DISSERTATION

FOREIGN DIRECT INVESTMENT IN DEVELOPING COUNTRIES: PRODUCTIVITY GROWTH, DUAL ECONOMIES, AND LOCATION DETERMINANTS

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ABSTRACT

FOREIGN DIRECT INVESTMENT IN DEVELOPING COUNTRIES: PRODUCTIVITY GROWTH, DUAL ECONOMIES, AND LOCATION DETERMINANTS

This study revisits the role of Foreign Direct Investment (FDI) in developing countries along two dimensions. First, we empirically analyze the impact of FDI on productivity growth in 30 developing countries for the period 1970 to 2010. We, however, depart from previous studies on the FDI-growth nexus because our approach allows us to focus on the contribution of FDI to aggregate productivity in a developing economy, while considering the reallocation of labor characterized by sizable differentials in the productivity of labor between sectors. When structural change is accounted for, something that previous growth models fail to do, we find interesting results for both regimes of absorptive capacities. Second, this study empirically re-examines the location determinants of greenfield FDI in developing countries. The work done here incorporates South-South FDI exchanges and empirically examines if FDI inflows from the South differ from those that originate in the North. This is done by employing a novel dataset, which is analyzed using an extended gravity equation. We find that FDI flows from the global North differs from those from the global South. On average, investors from the North enter a developing country seeking to benefit from factors that make them more competitive internationally. On the other hand, FDI from the South, on average, is motivated primarily by interests in accessing and exploiting natural resources. That is, North-South FDI is efficiency-seeking while South-South FDI is resource-seeking. We also show that geographical agglomeration plays an important role in attracting FDI from other developing countries as well. We conclude this study by discussing policy implications for home, host and regional countries.

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Chapter 1: Introduction

The notion, whether valid or not, that Foreign Direct Investment (FDI) positively impacts productivity growth in developing countries has led to a large body of empirical work that examines FDI from basically two dimensions: 1) FDI as driver of productivity growth, and 2) the factors that determine FDI inflows. This notion is rooted in the belief that the accumulation of capital plays a massive role in the economic progress of a developing nation. FDI, from a theoretic standpoint, is believed to promote economic development. It is argued to be associated with forward and backward linkages, increased exports, and the expansion of the productive capacity of an economy. In the empirical literature, a vast body of research exists that seeks to uncover the FDI-growth nexus. These studies, at both the micro and macro level, arrive at very different results and conclusions. A survey of the macro literature provides insufficient evidence to support the claim that FDI directly benefits host countries. Most of these studies demonstrate that a country's capacity to reap the benefits associated with FDI is limited by the local conditions in the host economy. A strand of the micro literature also seems to hinge on the notion that FDI embodies technologies that generate several kinds of spillovers in the receiving economy. That is, they assume that foreign firms operate at a higher level of technology relative to their domestic counterparts in developing countries.

The FDI-growth relationship is traditionally studied within the standard neoclassical framework. This framework may be insufficient for adequately analyzing the growth-enhancing effects of FDI within a developing country context. The long tradition of dual economy models acknowledges the dispersion of productivities across two broad economic sectors operating side-by-side in a developing country (Lewis, 1954; Bardhan and Udry, 1999). This framework identifies the distinction between the traditional and the modern sectors of the economy of a developing country; originally viewed as agriculture and manufacturing. The key assumption that underlies this framework is that these two sectors have different logic operating within them and, therefore, they cannot be lumped together in economic analysis. The traditional sector is marked by technological backwardness and stagnation, and the modern sector is where capital accumulation, innovation, and productivity growth occur. This implies that economywide growth depends on the rate at which labor migration from the traditional sector to the modern sector takes place (McMillian et al., 2017). Therefore, a model that captures the heterogeneity of the productive structures that exist within developing countries may be better suited for this context. The existence of these productivity gaps between the different sectors of the economy is something the FDI literature omits in its formal analyses.

One common feature among many developing countries is that they are constrained in human and physical capital, technology, and the quality of their institutions relative to the so-called developed countries. These constraints hinder capital accumulation and the efficient use of existing resources. This is one of the reasons that developing countries look outward in search of alternative sources of growth and development, one of them being FDI. A developing country may have a number of factors that potentially attracts foreign investors, such as new consumer markets, access to natural resources, relatively cheap labor, locational advantages, and direct and indirect incentives (Iamsiraroj, et al., 2015).

These factors, as they relate to FDI, have been studied extensively in the FDI literature. The most common of these include market size, infrastructure, human capital, economic stability, production costs, corruption, political instability and institutional quality, financial and economic incentives, market growth, openness of economy, factor endowments in natural resources, to mention a few. These factors have been used in different combinations, depending on the framework being considered, to examine what attracts inward FDI. These studies, however, have primarily been focused on North-North (that is, an FDI flow originating in a developed country with its final destination in a developed country) and North-South (an FDI flow originating in a developed country with its final destination in a developing country) flows. It is not difficult to observe that a South-South piece is missing from the picture[1]. Significantly less attention has been devoted to empirically analyzing the emergence of FDI from developing countries to other developing countries and what may be driving these investments. The emergence, and growth,[2] of these FDI flows from the South may have important implications for developing countries for a number of reasons (Aykut and Goldstein, 2007). Therefore, we have a body of work on the determinants of FDI that is extensive but incomplete.

In this study, we attempt to address these gaps in the literature. First, we employ a different organizing framework and previously unseen (micro and macro) data to explore an old economic question. This framework is argued to be more suitable for studying FDI. Since the productive structures within developing countries are observed to be heterogeneous, the use of a general equilibrium approach that explicitly acknowledges the important linkages between different sectors and which permits different types of growth experiences may provide clarity to the FDI-growth debate. Second, we employ a novel dataset developed from a number of sources, that tracks cross-border capital expenditures on new investments (that is, greenfield FDI) by origin and destination country. We examine which factors within host countries are associated with FDI flows and if these factors differ for home countries in the global North and South. A few commentators have argued that Southern FDI 'behaves' differently from Northern FDI along several dimensions (Aykut and Goldstein, 2007; Gleb, 2005; Kabelwa, 2004). But only a few have offered compelling empirical evidence.

Prior empirical work on the determinants of FDI have mainly employed a gravity-type framework, where the size of the market and geographic distance provide explanatory power and have primarily used data on bilateral country-level FDI activity. We employ the same framework plus an augmented framework that accounts for a host's country's proximity to alternative FDI locations. This

[1] Also missing is a South-North piece. However, this piece represents a very small fraction of global FDI flows and it is not the focus of this study.
[2] The global share of greenfield FDI from the South more than doubled between 2003 and 2015.

framework allows us to model the attractiveness of a particular location to foreign investors that depends not only upon the attributes of the location, but also upon the location's proximity to alternative FDI locations. In a sense, this framework transforms the traditional non-spatial gravity framework into a spatial gravity framework for studying FDI.

