

**Foreign Direct Investment from Developing Countries and Its Implications for Domestic
Investment Rates**

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Siming Fu, B.A.

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Siming Fu, B.A.

Thesis Advisor: Andreas Kern, Ph.D.

ABSTRACT

Developing countries are becoming important contributors, not only recipients, of global foreign direct investment (FDI) flow. In 2000, only 8.7 percent of global outward FDI was originated from emerging markets; however, the percentage rose sharply to 26.9 percent in 2011 (UNCTAD 2012). Such a robust trend is not predicted by classical investment theories and remains largely under-investigated, especially in terms of its impact on economic activities of origin countries. From a macroeconomic perspective, outbound FDI drains away domestic capital, a precious factor in supporting investment and economic development at home. Nevertheless, such investment may also bring back brands and technologies, which in turn benefits domestic production. Using data from 93 developing economies during 2001 – 2011, this study aims to empirically analyze how developing countries' domestic investment environments respond to outward FDI.

My results indicate that there is no one-directional impact of outward FDI, and different investment objectives have off-setting effects that can lead to almost no impact on domestic investment environments at an aggregated level. Further, I find that the outflow FDI from developing countries to high-income countries and tax havens can have a negative effect both on domestic capital formation and corporate tax revenue, but these effects are rather small. In order

to further investigate this relationship, I suggest collecting more disaggregated sector-level or firm-level data – that is capable of removing shadow investments in tax havens – from gross calculation.

The research and writing of this thesis is dedicated to everyone who has supported me. I want to express my sincere gratitude to my advisor Dr. Kern, for his guidance, patience, and encouragement along the way.

Many thanks,
Siming Fu

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INTRODUCTION

There is no shortage of literature studying the role of inward foreign direct investment (FDI) in spurring economic growth in recipient developing countries. Meanwhile, the developing world is also becoming a major contributor of global outward FDI (OFDI). According to the United Nations Conference on Trade and Development (UNCTAD), in 2014, developing and transition economies generated almost 40 per cent of global FDI outflow (UNCTAD 2015). However, the nature of such investment, as well as its impact on home economies, is far less explored in the existing literature. Furthermore, as indicated in publicly-available data, every year, a significant amount of FDI is directed to tax havens, whose financial secrecy has rendered the investment objectives almost untraceable. In the aftermath of the 2016 Panama Papers scandal that exposed the strong tie between tax havens and ill-intended capital investment, it is critical to examine the consequence induced by this strand of capital outflow on developing economies.

This study aims to understand the impact of developing countries' outward FDI on home economies' investment activities, based on their investment objectives. Largely centered on developed economies' experience, scholars have studied outward FDI's (OFDI) influence on home countries with two primary approaches (Al-Sadig 2013). The first takes a macroeconomic perspective, arguing that under an imperfect financial market, FDI outflow can increase capital scarcity and raise domestic interest rates, making borrowing more difficult for firms at home, thus reducing domestic investment (Feldstein 1994). However, such a macro view collides with another school of thought that focuses more on product markets. This perspective proposes that if FDI outflows can result in efficiency gains that complement domestic production, then OFDI will have a positive effects on home countries' domestic investment. However, if OFDI intends to substitute

for domestic production activities, or is undertaken entirely for capital value preservation, we can expect an adverse effect (Hejazi and Pauly 2003).

Furthermore, outward FDI from developing countries is a strong yet relatively new trend; it is not clear how such investment changes market equilibrium at home. Some important policy questions remain unanswered: will outward FDI become, as described in Lu and Tung's (2007) "Springboard Theory", a fast track for developing countries to obtain necessities such as trademarks or technology that otherwise would take them years to build? Or will such FDI acts as capital flight in disguise and generate no economic benefits for home countries?

To answer these questions, we need to understand the objectives of FDI transactions. While a precise measurement of investment motives would be infeasible in practice, this study aims to make a modest attempt by using FDI destination as a proxy to mirror investment objectives, and understand how domestic investment responds to OFDI of different types. Based on UNCTAD's bilateral FDI data from 181 developing countries¹ during the period of 2001 – 2011, the study uses a fixed effects model to estimate the effects of OFDI.

The analysis suggests that FDI outflows from developing countries have to be viewed through a differentiated lens. A collective treatment of aggregated FDI outflow is inappropriate and the impacts of OFDI differ based on respective investment destinations. While outward FDI routed to other developing nations does not have a significant impact on domestic investment, FDI directed to high income economies and tax havens is strongly correlated with a negative effect, although the magnitude is not extensive. Furthermore, this study highlights the pervasiveness of borderline

¹ This study treats all non-high-income countries based on World Bank's classification as developing countries, and does not differentiate transition economies specifically.

FDI in existing data records, and encourages future research to proceed with more caution in light of this distortive factor.

The results of this study suggest that developing country policy makers should be cognizant of the varying effects of OFDI on domestic economic development, especially when considering the usage of preferential policies to promote outbound FDI. Policy makers should also be highly cautious of capital directed to tax havens, which could result in a reduction of both domestic production activities and loss of tax revenue. Coordinated efforts between nations and international organizations have the potential to contain the negative impact of tax havens on global economic sustainability.

LITERATURE REVIEW AND THEORETICAL CONSIDERATIONS

The mechanisms through which outbound FDI may affect a home country's domestic investment have been discussed widely. Stevens and Lipsey (1992) depict the most direct macroeconomic consequence: firms searching for overseas investment opportunities transfer part of their financial capital abroad; as a result, domestic private savings decrease. Further, the heightened financial scarcity increases the cost of raising funds for other domestic investment activities due to a higher interest rate. Therefore, outward FDI exacerbates the paucity of domestic capital, discouraging domestic investment activities in general. Feldstein (1994) studied FDI outflows from OECD countries from 1970s to 1980s, and found that each dollar of FDI reduces domestic investment by about one dollar. Among the few studies on developing countries' experience, Al-Sadig (2013) looked at 121 developing country and transition economies over the period 1990-2010, and concluded that FDI has a statistically robust and negative impact on the rate of domestic investment. Notably, two important prerequisites that render such a model valid 1) it assumes an imperfect financial market; 2) it assumes firms primarily finance their overseas business through domestic lending sources or domestic equity.

Nevertheless, Al Sadig's model may only capture the first-stage impact of outbound FDI transactions on domestic investment. Many other existing empirical studies find that outward FDI may result in a positive effect on domestic output in the long run, at the firm, industry or country-level. On the front of firm-level research, Lipsey and Stevens (1992) studied seven U.S. multinationals for a period of roughly two decades, and found a strong positive correlation between FDI outflow and domestic investment. Herzer (2008) studied 14 industrialized countries over the period 1971–2005, concluding that OFDI yields positive effects on productivity for developed

nations; Similarly, Herzer (2010) examined 33 developing countries over the period from 1980 to 2005, and found that such experience also applies to developing nations.

Other scholars have found more nuanced results and conclude that the effects of outward FDI are by no means singular. For example, Hejazi and Pauly (2003) utilized industry-level data from Canada, dividing the sample into different groups based on the destination of FDI, and found that the impact of outward FDI varies across investment destinations. Desai et al's 2005 study on a bigger OCED country sample during 1980s and 1990s painted a more conflicting picture. When they applied a similar specification to Feldstein's, they found negative relationship; however, when they replaced their sample composition from OECD countries with U.S. multinational firms, the results suggested that FDI expenditures by U.S. multinationals generally associated with higher domestic investment.

