization in most industries but with priorities and restrictions set by the government. Several significant changes need to be highlighted. First, advanced technology and equipment have been prioritized and highly encouraged by the Chinese government. Second, given that nowadays, traditional manufacturing products can be produced by domestic companies, they have been recategorized as restricted areas. Third, restrictions on financial sector, real estate, and other service sectors have been removed. Part of the removal was due to China's commitments to joining the WTO. Fourth, environment protection and sustainable development are given more attention. Fifth, new restrictions have been placed on streaming, broadcasting, newspaper, telecom, social media, and other areas that can potentially influence people's views.

These changes in FDI policies are reflected in the *de jure* financial globalization index¹¹ from the KOF Globalization Index dataset, as reported in Table 4.1. FDI policies became significantly liberalized, particularly during the 1990s and 2000s. During the 1990s, this *de jure* financial globalization index had reached 34.30, showing a 13-point increase from the 1980s. But year 1992,

¹⁰ The investment Catalogue was amended in 1997, 2002, 2004, 2007, 2011, 2015, 2017, and 2019.

¹¹ As I described in Chapter Three, by definition, FDI policies are not the only policy area quantified in this index. But a correlation test shows there is a strong correlation between the lagged values of this policy index and yearly inflows of FDI in China from 1970 to 2015 with a value of 0.84. This may make the *de jure* financial globalization index a proper indicator showing the changes in FDI policies.

when Deng Xiaoping made the landmark “Southern Tour”¹² to promote deeper economic reforms after seeing the benefits of economic openness, did not stand out as a significant year for FDI policy liberalization, even though yearly inflows of FDI exploded since then as shown in next subsection. Instead, China made serious commitments to facilitate its accession to the WTO, resulting in more open policies to FDI. The first decade of the twenty-first century observed a continuation of FDI policy liberalization, with the average number of FDI policy index reaching 45.62. Policy liberalization slowed down since 2010, with an average value of 47.06 slightly higher than the previous ten years.

Table 4.1 FDI Policy Liberalization in China

1980 – 1989	1990 – 2001	2002 – 2010	2010 – 2015
21.00	34.30	45.62	47.06

Data source: KOF.

2) Dynamics of FDI into China

Between 1979 and 2015, FDI yearly inflows have continuously been on an upward trend, as shown in Figure 4.2. This increasing trend can be divided into two distinct periods given the speeds of FDI inflows: before 1992 and after 1992. Between 1979 and 1991, yearly inflows of FDI had grown from 0.08 million USD to 4.36 billion USD. This expansion was indeed noticeable given the volume of 1991 was 54.58 thousand times the volume of 1979. However, the upward trend during this period was overshadowed by the second period after 1992. Deng Xiaoping’s “Southern Tour” in early 1992 marked as a significant turning point for active promotion of FDI and other

¹² From January 18th to February 21st, 1992.

economic reforms. From 1979 to 1991, the average yearly inflow of FDI stayed around 1.8 billion USD. In 1992, the number increased significantly to 11 billion, which was at least five-fold. Since then, yearly volumes of FDI have risen sharply with slight slowdowns in a few years. In 2015, the annual FDI inflow reached 135.61 billion USD. This impressive cumulation of FDI has made China the largest recipient of FDI among developing countries since the early 1990s, according to the UNCTAD¹³.

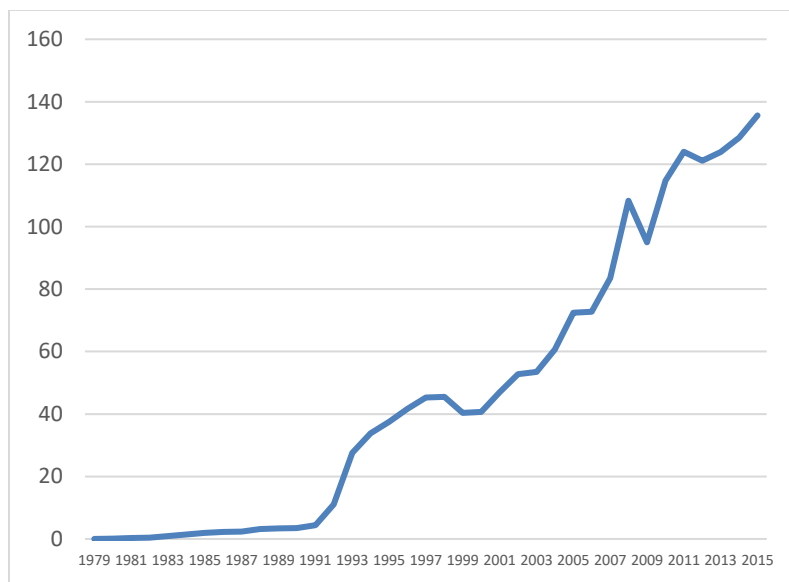


Figure 4.2 FDI Yearly Inflows to China

Data source: UNCTAD. Unit: USD in billions at current prices.

Along with fast-growing FDI inflows to China, geographic distribution of FDI at the provincial level has become more equal. During the early 1980s, FDI largely concentrated in the four SEZs established in 1980. These SEZs have served to test new FDI policies and how FDI

¹³ FDI data can be obtained at <https://unctadstat.unctad.org/wds/TableViewer/tableView.aspx?ReportId=96740>.

facilitates economic growth in China. Due to their proximity to Hong Kong, Macao, and Taiwan, they have attracted large flows from these three regions in the early years. After observing the initial success of attracting FDI, China gradually opened more coastal cities in 1984, the inland provinces in the early 1990s, and finally the western provinces in the late 1990s. Although not all provinces have been equally successful in absorbing a large amount of FDI due to reasons like lack of skilled labor, lack of infrastructure and transportation, inefficient enforcement of investment policies, and local regulatory barriers (Ng, 2013; Wei et al., 2009), regional distribution of FDI has become more equal. These changes are reflected in Figure 4.3.

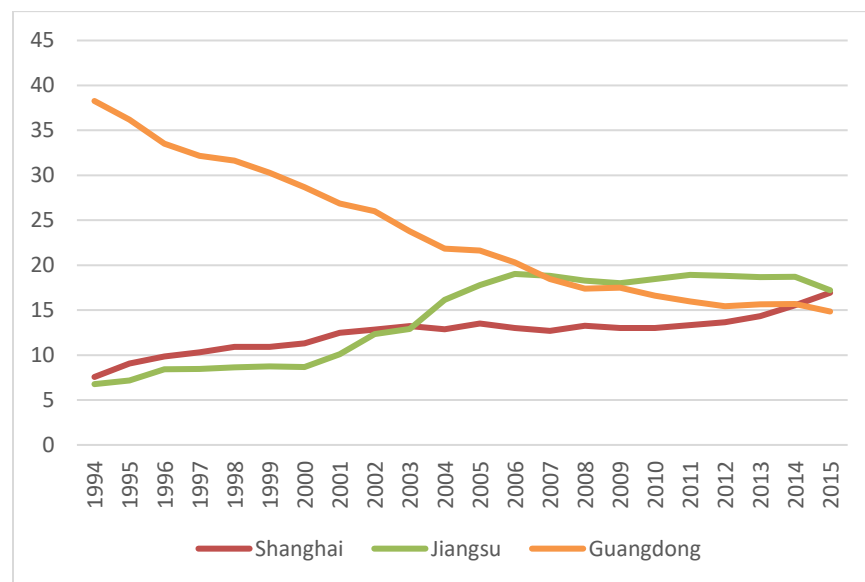


Figure 4.3 Top Three Recipients of FDI Inflows
Data Source: NBS. Contract numbers of FDI in registered enterprises.

Figure 4.3 presents how geographic dispersion of FDI has evolved in China based on the data from the NBS. Ideally, the utilized amounts of FDI in each province should be used here. But the

NBS has only reported the registered amounts of FDI in contracts from 1997. Although these numbers are larger than the volumes of FDI actually used, they may still serve as a useful proxy indicating to what extent provinces are attractive to foreign investors.

From 1994 to 2015, FDI has become more equally allocated across China, according to Figure 4.3. Guangdong province has long been the winner because it received the largest share of annual FDI inflows. A notable decreasing trend, however, has also been documented since the beginning. In 1994, the share of FDI received by Guangdong province was 38.26 percent. This number was down to 14.84 percent in 2015. The decline is largely attributed to the rising popularity of other regions. For example, Jiangsu province and Shanghai city were the second and third largest recipients in 1994, but they only received 6.76 percent and 7.56 percent of yearly FDI inflow, respectively. In 2015, they both overtook Guangdong and became the two most popular locations favored by foreign investors.

In the meantime, other provinces have also observed higher inflows of FDI over the past two decades. To illustrate the increasingly equal allocation of FDI across provinces in China, I calculate the coefficient of variation (CV), which is the ratio of the standard deviation to the mean of FDI¹⁴. This statistic indicates the extent to which FDI inflows are dispersed across China. Higher values represent greater variation in the regional distribution of FDI inflows. According to Figure 4.4, the coefficient of variation has significantly declined from 2.06 in 1994 to 1.41 in 2015. This decline suggests that although Jiangsu and Shanghai have risen to the top, other provinces and

¹⁴ Two western provinces, Xinjiang and Xizang, are not included in calculation here and also later regression analysis due to their higher economic dependence on the central government and lack of data. One municipality, Chongqing, is not covered, either, because it obtained the status of municipality in 1997. Thus, there are totally 28 provincial-level units in my calculation and later time-series analyses as well.

municipalities have also managed to catch up with them. FDI has become more evenly dispersed within China.

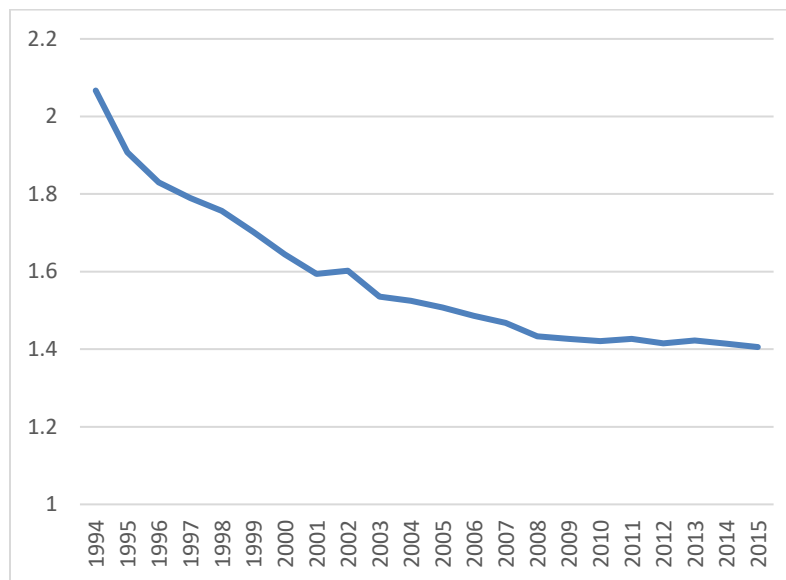


Figure 4.4 Coefficient of Variation of FDI Inflows

Data Source: NBS. Contract numbers of FDI in registered enterprises.