In the following chapter, we present an extensive review of the macro and micro literature that explores several theoretical and empirical models in the FDI-growth nexus. We also briefly review the literature on FDI location decisions. In the third chapter, we introduce a theoretical model that departs from the conventional FDI-growth framework and captures the heterogeneity of productive structures observed in developing countries, explicitly acknowledges the important linkages between different sectors, and permits different types of growth experiences. Then we take the model to the data. Specifically, we use panel data from 30 developing countries from 1970 to 2010 to empirically estimate the relationship between FDI and productivity growth. To accomplish this, we use different econometric techniques; fixed effects models, Generalized Method of Moments, and Quantile regressions. In the penultimate chapter, we present an augmented gravity model that is employed to study differences between South-South and North-South FDI, and then we briefly discuss the dataset and the results of our regressions models. Lastly, we discuss the findings, policy implications and opportunities for further research.

Chapter 2: Literature Review

The notion that FDI promotes economic development in the academic literature dates back to Findlay (1978). Ever since then, the contributions of FDI to development continue to be debated, in both academic and policy circles. Those in opposition claim that FDI has negative impacts on development because it results in a "race to the bottom" on both social and environmental dimensions. On the other hand, those in favor of FDI argue that FDI increases productivity growth and finances developmental needs, therefore, resulting in a "race to the top" or a convergence in the levels of income (te Velde, 2004; Braunstein and Epstein, 2004).

At a basic level, a nation is considered developing for several reasons. These may include the lack of valuable objects like factories, good road networks, decent housing, portable water supply, access to basic education and healthcare. They may also include the lack of the requisite knowledge to create value in the modern economy. The lack of the former items in the literature is termed an object gap, while the lack of the latter is called an idea gap (Romer, 1993). Theoretically, it has been (and continues to be) argued that FDI can close both the object and idea gaps that developing countries suffer from (Grossman and Helpman, 1994; Glass and Saggi, 1998; Akyuz, 2015).

In the classical (and neoclassical) tradition, the idea of an object gap underscores the need for savings and capital accumulation. Standard neoclassical models, with decreasing returns and frictionless markets, predict that capital should flow to poor countries where returns are highest. These capital flows are then expected to finance domestic investment and increase productivity growth. Empirically, evidence to support these conclusions is mixed. A survey of a range of studies investigating the impact of FDI on productivity growth, at both the macro and micro levels, demonstrates that these mixed results may be due to a number of factors, either explicitly identified or not. We have identified three factors that may be responsible for these varying results, which include: 1) the insufficiency of the models employed, 2) the inappropriate pooling of countries in the data, and 3) statistical flaws in the data used to measure the presence and activities of multinationals (that is, the various measures of FDI) in developing countries.

The organizing framework in the FDI-growth literature is traditionally the standard neoclassical framework. There are reasons to believe that this framework may be insufficient for adequately analyzing the growth-enhancing effects of FDI within a developing country context. Firstly, a model that captures the heterogeneity of the productive structures that exist within developing countries may be better suited for this context. The development literature has emphasized the productivity gaps that exist between the different sectors of the economy; something the FDI literature omits in its formal analyses. Although the micro-based FDI literature hints at these gaps, it is largely focused on the manufacturing sector and fails to capture the reallocation of labor across sectors over time. This reallocation is typically referred to in the development literature as the process of structural transformation; an important dynamic that studies on FDI fail to account for in a convincing manner.

Secondly, one important study, which will be looked at in more detail below, highlights the role that the inappropriate pooling of developed and developing countries in the data plays in producing poor empirical outcomes, and therefore, argues that studies need to explicitly separate these countries in the data when conducting empirical analysis (Blonigen and Wang, 2005). Furthermore, although the literature on FDI is vast, relatively little attention has been devoted to empirically analyzing the emergence of FDI from developing countries to other developing countries[3] and the resulting effects of these flows in host and home countries. The emergence, and growth, of these multinational corporations from the South may have important implications for developing countries (Aykut and Goldstein, 2007).

[3] This is referred to as South-South (SS) FDI.

Thirdly, macroeconomic studies on FDI typically use data that are based on the balance of payments statistics. However, balance of payments-based FDI figures may be misleading because they include a variety of financial flows that do not necessarily generate new productive capacity or involve the cross-border movement of capital goods, including mergers and acquisitions, intra- and inter-company loans, and reinvested earnings used for speculative purposes in host asset markets. International statistical standards for tracking FDI are based on those that govern the balance of payments and refer merely to the size of the ownership stake, not to the content, liquidity, impact or source of the investment (Akyuz, 2015). Blanchard and Acalin (2016) make a compelling argument that measured FDI[4] may actually be capturing a phenomenon other than what these data sets are traditionally believed to measure.

In this section, we identify and discuss the omission of these factors in the literature and what implications taking them into account may have for this body of research. This section is in no fashion an extensive review of the vast FDI literature; it only seeks to address the factors briefly outlined above with the aim of shedding some light on the FDI-productivity conundrum in a developing-country context.

2.1 Theoretical Models

The theoretical literature on FDI contains a variety of models which have different outcomes. These outcomes range from the feasibility of convergence of productivity levels to the creation of forward and backward linkages with domestic firms in host economies. These models have provided hypotheses and predictions that allow for the empirical investigation of the FDI-development nexus.

[4] FDI as measured in the balance of payments.

At the macro level, growth theoretic models have been employed as a framework for the analysis of the growth-enhancing effects of FDI. The Solow-Swan model (Solow, 1956; Swan, 1956), and the several variants of it, premised on the "advantage of backwardness" predict that the further a country is behind the global technology frontier, the faster it will grow (Gerschenkron, 1962). That is, this relative backwardness provides developing countries with an incentive to save and invest, which should result in a reduction of the distance that separates them from their developed counterparts. The implication of the conventional neoclassical model is that FDI would only affect growth in the short-run but have no impact on long-run growth due to decreasing returns to capital (de Mello, 1997). So, if developing countries do "catch-up", then there would be no prospects for sustained growth. This is model is obviously insufficient in explaining the different growth experiences that have been witnessed in some developing countries, particularly those on the Asian continent.

The emergence of endogenous growth models provides a different framework for thinking about the FDI-growth relationship. These models argue that although relative backwardness possesses the potential for rapid growth in a developing country, the extent to which this potential is realized depends on the domestic economy's ability to absorb and adapt foreign technologies to fit local conditions (Romer, 1993; de la Fuente, 1997). That is, productivity and income gaps between countries tend to close, not automatically but, only under certain country-specific conditions. Since endogenous growth models allow for long-run growth, due to externalities, they provide a supporting framework for analyzing the FDI-development relationship if FDI is viewed as a catalyst for productivity growth, domestic investment and technological progress.

