

International Tax Competition, Capital Mobility, and Inequality: Evidence from Asia-Pacific Economies*

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Abstract

Foreign direct investment (FDI) is one of the main driving forces for domestic economic development. Therefore, attracting FDI inflows has been a core mission for national leaders over the world especially for the policymakers. Given the highly mobile nature of capital, countries have to give enough incentives to bring and retain capital within their territory. The tax incentives and reduction in corporate tax rates are likely to be the policy means. Therefore, tax competition becomes unavoidable. The present study aimed to investigate how the statutory corporate tax rate influenced FDI inflows, how FDI inflows influenced economic growth of Asia-Pacific economies, and whether inward FDI generated some undesired outcomes within these economies. Initially, we used Singapore's case study to understand the relationships between taxation, FDI, economic growth and income gap. Then we used panel data from 29 Asia-Pacific economies to examine our hypotheses. Results from system GMM estimation show that a country's competitive tax rate strategy could have a positive influence on the FDI inflows (i.e., the corporate tax rate is negatively associated with FDI). In addition, inward FDI shows a positive impact on domestic economic development. However, FDI net inflows is also positively related to income inequality. The theoretical and policy implications are discussed.

Keywords: foreign direct investment, tax competition, economic growth, income inequality, tax policy, Asia-Pacific

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Introduction

Promoting economic development is always a core mission for policymakers over the world, especially after the slowing global economy caused by the 2008 financial crisis (EUCS, 2016). Capital mobility is considered one of the most important factors of economic development. Success in attracting foreign capital is believed to improve a country's economic performance by generating employment, increasing income and ultimately higher tax revenues, creating a stronger industrial and economic base, improving infrastructure, and raising living standards. Among the majority of Asian developing countries (e. g., China, Vietnam, India), foreign capital inflows have significantly promoted the economic development during the past two decades (Bissinger, 2012; Hoang, Wiboonchutikula, & Tubtintong, 2010; Kotrajaras, Tubtintong, & Wiboonchutikula, 2011; Sahoo, 2006). For example, China has witnessed the greatest economic miracle since its opening-up for foreign investments in the 1980s. Statistics show that the FDI contributed 3% to 6% of Chinese gross domestic product (GDP) on average (Li, 2013). Therefore, competing for investment has been one of the top priorities of the government agenda.

During the past three decades, China and other Asian countries were favorable investment locations due to low labor cost. However, this trend seems to start to change recently. In 2016, the world witnessed Brexit, China slowing economy, the rise of populism in Europe and the US, which presented many uncertainties for the future global economy. More importantly, the US passed the historic tax reform bill at the end of 2017. Based on the new Tax Cuts and Jobs Act, the corporate tax rate is reduced from 35% to 21% from 1 January 2018, and profits earned from overseas are exempted from the US taxation. The Republicans believed

that the new policy would encourage U.S. companies to move back their overseas investments, and promote the FDI inflows as the Tax Reform Act of 1986 did (Morgan & Becker, 2017; Swenson, 1994). Several European countries and China expressed their concerns that the US tax cut would lure international capital back to America and instigate tax competition among the global economies (Thomas & Buell, 2017; Wei, 2017; Zimmermann, 2017). Australia even has had a plan to reduce her tax rate (Kelly & Benson, 2018). Furthermore, the trade tensions between the United States and China escalated since March 2018 (though both countries have agreed on 2 November 2018 to avoid further escalation of trade measures and to take immediate efforts to address issues of mutual concern), which brought more uncertainty for the global investments. For example, after both countries announced that they would apply higher tariffs on each other's exports (Gillespie, 2018), manufacturers such as Puma have shown their concern and said they might move their factories from China to another country. Given the intensified competition, how do tax policies influence capital inflows of Asian developing countries, how do the capital inflows influence the domestic economic development, and what negative effects does it have? The empirical evidence on this issue is still very limited since most of the studies in the past were conducted for non-Asian countries.

The present study will investigate how a country's competitive corporate tax rate influences foreign investment mobility and its relation to domestic economic development and inequality. Panel data from 29 countries will be used to examine our hypotheses. The inter-regional inequality and policy implication will be discussed as well. The results and findings of the current study would contribute to the current international tax policy study by adding empirical evidence from Asian developing countries. The findings would provide meaningful policy implications and inputs for both domestic policymaking and international tax cooperation. The policymakers should systematically examine the positive and negative outcomes before establishing a competitive tax policy. When the economic gap between urban

and rural areas keeps increasing, the policymakers should also consider using effective tax policies to bring capital from rich areas to poor areas.

This study includes four following sections. In the first section, we review the related literature on tax competition and capital mobility, capital mobility and economic growth, and capital mobility and inequality respectively, and develop our hypotheses. Section 2 presents the case study of Singapore. Section 3 describes our methods including data collection, measurement instruments, and data analysis. In the last section, the findings, implications, research limitations and future directions are discussed.

Literature Review and Hypotheses

Tax Competition and Capital Mobility

Past research on tax competition has proved that FDI is sensitive to taxation policy over the world (Gardiner, Martin, Sunley, & Tyler, 2013). Among the determinants of inward FDI, factors such as tax policy, institutions, infrastructure, and labor quality (Matthews, 2011; Li, 2013) are the key ones. Based on a business survey conducted in 2017 by OECD, taxation is one of the top 5 most important factors in investment location decision (e.g., corruption, current and expected macroeconomic conditions in the country, political certainty, the overall tax environment, and labor costs). It is notable from that survey that the businesses in Asia placed lower importance on tax environment compared to those in other regions (IMF/OECD, 2018). Although a country's capital inflows are not fully determined by taxation, tax rates do have very significant influence (Botman, Klemm, & Baqir, 2010; Fletcher, 2002; De Mooij & Ederveen, 2003; OECD, 2007). Economists asserted that a lower corporate tax rate predicts higher capital inflows (Bretschger & Hettich, 2002). In the research by De Mooij and Ederveen, the median tax rate elasticity of foreign capital is -3.3. This means that one percent reduction

in host country tax rate raises the FDI in that country by 3.3%. Countries with a lower tax rate (e.g. corporate tax rate) would attract more FDI inflows (De Mooij & Ederveen, 2003; OECD, 2007). Almost all the global economies' corporate tax rates have decreased sharply during the past two decades (Cnossen, 2018). The increasing number of countries competing for investment may lead to further lowering of the tax rates (Oates, 1972; Wilson, 1986). To guarantee countries are or remain attractive for foreign investment, the host countries are very likely to cut their tax rates (Oates, 1972; Wilson, 1986). This competition may trigger “competitive tax cuts and a race to bottom in tax levels” (Genschel & Schwarz, 2011). Due to a lack of detailed data available, we consider only the statutory corporate tax rate. We do not consider the effective tax rate, or strategy using tax incentive, subsidies or state aid. Therefore, we propose our first main hypothesis:

H1. A country's statutory corporate tax rate is negatively associated with its inward FDI

However, empirical evidence showed that the effects of tax competition are unequal between developed and developing countries, large and small countries. The larger countries tend to have more FDI inflows while smaller countries tend to have less FDI inflows (Asiedu, 2006; Campbell & Hopenhayn, 2005; Cheng & Kwan, 2000; Egger & Winner, 2005; Plümper, Troeger, & Winner, 2009). And the developed countries which have better infrastructure connectivity, good governance (e.g., clarity and certainty in rules of law, less corruption, and stable political system), and skilled labour, can still attract more investment despite having a higher tax rate (Asiedu, 2006; Busse & Hefeker, 2007; Cheng & Kwan, 2000; Garrett, 1995; Habib & Zurawicki, 2002; OECD, 2007; Quinn, 1997). For example, Singapore was the third biggest FDI recipients in Asia in 2017, even though Singapore only has 5.61 million residents. One of the explanations would be that Singapore has very good performance in connectivity (e.g., transportation), governance, and a large pool of skilled labor (e.g., well-educated lawyers,

accountants, and bankers). Therefore, competitive taxation policy or tax relief is probably not the bigger and richer countries' primary policy to promote investment. On the contrary, in order to attract investments and achieve economic growth, the smaller or developing countries' governments are more likely to reduce their tax rates to an inefficiently low level (OECD, 2007). These may make the economic gap between the developed nations and developing nations even larger. Therefore, we include all the above-mentioned factors namely: population size, GDP per capita, connectivity, skilled labor, governance variables as control variables. Except for the population size and control of corruption, the other factors are within the twelve pillars[†] of competitiveness of an economy covered in the Global Competitiveness Report 2018 by World Economic Forum. According to the report, all economies must invest in broader measures of competitiveness today to sustain growth and income in the future (World Economic Forum, 2018).