As FDI into China has expanded significantly over the past four decades, the forms of FDI have also undergone noticeable changes. As I discussed above, there are three main forms of FDI in China: EJVs, CJVs, and WFOEs. EJV is the earliest form of FDI, which requires joint participation of foreign investors and domestic partners. CJVs also require both inputs from foreigners and domestic partners, but with fewer requirements compared to EJVs. In contrast to EJVs and CJVs, WFOEs allow full foreign ownership to foreign investors. Figure 4.5 displays the trends of the numbers of these three forms between 1979 and 2015. During the early years, EJVs had maintained as the most popular form of FDI. In 1994, EJVs accounted for 58.66 percent of

firms with foreign investment. Although data is only available as early as 1994, it is reasonable to suspect the percentage of EJV's could be higher.

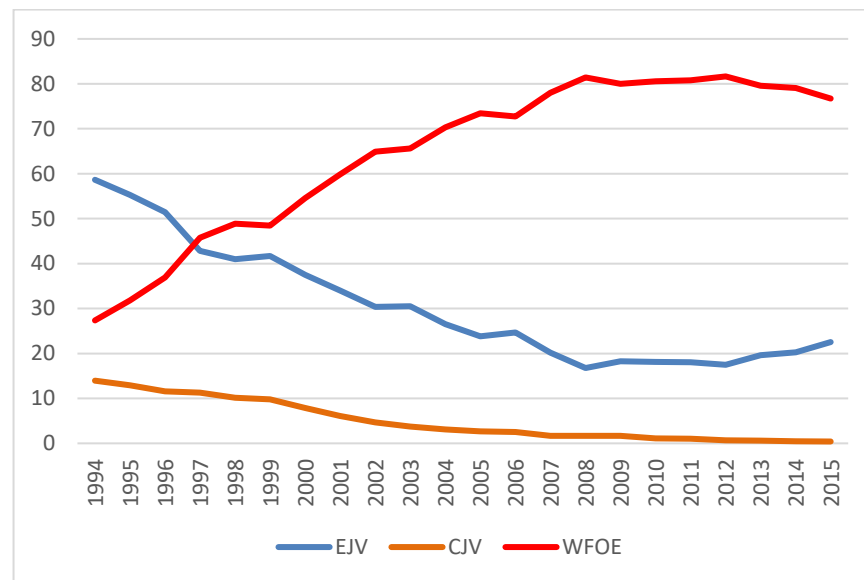


Figure 4.5 Numbers of Three Forms of FDI in China
Data source: NBS. Unit: Percentage.

However, because of the rising popularity of WFOEs, EJV's lost the majority status to WFOEs in 1997. Even since then, the number of EJV's had been on a downward trend until 2012 when the lowest value of 17.47 percent was reached. Although the shares of EJV's have increased slowly since 2012, EJV's only accounted for 22.54 percent of total FIEs in 2015. Like EJV's, the share of CJV's has declined significantly between 1994 and 2015. The number was 13.95 percent in 1994, while it dropped to 0.41 percent in 2015. Although CJV's give more flexibility to foreign investors and domestic partners, they have become an insignificant part of the Chinese economy. Contrary to the declining significance of EJV's and CJV's, WFOEs have become extremely popular in China.

In 1994, the share of WFOEs was only 27.35 percent. But three years later, in 1997 WFOEs had overtaken EJV (42.86 percent) to become the major form of FDI with 45.72 percent of newly established firms exclusively controlled by foreign capital. The increasing popularity and significance of WFOEs had continued until 2012 when its share reached its peak of 81.65 percent. Although a slight decrease has been documented since then, WFOEs have secured their dominant status in China. The changing significance of EJV, CJV, and WFOEs can also be found in the amounts of FDI inflows invested in them, as shown in Figure 4.6.

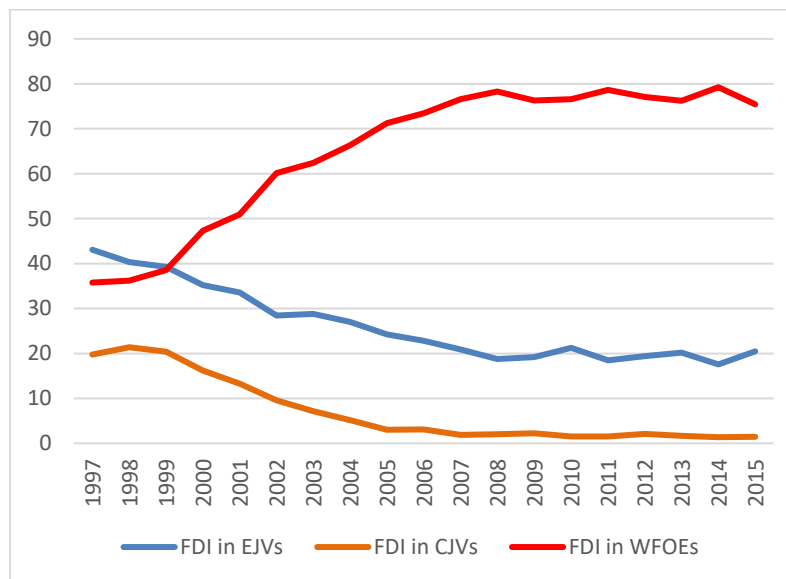


Figure 4.6 Yearly FDI Inflows to Three Forms of FDI

Data source: NBS. Unit: Percentage.

As Figure 4.6 presents, both EJVs and CJVs have increasingly received less FDI. The shares of annual FDI inflows to EJVs have fallen from 43.00 percent in 1997 to 20.50 percent in 2015, and the numbers for CJVs have also dropped from 19.73 percent to 1.46 percent. In other words,

EJVs still receive a significant, although declining, amount of FDI every year, while CJVs have been much more insignificant compared to the early years. In contrast, WFOEs have received an increasing amount of foreign investment each year. The shares of FDI inflows to WFOEs have constantly grown from 35.77 percent in 1997 to 79.24 percent in 2014, reaching the peak over the past two decades.

With increasing amounts of FDI into China, foreign investment has been widely dispersed across economic sectors and industries. This is not saying that FDI has been equally distributed, but rather compared to other developing countries, foreign investors obtained access to a wider range of industries in China (Huang, 2003). Figure 4.7 reports the trends of FDI inflows to three economic sectors. This figure presents how FDI inflows have been allocated in three economic sectors: agriculture, manufacturing, and services. Although the early years of FDI inflows, namely from 1979 to 1996, are not covered in data, existing data still display clear trends of how FDI inflows have been distributed. Agriculture has received the least amounts of FDI inflows with its shares always under 2 percent over the past 20 years. Although the absolute volumes of FDI into agriculture have been rising, the presence of foreign investors is much weaker in agriculture. Second, manufacturing sectors had received most FDI inflows between 1997 and 2009 with its shares ranging between 52 and 71 percent of total FDI. The number reached its peak in 2004 with a value of 71 percent. A downward trend, however, has been documented since then. Although manufacturing sectors continue to receive a significant part of FDI inflows, they only accounted for 31.32 percent in 2015. In contrast, service sectors have presented an opposite trend. From 1997 to 2004, the shares of FDI inflows to service sectors had stayed stably around 25 percent under the dominance of manufacturing sectors. Since 2004 when a new version of Investment Catalogue

was published with significant liberalization of service sectors, foreign investors began to shift their preferences to service sectors. As a result, service sectors surpassed manufacturing in 2010 and became the most popular destinations of FDI in the following years.

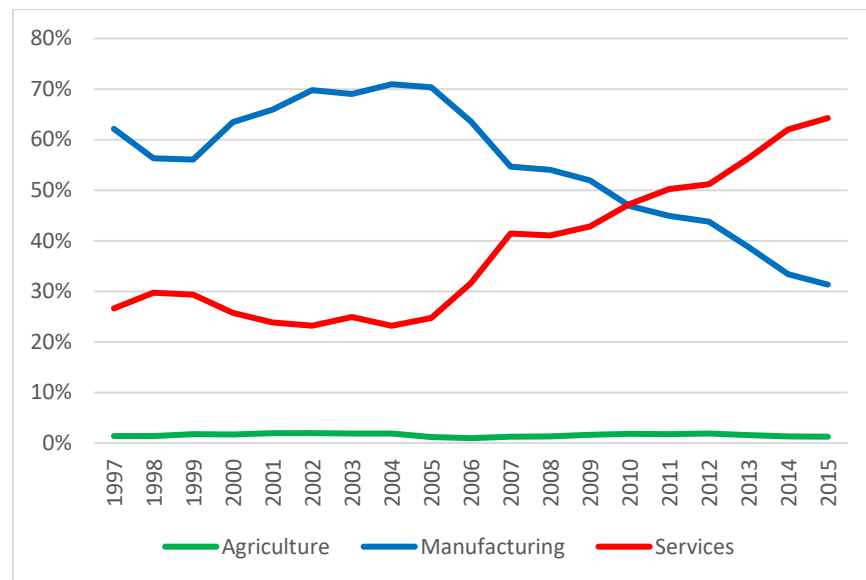


Figure 4.7 Sectoral Distribution of FDI Inflows

Data source: NBS

FDI and Income Inequality: Regional and Sectoral Openness

As shown above, FDI has become an inseparable part of China's economic openness. From 1980 to 2015, FDI policies have been liberalized significantly. As a result, yearly inflows of FDI have impressively increased to unprecedented levels with more equal regional distribution and deeper penetration in service sectors. However, the rapid cumulation of foreign capital seems to coincide with the sharp take-off of income inequality. In this section, I explore whether and to what extent FDI has contributed to worsening income inequality in China from two perspectives:

regional and sectoral distribution of FDI. As presented in the previous section, FDI policy liberalization in China is featured by two characteristics: greater regional openness and greater sectoral openness. I explore how these changes have altered income distribution in China.