Consider the following aggregate production function in which FDI is an additional input:

$$Y = T\phi(D, L, F, X) \tag{1}$$

Where:

$Y =$ Aggregate output

$D =$ Domestic capital

$L =$ Labor input

$F =$ Foreign capital or FDI

$X =$ Vector of conditioning variables

$T =$ Efficiency of production

Assuming (1) to be linear in logs, and taking logarithms and time derivatives, we have:

$$g_y = g_T + \gamma g_d + \varphi g_f + \lambda g_x \tag{2}$$

Where: g_i is the growth rate of individual variables in per capita terms and the parameters $\gamma, \varphi, and\ \lambda$ are output elasticities of domestic capital, foreign capital and of the conditioning variables respectively.

The conventional neoclassical model predicts that the changes in output with respect to changes in capital should equal the share of capital in aggregate output (de la Fuente, 1997; de Mello, 1997). In the event that the coefficient, γ, yields a high estimate, this potentially could be interpreted to mean that FDI generates externalities, which are not accounted for by the model (Romer, 1989 & 1993). A model that accounts for FDI-related externalities is, therefore, needed.

Consider the following (Cobb-Douglas)[5] production function[6]

$$y = T\Phi[d.H] = Td^{\beta}H^{1-\beta} \tag{3}$$

$$H = [df^{\alpha}]^{\theta} \tag{4}$$

[5] Cobb-Douglas is used for simplicity and tractability.
[6] The production function is in per capita terms

Where:

$d =$ domestic capital per capita

$\mathrm{H} =$ stock of knowledge, which is a function of domestic and foreign capital

α and θ are the marginal and intertemporal elasticities of substitution between foreign and domestic capital; that is, $\alpha > 0, \theta > 0$ or < 0.

Assuming there are diminishing returns to domestic capital, that is, $\beta \in (0,1)$, then a host country can potentially gain access, via FDI, to a stock of knowledge, leading to increasing returns and faster growth (Romer, 1990b; de Mello, 1997).

Equation *(3)* can be re-written as

$$y = Td^{\beta+\theta(1-\beta)} f^{\alpha\theta(1-\beta)} \qquad (5)$$

Taking logs and time differentiating, we have

$$g_y = g_T + \gamma g_d + \varphi g_f \qquad (6)$$

Where:

$\gamma = \beta + \theta(1-\beta)$

$\varphi = \alpha\theta(1-\beta)$

and g_i is the same as in *(2)*.

Models of this kind, however, require that the steady state level of technology be held constant (Barro and Sala-*i*-Martin, 2003). That is, these models adopt a universal-production function. Such an abstraction deviates significantly from realism, as one would expect a heterogeneity in country conditions and productive structures. A more suitable framework for studying the contributions of FDI to economic development, via productivity growth, would be the use of a general equilibrium approach that explicitly acknowledges the important linkages between different sectors, and which permits different types of growth (Temple and Wöessmann, 2006; Rodrik, 2013). That is, one that accounts for the heterogeneity of productive structures observed in developing countries and the country-specific conditions captured by neoclassical models.

At the micro level, a few theoretical models exist that attempt to study the effects of FDI on home- and host-country/industry economies[7]. In this literature, the bulk of the theoretical work has largely focused on spillovers that are generated by FDI (Lipsey, 2004; Lipsey and Sjoholm, 2005; Lin and Saggi, 2005). Similar to the macro literature, the predictions of these models seem to hinge on the notion that FDI embodies technologies that generate several kinds of spillovers in the receiving economy. The assumption that foreign firms operate at a higher level of technology relative to their domestic counterparts in developing countries is not one that can be easily dismissed as false or too far removed from reality. This technological gap, therefore, has permitted researchers to investigate theoretically the potential of industry level FDI in a developing country to promote economic development.

According to Blalock and Gertler (2005), there are two major channels through which FDI transfers technology across national borders. These channels are horizontal and vertical technology transfers. The former focuses on indirect means through which the spillovers generated by foreign firms are absorbed by domestic firms. For instance, a former employee of a foreign firm, who joins a domestic or begins a start-up, carries along with her the skills developed as an employee at the foreign firm. Also, the entry of FDI may encourage the entry of several new professional services which also become available to domestic firms. There is also the possibility that instead of the positive effect of a "brain gain", a country (or industry) could witness a "brain drain", which inevitably hurts domestic

[7] We focus primarily on models that study host country effects in this work.

firms. Vertical technology transfers, on the other hand, occur either through forward or backward linkages. This argument suggests that the supply chains that FDI generates may be the conduits for the transfer of technology within a domestic economy.

Although the empirical study of FDI-related spillovers that exist in the micro literature are voluminous, there are only a few studies that theoretically explore vertical transfers of technology; that is, the important linkages that foreign firms create upon entry into an industry/sector (Rodrigues-Clare, 1996; Markusen and Venables, 1999; Lin and Saggi, 2005). These models provide some insights that address the important connection between technology transfer and linkages in receiving economies, thus, possibly contributing to the FDI-development debate. One of such models was developed by Lin and Saggi (2004, 2005). Their model explores conditions under which FDI generates a net positive-linkage effect in the receiving developing-country economy. It also incorporates both horizontal and vertical technology transfer within an oligopolistic framework.

Denote:

$$BL^k = mq_i^k \qquad (7)$$

Where:

$BL^k =$ the degree of backward linkages under regime *k*, where *k* is either autarky or foreign firm entry.

$m =$ local producers of the intermediate good

$q_i^k =$ equilibrium output of a supplier under regime *k*

Assuming that each firm (domestic and foreign) choose their output while taking into account the output of rival firms, that is, there is Cournot competition, the main result their model yields is that:

$$BL^F \geq BL^A \quad iff\ \mu \geq \mu^*(n) \equiv n/(n+1)$$

Where:

$\mu =$ foreign firm's technological advantage over its domestic rivals.

$n =$ number of domestic firms

That is, upon entry FDI raises the level of backward linkages in the host economy if, and only if, the foreign firm's technological advantage in the production of the final good (or service) over domestic firms falls below a critical threshold.

A key assumption in this model is that the foreign firm sources the intermediate input from domestic suppliers. This result implies that FDI raises the level of backward linkages, and that this will depend on the degree of competition in the domestic market for the final good since $\mu^*(n)$ increases in n. Their model also predicts that domestic firms potentially benefit from FDI through technology transfer and not only via derived demand. This model, therefore, argues that the presence of FDI in a developing country will produce two conflicting effects. On one hand, FDI will have a positive impact on domestic suppliers of the intermediate good when technology is successfully transferred. On the other hand, it will have a negative effect on domestic firms that are direct competitors with the foreign investing firm. The model, therefore, implies that in the aggregate FDI should positively affect productivity growth since inefficient producers are driven out and more efficient producers take over. This model, along with the macro model presented previously, highlight that FDI does have productivity growth-enhancing effects when country-specific factors are taken into account but neglect the role that structural change plays in affecting sectoral productivity growth.