The puzzling findings of the existing literature exposed the insufficiency of treating the effect of outward FDI solely as an empirical question. To examine a mid and long term effect of outward FDI, this study proposes to use micro mechanisms to explain the underlying motives of various outbound FDI investment as a critical first step to understand whether FDI can be treated collectively when analyzing its implication for domestic economic development.

Vertical FDI

The first strand of direct investment is vertical FDI, which involves a fragmentation and relocation of certain part of production activities from home to abroad. Such FDI enables companies to streamline their production process in pursuit of lower costs and higher profit. As a result, the intensity of home production activities can either decrease or increase. Economists have found evidence suggesting a decline of manufacturing employment, particularly of low-skilled

worker, in face of production internationalization (Sachs et al 1994). Nevertheless, in addition to a zero-sum competition between home and host countries, outflow FDI can induce domestic production restructuring. Oversea subsidiaries generate intermediate goods and capital which are exported back to support production at home (Hejazi and Pauly 2003; Desai, Foley and Hines 2005). In this situation, vertical FDI may stimulate a firm's rate of domestic investment because it acts as a complement to its domestic production. Lipsey and Weiss (1984) confirmed this argument using unpublished U.S. Department of Commerce data and concluding that foreign production by a U.S. firm does not, on balance, substitute for exports by the firm to the foreign area of production. In general, they found that the higher a firm's output in a foreign area, the larger its exports from the United States to that area. In sum, substitution and complementarity operate differently for each firms. Empirical research can only reflect an aggregated effect at a particular period of time.

Horizontal FDI

Horizontal FDI replicates business activities in foreign countries in response to trade costs or other frictions. As with vertical FDI, whether horizontal FDI serves as a complement or substitute to domestic investment is an unsettled debate. If horizontal FDI leads a firm to relocate its production facilities from home to foreign soil, then it acts as a substitute to domestic investment. Nevertheless, it may also promote exports of intermediate or finished products from the parent firm to its foreign affiliates. While horizontal FDI differs with vertical FDI in terms of investment purpose and allocation of production process, its effect on domestic activities remains a matter for empirical resolution (Desai, Foley and Hines 2005).

Asset-Seeking FDI for “Late Comers”

One interesting form of FDI is intangible asset-seeking FDI, a relatively new phenomenon that happens a lot more frequently among the “late comers”, namely emerging market multinational enterprises (EMNEs). Luo and Tung (2007) construct a “Springboard Theory” to explain this process, where newly emerged multinationals from developing countries venture abroad to purchase cutting-edge technology, brands, or managerial experience developed by foreign companies that is absent in parent firm (Ramamurti 2012; Madhok and Keyhani, 2012). Compared with the fundamental assumptions held by traditional international business theory that companies use ownership advantages to invest and compete abroad, not the other way around, this theory addresses the anomaly.

However, the traditional view has been challenged greatly in recent years in face of growing merger and acquisition (M&A) activities by EMNEs in developed countries in pursuit of an advancement in their value chain. Ramamurti (2012) found that after obtaining these intangible assets and integrating them with their own production process, these EMNEs are equipped to better exploit home and foreign markets Therefore, such FDI plays a very positive complementary role in these firms’ long-term domestic investment agendas. Lu and Tung (2007) hold a similar position, arguing that the global success of EMNEs is still highly dependent on their performance at home and their home base to serve as the manufacturing center for their worldwide operations, and that the natural result will be an increase, instead of a decrease, of domestic investment.

Another common trend of outward FDI among developing countries is South-South FDI, and a significant portion of such FDI involves investment in primitive assets (i.e. natural resources), which in turn provide critical raw materials that are eagerly desired by producers back home.

Abundant examples can be seen in China's investment in Africa and Latin America's extractive industries. Such FDI stimulates domestic investment and serves as a complement, contributing to the production activities of other domestic players.

“Borderline” FDI

A commonly-held conception is FDI implies investment that is strongly associated with production activities, and that the main objective of FDI investors is to “exercise a controlling interest of management activities of the target firm” (OECD 2008). Commensurate with this assumption, international statistical practice holds that when “a resident in one economy owns 10 per cent or more of the ordinary shares or voting power” in a business in another country (UNCTAD 1999). These are among the most critical criteria that differentiate direct investment from other types of investment.

However, due to inconsistent classification of cross-border capital flows among individual countries and jurisdictions, a significant portion of capital is wrongly recorded as FDI (Kozlow 2002). Special Purpose Entities (SPEs), an investment vehicle created by multinational enterprises (MNE) or wealthy individuals for various purposes, play a major role in this process (OECD 2008). The OECD (2008) defines SPEs as follows:

“Examples (of SPEs) are financing subsidiaries, conduits, holding companies, shell companies, shelf companies and brass-plate companies... They are all legal entities that have little or no employment, or operations, or physical presence in the jurisdiction in which they are created by their parent enterprises which are typically located in other jurisdictions. They are often used as devices to raise

capital or to hold assets and liabilities and usually do not undertake significant production.”

Capital invested in SPEs that exceed the threshold of 10 percent may be wrongly classified as FDI, because many such SPEs reside in tax havens, whose high degree of financial secrecy keeps the outsiders from knowing if the invested capital is used to for production related activities or not. Bear in mind, a great amount of capital flow to SPEs is not necessarily directed to activities relevant to any forms of production that we typically assume FDI should engage. SPEs oftentimes act in a pass-through capacity without any other productive economic activity of their own (OECD 2008). They are widely used by individuals or parent firms to conduct portfolio investment (Crawford and Fredericks 2003). Furthermore, shell companies, a common form of SPE, are frequently used by MNEs and wealthy individuals to conduct tax avoidance, tax evasion, and money laundering (Zucman 2015). These categories of capital movement should be, in principle, mutually exclusive with FDI (UNCTAD 1999) .

We can already observe some abnormal patterns among existing OFDI data. For example, according to UNCTAD, in 2010, Kazakhstan’s gross outward FDI to the Netherlands, a primary tax haven, amounted to over 5 per cent of its GDP, which was equivalent to almost half of the entire nation’s government spending in the same year². Also in 2010, Nigeria’s combined outward FDI to Netherlands, Luxembourg, Belgium, Switzerland, British Virgin Islands, Sweden and the Cayman Islands is 1.04 times the total of all U.S. overseas loans and grants to Nigeria.³ Similarly, from 2001 to 2011, Bangladesh’s annual outward FDI has never exceeded 16 million US dollars; yet in 2012, Bangladesh unusually directed 303 million dollars of OFDI to Luxembourg. By

² Data retrieved from World Development Indicators

³ Data retrieved from <http://us-foreign-aid.insidegov.com/1/127/Nigeria>

comparison, the second-largest OFDI destination for Bangladesh investors in the same year is Pakistan, with a mere 1 million dollars in total. Examples are easy to find from publicly available data; however, due to the opaque tax haven operation system, what remains unknown is what those mammoth amount of “FDI” eventually was used for.