One strand of existing literature argues that FDI inflows lead to higher regional inequality because it generates uneven economic development across provinces in China. A premise that this group of literature commonly holds is that FDI inflows are beneficial to economic growth. Higher inequality is a result of unequal distribution of FDI inflows, rather than FDI inflows themselves (Wei et al., 2009; Zhang & Zhang, 2003). In this group of literature, regional inequality is typically measured based on GDP per capita at the provincial level. Thus, regional inequality in these studies does not indicate how unequal income distribution is, but rather how some provinces are more economically advanced than others. Their findings suggest that liberalized policies and then a more equal allocation of FDI inflows would significantly narrow regional differences in economic growth.

Inspired by, although being quite different from, this scholarly line, I argue that an equal allocation of FDI inflows, which results from more open FDI policies, would unexpectedly increase income inequality. Here, I want to stress that I examine different outcomes compared to those who study regional inequality. Although all of us are interested in inequality, what we want to explain is quite different. This dissertation here aims to explore how income inequality is shaped by FDI inflows, while previous studies on regional inequality explain how differences in economic development across provinces are affected by FDI inflows. It is possible that equal regional allocation of FDI not only narrows gaps in per capita GDP across provinces, but also amplifies income gaps within provinces and later the overall income inequality. Per capita GDP does not

indicate how the benefits of economic development are distributed across individuals within a province. If the growing economic pie is unevenly distributed, it is likely that strong economic growth produced by FDI results in a higher level of per capita GDP and a more unequal society at the same time. When these happen, we would observe rising income gaps along with a more equal allocation of FDI inflows within a nation. This is my first hypothesis.

My second hypothesis emphasizes how FDI policy liberalization shapes income distribution via sectoral distribution of FDI inflows. More specifically, I hypothesize that when service sectors receive an increasing amount of FDI due to liberalized policies, income inequality in China also deteriorates. This is because FDI inflows are found to be associated with larger wage differentials between different occupations within service sectors. As foreign capital increasingly flows into services sectors, its inequality-inducing effect becomes more pronounced. Although Bogliaccini and Egan (2017) have confirmed that FDI inflows to service sectors contribute to rising income inequality, their sample did not include China. My analyses provide evidence from China.

To test my first hypothesis, I employ ECMs with the first difference of the market Gini index as the dependent variable and the CV of FDI as the key independent variable. As stated before, the CV measures how provinces differ from each other with respect to the amount of FDI they received at a given year. Higher values indicate larger variation in yearly FDI inflows across provinces. As Figure 4.4 shows, the CV has become smaller over the past few decades. Does this mean a more equal geographic distribution of FDI inflows? My answer is “Yes, but it means more than that”. On the one hand, a smaller CV definitely means that provinces in China have become not as different from each other as before with respect to how much FDI they have received. In this case, regional distribution of FDI inflows is more equal than before. On the other hand, increasing

inflows of FDI to each province may also be a consequence of greater sectoral openness, not just greater regional openness. A correlation test¹⁵ between the CV and the shares of FDI inflows to service sectors supports this interpretation with a value of -0.85. Smaller values of the CV are associated with increasing shares of FDI inflows to services. Thus, a significant relationship between the CV and the Gini index, if found in regression models, may be a function of both regional distribution and sectoral distribution of FDI inflows. To separate these two aspects of FDI policy liberalization, I also include the shares of FDI inflows to services in ECMs. In this case, I examine the effects of regional distribution and sectoral distribution of FDI at the same time.

GDP per capita, unemployment rate, and government spending on education are included as control variables. Due to the small sample size, these control variables are included in models separately. Similar to what I present in Chapter Three, unit root tests and cointegration tests are conducted before running ECMs. Detailed test results are presented in Appendix 3. A quick overview of these tests is that market Gini, the CV of FDI inflows, GDP per capita, unemployment rate, government spending on education, percentages of FDI inflows to manufacturing and services are all unit root or integrated at the first order. But cointegration, or a long-term equilibrium relationship, only exists between the Gini index and the CV, and between the Gini index and unemployment rate. Thus, to avoid spurious relationship produced by other control variables, the lagged terms of GDP per capita, government spending on education, percentages of FDI into manufacturing and services are not included in ECMs.

Results are reported in Table 4.2. The coefficients for the lagged market Gini from all the models are significant, indicating serial correlation has been corrected. All the models show

¹⁵ Pearson's R statistic

negative coefficients for the CV of FDI inflows, suggesting that a more equal distribution of FDI inflows leads to more serious income inequality in both short and long terms. Taking Model 1 as an example, the short-term effect of the CV of FDI is -6.40. This means that when the CV increases by 1 unit, the Gini index decreases by 6.40 points. Given that the CV has decreased in China, income inequality is expected to climb up. The average yearly change of the CV is -0.03, indicating a more equal regional distribution of FDI. When the CV of FDI drops by 0.03 point on average each year, a 0.19-point¹⁶ increase occurs in the Gini index in the short term. The long-term effect of the CV is more concerning with a value of -13.61¹⁷. A 1-unit decrease in the CV results in a 13.61-point increase in income inequality. This finding seems to be much more worrisome due to such a large magnitude of the long-term effect. But a more practical interpretation of this result needs to consider the trend of the CV in the Chinese context. Because the annual value of the CV drops by 0.03 point on average, it leads to a 0.41-point¹⁸ increase in the Gini index in the long run. Model 2 and Model 3 also report results that an equal regional distribution of FDI inflows contributes to widening income gaps both in the short and long terms.

To control the possibility that a smaller CV also indicates greater sectoral openness, I include the shares of FDI inflows to services and manufacturing sectors in Model 4 and Model 5, respectively. Due to the shorter coverage of these two variables, the sample size of these two models drops to 18 years (1997 – 2015). The results from these two models further confirm that an equal distribution of FDI across geography exacerbates, rather than mitigates, income gaps.

¹⁶ This number is obtained by the following equation: $0.19 = -6.40 \times -0.03$.

¹⁷ This number is obtained by dividing the coefficient for the lagged CV with the absolute value of the coefficient for the lagged market Gini, that is, $-4.22 / |-0.31| = -13.61$.

¹⁸ This number is obtained by the following equation: $0.41 = -13.61 \times -0.03$

Both the short- and long-term effects are statistically significant and consistent with the results from the first three models with longer time coverage.

By combining all the results from Table 4.2, I conclude that a wider regional distribution of FDI inflows leads to a more unequal society in China. The short-term effect of equal dispersion of FDI, indicated by smaller CVs, raise the Gini index by a range of 5.23 and 6.79 points. In the meantime, it drives up income inequality in the long term with a scale of 13.61 to 16.63 points¹⁹. As provinces and cities in China become more open to foreign investors, income inequality deteriorates significantly. This finding is quite different from, although not contradictory to, the wide-spread notion that an equal distribution of FDI inflows would result in smaller gaps in economic growth between provinces.

Table 4.2 FDI Inflows and Income Inequality in China

Variables	Model 1	Model 2	Model 3	Model 4	Model 5
Market Gini _{t-1}	-0.31*** (0.04)	-0.28*** (0.04)	-0.38*** (0.06)	-0.35*** (0.10)	-0.37*** (0.11)
Δ CV of FDI	-6.40*** (2.09)	-5.23** (1.81)	-6.79*** (2.02)	-5.77** (2.51)	-5.96** (2.54)
CV of FDI _{t-1}	-4.22*** (1.11)	-4.06*** (0.93)	-6.32*** (1.73)	-5.18 (2.89)	-5.90* (3.26)
Δ Unemployment rate	0.02 (0.23)	0.12 (0.20)	-0.07 (0.23)	0.02 (0.28)	-0.01 (0.28)
Unemployment rate _{t-1}	0.50*** (0.17)	0.31* (0.16)	0.39** (0.18)	0.42* (0.23)	0.39 (0.24)
Δ Logged FDI		5.28** (1.98)			
Δ Govt. education spending			-3.15 (2.06)		
Δ FDI into services				0.01 (0.01)	
Δ FDI into manufacturing					-0.01 (0.01)

¹⁹ By dividing the coefficients for the lagged CV with the absolute value of the coefficients for the lagged market Gini, I obtain the long-term effect of the CV for each model: -13.61 (Model 1), -14.50 (Model 2), -16.63 (Model 3), -14.80 (Model 4), -15.95 (Model 5).

Table 4.2 Continued

Constant	18.32*** (3.50)	18.35*** (2.58)	28.30*** (5.11)	30.59*** (7.02)	33.66*** (7.53)
Observations (years)	21	21	21	18	18
		1994 – 2015		1997 – 2015	
R-squared	0.83	0.89	0.86	0.86	0.86

Error correction models. Two-tailed significance levels. *** p<0.01, ** p<0.05, * p<0.1

The effects of sectoral openness of FDI are presented in Model 4 and Model 5. Only the first differences of the percentages of FDI inflows to services and manufacturing are included in models because there is no cointegration between these two variables and the Gini index. The results from both models suggest that sectoral allocation of FDI inflows matters for income inequality. More specifically, higher FDI inflows to service sectors increase income gaps, while more FDI into manufacturing sector narrows income inequality. When the share of FDI that service sectors receive increases by 1 percent, the Gini index grows by 0.01 point. In contrast, a 1-percent increase in the share of FDI into manufacturing sector reduces the Gini index by 0.01 point. These findings are basically in line with previous studies on the distributional effects of FDI (Noorbakhsh et al., 2001; Sylwester, 2005). Although these results have not reached statistical significance, they provide us with hints about how FDI shapes income distribution via economic sectors. It may be possible that the insignificance results from a shorter time length. As the Chinese government continues to record and publish information on FDI, future studies could contribute more evidence.

Summary

This chapter examines the evolvement of FDI policies in China and how these policies have affected income distribution by influencing regional distribution and sectoral distribution of FDI

inflows. Over the period 1980 – 2015, income inequality in China has deteriorated noticeably. This trend coincides with greater openness of FDI. With China becoming more open to foreign investors, foreign capital began to spread out across the nation in the 1990s. As a result, regional differences in the amount of FDI inflows become smaller, indicating wider penetration of FDI in China. In addition, service sectors have become increasingly popular among the international investment community.