Capital Mobility and Economic Growth

A large number of studies supported the positive link between FDI inflows and economic development (Alfaro, Chanda, Kalemli-Ozcan, & Sayek, 2004; Hoang, Wiboonchutikula, & Tubtintong, 2010; Li & Liu, 2005; Zhang, 2001). Compared to domestic capital, foreign investments not only bring capital to the host countries, but also technology, managerial skill, and labor training (Borensztein, De Gregorio, & Lee, 1998; Kotrajaras, Tubtintong, & Wiboonchutikula, 2011). However, the effects of capital inflows on economic growth depend on host countries' initial economic conditions such as institution, governance, etc. (Kotrajaras, Tubtintong, & Wiboonchutikula, 2011; Matthews, 2011). Some studies even argue that FDI has little effects on long-term growth (Hoang, Wiboonchutikula, & Tubtintong,

[†] The twelve pillars are: institutions, infrastructure, ICT adoption, macroeconomic stability, health, skills, product market, labour market, financial system, market size, business dynamism, and innovation capability.

2010). Two studies based on large sample size even revealed that FDI does not yield a significant impact on growth (Carkovic & Levine, 2002; Durham, 2004). The study by Athukorala (2003) also did not show much support for the view of a robust link between FDI and growth in Sri Lanka. The same observation was also shared by Alfaro and his colleagues (2010). Bissinger (2012) compared China with Myanmar and concluded that the sectors of FDI inflows matter. China had brought in enormous labor-intensive manufacturers for the export market and gradually became the world factory. In Myanmar however, the majority of investments were targeted at the extractive and power sectors, and accordingly, the benefits on long-term economic growth were very limited. Therefore, we hypothesize that:

H2. FDI inflows positively associate with the economic growth of a host country

Capital Mobility and Income Inequality

The competition for capital could also lead to domestic inequalities in developing nations (Hoyt, 1991; Ihuri & Yang, 2009; Keen & Kotsogiannis, 2004; Sato, 2003). It may lead to lower tax revenue and undersupply of public goods, which will further increase the development gap and the inequalities. With limited resources, the governments are more likely to give priority to urban areas' developments. Almost all the foreign investments would be located in urban areas with better infrastructure and public service. So, the gap between the rural areas and urban areas are widening. The imbalanced development in developing countries is becoming more and more alarming. A typical case is that foreign investment has significantly driven China's economy during the past three decades. However, China has become one of the countries with the highest level of income inequality (Wildau & Mitchell, 2016). With a large number of rich cities like Shanghai and Beijing, China still has more than 70.17 million poor with a net income of less than one USD per day. China is not the only case. Almost all the developing nations are facing the same problem. However, there is a dearth of research

addressing the effects of capital mobility on domestic economic inequalities in the Asia-Pacific region. Based on the discussion above, we hypothesize that:

H3. A country's inward FDI is positively related to its domestic income inequalities.

Case Study of Singapore

To understand the determinants of inbound FDI, we conduct a case study on Singapore. More specifically, this case study is to preliminarily examine the factors that facilitate Singapore's FDI inflows including corporate tax rate, how foreign investments influence domestic economic performance and domestic income distribution.

Singapore has been one of the most popular investment destinations in the Asia-Pacific region, though its population size is one of the smallest. Based on the data of 2017, Singapore was the third biggest FDI recipients in Asia. However, at the same time, the income inequality among its resident households (measured by the Gini coefficient), though is below its peak in 2007, remains elevated in the regional context (IMF, 2018). Singapore is thus chosen as a case study for this paper.

When Singapore became independent in 1965, it was a poor, small tropical island with few natural resources, rapid population growth, severe housing shortage and the high unemployment rate (OECD, 2010; LKYSPP, 2014). As a small, resource-scarce island state without a natural hinterland or a large domestic market to generate sufficient jobs and economic sustainability, industrialization was identified then as one of the solutions to help Singapore achieved a more diversified economic base and to provide the much-needed jobs for its people. Implementation of an industrialization programme would invariably require substantial FDI. Given that a conducive tax regime was one of the factors that investors would take into account when making their investment decisions, tax incentives were introduced as part of the government's efforts to promote the industrialization programme. Due to Singapore's small

size, there is no need to differentiate tax incentives according to geographical locations. While tax incentives were targeted more at industrial activities in the early development years, this has been changed over the years as the Singapore economy matures. In the 1970s and 1980s, a shift to more skill-intensive manufacturing led to an emphasis on technical fields. From the mid-1990s onwards, Singapore has sought to become a player in the global knowledge economy, encouraging more research and innovation (OECD, 2010). Apart from incentives which are used selectively and only targeted at substantive business activities, the statutory corporate tax rate in Singapore was also reduced over the years to encourage investments, enterprise, and efforts.

Why Investors Chose Singapore as Their Investment Destination?

Based on the reply given to a parliamentary question on 20 July 2009, competitive corporate tax regime including one of the lowest taxation could be one of the most important factors why investors chose Singapore as their investment destination. Besides tax, other important factors mentioned in the reply include market access, regional connectivity, access to talent and political and economic stability. As shown in the upper left chart in Figure 1, the statutory corporate tax rate decreased significantly since the year of assessment 2000 from 26% to 17% in the year of assessment 2010. This corporate tax rate of 17% remains unchanged since then, which almost is the lowest one in Asia-Pacific region except for Hong Kong (16.5%), Maldives (15%) and Timor-Leste (11.2%).

The second factor would be “Singapore’s extensive connectivity to regional and global markets” (MPAS, 2018). Singapore is one of the top transportation hubs for air and sea cargo. For example, Changi airport connects with more than 400 cities from about 100 countries around the world. Every year, Changi airport serves more than 62.2 million passengers. According to Airport Council International, Changi is also one of the top 20 busiest airports handling air cargo in 2017. Moreover, Singapore’s container ports are also the busiest in the

world (Hiteshk, 2015). The statistics show that Singapore ports ranked the world number two in terms of the cargo handled (more than 626.2 million tonnes of cargo in 2017).

The third factor is Singapore's pro-investment environment with high political stability, strong rule of law, and zero tolerance for corruption. Ranked second based on the 2017 edition of the World Bank's Ease of Doing Business, Singapore's business-friendly institutions continue to be a major draw for MNCs seeking to establish a presence in Asia.

The fourth factor is that Singapore has a large pool of skilled labor (e.g., bankers, lawyers, engineers, researchers, etc.). Due to the high quality and diversity of higher education in Singapore, the majority of the workforce is well-educated which has been seen as central to building the economy growth. For example, although the population is only about 5.61 million, Singapore has five public universities (e.g., the National University of Singapore and Nanyang Technological University) and five polytechnics (e.g., Singapore Polytechnic, and Nanyang Polytechnic). The percentage of population attaining at least a Bachelor's or equivalent has increased from 12% in 2000 to 30% in 2017. The total enrolment ratio in tertiary education (ISCED 5 to 8) has also increased from 45.3% in 2000 to 92.2% in 2016. The higher education institutions provide requisite skilled labor for foreign enterprises (OECD, 2010).

The following charts in Figure 1 show a trend that the FDI increased when the statutory corporate tax rate went down from 2000 (i.e. year of assessment 2001) to 2016 (i.e. year of assessment 2017). The population size, political stability, and skilled labor show consistent trends with FDI inflows. However, corruption control has an opposite trend when FDI goes up and connectivity does not show a clear trend during the period from 2000 to 2016. In short, Figure 1 provides preliminary support for our hypotheses except for the relationship between connectivity and FDI.