A recent massive document leak may shed some light to the inner-workings of tax havens. Leaked documents, also called the “Panama Papers”, of Mossack Fonseca, a law firm from Panama that specializes in assisting their clients with incorporating shell companies, exposed how global political and financial elites use tax havens to avoid taxes and hide illicit gains (Süddeutsche Zeitung 2016). Besides rich actors and business men, Mossack Fonseca’s clients include Mafia members, current and former heads of state, and their families, closest advisors, and friends. Mossack Fonseca has over 40 offices worldwide, helping clients enlisting shell companies in Bahamas, British Virgin Islands and other tax havens. The “Panama Papers” may only be the tip of the iceberg. It is estimated that at least 8 percent of the world’s financial wealth is stored in such jurisdictions, and the scale is growing rapidly, reaching about a staggering amount of 25 percent over the past five years (Zucman 2015).

Surely, money routed to SPEs in tax havens can come back disguised as FDI and still be used for production, a practice that is commonly referred as “round-tripping”. Such behavior is incentivized by the preferential tax treatment accorded to foreign investors in home countries. For example, according to UNCTAD’s bilateral FDI data, China is among the largest investors in and recipients of FDI from the British Virgin Islands (Palan, Murphy and Chavagneux 2010). Besides round-tripping purpose, it is hard to imagine any large-scale production activities that deserve billions dollars of direct investment can truly take place in those small islands. But given the difficulty of correctly differentiating various types of investment directed to the opaque tax haven

system, we have legitimate reason to doubt that there are wrongly classified “borderline FDI” in mainstream data record based on observation of abnormal OFDI patterns described above.

Furthermore, Besides these island-based jurisdictions, bigger countries also perform similar tax-avoidance functions: in 2015, U.S. pharmaceutical company Pfizer spent 155 billion dollars to take over Irish company Allergan in order to relocate Pfizer’s headquarter to Ireland, which is widely recognized as a tax-avoidance strategy (Rushe 2015).⁴ Investment as such, if classified as OFDI, can potentially compromise the accuracy of international statistical practice.

In sum, as discussed above, different categories of OFDI can have offsetting effects on home production activities (Mello 1999; Hejazi and Pauly 2003). Meanwhile, incorrect classification of “borderline FDI” further disrupts macro-level analysis. In order to empirically evaluate the effects of FDI outflow on domestic investment rates in developing countries in a more fine-grained fashion, this study hypothesizes that outward FDI from developing countries has varying degrees of negative impact on domestic investment, and the effect is most pronounced when OFDI targets tax havens.

⁴ The merger bid was eventually struck down by U.S. Treasury on the ground of tax inversion.

EMPIRICAL MODEL

The core objective of this model is to examine the relationship between outward FDI and domestic investment rates. The study employs time-invariant fixed-effects model to overcome possible omitted variable bias pertinent to unobservable country-specific characters. Existing literature has demonstrated a suit of critical factors that can influence domestic investment rates. Direct factors include inward FDI that contributes to domestic investment activities (Desai, Foley and Hines 2005), and credit available to domestic investors (King and Levine 1993; Alfaro, et al. 2003) Other constraints or facilitators include domestic savings rate (Feldstein and Horioka 1979), growth momentum of domestic economy (Blomstrom, Lipsey and Zejan 1993), home country's current level of wealth (Barro 1996), and degree of trade openness (Sachs, Warner, et al 1995; Wacziarg and Welch 2008). To capture these forces, this study will employ regression model written as follows:

Baseline Regression Equation

$$\gamma_{it} = \beta_1 \sigma_{it} + \mathbf{X}_{it} + \theta_i + \mu_t + \beta_0 + \varepsilon_{it} \quad (1)$$

The key dependent variable is capital formation as a percent of real GDP (γ_{it}), which measures the level of domestic investment in country i at time t (Feldstin and Horioka, 1980; Desai et al 2005; Al-Sadig 2013). The dependent variable is logged in regression analysis to avoid distortion from outliers. Since capital formation cannot fully capture the intensity of domestic investment, I also use total factor productivity (TFP) in robustness check section to measure the effect of outward FDI. The key independent variable is outward FDI value as a percent of GDP (σ_{it}), which represents the amount of outward FDI as faction of total real GDP in country i at time t .

In addition, I include a vector X of control variables (X_{it}). Control variables include inward FDI to GDP ratio, which limits alternative sources of capital for domestic investment; credit available for investors is a vital factor contributing to domestic investment. I use aggregate domestic credit for this research instead of credit for private sector, because state-owned enterprises (SOEs) in some developing countries play a major outbound FDI force (Buckley, et al. 2007; Wang, et al. 2012), and it would greatly compromise the policy relevance if we ignore the state sector. Moreover, countries like China have complicated mixed-ownership structure where a company can be held both by the state and private investors (Buckley, et al. 2007), and it is impossible to disentangle how much of a loan goes to each party. Domestic savings plays an important role in financing investment projects (Feldstin and Horioka, 1980). Because the level of savings vary greatly across countries, it is important to control for this factor when conducting cross-country analysis. Growth rate of real GDP measures the economic development momentum of a country, which results in more investment regardless of its overall income level. GDP per capita measures how established a country's economy is, which does not necessarily have a clear direction of association with domestic investment. Trade openness can facilitate domestic investment in term of technology and knowledge spillovers, but it can also replace domestic production if the imports are cheaper and better. In addition, country-specific characteristics are captured by θ_i , time-fixed effects are captured by μ_t . β_0 represents the constant term, and ε_{it} is the error term.

Data Source Description

This study retrieved data from three publicly available data banks, *World Development Indicators* (WDI) (2015), *UNCTAD FDI Statistics* (2014), *Government Revenue Dataset* from International Centre for Tax and Development (ICTD) (2014), as well the dataset *Capital Account Openness* (CKAOPEN) compiled by Karcher and Steinberg (2012).

World Development Indicators is a time-series documentation of various development indicators of countries and regions around the world from 1960 – 2015. The metadata is reported by officially recognized international sources, and compiled by the World Bank Group.⁵ Statistics on gross capital formation, GDP, annual GDP growth rate, GDP per capita, gross domestic savings, imports, exports of the targeted developing countries are retrieved from WDI.

Information on bilateral FDI value is obtained from *UNCTAD FDI Statistics*, developed by United Nations Conference on Trade and Development, Division on Investment and Enterprises (DIAE). DIAE provides bilateral FDI data collected from national sources, partner countries, and other international organizations⁶. The statistics cover 206 economies through 2001 to 2012. This study chooses information on inflow and outflow FDI of developing economies with their partner countries.

Data on OFDI home countries' corporate tax revenue, which is used in my robustness check section, is obtained from *ICTD Government Revenue Dataset*. This dataset combines data from

⁵ World Development Indicators, <http://data.worldbank.org/data-catalog/world-development-indicators>

⁶ UNCTAD Bilateral FDI Statistics, <http://unctad.org/en/Pages/DIAE/FDI%20Statistics/FDI-Statistics-Bilateral.aspx>

several major international databases, and is developed by the International Centre for Tax and Development.

Another variable used in my robustness check section is TFP. The TFP data is extracted from *CKAOPEN* dataset, which was constructed by Chinn, Menzie, and Hiro (2006), and further developed by Karcher and Steinberg for their 2012 study. The data covers global economies from 1965 to 2010.