Scholars have long argued that a more equal regional distribution of FDI inflows may lead to similarly high levels of economic development, often measured by per capita GDP, across provinces. This dissertation provides a different picture of the distributional effect of wider penetration of FDI. Liberalized policies make China more open to foreign investors, who begin to invest their financial resources across the nation. As FDI becomes more significant in every corner of the nation, their inequality-inducing effect intensifies. Building on the findings of enterprise-based wage premiums and skill-based wage premiums summarized in Chapter Two, I propose that a wider regional distribution of FDI inflows reinforces wage differentials across enterprises and across skill-levels, leading to rising income inequality. Empirical evidence from time-series analysis shows that a more equal regional distribution of FDI inflows exacerbates, rather than mitigates, income gaps between the haves and the have-nots. As the Chinese national and local governments are still enthusiastic about attracting more foreign capital into their jurisdictions, it is likely that income disparities will continue to worsen with an increasingly equal regional allocation of FDI inflows.

Sectoral distribution of FDI inflows also seems to be relevant. Income inequality worsens when service sectors receive more foreign capital, but income distribution becomes more equal

when manufacturing industries are more popular among foreign investors. One issue concerning these findings is that temporal coverage of the data is short, which may be a reason for the insignificant coefficients. As data length becomes longer in the future, future studies may provide more solid evidence.

In conclusion, the inequality-inducing effect of FDI inflows is channeled through regional and sectoral distribution. These processes are not only affected by economic factors such as market size and labor cost (Ali & Guo, 2005; Boermans et al., 2011; Dees, 1998; Sun et al., 2002), but also shaped by government FDI policies. FDI policies designed by the Chinese government first influence how FDI inflows are distributed across geographies and sectors, and then alter income distribution.

Chapter Five Korea: Sectoral Openness and Income Inequality

Between the 1980s and the 2010s, income inequality in Korea has undergone drastic changes. Earlier studies on Korea have praised its ability of both achieving rapid economic growth and maintaining a relatively egalitarian income distribution in the 1970s and the 1980s. “Growth with Equity” was given to glorify this balanced development (Feng, 2011; Rao, 1978). However, a reversal occurred in 1993. A sharp upward trend of income inequality has been present since then until slight declines in the early 2010s.

As Figure 5.1 shows, income inequality, measured by the market Gini index from the SWIID, displays a U-shape pattern in Korea between 1980 and 2015. There are two distinct periods over the past four decades: noticeable declines between 1980 and 1993, and sharp increases since 1993 with slight decreases in the early 2010s. Significant improvements in reducing income disparities began to appear in the later 1970s. For about 15 years between 1978 and 1993, income inequality had remarkably declined. In 1993, the Gini index reached the lowest value of 29.1 on a scale of 0 – 100. It is suggested that nearly full employment, rising wages, and government endorsement to education contributed to this downward trend (An & Bosworth, 2013; Feng, 2011). However, this trend reversed in 1993. A sharp take-off of income gaps features the second period. Scholars and commentators have long blamed the Asian Financial Crisis of 1997 and the following neoliberal reforms as the culprit of rising income inequality in Korea. The data I used, however, indicate a different story. Income inequality had already begun to deteriorate before the financial crisis reached Korea. Neoliberal measures, including liberalized FDI policies described in detail in the next section, were prioritized after the newly elected president Kim Young-Sam began its administration in 1993. It is undeniable that the financial crisis and the following neoliberal

policies have escalated the already worsening income inequality. But a comprehensive examination of the trend of income inequality in Korea reveals that income distribution had undergone dramatic changes before 1997. This observation aligns with some recent studies (An & Bosworth, 2013; Mah, 2012).

Korea has long attracted scholarly attention to its income distribution (e.g. Adelman & Robinson, 1978; An & Bosworth, 2013; Chi & Kwon, 2012; Fields & Yoo, 2000; Koo, 1984; Rao, 1978). Even its reputation of growth with equity has heavily challenged by rapid increases in income inequality since the 1990s, Korea is still seen as a valuable case for other latecomers. The distributional effect of FDI inflows in Korea has been investigated in more recent studies by economists (Mah, 2002, 2006, 2012; Park & Mah, 2011). By using time-series analyses, these studies concluded that increasing flows of foreign investment into Korea were associated with rising income inequality between 1980 and 2008.

Two mechanisms have been argued to link FDI inflows and income disparities. First, FDI inflows to Korea increase the demand for skilled labor. The rising demand drives up the relative wage of skilled labor, generating large gaps between skilled labor and unskilled labor (Mah, 2002). Second, FDI inflows to service sectors, especially financial and banking sectors, reportedly lead to deterioration in income inequality since the neoliberal reforms in the 1990s (Mah, 2006; Park & Mah, 2011). Despite these theoretical arguments, empirical evidence has been sparse. For example, Mah (2006) only described the changes in FDI policies and inflows without empirically examining whether sectoral distribution of FDI contributes to rising income inequality. Even among the existing few empirical studies, policy liberalization and sectoral distribution of FDI are not explicitly examined. For instance, although Mah (2002, 2012) found that rising income

inequality is attributed to increasing inflows of FDI during the two periods of 1975 – 1995 and 1982 – 2008 based on results from ECMs, his studies only used FDI annual inflows.

As the analyses presented in Chapter Three confirm the inequality-inducing effect of FDI inflows, this chapter explicitly explores how sectoral distribution of FDI inflows matters for income distribution. I argue that the relationship between sectoral distribution of FDI inflows and income inequality is not purely economic. The Korean government has been involved in this process, either passively or actively at different time points. Based on the finding that FDI inflows amplify wage differentials within service sectors (Bogliaccini & Egan, 2017; Evans & Timberlake, 1980), I propose that FDI policy liberalization in Korea has been influential in altering sectoral distribution of FDI inflows, which in turn contributes to rising income inequality. A historical review of FDI policies and time-series analysis support my arguments.

My analyses of the linkage between FDI policy liberalization, sectoral distribution of FDI inflows, and income inequality are presented into two sections. In the first section, I first provide an overview of how FDI policies have evolved over the past few decades. As FDI policies became more liberal, more FDI has entered the Korean economy. However, not all economic sectors are equally attractive to foreign investors. Service sectors have been preferred over manufacturing sector since the early 1990s. In the second section, by modelling time-series data, I empirically test the relationship between sectoral distribution of FDI inflows and income inequality. I find that FDI inflows to services significantly contribute to wider income gaps. When combining the findings from the historical review of FDI policies and time-series analysis, the linkage between policy liberalization, FDI inflows to services, and income inequality becomes clear. By opening more service sectors to foreign investors, policy liberalization amplifies the inequality-inducing

effect of FDI inflows via wage differentials within service sectors, ultimately leading to fast-growing income inequality in Korea.

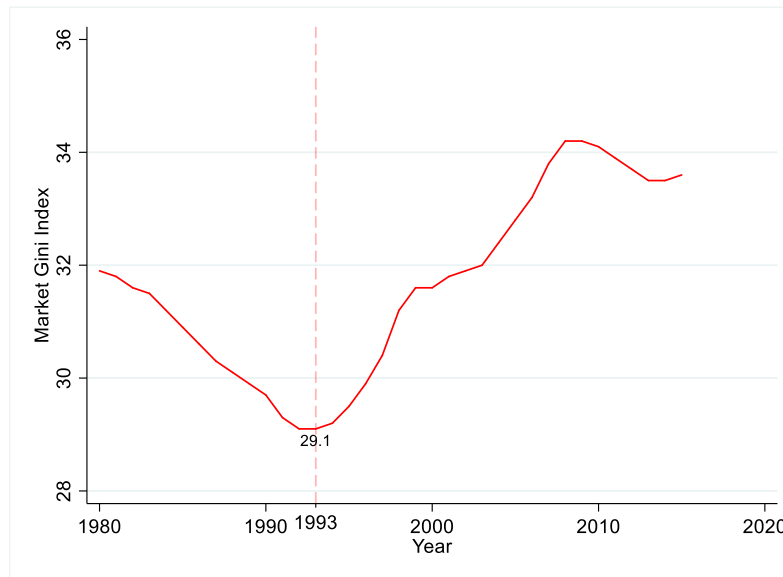


Figure 5.1 Income Inequality in Korea
Data source: SWIID Version 8.3

FDI Policies in Korea

Over the past four decades, FDI into Korea has increased remarkably, particularly since the early 1990s. According to the UNCTAD¹, only about 0.05 billion foreign capital, as 7.25 percent of Korea's GDP, was invested in Korea in 1980. Yearly inflows of FDI grew slowly during the 1980s. Beginning in the early 1990s, foreign investors began to pour a much larger amount of capital into Korea each year. The largest amount of yearly FDI inflows was 13.64 billion in 2005, which was 1.52 times the GDP of that year. Although annual FDI inflows have not increased

¹ Data can be accessed at <https://unctadstat.unctad.org/wds/TableViewer/tableView.aspx?ReportId=96740>.

monotonically, but rather with declines in some years, over the past few decades, it is relatively clear that foreign capital has become much more significant in the Korean economy.

Reflected in rising annual inflows of FDI, FDI policies in Korea have undergone tremendous changes. Between 1960 and 1980, foreign investment was welcomed but largely restricted in certain areas to promote exports, improve technology, and protect domestic industries. Since 1980, liberalization or market-oriented reforms of FDI policies gradually got momentum due to ideological shifts of top political leaders and pressure from the international investment community. But liberalization had only achieved moderate success over the period 1980 – 1993 (Bark & Moon, 2006; Bishop, 1997; Thurbon & Weiss, 2006). Active promotion of FDI became a policy priority when Kim Young-Sam assumed the presidency in 1993. After the 1997 Financial Crisis, a more thorough structural transformation of FDI policies emerged. In the following years, the Korean government enacted a series of liberalization reforms in response to the financial crisis, pressure from foreign investors, and the requirements attached to financial aids from the IMF. In this section, I review the history of FDI policies in Korea between the 1960s and the 2010s. Although this dissertation on income inequality in Korea only covers the period from the 1980s to the 2010s, it is useful to check the initial FDI policies and compare them with later liberal reforms. It shows how FDI policies have changed from restriction to liberalization gradually since 1993 and rapidly from 1998. Four aspects, including sectoral opening, foreign ownership, approval process, and tax benefits, are used to evaluate whether and to what extent these policies are restrictive or liberal.