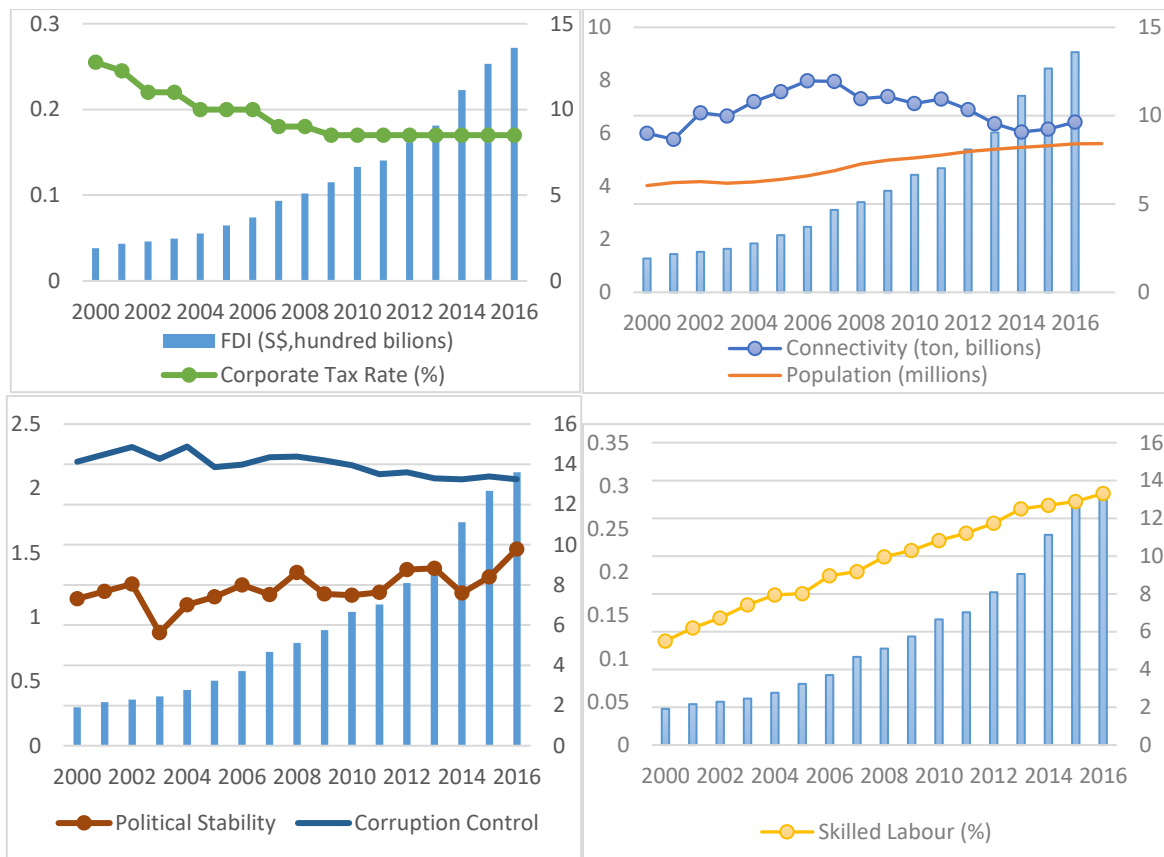


Figure 1. The determinants of FDI in Singapore

FDI and Economic Growth

The inward FDI in Singapore shows a rising trend, from S\$191 billion in 2000 to S\$1,359 billion in 2016. Recent estimates indicated that over 7000 MNCs had a presence in Singapore. According to a reply to a parliamentary question on 7 February 2018, MNCs have been an important driver of Singapore's economic growth. The chart in Figure 2 below shows a positive association between FDI and economic development measured by GDP per capita over the period from 2000 to 2016, except for the year 2001, 2007 to 2009. For those years where there was a decline in GDP per capita despite FDI inflows, it could be due to downturn brought about by dotcom crash and financial crisis.

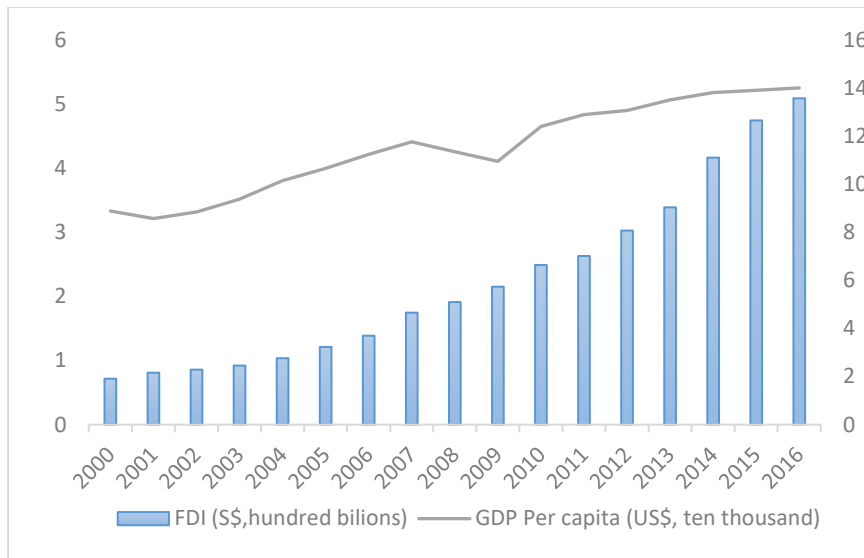


Figure 2. FDI and GDP per capita

FDI and Income Inequality

As the Singapore economy grows, income inequality also became one of the top challenges for policymakers. The Gini Coefficient increased from 0.386 in 2000 and peaked at 0.412 in 2007. After 2012, Singapore's Gini coefficient gradually decreased and it was 0.379 in 2016. Based on the chart in Figure 3, from 2000 to 2012, we could see a clear trend that the Gini coefficient increased when FDI rose. However, it is very difficult to conclude that higher FDI inflows will lead to higher (or lower) income inequality since the Gini coefficient dropped after 2012 but FDI was still going up.

Based on the Singapore case study above, the analysis provides a basic understanding that how different variables related to each other and preliminarily supports our main hypotheses. However, it provides little basis for generalization as it only uses one subject. Therefore, in the next section, we will collect empirical data from the 29 Asia-Pacific economies to statistically examine our hypotheses.

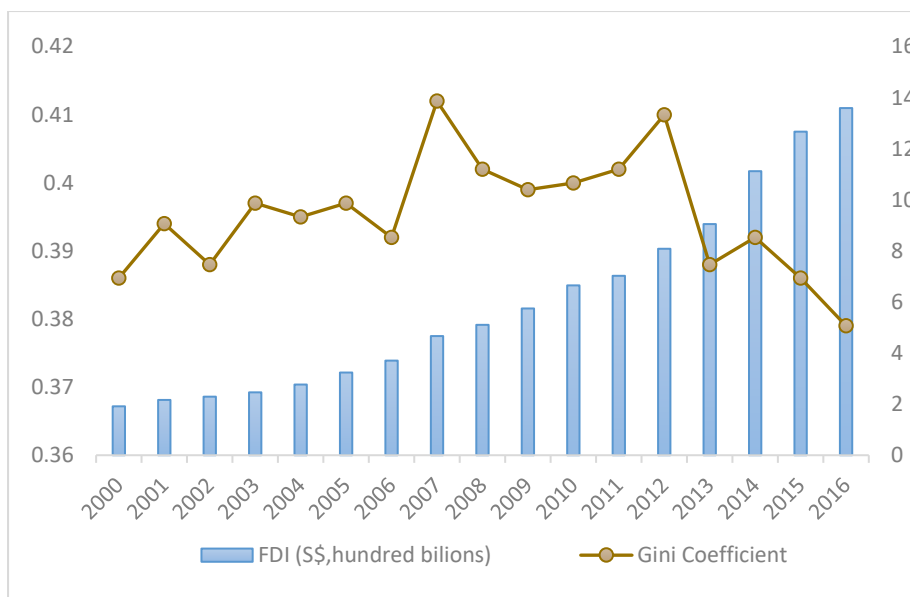


Figure 3. FDI and income inequality

Evidence from Asia-Pacific Economies

Data and Variables

To further examine the above hypotheses, we collected data from 29 Asia-Pacific economies including China, India, and ten ASEAN countries (Brunei, Cambodia, Indonesia, Laos, Malaysia, Myanmar, Philippines, Singapore, Thailand, and Vietnam) (see Table 1). A panel dataset between 2000 and 2016 was built on the statistical data from each country's government website, IMF statistics, World Bank statistics, Asian Development Bank website, OECD library, and the website of Department of Economic and Social Affairs of United Nations. The variables in present research include FDI, corporate tax rate, population, GDP per capita, GDP annual growth, GDP per capita growth, connectivity, skilled labor, governance variables, and human capital (i.e., education) and income inequality.

Table 1

Selected Research Objects

Australia	Indonesia	Myanmar	Singapore
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Bangladesh	Japan	Nepal	South Korea
Bhutan	Laos	New Zealand	Sri Lanka
Brunei	Macao	Pakistan	Taiwan
Cambodia	Malaysia	Papua New Guinea	Thailand
China	Maldives	Philippines	Timor-Leste
Hong Kong	Mongolia	Russia	Vietnam
India			

Measurements

FDI. Based on the World Bank’s definition, FDI refers to direct investment from non-resident investors in a host country. It is a cross-border investment associated with “a resident in one economy having control or a significant degree of influence on the management of an enterprise that is resident in another economy”[‡]. Inward FDI includes “all liabilities, and assets transferred between resident direct investment enterprises and their direct investors”. It also includes “transfers of assets and liabilities between resident and non-resident enterprises, if the controlling parent is non-resident”. In our analysis, we mainly use the FDI share of GDP as an indicator of FDI. However, in Model 1 where we test H1, we also used FDI net inflows as an indicator of FDI to compare the results. Data are in constant 2010 US dollars and the log term of net FDI inflows was used in our analysis to reduce skewness of the dependent variable (Barthel, Busse, & Neumayer, 2010). Data were collected from the World Bank.

Corporate tax rate. Most economists argued that a country’s statutory tax rate was an imperfect measure to determine the impact of investment behavior of multinational firms, as it ignored tax planning effects and special tax arrangements. Effective or average tax rates are thought to be a better approximation of the tax burden on foreign investments (De Mooij & Ederveen, 2003; Matthews, 2011). However, it is complex to work out the effective tax rate

[‡] See as <https://datahelpdesk.worldbank.org/knowledgebase/articles/114954-what-is-the-difference-between-foreign-direct-inve>

as variables such as the country's depreciation regimes, loss carry forward provisions and other factors have to be taken into account, and the view that the statutory tax rate is the only tax variable factored in by investors, continues to hold (Fletcher, 2002; OECD, 2007). Further, existing studies also show that governments compete over both the effective average tax rate and the statutory tax rate (Buettner & Ruf, 2007; Devereux & Griffith, 1998; Devereux, Lockwood & Redoano, 2001). The data of statutory corporate tax rate were obtained from various sources, i.e., Ernst & Young worldwide corporate tax guides, PricewaterhouseCoopers worldwide tax summaries, the World Bank, www.tradingeconomics.com, www.theglobaleconomy.com, the IMF website, and the Asian Development Bank website.