EMPIRICAL RESULTS

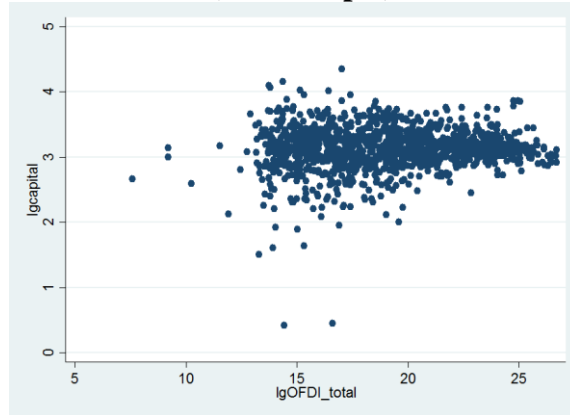
Replication Results

The existing literature has largely employed panel regression analysis to examine the impact of outward FDI on domestic investment rates. In order to present a comparison to previous research, this study will begin by replicating two earlier studies by Feldstein (1994) and Al-Sadig (2013). All data are for the period of 2001-2011.

The OLS regression results presented in Table A1 (see Appendix A) are based on the specifications of Feldstein, Al-Sadig and the current study. Column 1 to 3 utilize a full sample, which includes data from both developed and developing countries. In column 1, which reflects Feldstein's original specification, outward FDI does not have a statistically significant correlation with capital formation. Such finding contradicts his original conclusion that domestic investment is negatively correlated with an outflow of FDI. When including several independent variables according to Al-Sadig's specification, we still cannot observe any significant negative relationship between outward FDI and domestic capital formation. Column 3 reports result of the specification employed by the current study, and it confirms that there is no significant relationship between domestic capital formation and outward FDI. In fact, as reflected in Graph 4.1, we do not observe a clear linear relationship between OFDI and capital formation⁷.

⁷ The variables are in log form in order to avoid distortion of outliers.

**Graph 4.1. Capital Formation and Outward FDI
(Full Sample)**

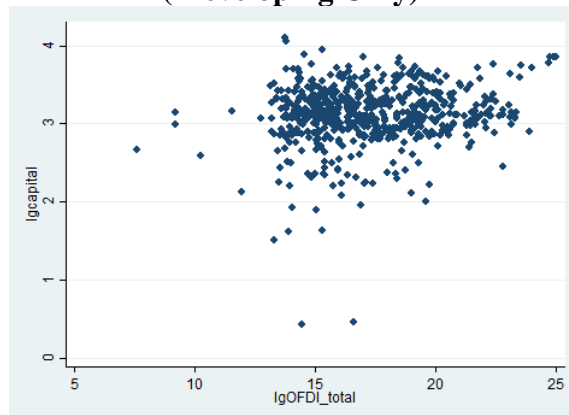


Source: UNCTAD

Table 4.1 excludes data from developed economies as FDI host. I perform the same set of regressions, some interesting results start to emerge. While the coefficient of outward FDI is still not significant under Feldstein's model, the estimated coefficients on FDI outflow, both under Al-Sadig and my model, are negative and statistically significant at 5% level, and two coefficients are very close to each other despite different control variables specified. Graph 4.2 is a scatter plot of the relationship between OFDI and capital formation.

**Graph 4.2 Capital Formation and Outward
FDI**

(Developing Only)



Source: UNCTAD

Table 4.1. Developing Only Replication Results: OLS Regressions

Dependent Variable: Capital Formation/GDP (log)			
Model Specification	(1) Feldstein	(2) Al-Sadig	(3) Fu
Total OFDI % GDP	0.00257 (0.76)	-0.0138** (-2.72)	-0.0136* (-2.56)
Total IFDI % GDP	0.00756*** (4.30)	0.0167*** (5.66)	0.0170*** (5.65)
Savings	0.00358*** (6.98)	0.00190* (2.26)	0.00258** (3.06)
GDP growth rate		0.00769* (2.26)	0.00752* (2.45)
Trade openness		0.00106*** (4.22)	0.00147*** (5.82)
Inflation		-0.00212** (-2.60)	
M2		0.00252*** (4.80)	
GDP per capita			0.0000242** (3.23)
credit			0.000111 (0.29)
Constant	3.011*** (219.71)	2.801*** (74.23)	2.783*** (84.25)
Observations	1167	623	688

t statistics in parentheses

* p<0.05, ** p<0.01, *** p<0.001

Empirical Analysis

My primary replication may lead us to arrive at a tentative supposition that while FDI, as a form of capital flight, does not have a significant negative impact on a global scale, it may still generate certain consequences on developing countries' domestic investment environments. However, as discussed above, OLS method cannot control for unobservable country-specific effects that may be endogenous to domestic investment or correlated with FDI outflows (Al-Sadig, 2013). Thus, such results are inefficient to conclude that outward FDI has a negative impact on domestic investment.

To remedy this deficiency, this study uses a fixed-effects model. Table A2 contains the baseline regression results on developing country data. As is apparent from the results presented across columns, the estimated coefficient of outward FDI is not stable and very sensitive to different model specifications. Three possible reasons may explain this situation:

- 1) For developing countries, a consistent, one directional relationship between outflow FDI and domestic investment does not exist;
- 2) The relationship does exist; however, since for most countries outflow FDI accounts for only a small portion of national economic activity (the average FDI/GDP ratio in my sample is less than 2 percent), its impact on domestic investment activities is buried by other factors that are difficult to quantify or capture, such as natural endowments, productive knowledge, and the government's willingness to promote investment.
- 3) The relationship does exist; however, the baseline data pool is still too generic and patterns only exist for investments between certain FDI home and host pairs.

The first two hypotheses are beyond the scope of this study, thus I will test the third statement in the following section. As discussed earlier, the object of FDI is a decisive factor in determining a firm's willingness to invest at home. However, the intention of FDI cannot be distinguished in the macro data. Thus, this study has made modest attempt to proxy investment objectives by classifying FDI destinations into different sub-groups, based on home and host economies' income levels classified by World Bank, and host economies' tax haven status. A more detailed description of the grouping can be found in Appendix C.

Table 4.2 presents coefficients of subgroup regression analysis based on country income levels. This table indicates that when developing countries' FDI is directed to non-high income countries and jurisdictions, there are no significant negative effects on domestic investment. However, as indicated in Column 7 and 8, the estimated coefficient of FDI is negative and statistically significant at 5% level, both with and without controls.

Table 4.3 displays the effect of developing countries' FDI directed to tax havens. The definition of tax haven varies to some extent across institutions, and when generating groupings, this study employs the list generated by Tax Justice Network's Financial Secrecy Index (FSI). After pinning down capital outflow directed to tax havens, a more consistent pattern can be observed: across Column 1 - 6, the estimated coefficients of outflow FDI are negative and statistically significant.