1) Restrictive Policies from 1960 to 1980

Between 1960 and 1980, restrictive policies were put in place to manage inflows of foreign investment to meet the government's development plan. To transform the industrial structure and promote its capacity, the Korean government intentionally enacted a series of policies to gear foreign investment toward export-oriented manufacturing sectors to obtain foreign exchange and access to foreign markets. Foreign investment was also allowed in import-substitution sectors like oil refineries, petrochemicals, and general chemical to acquire advanced technologies from multinational corporates. However, foreigners were restricted or prohibited in service industries such as banking, hotels, insurance services, and real estate (Chung, 2007).

Korea's first foreign investment inducement policy, the Foreign Capital Inducement and Promotion Act (FCIPA), was enacted in 1960. This policy was designed to attract foreign investment inflows to develop industrial, agricultural, or fishery resources. However, restrictive measures, such as only up to 20 percent of the original amount of investment could be repatriated, were also imposed. In 1966, the Foreign Capital Inducement Law came into effect with some relaxed measures. For example, full foreign ownership was allowed. In 1970, the Economic Planning Board, which was in charge of foreign investment, used its extensive powers to facilitate the investment approval process. After 1970, Free Trade zones (FTZs) were created to attract foreign investment in labor-intensive and export-oriented industries such as textile, electronics, and machinery (Bishop, 1997; Warr, 1984).

FDI policies became more restrictive in 1973. At that time, Korean president Park Chung-Hee announced a new development plan with a focus on heavy and chemical industrialization. Building on the industrial foundation of oil refineries, petrochemical plants, and general chemical plants,

Park planned to achieve self-sufficiency in the production of steel and metals and then further promote industries such as shipbuilding, industrial machinery, and automobiles. Consequentially, more restrictive measures were issued. Foreign investment was not allowed to compete with Korean companies either in obtaining resources or in the access to foreign markets. Foreign investment was welcomed only when it generated foreign exchanges from exports and brought technologies, or when it did not generate competition against Korean firms. Foreigners were not allowed to hold more than 50 percent of equity in heavy chemical industry (Turner & Kim, 2017). Majority foreign ownership only existed in extreme circumstances, while joint ventures were overwhelmingly preferred to favor Korean domestic partners with advanced technologies. Lastly, to prevent small firms, especially those from Japan, from flooding into the Korean economy, a minimum investment amount was issued.

2) Limited Liberalization of FDI between 1980 and 1993

From 1980 to 1993, policy restrictions on foreign investment had been relaxed. However, these policy revisions, which I provide more details below, only generated incremental changes toward liberalization (Bishop, 1997). Although top political leaders showed interested in policy liberalization, the investment environment was still not as friendly as they expected. The unwillingness of bureaucrats to comply with the policy relaxations has been viewed as one reason (Luedde-Neurath, 1984).

During Chun Doo-Hwan's administration (1980 – 1988), the jurisdiction of foreign investment was transferred from the Economic Planning Board to the Ministry of Finance (hereafter MOF). This transfer indicated that FDI was viewed as simply as one type of capital that

could be used for development goals, instead of being intentionally managed by the Korean government to achieve its priorities (Bishop, 1997). Several liberalization measures came into effect with the revised Foreign Capital Inducement Law passed in 1984. First, a negative list system replaced the previous positive list system, which was a major feature of the reform during this period. Under the negative list system, FDI was allowed in any industry if that industry was not listed with restrictions. Before this change, foreign investment was only allowed in industries explicitly listed on the system. As a result, most industries from manufacturing and service sectors, except for restricted areas, were declared to be open to foreign investors. Joint ventures were still more preferred in many industries. Second, automatic approval was permitted in the following four scenarios: when foreign ownership was less than 50 percent, when investment amount was less than one million USD, when there was no claim for tax reduction, and when investment did not enter a restricted area (Bishop, 1997). Third, tax benefits were only available when foreign investment made a significant contribution to the balance of payments, technology advancement, or when it went to a free export zone.

Progress toward liberalized FDI policies continued to be limited during Roh Tae-Woo's administration between 1988 and 1993. Improvement appeared in the following four areas, as Bishop (2001) summarized from documents from MOF. First, 26 manufacturing sectors were opened to FDI, which raising the openness ratio from 95 percent to 97 percent. This, however, was not of much interest to foreign investors due to rising labor wages and declining profits in manufacturing industries. Second, services sectors were still not fully open even though foreign investors have long shown strong interests. Some service industries, like insurance, advertising, and maritime services were partly opened. Third, with expansion in 1988 and 1991, automatic

approval system, first introduced in 1984, was only permitted in certain circumstances, including minority foreign equity and no tax incentives. Fourth, tax incentives became only available when investment brought in advanced technologies.

3) Active Promotion of FDI since 1993

The 1997 Financial Crisis has been long marked as the start of radical liberalization of FDI in Korea. However, studies on the history of government policies have revealed that the market-oriented movement already gained its momentum before 1997, more specifically in 1993. From the beginning of Kim Young-Sam's presidency (1993 – 1998), a more market-oriented approach was imaged among top leaders. Due to internal pressure, like balancing payment, upgrading technologies, and reforming the industrial structure, and external pressure from the WTO, the OECD, and the IMF, radical liberalization reforms were carried out since 1998. These changes finally lead to an unprecedented level of liberalized FDI policies in Korea, leaving only three sectors completely closed to foreign investors: radio, television broadcasting, and nuclear power (Nicolas et al., 2013).

Starting in 1993, as planned in a timetable, many previous restricted sectors became gradually open to foreign investors during Kim Young-Sam's tenure. For example, construction, road transport services, entertainment, and personal services became available in 1994, while agricultural production, foreign trade, ocean freight, and air freight were open in 1997 (MOF reports from Bishop, 1997). In 1995, revisions were issued to open previously restricted areas. Foreign investors were also allowed to merge or acquire existing Korean corporates. If these revisions were fully implemented, the level of openness to FDI in Korea would become similar to

those of other OECD countries (Bishop, 1997). In addition, service industries were further opened to foreign investors (Kim & Kim, 2003). A total number of 129 service industries was liberalized from 1993 to 1997 (Nicolas et al., 2013). Investment notification system, first introduced in 1991, was further streamlined to simplify the procedures. Special assistance was also provided to foreign investors in dealing with regulatory requirements.

After being dragged into an economic recession due to the Financial Crisis of 1997, Korea became more enthusiastic about attracting FDI because it was perceived to provide a stable way of financial development and lowered the risk of currency crashes. In his address to a joint meeting of the US Congress on June 10th, 1998, Korean President Kim Dae-Jung (1998-2003) explicitly stated that foreign investment and market reforms were the only solutions to the crisis. As a result, proactive promotion of FDI became a new policy orientation since 1998. To attract FDI, eight Free Economic Zones (FEZs) have been created since 2003. Deregulated measures and tax incentives are provided in these FEZs to create a favorable environment for foreign investors (Kim & Han, 2014).

Significant structural adjustments were conducted under the Foreign Investment Promotion Act (FIPA) passed in 1998. The Act, with support from the IMF, made noticeable changes in sectoral opening, foreign shareholding, and approval procedures. First, in 1998 dozens of business sectors were open, at least partially, to foreign investors. These include formerly restricted areas like rental and sale of real estate, insurance-related business, land development, power generation, and waterworks. The openness of these areas led to only 1 percent of business sectors (a total of 1148) closed to FDI and another 1 percent with partial openness (Nicolas et al., 2013). Restrictions on FDI were only present in sectors involving national security, public order, public health,

environmental preservation, and social morals (Nicolas et al., 2013). Second, restrictions on foreign shareholdings were eliminated or significantly reduced. Limits on foreign equity in industries were also removed. Mergers, acquisitions, and even hostile takeovers were permitted. Third, administrative procedures were greatly simplified. Under the FIPA, government approval of FDI was no longer required unless investment went to defense-related companies. For most investment, only prior notification by foreign investors was needed.

4) FDI Policies and Inflows

As presented above, Korean FDI policies have undertaken tremendous liberalization measures since 1993, particularly after the Financial Crisis of 1997. Two main features of policy liberalization have emerged. First, Korea has become increasingly open and friendly to foreign investors. Former policy restrictions against foreign capital have been removed in the 1990s, generating rapid increases in foreign capital into Korea. Second, service sectors have become much more attractive to the international investment community than manufacturing since the early 1990s. Finance is currently one of the most attractive industries. To better illustrate policy changes and their effects on FDI inflows, I present evidence from the KOF globalization index dataset and official statistics from Korean Statistical Information Services (KOSIS). Table 5.1 presents the trends of policy liberalization and sectoral distribution of FDI in Korea between 1970² and 2015. The decade of the 1960s is not covered here due to a lack of reliable data. I close this subsection with some discussion on geographic distribution of FDI in Korea. At this moment, it is not possible for me to test how regional distribution of FDI influences income inequality because

² The KOF globalization index is only available for countries since 1970.

of unavailable data. But a recent study on how FIEs have been located in Korea, which I discuss in more detail later, may offer inspirations for future studies.

FDI policy liberalization is indicated by the *de jure* financial globalization index³, the same index I used in the previous Chapters. This index ranges from 0 to 100, which higher numbers meaning greater openness to the world or more liberal policies. As shown in the first column of Table 5.1, a clear pattern of liberalization has been present in Korea. As I discussed above, from 1960 to 1980, FDI policies were restrictive due to Korean leaders' concerns about foreign control and preferences for foreign loans and aids. Although the *de jure* index is not available for the 1960s, it shows an average score of 25.39 for the 1970s, which was much lower than the levels of Japan (47.20) and Singapore (58.32), according to the KOF. It was actually the second lowest score among the cases I examined, only high than the level of China (8.62). Beginning in the 1980s, the *de jure* index began to increase due to gradual openness during the presidencies of Chun Doo-Hwan and Roh Tae-Woo. The average score of the 1980s was about 10 points higher than that of the previous decade.