2.2 Empirical Analyses

Unlike in the theoretical FDI-development literature, there appears to be very little consensus on the effects of FDI either at the aggregate or industry level on the empirical front. The macro empirical literature provides weak evidence to support the claim that FDI benefits host countries. Most of these studies demonstrate that a country's capacity to reap the benefits associated with FDI is limited by the local conditions in the host economy.

Balasubramanyam et al. (1996), analyzed the effects of FDI on economic growth within a trade-policy regime framework. Following Bhagwati (1988), they hypothesize that the volume and efficiency of FDI in a developing country varies according to the degree of openness and outward orientation of its economy. They find that FDI tends to be more growth-enhancing in countries that adopt export promotion policies than in those with import substitution strategies. The authors seem to imply that adopting an export-oriented policy is an effective way to tackle the poor growth performance witnessed in some developing countries. A policy of this sort, if adopted by all countries in the developing world, could result in a "race to the bottom", thus, suppressing labor costs, worsening working conditions, and leading to a different form of gendered occupational segregation. Their position supposes that what is true for a member the group must necessarily be true for the entire group, hence, falling into the fallacy of composition. Given the limitation in the FDI data, we are unable to observe in what sectors these foreign investments are made, if the FDI that flows into these more open and FDI-friendly countries are indeed the investment's final destination, and if they create any linkages with the rest of the economy. So, even though FDI in export-oriented countries appears to be more growth-enhancing relative to less open economies, we cannot reach a clear conclusion on the contributions FDI makes to development in these countries in a meaningful way.

Borensztein et al. (1998) and Xu (2000) demonstrate that FDI positively impacts growth given that the country in question possesses a minimum threshold level of human capital, which in turn allows for the successful exploitation of the benefits that FDI brings. These findings are consistent with earlier and later studies which find growth-enhancing effects of FDI through the channel of a complementary or ancillary variable (Blomstrom et al., 1994; Alfaro et al., 2004; Azman-Saini et al., 2010). In technical terms, these studies suggest that the variable of choice that proxies for FDI only has a positive and significant correlation with a host country's productivity growth if an additional variable is interacted with the variable used as a proxy for cross-border investments. This framework implies that the more a developing country is financially developed, open to trade, or endowed with human capital, for instance, the more growth-enhancing effects of FDI there will be in the country in question.

Alfaro et al. (2004), for instance, find that FDI by itself plays an ambiguous role in contributing to growth directly. They argue that countries with well-developed financial markets benefit significantly from FDI. In other words, the absence of a well-developed financial market in a developing country places a constraint on that nation's capacity to absorb the benefits that FDI conveys, implying that FDI only impacts a developing economy through indirect channels. Lee and Chang (2009), addressing a similar question and employing panel co-integration and panel error correction models, reinforce the findings in Alfaro et al. (2004). Azman-Saini et al. (2010) propose a more flexible model specification than that which was used in Alfaro et al. (2004). They propose this because the interaction term in (ibid), modeled as the product of FDI and the financial market indicator, imposes a restriction that the impact of FDI on growth monotonically increases with financial development. Yet, they also find that FDI has a positive impact on growth, but only after a certain threshold level of financial development is exceeded. Their results suggest that the effects of FDI on growth are non-linear in nature and only 'kick in' after financial development exceeds a threshold level.[8]

[8] Their study looks at the growth-effects on FDI and they include other regressors: initial income, population growth, Investment/GDP, schooling, and Government spending/GDP.

Li and Liu (2005) confirm earlier studies that show that FDI positively affects growth given a minimum level of human capital. They also go further to show that developing countries with large technology gaps are unable to absorb any of the spillovers generated by FDI inflows. Their general results remain unchanged after they account for the level of economic development of the countries in the data.

The conclusions of these studies, as a whole, highlight how vital country-specific conditions are for a developing economy to fully exploit the spillovers embodied in 'brick and mortar' investments. This body of literature has its roots in the "social absorption theory" (Veblen, 1915; Schumpeter, 1961; Nelson et al., 1966) and later more formally in endogenous growth models (Romer, 1993). Research following this line of work assumes that technology can be transferred across national borders (in a communicable form) and absorbed by the receiving industry or country, given that the effort required to adopt it to fit local conditions is invested (*ibid*). This is known in the literature as the absorption capacity of a host country. Theoretically, a relatively small absorption capacity would make it more difficult for a host country to exploit the so-called benefits of FDI. On the other hand, a high absorption capacity would imply a faster rate of growth for a country facing a given idea gap (*ibid*). It must be pointed out that the organizing framework employed by all the studies briefly outlined above adopt, as a theoretical background, a version of the standard growth model, which has been argued to fall short in its attempt to explain growth experiences (Rodrik, 2014). This, therefore, raises the possibility that empirical FDI-productivity studies motivated within this framework may be responsible for the weak evidence supplied in the macro literature.

The micro empirical literature yields ambiguous results for the effect of FDI on the productivity of domestic firms. The assumption underlying this body of research is that FDI embodies advanced technology and ideas that have the capacity to impact productivity growth positively. This speaks to the notion of the presence of an idea gap in developing countries and the potential role that foreign firms' investments play in bridging that gap. Numerous studies abound. Some, employing differing empirical models, have attempted to elegantly investigate the effects that cross-border investments may have in the diffusion of technology and productivity growth.

In their well-cited paper, Aitken and Harrison (1999) present strong evidence of a negative impact of FDI on productivity growth in Venezuela, running contrary to the predictions of theoretical models. With the use of more than 4,000 Venezuelan plants between 1976 and 1989, they demonstrated that an increase in foreign firm activity in a sector did reduce the output of domestic firms. Their finding of large negative spillovers contradicts notion that FDI always generates positive spillovers in a receiving country within a developing country context, as was previously argued in the literature (Blomstrom and Persson, 1983; Blomstrom and Wolff, 1989; Kokko, 1994). Kathuria (2000) presents evidence that makes the argument that foreign firm activities resulted in productivity increases for domestic firms that are research and development (R&D) intensive relative to domestic firms that were less or not R&D intensive. In their examination of productivity and FDI, Ballock and Gertler (2005) find that the output of domestic firms that directly supplied foreign firms exceeded that of their domestic counterparts which did not.

These findings lead us to a conclusion similar to the one reached earlier: the effects of FDI are not automatic and, therefore, require tailor-made domestic policy to fully exploit its benefits, if any. The evidence in the micro literature, though supplying some insights, also raises further questions about the generalizability of their findings.