Table 4.2. Sub-group Analysis: OFDI to Countries of Different Income Levels

	Dependent Variable: Capital Formation/GDP (log)							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Low income	0.0764 (1.04)	0.0576 (0.80)						
Lower-middle income			-0.0121 (-0.45)	-0.0190 (-1.02)				
Upper-middle income					0.00768 (0.57)	0.00226 (0.21)		
High income							-0.00226* (-2.19)	-0.00568* (-2.60)
Total IFDI % GDP		0.0140** (3.35)		0.00726* (2.59)		0.00471 (1.35)		0.00451 (1.27)
GDP Growth Rate		0.000250 (0.07)		0.00803** (3.02)		0.00765** (2.66)		0.00742** (2.66)
GDP per capita		0.0000994* (2.26)		0.0000519 (0.73)		-0.0000233 (-0.31)		0.00000100 (0.01)
Savings/GDP		0.00589 (1.65)		0.000258 (0.05)		0.0000273 (0.01)		0.000439 (0.13)
Trade openness		0.00259*** (6.02)		0.00269*** (4.58)		0.00318*** (5.33)		0.00301*** (5.17)
Credit		0.00161 (1.81)		0.00238 (1.97)		0.00207 (1.68)		0.00222 (1.92)
Constant	2.954*** (97.42)	2.276*** (21.86)	2.997*** (131.68)	2.475*** (16.56)	2.963*** (112.96)	2.581*** (18.66)	2.965*** (117.23)	2.548*** (18.68)
Observations	573	303	946	612	1085	664	1167	688

t statistics in parentheses

* p<0.05, ** p<0.01, *** p<0.001

Table 4.3. Sub-group Analysis: OFDI to Selected Tax Haven Groups I

	Dependent Variable: Capital Formation/GDP (log)					
	(1)	(2)	(3)	(4)	(5)	(6)
To tax havens	-0.00232* (-2.15)	-0.00615* (-2.59)				
To top 10 tax havens			-0.00205* (-2.43)	-0.0114* (-2.01)		
To top 20 tax havens					-0.00219* (-2.54)	-0.0109* (-2.08)
total IFDI % GDP		0.00444 (1.25)		0.00488 (1.42)		0.00478 (1.38)
GDP growth rate		0.00738* (2.64)		0.00699* (2.46)		0.00744* (2.63)
GDP per capita		0.000000453 (0.01)		-0.0000275 (-0.37)		-0.0000314 (-0.44)
Savings/GDP		0.000452 (0.13)		0.000361 (0.11)		0.000293 (0.09)
Trade Openness		0.00301*** (5.17)		0.00313*** (5.32)		0.00315*** (5.35)
Credit		0.00224 (1.94)		0.00231 (1.89)		0.00234 (1.93)
Constant	2.965*** (117.24)	2.549*** (18.69)	2.969*** (115.60)	2.599*** (19.01)	2.963*** (116.37)	2.596*** (19.45)
Observations	1167	688	1145	666	1156	677

t statistics in parentheses

* p<0.05, ** p<0.01, *** p<0.001

Moreover, since the FSI list includes jurisdictions that serve as chief tax evasion harbors, such as Cayman Islands and Luxembourg, as well as major economies like the United States and United Kingdom that act as both tax havens and destinations for productive investment, I believe that it is meaningful to further break down the list into two groups and examine their impact on home country's economic wellbeing respectively. Table 4.4 Column 1 and 2 trace the impact of capital routed to major tax haven jurisdictions (Netherlands, Luxembourg, Belgium, Switzerland, British Virgin Islands, Sweden, Bermuda, Cayman Islands), the negative relationship disappears. Likewise, even if the Tax Justice Network ranked United Kingdom and its satellite jurisdictions such as Jersey, British Virgin Islands and Mauritius as the most influential tax haven system, no significant relationship is found for FDI headed to these regions. Neither do I find a significant impact for FDI directed to tax havens with zero corporate income tax rates.

In Table 4.5, Column 1 and 2 show results for major economies with mixed functions of being tax havens and productive investment destinations (e.g. the United States, United Kingdom, Singapore, Ireland, and Hong Kong). Here again I find a negative correlation between outflow FDI and domestic capital formation at 10% level. Considering the size and influence of U.S. economy alone, I isolated FDI bound for U.S. and examined its impact for developing countries' domestic investment environment. Column 3 shows that the estimated coefficient of FDI is negative and significant at the 1% level; however such effect disappears when full set of controls is added. Nevertheless, these findings partially confirm the results from my previous subgroup analysis that FDI from developing countries directed to developed economies is negatively correlated with capital formation at home.

Table 4.4. Sub-group Analysis: OFDI to Selected Tax Haven Groups II

	Dependent Variable: Capital Formation/GDP (log)					
	(1)	(2)	(3)	(4)	(5)	(6)
To tax haven jurisdictions	-0.00585 (-0.83)	-0.0239 (-1.10)				
To UK and Satellites			-0.0777 (-2.00)	-0.0135 (-0.28)		
To zero tax rate havens					-0.0538 (-0.62)	0.0238 (0.33)
Total IFDI % GDP	0.00490 (1.41)			0.0101*** (3.79)		0.0111*** (3.75)
GDP Growth Rate	0.00707* (2.45)			0.00726* (2.22)		0.00742* (2.13)
GDP per capita	-0.0000108 (-0.15)			0.0000390 (0.59)		0.0000156 (0.22)
Savings/GDP	0.000706 (0.21)			0.00412 (0.65)		0.00420 (0.61)
Trade openness	0.00316*** (5.31)			0.00210* (2.47)		0.00221* (2.72)
Credit	0.00208 (1.74)			0.00112 (0.89)		0.00120 (0.91)
Constant	2.961*** (112.15)	2.567*** (18.42)	3.015*** (140.60)	2.546*** (13.20)	3.033*** (142.37)	2.589*** (11.67)
Observations	1097	653	611	429	518	372

t statistics in parentheses

* p<0.05, ** p<0.01, *** p<0.001

Table 4.5. Sub-group Analysis: OFDI to Selected Tax Haven Groups III

Dependent Variable: Capital Formation/GDP (log)				
	(1)	(2)	(3)	(4)
To selected developed nations	-0.00279***	-0.00924*	(-1.68)	
To U.S.			-0.00270*** (-3.59)	-0.0102 (-1.63)
Total IFDI % GDP		0.00470 (1.33)		0.00470 (1.33)
GDP Growth Rate		0.00864*** (3.09)		0.00863*** (3.09)
GDP per capita		-0.00000479 (-0.06)		-0.00000659 (-0.09)
Savings/GDP		0.000435 (0.10)		0.000451 (0.11)
Trade openness		0.00329*** (3.90)		0.00330*** (3.91)
Credit		0.00208 (1.73)		0.00210 (1.74)
Constant	2.976*** (110.49)	2.547*** (17.37)	2.973*** (109.91)	2.549*** (17.30)
Observations	1041	626	1030	626

t statistics in parentheses

* p<0.10, ** p<0.05, *** p<0.01

Robustness Check

The empirical results suggest that FDI does not have a uniformed effect on domestic investment activity; instead, it only exhibits certain pattern between particular home-host jurisdiction pairs, and the negative impact of FDI is more pronounced when the recipient partner is a high income economy with tax haven character. In this section, this study will conduct two sensitivity analyses to assess the robustness of such findings.

The first sensitivity check is to test whether outward FDI influences total factor productivity (TFP), a measure that reflects the productivity of an economy (Easterly and Levine 2001). The rationale for using this measure is that studies have shown while labor and capital, the latter one of which is captured by gross capital formation in this study, are important sources for economic growth, TFP is the driver for long term productivity (Dowrick and Nguyen 1989). Thus, replacing the original dependent variable with TFP allows me to test whether FDI outflows have an impact on home economy that is not necessarily manifested in changing the quantity of physical capital. The results are reported in Table A3 and 9. There is no significant relationship between outflow FDI and total factor productivity either in the baseline or subgroup regressions, and such results suggest that outward FDI, in total, does not hamper nor enhance domestic productivity.