In 1993, FDI policy liberalization got stronger momentum from the administration of Kim Young-Sam. This is reflected in a further increase in the FDI policy index, which finally reached a value of 43.61 on the eve of rapid liberalization after the financial crisis. It may be argued that the period from 1993 to 1997 is not that liberal compared to the previous period from the 1980s to the early 1990s. If we only examine the *de jure* index, this argument may be valid. But when we consider it with sectoral distribution of FDI, which is shown in Table 5.1 as well, it is clear that

³ A similar concern of whether this index is appropriate to indicate FDI policy liberalization rises in the Korean context as well. A correlation test shows a Pearson's R statistic with a value of 0.80 between the lagged values of this *de jure* financial globalization index and yearly inflows of FDI into Korea from 1970 to 2015. This strong correlation warrants the use of the index as an indicator of changes in FDI policies.

year 1993 signals the beginning of an era featured by significant liberalization of FDI. From 1993 to 1997, the average annual inflows of FDI reached 2.1 billion USD from 0.68 billion during the previous period 1980 – 1992. And the average yearly inflows of FDI into services first surpassed those into manufacturing sectors. This new pattern of sectoral allocation becomes more pronounced in the following years.

Starting from 1998, liberal orientation has become more manifested in Korean FDI policies. In the following decade after the crisis, the *de jure* index averaged on 61.21, which is about 18 points increase from the previous period 1993 – 1997. And this liberal trend has continued to grow in the 2010s, which raises the average score to 66.95. Along with liberalized FDI policies, FDI yearly inflows have grown significantly. Between 1998 and 2009, the average annual inflows further increased five-fold to around 10 billion each year from 2.1 billion during the period of 1993 to 1997. Slightly larger amounts of FDI inflows, namely 10.62 billion, were recorded for the first five years of the 2010s.

Table 5.1 FDI Policy Index and Sectoral Distribution of FDI in Korea

Period	FDI Policy Index (0-100)	FDI yearly inflows (Mean, USD in billion)	Manufacturing (% of total)	Services (% of total)
1970 – 1979	25.39	0.1	76.95	21.68
1980 – 1992	35.02	0.68	64.58	31.04
1993 – 1997	43.61	2.1	47.53	51.89
1998 – 2009	61.21	9.36	32.54	59.94
2010 – 2015	66.95	10.62	35.00	61.58

Data source: KOF, UNCTAD, Bishop (1997), and KOSIS

The second characteristic that features FDI into Korea is that service sectors have been preferred over manufacturing sectors by foreign investors since the early 1990s. And this sectoral

shift is also shaped by Korean FDI policies. Between 1970 and 1992, FDI policies were much more restrictive for service sectors than manufacturing sector, as discussed above. Foreign capital was geared to improve Korea's industrial capacity, introduce advance technologies, and ultimately achieve the state's development goals. Thus, as Table 5.1 shows, manufacturing sector had received the largest shares of FDI inflows from 1970 to 1992. Services, at most, only accounted for one-third of foreign investment. The situation changed in 1993. With liberalized policies, service sectors surpassed manufacturing to receive most FDI. From 1993 to 1997, service sectors had absorbed 51.89 percent of FDI each year. The gap in attractiveness between services and manufacturing becomes even larger in the following years, particularly in the 2010s.

Correlation tests give us a hint about how policy liberalization shapes inflows and sectoral distribution of FDI. As I described above, liberal policy reforms not only removed previous restrictions on foreign ownership, but also opened more economic sectors to foreign investors, particularly service sectors. Therefore, I anticipate not only a positive relationship between policy liberalization and rising volumes of yearly FDI inflows, but also a positive relationship between policy liberalization and increasing FDI flows into services. Correlation tests offer support for these anticipations. Because there are significant lags in policy effects, I use one-year lagged values of the *de jure* index. As Table 5.2 shows, the *de jure* index is strongly associated with yearly inflows of FDI between 1980 and 2015. As FDI policies become more liberal, annual inflows increase significantly. Policy Liberalization also alters how FDI is allocated in the Korean economy. There is a negative relationship between the *de jure* index and the percentages of FDI into manufacturing. But this negative association should not be interpreted as FDI policies prohibit the entry of foreign investors into manufacturing sectors. Instead, it reflects losing popularity of

manufacturing due to the openness of services sectors. According to Table 5.2, the shares of FDI into services increase with policy liberalization. As FDI policies become increasingly open, foreign investors shift their priorities from manufacturing to services.

Table 5.2 Correlation between FDI Policies and FDI Inflows in Korea

	FDI inflows	FDI inflows to manufacturing	FDI inflows to services
Lagged FDI policy liberalization	0.75	-0.59	0.69

Data source: KOF, UNCTAD, KOSIS

With respect to geographic distribution of FDI in Korea, previous discussion is extremely limited, at least in the English world. By using ArcGIS techniques, Kim and Han (2014) visualized how FDI inflows have been dispersed in Korea from the 1970s to the 2000s. Using the numbers of FIEs as a proxy of FDI inflows, they found a U-shape pattern of how FIEs are located. In the 1970s, the vast majority of FIEs were located in the capital city of Seoul and the second-tier city Busan, resulting in an unequal distribution of FDI. This unequal dispersion slightly improved between the 1980s and the 1990s as other major cities like Daegu and Ulsan also became homes to FIEs. However, since the 2000s, the concentration of FIEs reoccurred. The capital region is the most preferable place for foreign investors to establish their businesses, of which most fall in service sectors. It is reported that 55 percent of FIEs are located in Seoul, and 83.7 percent are in the broader capital region in 2010 (Kim & Han, 2014).

Is the uneven regional dispersion of FDI shaped by FDI policies? I suspect a negative answer. First, FDI policies do not reveal a clear trend of whether and how local governments have promoted FDI over the past four decades. Even though FEZs were established to attract FDI by

offering favorable treatments, FDI was seemingly not restricted or prohibited in most localities in Korea even in the early years of the 1970s and the 1980s. Second, Kim and Han (2014) proposed four factors that jointly contribute to the extreme popularity of Seoul among the foreign investment community: benefits of being proximate to other businesses; the concentration of high-quality education provision, the long history of being home to FIEs with low risks, and the advantages of being a knowledge-based economic structure. FDI policies are not considered as one factor that alters the allocation of FIEs and FDI inflows. Therefore, I suspect that geographic allocation does not serve as a channel through which FDI policies shape income distribution. An empirical examination would provide more solid grounds for this postulation, but the information of FIEs covering a long time-span is not publicly accessible at this point. This issue may be considered in future studies.

FDI and Income Inequality: Sectoral Openness

The second part of my arguments is to demonstrate the inequality-inducing effect of FDI inflows when it enters service sectors. Although a few studies on Korea suggest that FDI inflows to service sectors, especially financial and banking sectors, deteriorates income inequality since the neoliberal reforms in the 1990s (Mah, 2006; Park & Mah, 2011), empirical evidence is still sparse. For example, Mah (2006) only described the changes in FDI policies and inflows without empirically examining whether sectoral distribution of FDI inflows contributes to rising income inequality. My time-series analyses explicitly examine this issue.

To estimate how sectoral distribution of FDI inflows affects market inequality in Korea between 1980 and 2015, I employ error correction models (ECMs), which are the same estimator

I used in the previous chapters. The first difference of market Gini is regressed on the lagged term of market inequality, sectoral distribution of FDI inflows, unemployment rate, and logged GDP per capita. Two variables indicate how FDI inflows are allocated across industries: the proportions of FDI inflows to manufacturing and service sectors. The level and lagged terms are used to indicate the short- and long-term effects of these variables. Unit root tests and cointegration tests are conducted before running ECMs. Detailed test results are presented in Appendix 4. A quick overview of these tests is that the Gini index, the percentages of FDI inflows to manufacturing and services, unemployment rate, and logged GDP per capita are all unit root or integrated at the first order. Cointegration tests show that a long-term equilibrium relationship exists between the Gini index and independent variables.

The results of ECMs are reported in Table 5.3. Both two models have a significant coefficient for the lagged Gini index, indicating serial correlation has been corrected. Sectoral distribution of FDI inflows, particularly more inflows to service, is found to be associated with widening income gaps. Model 1 reports how FDI into services influences income distribution in both the short and long terms. As for Model 1, as the shares of FDI inflows to services increase, income inequality climbs up. In the short term, a 1-percent increase in FDI into services results in a 0.01-point increase in income inequality. In the long term, when the shares of FDI into services increase by 1 percent, the Gini index grows by 0.09 point⁴. In contrast to the inequality-rising effect of FDI inflows to services, FDI into manufacturing sectors seems to reduce income gaps. But its inequality-reduction effect is not found significant in the short and long terms, as Model 2 shows. Combining all the results, I found that sectoral distribution of FDI inflows deteriorates income

⁴ This number is obtained by dividing the coefficient for the lagged FDI into services (0.01) by the absolute value of the coefficient for the lagged market Gini (-0.11).

distribution in Korea. Given the popularity of service sectors, this finding is particularly concerning.

Table 5.3 Sectoral Distribution of FDI Inflows and Income Inequality in Korea

Variables	Model 1	Model 2
Market Gini _{t-1}	-0.11*** (0.03)	-0.10** (0.04)
Δ FDI into services	0.01** (0.00)	
FDI into services _{t-1}	0.01*** (0.00)	
Δ FDI into Manufacturing		-0.004 (0.003)
FDI into Manufacturing _{t-1}		-0.006 (0.004)
Δ Unemployment rate	0.17** (0.08)	0.16* (0.08)
Unemployment rate _{t-1}	0.15*** (0.04)	0.11** (0.05)
Δ Logged GDP p.c.	-0.27 (2.25)	-0.26 (2.50)
Logged GDP p.c. _{t-1}	0.11 (0.13)	0.26** (0.13)
Constant	1.27 (1.44)	0.62 (1.69)
Observations	35	35
R-squared	0.64	0.55

Error correction models. Two-tailed significance levels. *** p<0.01, ** p<0.05, * p<0.1

Summary

This chapter examines the evolvement of income inequality and FDI policies in Korea and provides time-series evidence showing how FDI policies have shaped income distribution through sectoral distribution of FDI inflows. Over the period 1980 – 2015, income inequality in Korea has experienced a U-shape pattern. The Gini index significantly decreased in the 1980s but began to rise dramatically since the early 1990s. This trend parallels with liberalization of FDI policies.

After being highly restrictive before the 1980s, FDI policies achieved modest openness during the 1980s. Significant liberalization occurred since 1993, particularly after the Financial Crisis of 1997.