The search for evidence contained in the micro literature of productivity spillovers generated by FDI is voluminous. The empirical results are mixed at best, and distressingly inconclusive. The results of these estimations seem to be driven by the framework and data employed. This point can be seen in *Table 1,*[9] which is derived from Navaretti and Venables (2004) and updated by the author

[9] Please see the Tables and Figures section for all tables and figures referenced in the text.

to reflect more recent findings. *Table 1* presents a set of 23 representative empirical papers that investigate FDI and the expected spillovers in developing countries. It also shows the country for which the study was conducted, the time-period, the methodology and the level of aggregation used. It can be observed in *Table 1* that those studies conducted using cross-sectional regression analysis, provide evidence that FDI does generate positive spillovers[10]. With the advent of more sophisticated econometric techniques and the availability of 'better' data sets, researchers appear to be more inclined to employ panel data regressions in their search for productivity spillovers. With the advantages of panel regression analysis over cross-sections, is it likely that studies based on cross-section regressions that present evidence of positive FDI related spillovers are biased and may be reflecting a statistical problem instead. Hanson (2005) claims this to be the case and highlights the need for greater attention to be paid to the modeling issues that plague the FDI literature. Although this study does not focus on the econometric shortcomings in the FDI literature, it is worth noting here that some gaps exist, and to some extents are responsible for the weak and ambiguous estimates obtained in the literature.

2.3 New Methods, New Data

Some researchers have attempted to bring new dimensions to the FDI-development debate by either applying more sophisticated econometric techniques or by introducing new data. In other words, they argue that the unresolved issues in the empirical literature are a statistical problem. After controlling for country specific factors and other determinants of growth, Carkovic and Levine (2005) demonstrate that FDI does not have strong growth-enhancing effects. Their results give strength to the argument against policies (such as tax breaks and subsidies) that give preferential treatment to

[10] Except for Kokko et al. (1996, 2001) which fails to find statistically significant results.

foreign firms, but rather the enactment of policies that foster an "attractive environment" for foreign investment. In other words, their work underscores the need for a developing country to expand or deepen its absorptive capacity.

This conclusion is not a radical departure from the findings and conclusions contained in the macro empirical literature. Rather, it appears to reinforce them. Their finding does, however, make a strong case for the use of dynamic models in the study of the FDI-development relationship. This is because it exploits the time series nature of the relationship between FDI and the outcome variable of interest. It also controls for country-specific fixed effects and for potential endogeneity (*ibid*). Furthermore, it models how FDI enters the regression equation differently from what is traditionally the case. These, the authors claim, resulted in an improvement of the coefficient estimates in previous work that examined the FDI-growth relationship. On the other hand, Blonigen and Wang's (2005) study finds compelling evidence that contributes to the FDI-development debate. Their main argument is that it is the "inappropriate pooling" of developed and developing countries in the data, and not the econometric techniques employed, that drives the estimates in the FDI-growth relationship. That is, this inappropriate pooling of the data is the chief culprit for estimating biased and insignificant growth-enhancing effects of FDI. By segmenting the data according to a country's level of development, they find that FDI is significantly growth enhancing in developing countries, after taking into account, as an indicator of absorptive capacity[11], the average years of schooling. The authors also use a sample that pools the data for both developed and developing countries. The estimated coefficients in the resulting regressions yield expected signs but show much reduced coefficient estimates on the FDI variable. Not only do they find compelling evidence for the relationship between FDI and growth, they also find that FDI is more likely to crowd-in domestic investment, than crowd it out as has been argued in a number of previous studies (Huang, 1998;

[11] Similar to Borensztein et al. (1998), they use threshold levels of human capital.

Braunstein and Epstein, 2004). The main insight their work supplies is that pooling the data is likely to obscure important relationships within the FDI-development nexus.

However, their analysis does not discuss or distinguish the origin of the FDI flows; that is, if the FDI flows into the developed and developing countries are from the either the North or the South. This, in a sense, is still another level of the 'inappropriate pooling' of the data that the authors make a case against. So, their work raises yet another question: can a further disaggregation of the reported statistics (by identifying FDI flows by source and recipient countries) provide even more compelling evidence for the contribution of FDI to development? Kabelwa (2004) believes this to be the case and makes an attempt to answer this question. The author examines whether technology transfer through FDI from a developing country to another developing country has a potential to close the technological gap and complement the higher technology coming from developed countries. Using twenty-nine South African firms operating in the manufacturing sector in Tanzania and comparing them with firms from developed countries in an econometric model, the author finds that a narrower technology gap between a developing-country FDI and the host economy, compared with their developed country counterparts, foster positive productivity spillovers. This is an unexplored, yet important, question in the FDI-development debate. If for some low-income and the least-developed countries of the world, FDI flows from other developing countries make up the bulk of their FDI stock (UNCTAD, 2006; Burns, A. et al.; 2006; Lipsey and Sjoholm, 2011), and if we observe differential impacts of FDI when the source country is taken into account, then pooling the data, as is traditionally the case, is likely to yield unsatisfactory estimates and conclusions.

Another possible culprit for the weak and/or ambiguous results may be found in the data itself. FDI is perceived as a long term, stable, cross-border flow of capital that adds to productive capacity, meets balance of payments shortfalls, transfers technology, and creates important forward and backward linkages between domestic firms and wider global markets. However, the perceived qualities of FDI may not be the case in reality (Akyuz, 2015). The FDI data reported by various national statistical offices and multinational organizations may reflect activities other than the cross-border movement of capital. The norm in the empirical literature is to treat measured FDI as a proxy for 'brick and mortar' investment, hence, leading to the exclusion of the 'much more' unstable portfolio investment. But as an interesting recent study points out, measured FDI is quite different from the traditional portrayal of FDI (Blanchard and Acalin, 2016). In this study, the authors show that FDI, as measured in the balance of payments, "are just flows going in and out of the country on their way to their final destination, with the stop due in part to favorable corporate tax conditions" and "are much closer to portfolio debt flows, responding to short-run movements in US monetary policy conditions rather than to medium-run fundamentals of the country" (*ibid*, *pg. 1*); a startling finding that questions the long held belief of the role that FDI plays in economic development.

In addition to this, measured FDI may be undertaken not only by multinational firms, as is assumed in the academic literature, but also by individuals, households, investment funds, governments, international or non-profit organizations. This wide range of possible sources of FDI connote that there may be significant differences in the technology and managerial skills such diverse investors bring to the host economy.

It is apparent that a more appropriate way to investigate the contributions of FDI to productivity growth should employ data that captures the creation of a subsidiary from scratch with fresh capital by one or more foreign investors. This kind of investment is known in the literature as greenfield investment; it is one of the forms FDI can take. The other two are Mergers and Acquisitions (M&As) and the expansion of productive capacity of existing firms (which is known as a brownfield investment). A few studies have sought to investigate the notion that greenfield investments are more beneficial to a host economy than the other form of FDI, M&As. Nanda (2009) and Zhuang and Griffith (2013) find that M&As are less beneficial and may also have adverse effects in the receiving economy as opposed to greenfield investments. This point is further stressed in Akyuz (2015), in which the author argues that only greenfield investments involve cross-border movement of capital and make a direct contribution to productivity growth. The conclusions of these studies must, however, be taken with a grain of salt in light of the recent findings in Blanchard and Acalin (2016).