The second robustness check is to examine outward FDI's impact on domestic tax revenue from corporations. Governments rely on tax revenue to provide public services, and it is important to understand whether capital headed oversea reduces corporate tax revenue in total at home, impeding government's capacity to offer necessary products that are vital to a nation's long term growth and sustainability.

In Table A5 and 11, I observe almost the same pattern as in the study's empirical analysis. Table A5 shows that, in total, outward FDI reduces corporate taxes collected at home, and the phenomenon is most pronounced when the capital is destined for high income economies; results reported in Table A6 show that capital flow to the collected group of tax havens, the top ten tax havens and the top twenty tax havens have the expected negative effect on domestic tax revenue. Yet interestingly, again, in Table A6, I do not observe a negative relationship, if the capital is routed to jurisdictions that largely act as a tax evasion destination, such as Cayman Islands and Bermuda, or the United Kingdom and its satellite jurisdictions, or tax havens that have zero corporate tax rate. However, the negative impact re-emerges at the 5% significance level when I insulate capital destined to developed economies with tax haven services, such as United States and Singapore. When FDI bound for United States is tested alone, I find a negative effect on domestic corporate tax revenue at a 5% significance level.

Discussion of Empirical Results

Certainly, the simple story in which FDI comes at the expense of domestic investment because an economy has a fixed stock of investment capital is due for rethinking. The findings from my empirical analysis and robustness check leave a mixed picture. On the one hand, the findings indicate that for developing countries, investment destination matters for economic development at home. Yet the patterns found in this empirical study may seem counterintuitive at first sight and suggest that this is due to the aggregation of multiple investment types that have off-setting effects. In order to disentangle competing effects, I propose to have a more fine-grained discussion of my empirical results outlined as follows.

FDI to Developing Countries

The growing phenomenon of investment by developing country firms in other developing countries, which is usually referred to as “South-South investment”, has a different nature than simple production reallocation and represents an important source for economic upgrading. Firms seek to exploit natural resources or tap into new markets, which will essentially benefit the existing production activities at home (Lu and Tung 2007). However, such FDI activities also face high risks, due to the unstable political environment in the targeted developing countries, insufficient physical and financial structure and other factors that may render the investment ineffective (Busse and Hefeker 2007). The insignificant effect of outward FDI to other developing nations on home capital formation could also partially confirm the aggregate effects of the off-setting phenomenon described above.

FDI to Developed Countries

In recent years, the global market has witnessed a flurry of greenfield investment and merger and acquisition activity from developing countries aiming at established companies in the developed world. As described earlier in this study, such “springboard investment” can bring in valuable assets such as intellectual property, brands, business models, and distribution networks to the investing firms. Chinese IT company Lenovo’s 2005 acquisition of IBM’s PC business has pushed the investing firm up along the value chain; IBM’s established brand also helped Lenovo make a successful debut in the world market, improving its production both at home and abroad (Rui and Yip 2008). A more recent case, Chinese chemicals group ChemChina’s bid to acquire Swiss agribusiness company Syngenta, is also oriented with the idea to obtain foreign technology

to improve the productivity of home market's agriculture sector (Massoudi, Fontanella-Khan and Weinland 2016).

Nonetheless, in many cases, overseas investment may not increase an investing firm's productive activities at home, or not for the immediate future. Such investment decisions may have negative impact on domestic investment environment due to loss of capital. Take the recent M&A case between Anbang and Starwood as an example: the Chinese insurance giant, Anbang, proposed over \$14 billion to acquire Starwood Hotels & Resorts Worldwide, owner of world-renowned hotel brands such as W, Westin and Sheraton⁸. In addition to drawing funds from private-equity firms, this deal is also be backed by Chinese state lender, the China Construction Bank (The Wall Street Journal 2016). If Anbang's acquisition move is not intended to expand its commercial activities at home, but to build a big conglomerate with extensive oversea asset holdings and diversify market risks (Mallaby 2016), we would see a negative impact both on domestic capital formation, due to a loss of capital, and tax revenue, due to a reduction of domestic economic activities. The empirical results of this study confirms this phenomenon. Furthermore, when developed economies act as both investment target and tax haven, which will be discussed shortly, the final outcome at home will be more perplexed.

FDI to Tax Havens

My empirical results bring more perspectives to the current discussions on the relationship between tax havens and developing country investors, as well as tax havens' damaging effects on national revenue collection and the integrity of civil obligations. For example, China is both the largest investor and recipient of FDI from Hong Kong and British Virgin Islands (Palan, Murphy

⁸ Anbang eventually withdrew its merger bid in April 2016.

and Chavagneux 2010). If the OFDI is engaged in round-tripping, we will not be able to see a significant reduction of capital formation at home since the capital is eventually used for domestic economic activities. As indicated in my empirical results section, the insignificant results for the impact of FDI headed to tax haven jurisdictions on domestic capital formation can echo such a pattern. Yet, the negative impact of companies' round-tripping behaviors on corporate tax revenue proves the damaging role of tax havens on public service development.

CONCLUSIONS AND POLICY IMPLICATIONS

This study investigates the relationship between outbound FDI and domestic investment rates for developing countries, an area largely unexplored in previous literature. The sub-group analysis employed in this study demonstrates the effect of OFDI is not singular, and that investment destinations matter. Furthermore, the study highlights the pervasiveness of borderline FDI in existing data records, and encourages future research to proceed with more caution in light of this distorting influence on OFDI movement.

A valuable next step would be obtaining sector-level or firm-level micro data as an effort to differentiate the objective of each FDI transaction with greater precision. Political imperatives are not controlled in this study, yet we are well aware that the home state can play a decisive role in the final business outcome of individual firms' FDI decisions, which will eventually be reflected in the effect of such FDI transactions on domestic economic wellbeing. Such examples are pervasive in the developing world. For example, many Chinese SOEs' greenfield investment projects in Africa or Latin America are strongly associated with Beijing's diplomatic agenda (Lum, et al. 2009); the commercial success of such investment is not of paramount concern. Thus, should such a project fail in a strictly business sense, it would be unfair to conclude that greenfield project as a whole is a waste of capital. However, I chose not to incorporate relevant measure based on two primary reasons: first, the available indexes for institutional quality is an aggregation for various factors that are usually hard to quantify; furthermore, the methodology of such indicators oftentimes suffer from a lack of construct validity (Thomas 2010). Second, both research and experience teach us that there is no one directional effect of a home country's regime type on its

attitude towards outward FDI. Therefore, for the precision of this study, I decide not to integrate such a measure, while acknowledging its significance.

The results of this study suggests that developing country policy makers should be cognizant of the varying effects of OFDI on domestic economic development. If policymakers envisage outward OFDI playing a key role in bringing back valuable assets, such as resources, technology and trademarks, and plan to use preferential policies, such as state-backed lending, then a discerning and tailored approach would be more preferable so as to ensure that state resources are used to improve the collective welfare of the country, not only the individual welfare of the firm. Policy makers should also be highly cautious of capital directed to tax havens, which usually aim at tax avoidance. Compounded by developing countries' immature tax collection systems and greater need for tax revenue to improve basic public services, the loss of tax revenue poses an even greater threat. Mobilizing resources from a reduction in tax evasion and capital flight from these economies might be a viable option to complement existing efforts. In particular, efforts that foster enhanced cooperation and coordination between nations – such as OECD's Committee on Fiscal Affairs, or IMF's technical assistance in advising member countries' tax policies - have the potential to reduce abusive tax planning practices and free up additional resources for development that are otherwise not available. Nevertheless, foreign FDI outflows from developing countries have to be viewed through a differentiated lens because these movements often fund private sector technology transfers that are required to narrow existing technological gaps between these countries and high income economies.