Connectivity. Connectivity refers to transportation connectivity of a host country, which may have a significant influence on FDI inflows (Asiedu, 2002; Cheng & Kwan, 2000; Kumar, 2006). Due to data availability, we used a proxy variable to evaluate connectivity: the volume of goods transported by air transportation. Therefore, the present study measured connectivity by using the volume of goods (million ton) transported by air per kilometer. The data were collected from the World Bank website and its logarithm was used in the regression models.

Governance. We used three indicators from Worldwide Governance Indicators to evaluate Governance level in each host economy: corruption control, voice and accountability, and political stability (Kaufmann, Kraay, & Mastruzzi, 2010). We did not include government effectiveness, regulatory, and rule of law because of their high intercorrelations. Control of corruption captures the “perceptions of the extent to which public power is exercised for private gain, including both petty and grand forms of corruption, as well as the capture of the state by elites and private interests” (Kaufmann, Kraay, & Mastruzzi, 2010). Voice and accountability refers to “the extent to which a countries’ citizens are able to participate in selecting their government, as well as freedom of expression, freedom of association, and a free media”

(Kaufmann, Kraay, & Mastruzzi, 2010). Political stability measures the possibility of political instability or politically-oriented violence (e.g., terrorism). Research shows these governance variables have significant effects on foreign investments (Asiedu, 2006; Asiedu, 2011; Busse & Hefeker, 2007; Jensen, 2011). The data were from the Worldwide Governance Indicators. The values of the three indicators ranged from -2.5 to 2.5.

Skilled labor. The labor market is another important consideration for investors (Blomström, Fors, & Lipsey, 1997). Therefore, we included skilled labor as an exploratory variable. We used the gross enrolment ratio in tertiary education to evaluate the skilled labor. The higher ratio of enrolment in tertiary education represents better labor market quality. For comparison purpose, we also use the gross enrolment ratio in lower secondary education as another indicator of skilled labor. The data were from the UNESCO Institute for Statistics and the World Bank.

Economic performance. We used GDP per capita growth rate and GDP annual growth rate to evaluate countries' economic performance. GDP per capita growth was used since it better reflects a country's economy regardless of the country size. It is more comparable than the total GDP. GDP growth rate (annual %) is also regarded as a key indicator of government performance. Data of both variables were from the World Bank and based on constant 2010 US dollars.

Income inequality. Income inequality was measured by the GINI coefficient that indicates the extent to which the distribution of income among working people or households within a host economy deviates from a perfectly equal distribution. GINI coefficient varies from zero to 100 where a value of zero represents perfect equality and 100 means perfect inequality. The data were mainly from the World Bank. But for countries such as Australia, China, Indonesia, Cambodia, Taiwan, and Japan the data of which were not available from the

World Bank, we obtained data from various sources including local government websites, UNDP website, and existing publications.

Descriptive analysis

It is observed that the Asia-Pacific region had the most uneven economic development. There are eight developed economies whose GDP per capita has been over than 20,000 US dollars in 2016 (i.e., Australia, Hong Kong, Japan, Korea, Macao, Singapore, Taiwan, and New Zealand). Four economies' GDP per capita is between 8,000 to 10,000 US dollars, including China (8123.181), Maldives (9875.278), Malaysia (9508.238), and Russia (8748.369). The inward FDI was also highly imbalanced among the 29 economies. For example, China, Hong Kong, and Singapore received 170.5, 117.1, and 61.5 billion US dollars respectively in 2017. But many countries received less than five billion, such as Indonesia, Myanmar, Pakistan, Philippines. Withdrawal of investments in several countries are even larger than the net FDI inflows (e.g., Brunei, Mongolia). As for the statutory corporate tax rates, they range from 11% to 35%. Twenty countries have a statutory corporate tax rate of lower than 25% (See Table 2). Table 3 shows the descriptive statistics of the main variables in our three regression models. Results indicate that connectivity and population size have a relatively high standard deviation, suggesting large differences in these two variables.

Table 2

The Profile of the Selected Economies

Country	P(million)	GDP (billion USD)	GDPPC	FDI of GDP(%)	FDI (million USD)	CIT
Australia	24.13	1204.62	49755.32	3.49	42049.40	0.30
Bangladesh	162.95	221.42	1358.78	0.86	1908.27	0.25
Bhutan	0.80	2.21	2773.55	0.36	8.08	0.35
Brunei	0.42	11.40	26939.42	-1.32	-150.55	0.19
Cambodia	15.76	20.02	1269.91	11.43	2287.03	0.20
China	1378.67	11199.15	8123.18	1.52	170556.53	0.25

Hong Kong	7.35	320.91	43740.99	36.49	117109.70	0.17
India	1324.17	2263.79	1709.59	1.96	44458.57	0.30
Indonesia	261.12	932.26	3570.30	0.44	4142.20	0.25
Japan	127.00	4940.16	38900.57	0.71	34904.74	0.23
Laos	6.76	15.81	2338.69	6.31	997.44	0.24
Macao	0.61	45.31	74017.18	0.69	310.52	0.12
Malaysia	31.19	296.54	9508.24	4.56	13515.80	0.24
Maldives	0.42	4.22	9875.28	10.61	448.01	0.15
Mongolia	3.03	11.18	3694.08	-37.17	-4156.41	0.25
Myanmar	52.89	63.23	1195.52	5.18	3278.10	0.25
Nepal	28.98	21.13	729.12	0.50	106.00	0.30
New Zealand	4.69	184.97	39412.16	1.05	1934.89	0.28
Pakistan	193.20	278.91	1443.63	0.83	2324.00	0.32
Papua New Guinea	8.08	20.21	2500.09	-0.20	-39.77	0.30
Philippines	103.32	304.91	2951.07	2.62	7979.57	0.30
Russia	144.34	1283.16	8748.37	2.54	32538.90	0.20
South Korea	51.25	1411.25	27538.81	0.77	10826.60	0.22
Sri Lanka	21.20	81.32	3909.99	1.10	898.08	0.28
Singapore	5.61	296.98	55243.00	20.74	61596.85	0.17
Taiwan	23.51	530.53	22561.00	0.02	8333.00	0.17
Thailand	68.86	407.03	5910.62	0.75	3063.24	0.20
Timor-Leste	1.27	1.78	1405.39	0.31	5.48	0.11
Vietnam	92.70	205.28	2170.65	6.14	12600.00	0.20

Note: Data are based on 2016. P= population size; CIT= Statutory corporate tax rate (on profit/income), 1 being 100%.

Table 3

Descriptive Statistics of the Variables Included in Model 1

Variable	Mean	Std. Dev.	Min	Max	Obs
FDI inflows	1.45E+10	3.58E+10	-2.80E+10	2.72E+11	493
CIT	0.26297	0.075835	0.0143	0.42	493
GDP per capita	13088.51	16812.9	346.7746	72183.53	493
Population (million)	132.5683	313.4985	0.29	1378.67	493
Skilled labor (higher education)	37.61088	28.16117	0.20817	99.66034	408
Skilled labor (secondary)	85.95899	20.88643	22.48118	127.6908	469
Connectivity	2380.138	3875.782	0	21304.59	493
Corruption control	0.048203	1.056406	-1.672876	2.391192	491
Voice and Accountability	-0.22917	0.884383	-2.233271	1.678681	492
Political Stability	-0.11463	1.039484	-2.810035	1.528321	492
GDP per capita growth	4.338556	9.031124	-23.18116	171.9122	493
GINI index	37.48835	6.334792	24.56	53.9	266
GDP growth	5.761438	9.236443	-21.59451	179.1807	493

Model Estimation and Results

Model 1: Testing the effects of the statutory corporate tax rate on FDI.

The empirical model. To test hypothesis H1, we built regression Model 1. The dependent variable was FDI net inflows and the main explanatory variable is the statutory corporate tax rate. Control variables include population, GDP per capita, connectivity, rules certainty, skilled labor, and corruption control. We adopted the regression formulation as follow:

$$FDI_{it} = c_0 + c_1 FDI_{it-1} + c_2 CIT_{it-1} + c_3 Control_{it} + \varepsilon_{it}$$

where FDI is measured by both FDI share of GDP and net FDI inflows in constant 2010 US dollars. FDI_{it-1} is lag one of the dependent variable (FDI). Control variables include GDP per capita, population size, connectivity, skilled labor, and three governance variables (e.g., corruption control, voice and accountability, and political stability).