With FDI policies becoming more liberalized, previous restrictions against foreign investors on service sectors have been reduced and later largely removed. These liberal changes create opportunities for FDI to enter service sectors. That is why we have observed that foreign investors shifted their focus from manufacturing industries to service sectors. This sectoral shift toward services has distributional implications. Because FDI inflows have been found to be a contributor to income differentials within service sectors, liberalized FDI policies and hence more FDI flows into services intensify incomes gaps. In this case, FDI policy liberalization contributes to rising income inequality by enhancing the inequality-inducing effect of FDI inflows, particularly when foreign investors are allowed to enter service sectors.

My historical and statistical analyses provide evidence linking policy liberalization, sectoral distribution of FDI inflows, and income inequality together. I demonstrate that the Korean government is by no means absent in the distributional effect of FDI inflows. Liberalization measures in FDI policies intensify the inequality-inducing effect of FDI inflows by opening service sectors. Even though liberalized FDI policies were originally designed to ease former restrictions on FDI inflows and attract more foreign capital to boost the Korean economy (Nicolas et al., 2013), their influence on distributional outcomes should not be overlooked.

Chapter Six Conclusion and Discussion

Since the 1980s, an increasing portion of global FDI has flown into East Asia developing countries. Even though foreign investment dropped significantly in the first few years following the 1997 Asian Financial Crisis, East Asia has regained the trust of foreign investors and later has become the darling of the international investment community. According to data from the UNCTAD¹, FDI inflows to East Asia between 2010 and 2015 has almost accounted for a quarter² of the total amount of global FDI inflows. At the meantime, escalation in income inequality has been documented in this region. This dissertation aims to identify whether there is a relationship between FDI inflows and income inequality in East Asia.

There has been a considerable body of literature explaining the distributional effect of FDI inflows. Although early studies expect FDI inflows to be an income equalizer, most recent studies have found the inequality-inducing effect of FDI inflows. My analyses contribute to this growing literature by providing new time-series evidence from East Asia. However, this dissertation is not just an empirical reexamination of the distributional effect of FDI inflows. Inspired by studies on policy liberalization and economic freedom, this dissertation also explores whether and how FDI policies are involved in the inequality-inducing effect of FDI inflows. By bridging the two groups of literature on FDI inflows and FDI policies, my analyses offer a more comprehensive understanding of the role of government in the distributional effect of FDI inflows.

To answer my research questions, I employ the nested analysis approach proposed by (Lieberman, 2005). By using TSCS analysis as the first step, I examine the relationship between

¹ FDI data can be obtained at <https://unctadstat.unctad.org/wds/TableView/tableView.aspx?ReportId=96740>.

² The specific number is 23.36 percent based on author's calculation.

FDI inflows and income inequality and the influence of FDI policies in this relationship. Statistical results indicate that FDI inflows have become an influential driving force of rising income inequality since the 1980s in East Asia. The inequality-inducing effect of FDI inflows is present both in the short and long terms. Statistical analyses also show that the adverse effect of FDI inflows is not immune to political forces. More specifically, I find that liberalization of FDI policies amplifies the inequality-inducing effect of FDI inflows.

How does FDI policy liberalization intensify the inequality-inducing effect of FDI inflows? To answer this question, I select China and Korea for case study as the second step of nested analysis. Building on existing literature on enterprise-based wage premiums, skill-based wage premiums, and wage polarization within service sectors, I argue that the inequality-inducing effect of FDI inflows is intensified by policy liberalization through two channels: regional distribution and sectoral distribution.

Both case studies provide historical and time-series evidence supporting my arguments. On the one hand, China's policy openness to foreign investors has led to broader penetration of FDI inflows across its provinces. Scholars have long advocated for an equal regional distribution of FDI inflows in China to reduce differences in economic growth between provinces. In contrast, I argue that an equal regional distribution of FDI inflows is detrimental to income inequality, even if it may generate economic growth. As FDI inflows become widely dispersed across provinces in China, their influence on enterprise-based and skill-based wage premiums become more pronounced in local economies, contributing to growing income gaps. Case study on China supports this argument. On the other hand, as for the Korean case, sectoral distribution of FDI is more influential. As policy restrictions began to be eased in the early 1990s, service sectors finally

became more accessible to foreign investors. As a result, service sectors have received most FDI inflows since the 1990s. Building on previous findings that FDI inflows exacerbate wage differentials within service sectors, I demonstrate that the sectoral shift of FDI inflows toward service sectors in Korea leads to growing income inequality.

In summary, the parallel trends of increasing FDI inflows and rising income inequality in East Asia are by no means accidental or unrelated. New time-series evidence confirms the deleterious effect of FDI inflows on income distribution. But the distributional effect of FDI inflows is not a purely economic phenomenon because government policies, specifically FDI policies, have played a significant role in it. Both statistical and historical evidence indicate that liberalized FDI policies impose a conditional effect on how FDI inflows perpetuate income inequality. The conditional effect of FDI policies is materialized in two ways: regional distribution and sectoral distribution. An equal regional distribution of FDI inflows intensifies enterprise-based wage premiums and skill-based wage premiums, while a sectoral shift of FDI inflows toward service sectors reinforces wage polarization within service sectors. These two channels ultimately result in growing income inequality. Therefore, the positive relationship between FDI inflows and income inequality in East Asia is a joint product of political and economic forces. The role of FDI policies is essential to the understanding of how FDI inflows affect income inequality.

Empirical and Theoretical Contributions

The findings presented above make three empirical and theoretical contributions to the research on the distributional effect of FDI inflows and FDI policy liberalization. First, this dissertation provides new time-series evidence to enrich the research on East Asia. Income

inequality has received considerable attention from scholars and policy makers in this region. However, much work has been done in individual countries, fewer studies are examining the region as a whole (Chi & Kwon, 2012; Feng, 2011). Even among these studies examining the region of East Asia, they fall short of providing comprehensive empirical evidence on the relationship between FDI inflows and income inequality. For example, Chi and Kwon (2012) provided a broader review of existing theories on income inequality, including FDI inflows, but they only tested the correlation between income inequality and each explanatory variable separately. This dissertation contributes to the scholarship on East Asia by providing a comprehensive empirical examination covering nine countries or political entities, including China, Hong Kong, Indonesia, Korea, Malaysia, the Philippines, Singapore, Taiwan, and Thailand. Not only does this dissertation covers a broader range of countries than previous studies, but also it provides longer temporal evidence showing the distributional evidence of FDI inflows over the past four decades. Additionally, this dissertation also provides a more systematic examination of income inequality by testing potential explanations against each other. Statistical results indicate that FDI inflows increase income inequality in East Asia both in the short and long terms. The inequality-inducing effect of FDI inflows is significant and consistent when alternative explanations from political, economic, and sociodemographic perspective are controlled and potentially influential countries are excluded.

Second, this dissertation stresses the influence of government in the relationship between FDI inflows and income distribution via FDI policies. The role of government has mostly been missing or implicitly examined in the literature on the distributional effect of FDI inflows in cross-national studies. The same issues also exist in studies on East Asia (An & Bosworth, 2013; Fields, 1994;

Fields & Yoo, 2000). In these studies, it is often implied that FDI policy liberalization is equal to growing FDI inflows. I argue that they are not identical, even though they are related. The volumes of inward FDI are a result of a range of factors, including government policies (Ang, 2008; Choong & Lam, 2010; Sharma et al., 2012; Zhang, 2011). Thus, when FDI is found to be influential in income distribution, it probably does not accurately reflect the role of government policies. Unlike many previous studies, this dissertation explicitly examines the influence of government via FDI policies. It is found that FDI policy liberalization exacerbates the inequality-inducing effect of FDI inflows. As FDI policies become more liberalized, FDI inflows become more harmful to equal income distribution. By distinguishing FDI policies from FDI inflows, this dissertation not only directly investigate the impacts of government policies, but also emphasizes the need for differentiating policy forces and economic forces. This approach, as suggested by the analyses presented in this dissertation, may offer a better way of understanding the economic consequences of globalization.

Third, this dissertation explores the mechanisms by which FDI policy liberalization shapes income distribution. As I summarized in Chapter Two, there is a small but growing literature identifying the relationship between economic freedom/neoliberalism and income inequality. The findings of this literature imply that FDI policy liberalization is also detrimental to income distribution as other types of policy liberalization. However, existing studies have not provided explanations on why liberalized FDI policies is harmful, or in other words, how liberalized FDI policies drive up income gaps. This dissertation answers these questions by conducting case study on China and Korea. Analyses show that FDI policy liberalization intensifies the inequality-inducing effect of FDI via regional distribution and sectoral distribution. An equal regional

distribution of FDI inflows reinforces enterprise-based and skill-based wage premiums, and more FDI into service sectors amplifies wage polarization between occupations within service sectors. Increasingly liberalized policies make two mechanisms become more pronounced in host economies, leading to growing income inequality. As I explained in Chapter One, regional distribution and sectoral distribution of FDI inflows are not unique issues for China and Korea. Thus, the findings on these two mechanisms provide some insights for improving our understanding of how FDI policy liberalization conditions the inequality-inducing effect of FDI inflows.

Limitations

Two limitations deserve some discussion. First, it may raise concerns about my analyses of FDI policies because the *de jure* financial globalization index I adopted from the KOF is broadly defined to measure policies related to financial flows, not just policies related to FDI. The only policy index I found that specifically measures FDI policies is the FDI Regulatory Restrictiveness Index from the OECD. However, as I discussed in Chapter Three, the OECD index only provides limited coverage on East Asia, which will significantly reduce the sample size and constrain the validity of statistical results if it is used in analyses. The larger data coverage is one major reason why I choose to use the *de jure* financial globalization index, even if it measures a broader scope of policies related to foreign investment.

To mitigate the concern that the results of the *de jure* financial globalization index may also indicate the influence of other financial policies, rather than just FDI policies, I use the following two ways. First, the conditional effect of FDI policies is indicated by the coefficient for the

interaction term between the *de jure* financial globalization index and FDI inflows. When the interaction is found to be statistically significant, policies that are involved should be mainly related to FDI inflows. Thus, by using an interaction term, I try to single out FDI policies from other financial policies measured in the *de jure* financial globalization index. At the same time, the influence of other financial policies should be reflected in the coefficient for the *de jure* financial globalization index, not the coefficient for the interaction term. Second, in case studies on China and Korea, I primarily use the *de jure* financial globalization index to confirm the features of policy changes I summarized from the historical reviews of FDI policies in both countries. When there is a need for time-series analysis in these two case studies, I use indicators measuring the actual regional distribution and sectoral distribution of FDI inflows instead of directly using this *de jure* index. By doing so, I try to avoid introducing the influence of other financial policies to the analyses of FDI policies.