Appendix A

Regression Tables

Table A1. Full Sample Replication Results: OLS Regressions

Dependent Variable: Capital Formation/GDP (log)			
Model Specification	(1) Feldstein	(2) Al-Sadig	(3) Fu
Total OFDI % GDP	-0.0000985 (-0.26)	-0.00196 (-1.60)	-0.00202 (-1.62)
Total IFDI % GDP	-0.000363 (-1.21)	0.00879*** (4.50)	0.00918*** (4.69)
Savings % GDP	0.00387*** (9.88)	0.00300*** (4.72)	0.00434*** (6.69)
GDP growth rate		0.0116*** (4.81)	0.0107*** (4.78)
Trade Openness		0.00122*** (5.56)	0.00158*** (7.26)
Inflation		-0.00205* (-2.51)	
M2		0.000597 (1.81)	
GDP per capita			-0.00000193 (-1.59)
Domestic credit to Private sector			0.000805** (3.18)
Constant	3.032*** (279.01)	2.854*** (93.09)	2.783*** (102.38)
Observations	1872	866	948

t statistics in parentheses

* p<0.05, ** p<0.01, *** p<0.001

Table A2. Baseline Regression

	Dependent Variable: Capital Formation/GDP (log)						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Total OFDI % GDP	-0.00213* (-2.23)	-0.00193** (-2.64)	-0.000605 (-0.41)	0.000594 (0.35)	0.000529 (0.31)	0.000182 (0.14)	-0.00565** (-2.70)
Total IFDI % GDP		0.000985 (0.49)	0.00138 (0.71)	0.00130 (0.76)	0.00134 (0.77)	0.00262* (2.01)	0.00456 (1.30)
Savings/GDP			0.00186 (1.35)	0.00204 (1.28)	0.00192 (1.19)	0.00221* (2.28)	0.000450 (0.13)
GDP Growth Rate				0.0115*** (3.53)	0.0113*** (3.45)	0.0111** (2.73)	0.00740* (2.64)
GDP per capita					0.00000833 (0.15)	0.0000198 (0.35)	0.00000256 (0.04)
Trade Openness						0.00342*** (6.70)	0.00302*** (5.17)
Credit							0.00221 (1.92)
Constant	2.965*** (117.20)	2.964*** (116.29)	2.943*** (90.29)	2.901*** (86.05)	2.891*** (32.82)	2.524*** (26.78)	2.545*** (18.76)
Observations	1167	1167	1167	1156	1154	995	688

t statistics in parentheses

* p<0.05, ** p<0.01, *** p<0.001

Table A3. Domestic TFP and OFDI to Countries of Different Income Levels

	Dependent Variable: TFP (log)				
	(1)	(2)	(3)	(4)	(5)
Total OFDI % GDP	0.00429 (0.77)				
To low income		-0.0153 (-0.54)			
To lower-middle income			0.00848 (0.83)		
To upper-middle income				0.00151 (0.23)	
To high income					0.00416 (0.73)
Total IFDI % GDP	0.00314 (1.35)	0.00543 (1.48)	0.00465* (2.20)	0.00312 (1.32)	0.00321 (1.40)
Savings/GDP	-0.00101 (-0.22)	0.00499 (0.87)	0.00385 (1.02)	-0.000993 (-0.21)	-0.000995 (-0.21)
GDP Growth Rate	-0.00222 (-0.93)	-0.00244 (-0.93)	-0.00213 (-1.01)	-0.00233 (-0.95)	-0.00223 (-0.93)
GDP per capita	-0.00000875 (-0.20)	0.00000939 (0.20)	0.0000124 (0.35)	-0.0000120 (-0.28)	-0.00000741 (-0.17)
Trade Openness	-0.000159 (-0.20)	-0.000589 (-0.56)	-0.000526 (-0.74)	-0.000194 (-0.24)	-0.000159 (-0.20)
Credit	0.000324 (0.26)	0.00113 (0.90)	0.00108 (0.94)	0.000387 (0.31)	0.000314 (0.25)
Constant	-1.002*** (-7.51)	-1.068*** (-8.67)	-1.061*** (-10.35)	-0.991*** (-7.67)	-1.004*** (-7.37)
Observations	438	252	403	438	438

t statistics in parentheses

* p<0.05, ** p<0.01, *** p<0.001

Table A4. Domestic TFP and OFDI to Selected Tax Haven Groups

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Dependent Variable: TFP (log)							
To all tax Havens	0.00393 (0.67)							
To Top 10 Havens		-0.000410 (-0.14)						
To top 20 Havens			0.000375 (0.12)					
To major tax haven jurisdictions				0.0316 (1.44)				
To UK and Satellites					0.00321 (0.11)			
To tax havens with 0 Corporate tax rates						-0.0605 (-1.71)		
To major economies With tax haven character							0.00103 (0.25)	
To USA								0.000674 (0.17)
Total IFDI % GDP	0.00323 (1.42)	0.00319 (1.35)	0.00316 (1.36)	0.00365 (1.62)	0.00638** (3.52)	0.00653** (3.57)	0.00350 (1.52)	0.00349 (1.52)
GDP Growth Rate	-0.00223 (-0.93)	-0.00266 (-1.06)	-0.00233 (-0.96)	-0.00209 (-0.84)	-0.00391 (-1.63)	-0.00463 (-1.66)	-0.00262 (-0.99)	-0.00262 (-1.00)
GDP per capita	-0.00000747 (-0.17)	-0.0000102 (-0.22)	-0.0000111 (-0.25)	-0.00000762 (-0.19)	0.00000583 (0.15)	0.0000101 (0.22)	0.00000102 (0.02)	0.000000699 (0.01)
Savings/GDP	-0.00097 (-0.21)	-0.00100 (-0.21)	-0.000991 (-0.21)	-0.000538 (-0.11)	0.00912** (2.99)	0.00968** (2.83)	-0.000772 (-0.15)	-0.000776 (-0.15)
Trade Openness	-0.000160 (-0.20)	-0.000204 (-0.25)	-0.000193 (-0.24)	-0.0000536 (-0.07)	-0.00121 (-1.23)	-0.00125 (-1.25)	-0.000117 (-0.14)	-0.000119 (-0.14)
Credit	0.000307 (0.25)	0.000359 (0.29)	0.000375 (0.30)	0.000262 (0.20)	0.00156 (1.46)	0.00166 (1.41)	0.000202 (0.15)	0.000206 (0.16)
Constant	-1.004*** (-7.31)	-0.979*** (-7.03)	-0.993*** (-7.40)	-0.988*** (-7.36)	-1.060*** (-6.49)	-1.072*** (-5.59)	-0.998*** (-6.90)	-0.997*** (-6.90)
Observations	438	427	438	416	326	282	405	405

t statistics in parentheses

* p<0.05, ** p<0.01, *** p<0.001

Table A5. Domestic Corporate Tax Revenue and Outward FDI to Countries of Different Income Levels