The correlation matrix shows that CIT has a negative relationship with both the FDI share of GDP and net FDI inflows. Other variables have positive associations with FDI inflows except for voice and accountability. Taking reference from Wooldridge (2015), we ran Pearson correlation and drew scatterplots to test potential multicollinearity problems between independent variables. The correlation coefficients between CIT and controls show that multicollinearity is not a problem ($rs > -.40, < .35$). We also examined the scatterplots between dependent variables and independent variables and results showed that non-linear relationships did not exist, which supported the use of a linear regression model.

Table 5

Pearson Correlations

	1	2	3	4	5	6	7	8	9	10
1. FDI net inflows	-									
2. CIT	-0.100*	-								
3. GDP per capita	0.200*	-0.392*	-							
4. Population	0.344*	0.376*	-0.299*	-						
5. Connectivity	0.408*	0.053	0.534*	0.492*	-					
6. Skilled labor (high education)	0.130*	-0.358*	0.777*	-0.090	0.559*	-				
7. Skilled labor (secondary)	0.229*	-0.376*	0.789*	-0.201*	0.422*	0.635*	-			
8. Voice and accountability	-0.113*	-0.072*	0.604*	-0.096*	0.442*	0.670*	0.492*	-		
9. Political stability	0.057	-0.351*	0.722*	-0.559*	0.125*	0.509*	0.568*	0.423*	-	
10. Corruption control	0.131*	-0.090*	0.770*	-0.327*	0.387*	0.568*	0.514*	0.592*	0.770*	-

*. Correlation is significant at the 0.05 level.

Estimation results. As shown in Table 5, the Hausman test suggests that the individual effects are correlated with the repressors. Therefore, the fixed-effect estimator is preferred. The correlation between individual effects and repressors also suggests the indigeneity problem. Then we use the System GMM (generalized method of moments) approach to address the endogeneity problem (Windmeijer, 2005). The lag one to lag three repressors are included as instruments to address endogeneity issue. According to Arellano and Bond (1991), the System GMM approach fit the current study better since we have larger panel units than time periods (compared to fixed-effects or random-effects estimators). Sargan test was employed to examine the overidentifying restrictions and the result supported the instrument validity. The Arellano-Bond test was employed to examine the autocorrelation problem and the result showed there was no autocorrelation. The third column of Table 6 presents the results of system GMM estimation. Sargan test supported the instrument validity. The Arellano-Bond test showed that there was no autocorrelation problem.

Table 5

Fix-Effect and Random Effects Models

VARIABLES	FE	FE	RE	RE
	FDI	FDI	FDI	FDI
CIT _{t-1}	-91.58*** (21.05)	-69.24** (28.17)	-88.51*** (20.53)	-65.79** (27.60)
GDP per capita (<i>log</i>) _{t-1}		46.32*** (7.628)		11.37** (5.064)
Population(<i>log</i>) _{t-1}		-136.6*** (23.62)		4.707 (3.105)
Skilled labor1 _{t-1}		-0.0837		0.0623

		(0.139)		(0.140)
Skilled labor2 _{t-1}		0.844***		0.441***
		(0.175)		(0.157)
Connectivity _{t-1}		1.878		2.292**
		(1.165)		(1.153)
Voice and accountability _{t-1}		6.644		-9.368**
		(4.981)		(4.397)
Political stability _{t-1}		-4.362		-1.642
		(2.982)		(3.068)
Corruption control _{t-1}		-12.66**		-9.100*
		(5.905)		(5.173)
Constant	39.15***	46.33	38.34***	-111.1***
	(5.633)	(64.89)	(8.237)	(40.28)
Hausman test				16.77*
Observations	464	374	464	374
R-squared	0.042	0.304		
Number of Country	29	26	29	26

Note. Standard errors in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Skilled labor1 = total enrolment ratio in tertiary education; Skilled labor2 = gross enrolment ratio in lower secondary education.

As shown in Table 6, we reported four estimation results for comparative purpose. All the independent variables are lagged one period to avoid bias from the possible joint effects of repressors and the dependent variable. Column (1) and (2) show the results of fixed-effects and random effects estimation respectively. Column (3) shows the main estimation results of GMM estimates. Column (4) is for robustness check where we include FDI share of GDP as the dependent variable. The results in Column (3) show a significant and negative effects of CIT on FDI. Therefore, the **hypothesis H1 was supported**. The control variables including GDP per capita, population size, political stability, and corruption control also show significant

and positive effects on FDI inflows. Connectivity is not significant. Voice and accountability shows a negative sign. Surprisingly, skilled labor2 measured by tertiary education shows a negative association while skill labor1 measured by secondary education shows a positive association.

Table 6

The Impact of Statutory Corporate Tax Rate on FDI Inflows

	(1) FE	(2) RE	(3) GMM	(4) GMM
VARIABLES	FDI1	FDI1	FDI1	FDI2
CIT _{t-1}	-69.24** (28.17)	-65.79** (27.60)	-32.87*** (11.83)	-8.999*** (2.961)
GDP per capita(log) _{t-1}	46.32*** (7.628)	11.37** (5.064)	8.396*** (1.228)	0.491 (0.462)
Population(log) _{t-1}	-136.6*** (23.62)	4.707 (3.105)	5.017*** (0.811)	0.308 (0.290)
Skilled labor1 _{t-1}	-0.084 (0.139)	0.062 (0.140)	0.145*** (0.030)	0.026* (0.015)
Skilled labor2 _{t-1}	0.844*** (0.175)	0.441*** (0.157)	-0.513*** (0.024)	-0.0824*** (0.010)
Connectivity _{t-1}	1.878 (1.165)	2.292** (1.153)	0.229 (0.428)	0.014 (0.116)
Voice and accountability _{t-1}	6.644 (4.981)	-9.368** (4.397)	-5.287*** (0.588)	0.605 (0.574)
Political stability _{t-1}	-4.362 (2.982)	-1.642 (3.068)	3.889*** (0.825)	0.652*** (0.243)
Corruption control _{t-1}	-12.66** (5.905)	-9.100* (5.173)	3.022*** (0.593)	0.866** (0.363)
FDI net inflows _{t-1}			0.613***	

			(0.002)	
FDI net inflows _{t-2}			0.199***	
			(0.005)	
FDI share of GDP _{t-1}				0.740***
				(0.010)
FDI share of GDP _{t-2}				-0.014**
				(0.007)
Constant	46.33	-111.1***	-70.09***	-0.946
	(64.89)	(40.28)	(7.983)	(4.029)
Sargan test			17.106	17.342
<i>p</i> -value			1.000	1.000
AR(2)			-1.696	-1.496
<i>p</i> -value			0.09	0.135
Observations	374	374	357	356
R-squared	0.304			
Number of Country	26	26	26	26

Note. Standard errors in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. FDI1= FDI inflows; FDI2 = FDI inflows/GDP . Sargan test is for over-restrictions (null hypothesis: overidentifying restrictions are valid). VR(2) is second-order autocorrelation test (null hypothesis: no autocorrelation).

Model 2: Effects of FDI on economic growth.

The regression Model 2 aimed to test the hypothesis H2. Building on Borensztein, Gregorio, and Lee's (1998) regression equation about the effect of FDI on economic growth, we adopted the following regression model:

$$G_{it} = c_0 + c_1G_{it-1} + c_2G_{it-2} + c_3FDI_{it} + c_4Control_{it} + \varepsilon_{it}$$

where G is measured by both GDP per capita growth rate (GDPPG) and GDP growth rate (GDPGR). G_{it-1} is a one-period lagged value and G_{it-2} is a two-period lagged value. FDI is inward FDI share of GDP (%). Control variables included human capital which was measured

by gross enrolment ratio of lower secondary school, the log value of GDP per capita, the population size, and a policy variable measured by corruption control.

As shown in Table 7, the Hausman test suggests that the individual effects are correlated with the repressors and the fixed-effect model is preferred. Table 8 presents the results from system GMM estimation. The lag one to three repressors were included as instruments to address endogeneity issue. Sargan test supported the instrument validity. The Arellano-Bond test showed that there was no autocorrelation problem.

Table 7

Fix-Effect and Random Effect Models

VARIABLES	FE	FE	RE	RE
	GDPPG	GDPGR	GDPPG	GDPGR
FDI Share of GDP	0.156*	0.151*	0.106*	0.113*
	(0.0873)	(0.0895)	(0.0617)	(0.0641)
Population (<i>log</i>)	-16.83***	-25.20***	0.101	-0.147
	(6.437)	(8.503)	(0.265)	(0.279)
Human Capital	0.0682	0.0287	-0.0129	0.0262
	(0.0564)	(0.0622)	(0.0275)	(0.0385)
Corruption Control	4.775*	4.651*	-1.783**	-0.960
	(2.541)	(2.598)	(0.708)	(0.865)
Political Stability	1.328	1.336	1.246	1.336
	(1.341)	(1.372)	(0.846)	(0.885)
GDP Per Capita (<i>log</i>)		3.719		-1.389*
		(2.820)		(0.726)
Constant	47.80***	46.17**	4.833*	15.33***
	(17.25)	(18.48)	(2.481)	(4.692)

Observations	466	466	466	466
Hausman Test			14.40***	15.10***
R-squared	0.032	0.038		
Number of Country	28	28	28	28

Standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1. GDPPG = GDP per capita growth rate; GDPGR = GDP annual growth rate.