Second, due to data constraints, my analyses on sectoral distribution of FDI inflows in China and regional distribution of FDI inflows in Korea are limited. Although I still find a relationship between FDI inflows to service sectors and rising income inequality in China, the evidence is weak because of short time coverage. As for the Korean case, without the access to data indicating regional distribution of FDI inflows, it is difficult to gauge its impacts on income distribution. Although I suspect that regional distribution of FDI inflows has not been a major way affecting income distribution based on my policy review and the results of a recent study by Kim and Han (2014), future studies with more available data may provide more solid grounds for this postulation.

Implications and Concluding Remarks

This dissertation starts with an observation of the parallel trends of increasing FDI inflows and rising income inequality in East Asia. Building on previous studies, I propose a synthesized theoretical framework that incorporates FDI inflows, FDI policies, three mechanisms by which FDI inflows raise income inequality, and income distribution. Results of statistical analyses and case studies not only confirm the inequality-inducing effect of FDI inflows, but also demonstrate how FDI policy liberalization reinforces this effect. The theoretical framework and the analytical findings of this dissertation offer important implications for further studies and policymaking.

Theoretically, the synthesized theoretical framework used in this dissertation suggests that an integrated approach is beneficial for providing a comprehensive picture of the distributional outcomes of FDI inflows and FDI policies, and more broadly globalization and neoliberalism. A considerable size of research has achieved remarkable progress in identifying theoretical reasons and providing empirical evidence for the distributional effects of globalization, but this research has not thoroughly examined the role of policy liberalization. On the other hand, much work has been done on the causes and process of neoliberalism in various contexts, including East Asia (Beeson & Islam, 2005; Park et al., 2012; Pirie, 2007; Robison & Hewison, 2005; Woo, 2007) and Latin America (Gwynne & Kay, 2000; Weyland, 1996, 2003, 2004). Studies on the distributional consequences of policy liberalization or neoliberalism are relatively new.

Since the early twenty-first century when neoliberal policies have been implemented worldwide, scholars began to assess the effects of neoliberalism. A burgeoning literature has concluded that neoliberal policies deteriorate, rather than mitigate, income inequality in various contexts (Alfredo Filho & Johnston, 2005; Davis-Hamel, 2012; Huber & Solt, 2004; Johnston,

2005; Stiglitz, 2002). Research on Latin America also suggests that policy liberalization related to trade, finance, capital account opening, and tax reform is associated with increasing wage and income gaps (Walton, 2004). However, the mechanisms between liberalized policies and income distribution are not yet fully unfolded. This dissertation proposes a more comprehensive way of examining how neoliberalism affects economic outcomes. Instead of arguing that policy liberalization directly shapes income distribution, my synthesized theoretical framework suggests that liberalized policies influence the distribution of FDI inflows across geographies and sectors, which in turn affects income distribution. Supported by my case studies of China and Korea, these theoretical predictions offer a novel approach for understanding globalization and neoliberalism.

Practically, the findings presented in this dissertation stress the importance of reconsidering the implementation of liberalized policies, or more broadly neoliberalism. Since the 1980s, neoliberalism, as a political-economy project, has gained popularity across the globe and later has become a dominant policy paradigm manifested in the Washington consensus (Tickell & Peck, 2003; Venugopal, 2015). Advocates for this market-oriented project have long argued that liberalization of government policies, including those related to FDI, trade, economic regulation, property ownership, and fiscal austerity, removes inefficient government intervention that distort the market. With distortionary restrictions lifted, policy liberalization aims to maximize the potential of the market in promoting strong and stable economic growth. By holding the concept of “trickle-down”, those proponents believe that economic growth will benefit everyone, leading to reduction in poverty and income inequality (Dollar & Kraay, 2002; Johnston, 2005).

Yet, the reality is not as rosy as they expected. In line with the growing scholarship of the distributional consequences of neoliberalism, this dissertation concludes that policy liberalization

perpetuates, rather than alleviates, income inequality via regional distribution and sectoral distribution of FDI inflows in East Asia. This is particularly concerning as East Asia has moved toward neoliberalism over the past few decades, especially after the 1997 financial crisis, and FDI has become more significant in their economies (Robison & Hewison, 2005; Woo, 2007). If liberalization of FDI policies has been widely accepted and implemented, are there any government policies that can potentially mitigate or even reverse the inequality-inducing effect of liberalized policies? Particularly, government redistributive policies?

However, existing studies on government redistribution suggest that this approach may not work due to the retrenchment of social welfare. In the literature on social welfare retrenchment, there has been increasing evidence showing that neoliberalism contributes to the shrinking size of government social programs and decreasing social protection since the 1980s in affluent democracies (For example, Clayton & Pontusson, 1998; Huber & Stephens, 2001; Kwon & Pontusson, 2010; Pierson, 2001). This trend of retrenchment has been observed in East Asia as well, particularly after 1997. Although the scale of retrenchment in this region may not be as acute as those in advanced democracies, significant cuts have occurred in government redistributive programs such as unemployment insurance, employment protection, and housing (Chen & Li, 2012; Lee, 2007; Song, 2009; Woo, 2007). Thus, redistribution may not be effective in slowing down rising income disparities. In this case, how to handle the adverse effects of neoliberalism would become a challenging issue for countries with higher economic integration and weakening redistributive policies.

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Appendices

Appendix 1 Data Sources

Variables	Data Source
Market Gini Index	Standardized World Income Inequality Data, Version 8.3 https://fsolt.org/swiid/
Electoral competition index	V-Dem dataset, Version 9, https://www.v-dem.net/en/data/data-version-9/
Government spending on education	World Bank Indicators, https://data.worldbank.org/indicator Taiwan data from Taiwan National Statistics, http://statdb.dgbas.gov.tw/pxweb/Dialog/statfile9L.asp# China's Education spending data 1999-2015 from Department of Education
Foreign Direct Investment, annual inflows as a percentage of GDP	United Nations Conference on Trade and Development (UNCTAD), https://unctadstat.unctad.org/wds/TableView/tableView.aspx?ReportId=96740 .
<i>De jure</i> financial globalization index	The KOF Globalization Index https://kof.ethz.ch/en/forecasts-and-indicators/indicators/kof-globalisation-index.html
<i>De jure</i> trade globalization index	
Trade (including imports and exports) as a percentage of GDP	World Bank Indicators, https://data.worldbank.org/indicator
GDP per capita, adjusted for purchasing power parity at 2011 international dollars	IMF World Economic Outlook Database, https://www.imf.org/external/pubs/ft/weo/2019/02/weodata/index.aspx
The elderly population, age 65 and above, as a percentage of the total population	World Bank Indicators, https://data.worldbank.org/indicator Taiwan data from Taiwan National Statistics, http://statdb.dgbas.gov.tw/pxweb/Dialog/statfile9L.asp#
Unemployment rate	World Bank Indicators, https://data.worldbank.org/indicator International Labor Organization, https://ilostat.ilo.org/
Human capital index	Korean data (1965-1990) from Korean labor Institute Penn World Table version 9.1(pwt9.1), https://www.rug.nl/ggdc/productivity/pwt/ https://www.rug.nl/ggdc/docs/human_capital_in_pwt_90.pdf

Appendix 2 Unit-Root and Cointegration Tests

First, to identify the existence of unit root, I test level form of each variable by using the *xtunitroot* package of Stata with the *fisher* option and a two-lag autocorrelation structure. The test is based on the Dickey-Fuller test for stationarity or unit root. Test results show that that most variables, especially those of interest, are integrated or unit root. Thus, it is necessary and more appropriate to use dynamic panel data estimator than static estimator such as fixed effects models.

Second, I run panel cointegration tests between market Gini and each independent variable by using the *xtcointtest* command with the *pedroni* option. Three related statistics are reported in each test. By considering all three statistics, I conclude that cointegration exists between market Gini and independent variable.

Test results of Unit Root and Cointegration

Variables	Unit Root	Cointegration with Market Gini
Market Gini	Yes (0.44)	--
FDI	No (0.00)	--
<i>De jure</i> financial globalization index	Yes (0.30)	Yes
Electoral competition index	Yes (0.65)	Yes
Government education spending	No (0.00)	--
Trade	Yes (0.90)	Yes
<i>De jure</i> trade globalization index	Yes (0.99)	Yes
Logged GDP per capita	No (0.00)	--
Unemployment rate	Yes (0.12)	Yes
Elderly population	Yes (0.99)	Yes
Human capital index	Yes (0.72)	Yes

Note: p values in parentheses.

Appendix 3 Tests for Unit Root and Cointegration for China Time Series Data

Variables	Unit root	Cointegration with market Gini
Market Gini	Yes, I (1)	--
CV of FDI	Yes, I (1)	Yes
FDI into manufacturing	Yes, I (1)	No
FDI into services	Yes, I (1)	No
Logged GDP per capita	No	--
Govt. education spending	Yes, I (1)	No
Unemployment rate	Yes, I (1)	Yes

Appendix 4 Tests for Unit Root and Cointegration for Korea Time Series Data

Variables	Unit root	Cointegration with market Gini
Market Gini	Yes, I (1)	--
FDI into manufacturing	Yes, I (1)	Yes
FDI into services	Yes, I (1)	Yes
Logged GDP per capita	Yes, I (1)	Yes
Unemployment rate	Yes, I (1)	Yes

Vita

Yu Yan is the son of Qinglong Yan and Qiuping Qiu. He was born in Shaowu City, Fujian Province, China and has lived in China until he came to the United States in 2015. Yu graduated from Xiamen University with a bachelor's degree in History and a master's degree in political science. Yu became interested in politics when he double majored in public administration during his undergraduate study. He came to the University of Tennessee to pursue a doctorate degree in political science in 2015. Yu became interested in the politics of economic inequality when he took courses with Professor Nathan Kelly. He became interested in comparative public opinion when Professor Yang Zhong provided great opportunities for research collaboration. Yu plans to continue his studies on the politics of economic inequality and public opinion with a regional emphasis on East Asia. He will transform his dissertation into a monograph or several publishable papers. He will also continue to use public opinion data on East Asia to explore topics like perceptions of economic inequality, economic ideology, perceptions of and support for democracy, and post-materialism.