Dependent Variable: Corporate Tax Revenue (log)					
	(1)	(2)	(3)	(4)	(5)
Total OFDI % GDP	-0.0195*** (-3.70)				
To low income		-0.0623 (-1.12)			
To lower-middle income			0.0469 (1.33)		
To upper-middle income				0.0125 (0.48)	
To high income					-0.0211*** (-3.54)
Total IFDI % GDP	0.0125 (1.79)	0.0137 (1.76)	0.0222** (2.77)	0.0130 (1.74)	0.0122 (1.78)
Savings/GDP	0.00621 (0.81)	-0.00820 (-1.04)	0.00455 (0.58)	0.00753 (1.00)	0.00621 (0.81)
GDP Growth Rate	0.00621 (1.76)	0.00493 (1.51)	0.00631 (1.78)	0.00559 (1.68)	0.00622 (1.77)
GDP per capita	-0.0000964 (-1.06)	0.0000125 (0.11)	-0.0000391 (-0.42)	-0.0000442 (-0.43)	-0.000103 (-1.11)
Trade Openness	0.000865 (0.78)	0.000788 (0.85)	0.00113 (0.99)	0.000708 (0.61)	0.000833 (0.75)
Credit	0.000954 (0.38)	-0.00144 (-0.47)	0.00131 (0.48)	0.000336 (0.13)	0.00103 (0.41)
Constant	0.489 (1.54)	0.615 (1.57)	0.346 (1.02)	0.405 (1.22)	0.498 (1.57)
Observations	444	209	404	426	444

t statistics in parentheses

* p<0.05, ** p<0.01, *** p<0.001

**Table A6. Domestic Corporate Tax Revenue and Outward FDI
to Selected Tax Haven Groups**

Dependent Variable: Corporate Tax Revenue (log)					
	(1)	(2)	(3)	(4)	(5)
To all tax havens	-0.0274 (-1.18)				
To UK and satellites		0.124 (0.91)			
To tax havens with Zero corporate tax			0.0241 (0.18)		
To major economies With tax haven nature				-0.0222* (-2.32)	
To USA					-0.0227* (-2.32)
Total IFDI % GDP	0.0127 (1.77)	0.0185* (2.67)	0.0161* (2.37)	0.0126 (1.78)	0.0127 (1.79)
GDP Growth Rate	0.00661* (2.02)	0.00758* (2.12)	0.00756 (2.01)	0.00761* (2.23)	0.00761* (2.23)
GDP per capita	-0.0000902 (-0.97)	-0.0000962 (-1.05)	-0.0000686 (-0.72)	-0.000108 (-1.10)	-0.000109 (-1.11)
Savings/GDP	0.00382 (0.52)	0.00319 (0.38)	0.00258 (0.28)	0.00358 (0.46)	0.00358 (0.46)
Trade Openness	-0.000128 (-0.15)	0.000492 (0.40)	0.000349 (0.26)	-0.000403 (-0.43)	-0.000404 (-0.44)
Credit	-0.000505 (-0.19)	-0.00150 (-0.55)	-0.00246 (-0.87)	-0.000159 (-0.06)	-0.000153 (-0.06)
Constant	0.669* (2.41)	0.651 (1.89)	0.651 (1.70)	0.700* (2.38)	0.701* (2.38)
Observations	412	316	270	396	396

t statistics in parentheses

* p<0.05, ** p<0.01, *** p<0.001

Appendix B

Summary Statistics

Table B1. Descriptive Statistics

	Observation	Mean	Standard Deviation	Minimum	Maximum
Capital Formation/GDP	946	23.18648	8.753113	0	65.72935
Total OFDI	1,023	6.24E+08	4.42E+09	-3.08E+09	7.49E+10
Total IFDI	1,023	2.47E+09	8.89E+09	-2.45E+09	1.12E+11
Domestic Credit	641	38.45725	35.74455	-18.40149	192.6601
Savings/GDP	936	12.54841	21.46735	-151.3513	73.35522
GDP Growth Rate	979	4.907986	5.470378	-62.07592	54.15778
GDP Per Capita	975	1911.577	2002.575	134.8159	9721.501
Trade Openness	828	77.10739	48.51192	15.16072	537.4986

Table B2. Correlation Table

	Capital Formation/GDP	Total Outward FDI	Total Inward FDI	Domestic Credit	Savings/GDP	GDP Growth Rate	GDP Per Capita (Export+Import)/GDP	
Capital Formation/GDP	1							
Total Outward FDI	-0.021	1						
Total Inward FDI	0.0215	0.4837	1					
Domestic Credit	-0.0098	0.275	0.289	1				
Savings/GDP	0.1849	0.1763	0.202	0.075	1			
GDP Growth Rate	0.1707	-0.0349	-0.0516	-0.2123	0.1458	1		
GDP Per Capita	0.1094	0.3712	0.5747	0.3447	0.4393	-0.1433	1	
(Export+Import)/GDP	0.2578	-0.0892	-0.1774	-0.0763	-0.0323	0.1408	0.0436	1

Appendix C

Subgroup Analysis Classification

	FDI Home Economy	FDI Host Economy
Subgroup 1	Developing economies	Low income
Subgroup 2	Developing economies	Lower middle income
Subgroup 3	Developing economies	Higher middle income
Subgroup 4	Developing economies	High income
Subgroup 5	Developing economies	FSI listed tax haven
Subgroup 6	Developing economies	FSI listed tax haven top 10
Subgroup 7	Developing economies	FSI listed tax haven top 20
Subgroup 8	Developing economies	Author's classification I
Subgroup 9	Developing economies	Author's classification II
Subgroup 11	Developing economies	Tax haven with zero corporate income tax rate
Subgroup 12	Developing economies	UK and satellite jurisdictions

Appendix D

Developing Country Sample

Afghanistan, Albania, Algeria, Angola, Armenia, Azerbaijan, Bangladesh, Belarus, Bosnia and Herzegovina, Brazil, Bulgaria, Burkina Faso, Burundi, Cambodia, Cameroon, Central African Republic, Chad, China, Colombia, Congo, Democratic Republic of Congo, Djibouti, Ecuador, Egypt, El Salvador, Eritrea, Ethiopia, Gabon, Georgia, Guinea, Guinea-Bissau, Haiti, Honduras, India, Indonesia, Iran, Iraq, Jamaica, Jordan, Kazakhstan, Kenya, Kyrgyzstan, Laos, Lesotho, Libya, Madagascar, Malawi, Malaysia, Mali, Mauritania, Mexico, Mongolia, Morocco, Mozambique, Myanmar, Namibia, Nepal, Nicaragua, Niger, Nigeria, North Korea, Pakistan, Palau, Palestine, Papua New Guinea, Peru, Philippines, Republic of Moldova, Romania, Rwanda, Senegal, Serbia, Sierra Leone, Somalia, South Africa, Sri Lanka, Sudan, Swaziland, Syrian Arab Republic, Tajikistan, Thailand, Timor-Leste, Togo, Tonga, Tunisia, Turkey, Uganda, Ukraine, Tanzania, Viet Nam, Yemen, Zambia, Zimbabwe

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