When comparing the results from both fix-effect models (column 1 and 2) and system GMM models (column 3 and 4), the system GMM estimation approach produced efficiency gains (smaller standard errors can be observed). Consequently, we use the results of system GMM models for further interpretation. As shown in column (3) and (4) in Table 8, FDI shows a positive and significant impact on GDP per capita growth rate and GDP growth rate. The results also indicate that the human capital and corruption control had positive effects on economic growth, while the log value of GDP per capita and the population had a negative impact on growth. **Therefore, the hypothesis H2 was supported.**

Table 8

GMM Models

VARIABLES	FE	FE	GMM	GMM
	GDPPG	GDPGR	GDPPG	GDPGR
L.GDP Per Capita Growth			0.0159 (0.0156)	
L2. GDP Per Capita Growth			-0.168*** (0.0178)	
FDI Share of GDP	0.156* (0.0873)	0.151* (0.0895)	0.489*** (0.0447)	0.570*** (0.0659)
L.FDI Share of GDP			-0.389*** (0.0762)	-0.398*** (0.0635)

log GDP Per Capita		3.719	-5.414***	-5.348***
		(2.820)	(1.177)	(1.176)
Population (<i>log</i>)	-16.83***	-25.20***	-0.831	-1.717*
	(6.437)	(8.503)	(0.721)	(0.919)
Human Capital	0.0682	0.0287	0.151***	0.0934**
	(0.0564)	(0.0622)	(0.0392)	(0.0389)
Corruption Control	4.775*	4.651*	2.213***	1.459
	(2.541)	(2.598)	(0.836)	(0.997)
Political Stability	1.328	1.336	3.036***	3.381***
	(1.341)	(1.372)	(0.719)	(0.877)
GDP Annual Growth _{t-1}				0.0311
				(0.0238)
GDP Annual Growth _{t-2}				-0.145***
				(0.0194)
Constant	47.80***	46.17**	39.99***	48.22***
	(17.25)	(18.48)	(8.914)	(10.23)
Sargan test			22.26112	20.42596
<i>p</i> -value			1.0000	1.0000
AR(2)			.20034	-.51666
<i>p</i> -value			0.8412	0.6054
Observations	466	466	419	419
R-squared	0.032	0.038		
Number of Country	28	28	28	28

Note. Standard errors in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. GDPPG = GDP per capita growth rate; GDPGR = GDP annual growth rate. Sargan test is for over-restrictions (null hypothesis: overidentifying restrictions are valid). VR(2) is second-order autocorrelation test (null hypothesis: no autocorrelation).

Model 3: Effects of FDI on income inequality.

To examine the impact of FDI on income inequality, Choi (2006) proposed a linear equation model. We slightly adapted Choi's model as follows:

$$\text{GINI}_{it} = c_0 + c_1\text{GINI}_{it-1} + c_2\text{FDI}_{it} + c_3\text{Control}_{it} + \varepsilon_{it}$$

where the GINI refers to the Gini index of a country. FDI is the ratio of FDI inflows to GDP. Control variables include GDP per capita, GDP annual growth rate, and GDP. Education was also included as a control variable because it has been found to be significantly associated with income inequality (Checchi, 2001; Gregorio & Lee, 2002; Muller, 2002). Education was measured by total enrolment ratio in tertiary education. The data were from the World Bank databank from 2000 to 2016. Due to data availability of GINI, only 163 observations were used for analysis.

For comparative purpose, column (1) and (2) of Table 9 show the fixed-effects and random-effects estimates respectively. Hausman test supports that the fixed effects estimator is preferred (see Table 9). Then we used a two-step system GMM estimation to estimate our regression model. To address the endogeneity problem, we included lag one to lag three regressors as instrumental variables. The results are shown in column (3) and (4) in Table 9. Column (3) and (4) use two different measures of FDI: FDI inflows and FDI share of GDP respectively. Both columns (3) and (4) show a positive relationship between FDI and the Gini index. Sargan test statistics support that all the instruments we used are valid. The Arellano-Bond tests show that there was no autocorrelation problem. Our empirical results indicate that FDI had a positive and significant impact on the GINI coefficient, **which supports the hypothesis H3** that FDI positively associates with the host economies' income inequality. The control variables show negative relationships with GINI coefficient except for GDP per capita which shows a positive relationship with the GINI coefficient.

Table 9

The Impact of FDI on Income Inequality

	(1)	(2)	(3)	(4)
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Dependent variable: GINI Index	FE	RE	GMM	GMM
L.GINI Index			0.869*** (0.0175)	0.796*** (0.0627)
FDI net inflows	0.00354*** (0.00117)	0.00293*** (0.000758)	0.000344*** (9.50e-05)	
GDP per capita (log)	-4.323 (2.596)	-1.184 (1.505)	0.440*** (0.0601)	0.757 (0.556)
GDP annual growth	0.106** (0.0495)	0.104** (0.0471)	-0.00379 (0.0108)	-0.0903*** (0.0325)
Education	0.0577 (0.0432)	0.00534 (0.0404)	-0.0491*** (0.0103)	-0.0530*** (0.00574)
FDI share of GDP				0.0811*** (0.00880)
Constant	70.52*** (21.05)	46.34*** (11.21)	3.121*** (0.417)	3.374 (3.152)
Hausman test		20.60***		
Sargan test			16.65613	
<i>p</i> -value			1.0000	
AR(2)			.40802	
<i>p</i> -value			0.6833	
Observations	245	245	179	179
R-squared	0.109			
Number of Country	23	23	21	21

Note. Robust standard errors in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. Sargan test is for over-restrictions (null hypothesis: overidentifying restrictions are valid). VR(2) is second-order autocorrelation test (null hypothesis: no autocorrelation).

Discussion

Findings

By using the data collected from Asia-Pacific countries, our empirical results provide evidence that the statutory corporate tax rate had a negative impact on a host country's FDI inflows. These results could explain why the reduction in statutory corporate tax rate became a policy tool to compete for investments nowadays. We also examined other explanatory factors of FDI. Results show that richer and larger countries had attracted more FDI inflows than less developed and smaller countries. Corruption control and political stability may also benefit FDI inflows. However, a higher percentage of skilled labor with tertiary education had a negative association with net FDI inflows. One explanation is that skilled labor usually means higher wage cost (Feenstra & Hanson, 1997), which may have a negative effect on FDI from labor-intensive sectors (Cheng & Kwan, 2000). Since most of the foreign investors in Asia are engaging in labor-intensive activities such as mining, manufacturing, infrastructure, power, and so on (Bissinger, 2012; Hoang, Wiboonchutikula, & Tubtimtong, 2010; Li, 2013), they may not require a large number of skilled or higher educated professionals. This is why the percentage of skilled labor with secondary education is positively correlated with FDI net inflows. Interestingly, voice and accountability shows a negative impact on net FDI inflows. The explanation would be that most Asian economies are in transition period. The democratic system is not very mature. Especially in those traditionally authoritarian countries, democracy transition often paired with social conflicts.

Second, we built an explanatory model based on Borensztein, Gregorio, and Lee's (1998) findings to examine the impact of FDI on economic growth. Results supported the positive effects of FDI on a country's economic growth (e.g., GDP per capita growth or GDP annual growth). Control variables also showed significant influence. Human capital and institutional factor (control of corruption) had positive associations with economic growth. The population had a negative relationship with both GDP per capita growth and annual GDP growth. It is not surprising that some existing studies also indicated similar results (Kelley & Schmidt, 1995).

The lagged value of GDP per capita showed a negative effect on growth. This is consistent with Borensztein, Gregorio, and Lee's (1998) research results that the richer countries tend to have a declining growth rate.

Lastly, we tested the relationship between FDI and income inequality. The results based on system GMM estimation showed a positive relationship between FDI inflows and income inequality after controlling GDP per capita, GDP growth, GDP, and human capital. Our results confirmed the findings by Choi (2006) and Pan-Long (1995) that FDI is positively associated with "unequal income distribution" within host countries. Most control variables display significant associations with the GINI coefficient. Specifically, GDP per capita shows positive signs, while the enrolment ratio of tertiary education and GDP annual growth are negatively associated with the GINI coefficient.

Theoretical Implications

The present study contributes to the literature in several ways. Firstly, the current research adds important supplements to the understanding of Asia-Pacific countries' economic phenomenon, especially when the global tax competition, slowing down economic growth has become the key challenges for global economies. Asia-Pacific region has attracted increasing attention in international governance and economic integration due to its impressive growth since the mid-1980s (Stone & Jeon, 2000). Many existing studies have paid attention to economic growth, but very few focused on how taxation policies influence capital inflows in the Asia-Pacific region. This study provides research finding in Asia-Pacific context that lower statutory corporate tax rate of a country would be one of the most important driving forces of capital inflows. Moreover, there is a dearth of studies focusing on foreign investments' negative impacts. Most existing studies conclude that foreign investments would increase local residents' income but failed to investigate whether and how foreign capital promotes unequal income

distribution. Therefore, the present research adds significant value to existing literature that foreign investments may have positive impacts on income inequality. However, the present study also has limitations. For example, due to limited data, we used the statutory corporate tax rate but not the effective tax rate to represent tax burdens which merit refinement for any future research. The study also did not comment on what would be the impact of preferential tax regime, state aid or subsidies on FDI, how tax could influence the structuring and financing of FDI, nor did it discuss the impact of tax on FDI specifically in the form of services or natural resources, and the possibility and extent of profit shifting especially for geographically mobile activities.