2.4 FDI Location Decisions by Origin

A broad survey of the literature on FDI location decisions quickly reveal a pattern: North-North and North-South FDI studies dominate the literature. That is, the analysis of the determinants of FDI, regardless of the analytical framework/model employed, have solely been focused on North-North relations, North-South relations, or an "inappropriate pooling" of countries. The literature further reveals a consensus on the factors that influence FDI location choice. Some of these include the attractiveness of local markets/the size of the market, human capital, information frictions and transaction costs between source and host markets, and the differences in economic, political, and legal institutions (Blanc-Brude et al., 2014; Asiedu, 2006; Blonigen and Wang, 2005; Hanson, 2001).

The size of the market may affect a firm's decision to expand its operations across borders. A large consumer base holds the potential for a greater demand for the output of the firm. Various studies consistently demonstrate that economies with a relatively larger market size tend to receive relatively more cross-border investments (Phung, 2016; Willaims 2015; Ranjan and Agrawal, 2011; Asiedu 2005, 2006). The notion behind the size of the market is that investors aiming to maximize their returns will pursue a relatively larger consumer base. Study after study demonstrate that market size is a significant factor that influences FDI location decisions according to the survey conducted by Chakrabarti (2001). Agrawal (2011), in a study that observed FDI determinants in BRIC[12] countries, argued that countries with relatively larger markets should, on average, receive more FDI inflows than those with smaller markets. Furthermore, Asiedu (2006) conducts an analysis on the FDI-location decision nexus in Sub-Sahara Africa (SSA); a region previously absent in this literature. Employing a panel data set for 22 countries in the region, the study finds that those countries that have relatively large markets tend to attract more FDI. That is, FDI flowing into SSA is primarily driven by market seeking FDI. In all these studies, market size is generally measured by GDP or GDP per capita income, where GDP captures the size of the market, while GDP per capita proxies for the consumer base of the host country.

The availability and cost of human capital also influences FDI location choices, especially for so-called "efficiency-seeking" FDI. Host country labor costs attract efficiency-seeking FDI. Majocchi and Strange (2013) investigate the effects of liberalization of trade and financial markets on FDI location decisions. The authors include two explanatory variables to capture the combined impact of human capital. The first is the unemployment rate in the host country, with the expectation that a high rate should attract FDI not just because more labor is available but also because of the depressing effect of the excess supply of labor on wages at the margin. The second is a human capital variable, measured by the proportion of the labor force with tertiary education. They employ a sample of Italian firms investing in seven Central and Eastern European countries. Their results provide robust evidence that labor availability is associated with FDI location choices. Similarly, Blanc-Brude et al. (2014) investigating the impact that different measures of distances[13] have on FDI attractiveness in Chinese provinces show that human capital, measured by the natural logarithm of government expenditure on science, is positively associated with FDI inflows. The coefficients on the human

[12] These countries include Brazil, Russia, India, and China. This subset is an example North-South FDI, albeit with a much smaller sample.
[13] The authors use 3 different measures of distance in the different models they employ.

capital variable are consistent and statistically significant in the non-spatial and spatial models. Yeaple (1999), in a firm-level study, provides evidence for the argument that economies with larger supplies of human capital are more likely to receive FDI. More specific to countries in the global South, attracting FDI by serving as an export platform for labor-intensive production has long been a target of public policy, spurring the proliferation of export processing zones and bilateral investment treaties that afford special protections to foreign investors. The availability of cheap (yet productive) labor is a key element of this approach.

In the literature, information frictions and transaction costs are sometimes proxied by the geographic distance between source and host markets. A firm may decide to make an investment in a specific foreign location in order to supply at the lowest cost a to its home market or even to foreign markets around this location. The FDI literature contains some studies that show that FDI location decisions tend to be influenced by proximity to consumers (Blonigen, 1997, Markusen, 2002; Feenstra, 2004; Blonigen et al., 2007; Artige and Nicolini, 2009). These studies all demonstrate that distance, weighted and non-weighted, is significantly associated with FDI.

Taken together, these studies implicitly identify the role that geography plays in a firm's decision to invest across borders. Yet, despite this identification, a number of these economic studies fail to adopt a formal spatial dimension in the analysis of the FDI-location decision nexus. Doh and Hahn (2008) surveyed a number of papers that explicitly address the role of geographic space in a firm's location decisions and economic outcomes, and do not explicitly account for spatial dependence in a meaningful way[14]. They argue that the data classification and methodologies employed in FDI-location decision research performs poorly in modeling the spatial effects these studies claim to take into account. They argue for the incorporation of more complete approaches to the modeling of the

[14] They state that beyond the use of dummy/categorical variables, these studies do not sufficiently account for any spatial interdependence that exists in the data.

FDI-location decision relationship in economic research. The failure to model spatial interdependence can lead to incorrect inferences and misleading conclusions. Hence, researchers have begun incorporating spatial dimensions to this body of research.

Blanc-Brude et al. (2013), for instance, investigate how distance impacts the fundamental decisions made by foreign firms. They argue that the attraction that a destination economy carries is not only dependent on the traditional location-specific features, but also on the location's proximity to alternative locations. Their analysis confirms the existence of spatial dependence locations based not only on geographic distance, but also on economic distance[15]. In a widely cited paper, Wheeler and Mody (1992) find that outward FDI from the US is correlated with current and past FDI. They argue that is suggests that FDI is attracted to locations with large concentration of firms; that is there are geographical agglomerations associated with FDI.

Modeling this relationship this way captures the spatial dependence in the FDI data that emanates from positive and negative spillover effects. Agglomerations of FDI could lead to higher levels of FDI in neighboring locations, for example. On the other hand, these agglomerations in one location (region, country, or city) could prevent FDI from flowing to neighboring locations. In the literature, these spillover effects are captured by incorporating a spatially lagged FDI variable[16] on the right-hand side of the regression equation.

According to Blonigen et al. (2007), this spatial dependence can be captured by a researcher-defined spatial weights distance matrix, which differs from the standard gravity distance vector that measures host-source country distance. In their study, they find that the traditional location-specific factors used in the empirical literature are robust to the inclusion of terms that capture spatial

[15] The authors derive two different measures of distance which they call economic distance. The first uses the inverse of the squared differences in GDP per capita as the basis for a spatially weighted matrix. The second weights the squared differences in GDP per capita by the inverse of the great circle distances.

[16] This is, however, not the case in many studies that look at the determinants of FDI flows. Agglomeration is captured by a non-spatial lagged FDI variable.

interdependence. Furthermore, they show that both the conventional location-specific factors and the spatially lagged FDI term are sensitive to the sample of countries examined. These findings are consistent with other similar studies (Orr, 2008; Hall and Petroulas, 2008).

Zhang and Markusen (1999) employ a theoretical model, where human capital is embodied in skilled labor, that focuses on host- country characteristics that attract FDI. They showed that as the stock of human capital in host economies decreases, inward FDI converges to zero. In other words, human capital plays a crucial role in attracting FDI. Lucas (1990), in his seminal paper, demonstrated why capital did not flow from rich to poor countries. In it he argued that the level of human capital across countries plays a critical role. Physical capital is found to be relatively less productive in poor countries with a lower level of human capital, which discourages inward FDI.