Policy Implications

Our findings may provide important policy implications for practitioners. First, pro-investment taxation policy would still be a very important policy instrument to promote foreign investments. The countries with a lower statutory corporate tax rate would be more attractive to investors. After the US significantly cut the corporate tax rate, Australia and several EU countries are also considering reducing tax rates. Therefore, we could predict that the game of “racing to bottom” is still going on. However, tax competition has unequal influences on countries at the different developmental stage. Our findings show that the richer countries with better infrastructure or larger population size have an advantage in attracting FDI inflows over less-developed and smaller countries. For those developing countries, improving transportation connectivity and other pillars of competitiveness identified in 2018 Global Competitiveness Report (World Economic Forum, 2018), should still be their policy priority. The central government of a country should allocate more resources for the less developed area to develop local transportation infrastructure. In addition, developing countries should also keep reforming their system to maintain political stability and control corruption. Should the countries decide to introduce preferential tax regime or continue such existing regime, the

governments should ensure that the tax benefit is granted to taxpayers that undertake substantial activities required to produce the income covered by the preferential tax regime. Under the Base Erosion Profit Shifting Project Action 5 (Countering harmful tax practices more effectively taking into account transparency and substance), countries are given opportunity to abolish the regime or remove the features that create the harmful effect.

Additionally, although foreign investments do have a positive impact on domestic economic development, it may also be positively associated with income inequality, which would be hazardous for social cohesion and long-term development. Many empirical studies found that income inequality is one of the main causes of violent crime (e.g., Kennedy et al., 1998; Brush, 2007). However, we should not blame FDI for inequality but to understand what led to the uneven distribution of FDI within a country (Wei, Yao, & Liu, 2009). Therefore, the lessons for national policymakers would be how to reduce the negative effects of foreign investments. One of our recommendations is that the governments of the host countries should make sure that the investments could be evenly distributed in both developed and less-developed regions. For many less-developed countries, they are more likely to locate the investments in those regions with better infrastructures when they initially opened up their market. To attract investments, local governments usually would provide many benefits for investors such as tax holiday, tax relief, free land use, cheaper electricity, transportation, and so on. Other investors would follow suit and they would also prefer these better-developed regions and would be less likely to invest in those under-developed regions. This is one of the main reasons for regional unequal development and income inequality (Wei, Yao, & Liu, 2009). Therefore, it is necessary to purposefully incentivize the investors to locate their factories and workplaces in those less-developed regions to narrow the development gap. For example, scholars provided recommendations that, to reduce inequality in China, “FDI has to be directed toward the west and central regions through preferential policies and government intervention

to create a better environment for absorbing FDI in these relatively backward areas” (Wei, Yao, & Liu, 2009).

Conclusion

Using empirical data from Asia-Pacific economies and two-step system GMM estimation approach, the present study provides evidence that competitive statutory corporate tax rate would promote the inward FDI after controlling other determinants of FDI (e.g., GDP per capita, population size, transportation connectivity, skilled labor, and governance variables). Consistent with the majority of existing studies, FDI inflows show positive effects on economic growth in Asia-Pacific host economies. However, at the same time, inward FDI is positively associated with income inequality. The present research adds important evidence in relation to Asia-Pacific economies for the existing literature about tax competition, capital mobility, and economic development. The findings from the current research may also provide insights and policy implications for the national policy-makers in Asia-Pacific region (e.g., the developing countries in transition) especially when the inward FDI of Asian-Pacific economies started to decrease since 2016 and when the global economies are now facing more intensified pressure of tax competition after the US tax reform in 2017.

References

- Alfaro, L., Chanda, A., Kalemli-Ozcan, S., & Sayek, S. (2004). FDI and economic growth: the role of local financial markets. *Journal of International Economics*, 64(1), 89-112.
- Alfaro, L., Chanda, A., Kalemli-Ozcan, S., & Sayek, S. (2010). Does foreign direct investment promote growth? Exploring the role of financial markets on linkages. *Journal of Development Economics*, 91(2), 242-256.
- Arellano, M., & Bond, S. (1991). Some tests of specification for panel data: Monte Carlo evidence and an application to employment equations. *The Review of Economic Studies*, 58(2), 277-297.
- Asiedu, E. (2002). On the determinants of foreign direct investment to developing countries: is Africa different?. *World Development*, 30(1), 107-119.
- Asiedu, E. (2006). Foreign direct investment in Africa: The role of natural resources, market size, government policy, institutions and political instability. *The World Economy*, 29(1), 63-77.
- Asiedu, E., & Lien, D. (2011). Democracy, foreign direct investment and natural resources. *Journal of International Economics*, 84(1), 99-111.
- Athukorala, P. P. A. W. (2003, November). The impact of foreign direct investment for economic growth: a case study in Sri Lanka. In *9th International Conference on Sri Lanka Studies* (Vol. 92, pp. 1-21).
- Barthel, F., Busse, M., & Neumayer, E. (2010). The impact of double taxation treaties on foreign direct investment: evidence from large dyadic panel data. *Contemporary Economic Policy*, 28(3), 366-377.
- Bissinger, J. (2012). Foreign investment in Myanmar: A resource boom but a development bust?. *Contemporary Southeast Asia: A Journal of International and Strategic Affairs*, 34(1), 23-52.

- Blomström, M., Fors, G., & Lipsey, R. E. (1997). Foreign direct investment and employment: home country experience in the United States and Sweden. *The Economic Journal*, 107(445), 1787-1797.
- Borensztein, E., De Gregorio, J., & Lee, J. W. (1998). How does foreign direct investment affect economic growth? 1. *Journal of international Economics*, 45(1), 115-135.
- Botman, D., Klemm, A., & Baqir, R. (2010). Investment incentives and effective tax rates in the Philippines: a comparison with neighbouring countries. *Journal of the Asia Pacific Economy*, 15(2), 166-191.
- Bretschger, L., Hettich, F., (2002). Globalisation, capital mobility and tax competition: theory and evidence for OECD countries. *European Journal of Political Economy*, 18, 695-716.
- Brush, J. (2007). Does income inequality lead to more crime? A comparison of cross-sectional and time-series analyses of United States counties. *Economics Letters*, 96(2), 264-268.
- Buettner, T., & Ruf, M. (2007). Tax incentives and the location of FDI: Evidence from a panel of German multinationals. *International Tax and Public Finance*, 14(2), 151-164.
- Busse, M., & Hefeker, C. (2007). Political risk, institutions and foreign direct investment. *European Journal of Political Economy*, 23(2), 397-415.
- Campbell, J. R., & Hopenhayn, H. A. (2005). Market size matters. *The Journal of Industrial Economics*, 53(1), 1-25.
- Carkovic, M., & Levine, R. (2002, June). Does Foreign Direct Investment Accelerate Economic Growth? University of Minnesota Department of Finance Working Paper. Retrieved from <http://dx.doi.org/10.2139/ssrn.314924>
- Cheng, L. K., & Kwan, Y. K. (2000). What are the determinants of the location of foreign direct investment? The Chinese experience. *Journal of International Economics*, 51(2), 379-400.

- Checchi, D. Education, Inequality and Income Inequality (May 2001). LSE STICERD Research Paper No. 52. Retrieved from <https://ssrn.com/abstract=1094825>.
- Choi, C. (2006). Does foreign direct investment affect domestic income inequality? *Applied Economics Letters*, 13(12), 811-814.
- Cnossen, S. (2018). Corporation taxes in the European Union: Slowly moving toward comprehensive business income taxation? *International Tax and Public Finance*, 25(3), 808-840.
- De Mooij, R. A., & Ederveen, S. (2003). Taxation and foreign direct investment: a synthesis of empirical research. *International Tax and Public Finance*, 10(6), 673-693.
- Devereux, M. P., & Griffith, R. (1998). Taxes and the Location of Production: Evidence from a Panel of US Multinationals. *Journal of public Economics*, 68(3), 335-367.
- Devereux, Michael P., Ben Lockwood, and Michela Redoano. "Do countries compete over corporate tax rates?." *Journal of Public Economics* 92, no. 5-6 (2008): 1210-1235.
- Durham, J. B. (2004). Absorptive capacity and the effects of foreign direct investment and equity foreign portfolio investment on economic growth. *European Economic Review*, 48(2), 285-306.
- Egger, P., & Winner, H. (2005). Evidence on corruption as an incentive for foreign direct investment. *European journal of political economy*, 21(4), 932-952.
- EU Centre in Singapore (EUCS). (2016). Matteo Renzi resigned after the Italian constitutional referendum. Retrieved from <http://www.eucentre.sg/?p=13128>.
- Feenstra, R. C., & Hanson, G. H. (1997). Foreign direct investment and relative wages: Evidence from Mexico's maquiladoras. *Journal of International Economics*, 42(3-4), 371-393.