Bénassy-Quéré et. al (2007) tackle the empirically difficult question of the role institutions play in attracting FDI. Specifically, they seek to uncover the impact of *institutional quality* on bi-lateral FDI. They find that media, financial and legal institutions are important determinants of FDI. Furthermore, they show that *institutional distance* tends to reduce bilateral FDI. Habib and Zurawicki (2002), in a study that examines the impact of corruption on FDI, find that the absolute difference of the corruption index between the investor and the host country has a negative impact on bilateral FDI. This finding, although it only considers one dimension of the quality of institutions between host and source countries, demonstrates that investors may take into account the differences between home and foreign institutions when making FDI location decisions.

At this point it should be pointed out that all the studies reviewed here involve only North-South and North-North FDI exchanges. Although the literature on FDI determinants is vast[17], far less attention has been devoted to empirically analyzing the emergence of FDI exchanges in the global

[17] A simple search on google scholar (at the time of writing) returns 155,000 results on "the determinants of FDI", and 77,000 when refined by the period 1990-2020.

South. The emergence, and growth,[18] of these cross-border investments may have important implications for developing countries for a number of reasons (Aykut and Goldstein, 2007). First, Northern foreign investments are located in relatively large economies, except for relatively small economies with an extractive industry. Southern firms, on the other hand, do invest in neighboring locations with similar or lower levels of development (*ibid*). A shared language and culture reduce transaction costs, which in turn could facilitate cross-border investments among these countries. Therefore, regardless of their size, South-South FDI may provide an opportunity for low-income countries to add to their productive capacity and, hence, contribute to their economic development. Second, developing country multinationals may have a relative advantage over their Northern counterparts in doing business in challenging economic and political environments. This advantage stems from the previous experience these firms have in conducting their operations in a similar environment; one that is fraught with poorly developed market-supporting institutions.[19] The business practices and distribution networks may, therefore, be well adapted to other developing economies (Lipsey and Sjoholm, 2011). Consequently, this potentially allows for the creation of forward and/or backward linkages with local firms and consumers. The linkages, whether intended or not, affect supply and demand of goods and services in the host economy. Furthermore, since the linkages that are generated by a foreign firm depend significantly on the absorptive capacity of the host country (de Mello, 1999; Blomstrom et al., 1992; Borensztein et al., 1998), it is plausible to assume that the technologies embodied in South-South FDI may be less sophisticated compared to those flowing from the North. This smaller technology gap between domestic and foreign firms from other developing countries implies a greater absorptive capacity within the receiving country, therefore, allowing for the increase of spillovers to domestic firms and to the economy at large. Third, a diverse

[18] For a detailed discussion of this see Akyut and Goldstein (2007) and, more recently, Dahi and Demir (2017).
[19] This statement is based on the general feature of what classifies a country as developing. This may not be the case for all developing countries.

pool of investments may mitigate the effects of shocks and also strengthen the relative bargaining position of countries in the global south. Multinational corporations from developed countries tend to seek total (or at least majority) ownership while their developing country counterparts, due to capital resource constraints, may accept lower equity participation (Kumar, 1982). These reasons further highlight the need to disaggregate the data when studying FDI in developing countries.

Empirical evidence for differences between North-South and South-South FDI is scant. To the best of our knowledge, only six studies attempt to empirically uncover any differences in FDI-location choice relationship. To the best of the author's knowledge at the time of writing this paper, the first known attempt to empirically examine if any differences exist was conducted by Aykut and Ratha (2003). Due the unavailability of FDI data, disaggregated by origin and recipient country, they attempted to estimate the volume of South-South FDI flows in the 1990s. Employing data from the World Bank's Global Development Finance database, the IMF's Balance of Payments Yearbook and OECD's International Direct Investment Database, they provide estimates for South-South FDI flows. Their results show that South-South FDI flows have increased, and when compared to North-South FDI flows, rose faster during the six-year period they consider. Furthermore, they are able to show that South-South FDI flows remained more resilient than North-South FDI flows post-Asian crisis period. As pointed out earlier, FDI, as measured in the balance of payments, "are just flows going in and out of the country on their way to their final destination, with the stop due in part to favorable corporate tax conditions" and "are much closer to portfolio debt flows, responding to short-run movements in US monetary policy conditions rather than to medium-run fundamentals of the country" (Blanchard, 2016, p. 1). Therefore, the results from studies such as these might not tell us much.

Darby et al (2009) investigate the role that institutions in a source country plays in location decisions of FDI. Using a panel dataset for firms in the North and South they show that FDI with origins in the South responds significantly differently to the quality of a host country's business environment that their Northern counterparts. Aleksynska and Havrylchyk (2003) investigate if firms in the South differ from their Northern counterparts. Using a modified gravity model, they find that Southern firms do differ in their investment behavior from Northern firms. Unlike Northern firms, Southern firms are undeterred by the quality of institutions in the host countries given the presence of an extractive industry. They also found that cultural similarities hold greater importance for investors from the South than those from the North.

Cuervo-Cazurra (2006) examined the impact of corruption within institutions on FDI. One of the key findings in this study suggests that corruption results in relatively higher FDI from source countries with high levels of corruption. This suggests that a sending country, whose institutions do not differ from the institutions within the developing host country, will be undeterred by weak or poor institutions. That is, South-South FDI is not influenced by weak institutions, as opposed to their Northern counterparts. Again, FDI inflows data based on balance of payments (BOP) data (with the sample restricted to one year) is employed by the authors. Demir and Hu (2016) also find that institutional differences work as a significant barrier of entry for the North-South direction. However, this effect is absent for South-South FDI. They argue that firms from the South appear to have easier access to markets in the South due to their less risk averse behavior and comparative advantage in operating in poor institutional environments. A more recent study by Demir and Duan (2018) examines the effects of bilateral FDI flows on host country productivity growth. Although they do not find any evidence that suggests that any differences in North-South vs South-South FDI's impact on productivity growth of a host country, they do, however, find some evidence that shows a significant positive effect of FDI flows on human capital growth for the South-South direction only.

All of the six studies, which distinguish FDI by its origin and destination, briefly highlighted above focus on the role of institutions in influencing location decisions of FDI. With the exception of one,[20] the data employed are based on BOP. As Akyuz (2015) has pointed out, BOP-based FDI data is misleading because they include a variety of financial flows that do not necessarily generate new productive capacity or involve the cross-border movement of capital goods, including mergers and acquisitions (M&A), intra and outer company loans, and reinvested earnings used for speculative purposes in host markets. What these studies do, however, is that they make an initial attempt to answer questions that have emerged in the macro FDI research over the years.