- Fletcher, K. (2002, August). Tax Incentives in Cambodia, Lao PDR, and Vietnam. In IMF Conference on Foreign Direct Investment: Opportunities and Challenges for Cambodia, Laos PDR and Vietnam. Hanoi. August (Vol. 16).
- Gardiner, B., Martin, R., Sunley, P., & Tyler, P. (2013). Spatially unbalanced growth in the British economy. *Journal of Economic Geography*, 13(6), 889-928.
- Garrett, G. (1995). Capital mobility, trade, and the domestic politics of economic policy. *International Organization*, 49(04), 657-687.
- Genschel, P., & Schwarz, P. (2011). Tax competition: a literature review. *Socio-Economic Review*, 9(2), 339-370.
- Gillespie, P. (2018, April 04). US-China trade war fears: How bad could this get? *CNN Money*. Retrieved from <http://money.cnn.com/2018/04/04/news/economy/trade-war-escalation/index.html>
- Globerman, S., & Shapiro, D. (2002). Global foreign direct investment flows: The role of governance infrastructure. *World Development*, 30(11), 1899-1919.
- Gregorio, J. D., & Lee, J. W. (2002). Education and income inequality: new evidence from cross-country data. *Review of Income and Wealth*, 48(3), 395-416.
- Habib, M., & Zurawicki, L. (2002). Corruption and foreign direct investment. *Journal of International Business Studies*, 33(2), 291-307.
- Hiteshk. (2015, December 23). The Port Of Singapore: One Of The Busiest Ports In The World. *Marine Insights*. Retrieved from <https://www.marineinsight.com/>
- Hoang, T. T., Wiboonchutikula, P., & Tubtintong, B. (2010). Does foreign direct investment promote economic growth in Vietnam?. *ASEAN Economic Bulletin*, 27(3), 295-311.
- Hoyt, W. H. (1991). Property taxation, Nash equilibrium, and market power. *Journal of Urban Economics*, 30(1), 123-131.
- Ihori, T., & Yang, C. (2009). Interregional tax competition and intraregional political

- competition: The optimal provision of public goods under representative democracy. *Journal of Urban Economics*, 66(3), 210-217.
- IMF. (2018). Article IV mission to Singapore. Retrieved from <http://www.imf.org/en/news/articles/2018/05/16/pr18176-imf-staff-completes-2018-article-iv-mission-to-singapore>
- IMF/OECD. (2018, July). Update on tax certainty – IMF/OECD report for the G20 Finance Ministers and Central Bank Governors.
- Jensen, N. M. (2003). Democratic governance and multinational corporations: Political regimes and inflows of foreign direct investment. *International Organization*, 57(3), 587-616.
- Kaufmann, D, Kraay, A. & Mastruzzi, M. 2010. The Worldwide Governance Indicators: Methodology and Analytical Issues. World Bank Policy Research Working Paper No. 5430. Retrieved from http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1682130
- Keen, M. J., & Kotsogiannis, C. (2004). Tax competition in federations and the welfare consequences of decentralization. *Journal of Urban Economics*, 56(3), 397-407.
- Kennedy, B. P., Kawachi, I., Prothrow-Stith, D., Lochner, K., & Gupta, V. (1998). Social capital, income inequality, and firearm violent crime. *Social Science & Medicine*, 47(1), 7-17.
- Kelley, A. C., & Schmidt, R. M. (1995). Aggregate population and economic growth correlations: the role of the components of demographic change. *Demography*, 32(4), 543-555.
- Kelly, J., & Benson, S. (2018, February 9). Turnbull switches to plan B on tax reform. *The Australian*. Retrieved from www.theaustralian.com.au.
- Kotrajaras, P., Tubtimtong, B., & Wiboonchutikula, P. (2011). Does FDI enhance economic growth? New evidence from East Asia. *ASEAN Economic Bulletin*, 183-202.

- Kumar, N. (2006). Infrastructure availability, foreign direct investment inflows and their export-orientation: A cross-country exploration. *The Indian Economic Journal*, 54(1), 125-144.
- Lee Kuan Yew School of Public Policy (LKYSPP). (2014). A global city on Singaporean soil: Growing the economy, not the gap? Retrieved from <https://lkyspp.nus.edu.sg/docs/default-source/case-studies/case-study-singapore-as-a-global-city.pdf?sfvrsn>
- Li, X., & Liu, X. (2005). Foreign direct investment and economic growth: an increasingly endogenous relationship. *World Development*, 33(3), 393-407.
- Li, Z. (2013). How Foreign Direct Investment Promotes Development: The Case of the People's Republic of China's Inward and Outward FDI (March 12, 2013). Asian Development Bank Economics Working Paper Series, No. 304. Retrieved from: <https://ssrn.com/abstract=2231899>
- Maritime and Port Authority of Singapore (MPAS). (2018). A Maritime Gateway to key Asian Markets. Retrieved from <https://www.mpa.gov.sg/web/portal/home/maritime-singapore/introduction-to-maritime-singapore/gateway-to-asia>
- Matthews, S. (2011), "What is a "Competitive" Tax System?" OECD Taxation Working Papers, No. 2, OECD Publishing, Paris. Retrieved from <http://dx.doi.org/10.1787/5kg3h0vmd4kj-en>
- Morgan, D., & Amanda Becker, A. (2017, December 3). US Senate approves major tax cuts for business and the rich in victory for Trump. *The Sydney Morning Herald*. Retrieved from www.smh.com.au.
- Muller, A. (2002). Education, income inequality, and mortality: a multiple regression analysis. *BMJ*, 324(7328), 23.
- Oates, W. (1972). *Fiscal Federalism*. New York: Harcourt Brace Jovanovich.

- OECD (2007), Tax Effects on Foreign Direct Investment: Recent Evidence and Policy Analysis, OECD Tax Policy Studies, No. 17, OECD Publishing, Paris, <https://doi.org/10.1787/9789264038387-en>.
- OECD. (2010). Singapore: rapid improvement followed by strong performance. Retrieved from <https://www.oecd.org/countries/singapore/46581101.pdf>
- Plümper, T., Troeger, V. E., & Winner, H. (2009). Why is there no race to the bottom in capital taxation?. *International Studies Quarterly*, 53(3), 761-786.
- Pan-Long, T. (1995). Foreign direct investment and income inequality: further evidence. *World Development*, 23(3), 469-483.
- Quinn, D. (1997). The correlates of change in international financial regulation. *American Political Science Review*, 91(03), 531-551.
- Sahoo, Pravakar. 2006. *Foreign Direct Investment in South Asia: Policy, Trends, Impact and Determinants*. Asian Development Bank. <http://hdl.handle.net/11540/3644>. License: CC BY 3.0 IGO.
- Sato, M. (2003). Tax competition, rent-seeking and fiscal decentralization. *European Economic Review*, 47(1), 19-40.
- Stone, S. F., & Jeon, B. N. (2000). Foreign direct investment and trade in the Asia-Pacific region: complementarity, distance and regional economic integration. *Journal of Economic Integration*, 460-485.
- Swenson, D. L. (1994). The impact of US tax reform on foreign direct investment in the United States. *Journal of Public Economics*, 54(2), 243-266.
- Thomas, A., & Buell, T. (2017, December 11). U.S. Tax Plan Draws Attacks Abroad, Prompts Calls for Cuts in Response. *The Wall Street Journal*. Retrieved from www.wsj.com

- Wei, K., Yao, S., & Liu, A. (2009). Foreign direct investment and regional inequality in China. *Review of Development Economics*, 13(4), 778-791.
- Wei, L. (2017, April 28). Who Will Gain from the US Tax Reform? *People's Daily*. Retrieved from http://paper.people.com.cn/rmrb/html/2017-04/28/nw.D110000renmrb_20170428_2-21.htm
- Wildau, G. & Mitchell, T. (2016, January 14). China income inequality among world's worst. *Financial Times*. Retrieved from www.ft.com
- Wilson, J. D. (1986). A theory of interregional tax competition. *Journal of Urban Economics*, 19(3), 296-315.
- Windmeijer, F. (2005). A finite sample correction for the variance of linear efficient two-step GMM estimators. *Journal of Econometrics*, 126(1), 25-51
- Wooldridge, J. M. (2015). *Introductory econometrics: A modern approach*. Poston: Cengage Learning.
- World Economic Forum. (2018). The Global Competitiveness Report 2018.
- Zhang, K. H. (2001). Does foreign direct investment promote economic growth? Evidence from East Asia and Latin America. *Contemporary Economic Policy*, 19(2), 175-185.
- Zimmermann, N. (2017, December 19). US tax reform breaks global rules, EU says. *DW Akademie*. Retrieved from <https://p.dw.com/p/2peIg>.