Taken together, these studies highlight the unreliability of measured FDI and raise the possibility of investigating if greenfield FDI display patterns that are similar to that which are seen with measured FDI. They provide a clearer insight to the FDI-development nexus by taking neoclassical and endogenous models of growth to new data with more sophisticated econometric approaches, resources not previously available to earlier growth/development economists. Their findings also provide insights that question the neoliberal policy position that is, in some quarters, advocated for FDI in developing countries and highlights the systematic differences in the processes that FDI follows in developing countries relative to developed countries. The challenge, however, with the evidence provided by these models is that they implicitly assume that there is a singular productive structure in developing countries. This narrative proves false in the most developed economies of the world, and even more so in developing countries. Modeling the FDI-growth relationship in this way does not do a very good job of explaining growth experiences, even with the use of important conditioning variables (Rodrik, 2014). They also fail to address the important question around the "inappropriate pooling" of data in study after study, with the exception of only a few.

In the next chapter, we present a framework that offers a complementary perspective for analyzing the FDI-growth relationship. In this framework, we are able to allow features of the

[20] Darby et al. (2009)

traditional neoclassical model (incentives to save, accumulate and innovate) to exist side-by-side with features of a dual economy model.

Chapter 3: A Dual Economy Approach to FDI

In this chapter, we examine the validity of the hypothesis that FDI has growth-promoting effects in developing countries. To do this we explicitly incorporate structural change, which has been identified as an important source of economic growth. More specifically, the chapter begins with a conceptual framework that employs a simple model that captures the heterogeneity of productive structures observed in developing countries and allows for different types of growth, while incorporating FDI. The section that follows the conceptual framework presents the estimation strategy. There we identify an empirical model to estimate the impact of FDI, coupled with structural change, on productivity growth. After this, we discuss the data that is employed in the empirical analysis. This is a panel dataset that is made up of annual series for the period 1970 to 2010 for 30 countries. The decision to select the period and the number of countries in the sample comes down to two reasons: first, available data on measured FDI stretches back to 1970, and second, the data for output per worker at the sectoral level is available for only 32 developing countries. And although the data goes beyond 2010, it is missing for many countries beyond that year.

The final two sections discuss the results from the empirical model and our robustness checks. Our baseline model suggests that when the absorptive capacity low, a developing country is unable to reap any benefits that FDI conveys. On the other hand, we find a positive association between FDI and productivity growth when the absorptive capacity is high. Furthermore, the results show that FDI in developing countries with both low and high absorptive capacities is associated with negative productivity growth, after we control for structural change and convergence within the modern sector.

3.1 An Illustrative Framework

In the FDI literature, the organizing framework for empirical cross-country growth research has been the neoclassical growth model, and its many variants. In these models, growth depends on savings, accumulation of capital (both physical and human), and on endogenized technological change (Aghion and Howitt, 2009; Rodrik, 2013). These models, however, fail to capture the existence of multiple productive structures in developing economies. Growth analysis within this one-sector framework has been argued to yield erroneous results (Lewis, 1954; Temple, 2005; Acemoglu, 2009; Rodrik, 2014), and may be, therefore, insufficient for studying the growth-enhancing effects of FDI within a developing country context.

A more suitable framework for studying FDI within the heterogeneity of productive structures observed in developing countries may be the use of a general equilibrium approach that explicitly acknowledges the important linkages between different sectors, and which permits different types of growth experiences (Temple and Woessmann, 2006). The long tradition of dual economy models acknowledges the dispersion of productivities across two broad economic sectors (Lewis, 1954; Todaro, 1969; Harris and Todaro, 1970; Bardhan and Udry, 1999). The rural, agricultural sector was characterized by very low levels of labor productivity, while the urban, non-agricultural sector experienced rapid productivity growth and generated spillovers to the rest of the economy. This assumption implies that these two distinct parts of the economy should not be aggregated into one homogenous unit. Accumulation, innovation, and productivity growth are assumed to take place in the modern-nonagricultural sector, while the traditional-agricultural sector remains technologically backward. Therefore, aggregate productivity growth depends largely on the rate at which labor is reallocated between both sectors.

To formalize this idea, let us begin by considering the growth equation that emerges from the neoclassical model:[21]

$$g = \beta(logy^*(\boldsymbol{\theta}) - logy) \tag{8}$$

Where: $y^*$is the steady state level of g, $logy$ is the initial log of GDP per worker, and $\boldsymbol{\theta}$ is a vector of proximate and fundamental factors of economic growth.

Equation *(8)* implies that the primary source of growth of per worker GDP is a country-specific/conditional convergence component (which also includes FDI). If we agree with those studies which have presented evidence that the growth model described above does a poor job explaining observed growth experiences in the developing world when taken to the data (Contessi, et al. 2009; Acemoglu 2009; Rodrik, 2014), then the question remains of how can we more appropriately develop a model that does a better job explaining observed growth experiences, after taking into account a situation in which two economies with different structures operate within an economy? Following Rodrik (2013, 2014) and Temple (2005, 2006), who present a complementary framework for analyzing growth in aggregate labor productivity, we present a slightly extended simple model that captures the heterogeneous production structures and allows for different types of growth, while explicitly incorporating FDI.

Following the long tradition of dual economy models, assume that there are two broad sectors in the economy.[22]

$$Y_T = F(K_T, L_T, \lambda_T) \tag{9}$$

$$Y_M = F(K_M, L_M, \lambda_M) \tag{10}$$

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[21] Time and country subscripts are suppressed to avoid clutter.

[22] Our focus here is not on the dynamics of wages in either sector. We implicitly assume that $w_M = kw_T$. That is, $w_M/w_T = k$; where $k \geq 1$. This provides the basis for the reallocation of labor between T and M.

Where:

Y_T and Y_M are outputs in the traditional and modern sectors respectively and labor is $L = L_T + L_M$. If the economywide output, in real terms, is given as

$$Y\Omega(1,p) = Y_M + Y_T \qquad (11)$$

then, if we assume that $L = L_T + L_M$, we can re-write *(11)* as:

$$y = \alpha y_M + (1-\alpha) y_T \qquad (12)$$

Where:

y is real economywide/aggregate output per worker, $\Omega(1,p)$ is the output deflator, y_M and y_T are real output per worker in the modern and traditional sectors respectively, and α is the employment share in the modern sector.[23] That is, aggregate labor productivity is the sum of labor productivity in each sector weighted by the share of employment in each sector. Therefore, according to Jorgenson and Griliches (1967)[24], the growth rate of aggregate output per worker can be written as a weighted average of the growth rates of the output in the modern and traditional sectors in real terms:

$$g_y = \alpha\tau_M g_M + (1-\alpha)\tau_T g_T + (\tau_M - \tau_T)d\alpha \qquad (13)$$

Where:

g_M and g_T denote proportional growth rates in the modern and traditional sectors respectively, while g_y is the economywide labor productivity growth rate. τ_M and τ_T denote the productivity of labor in both sectors relative to the economywide productivity and $d\alpha$ is the rate of expansion, that is the pace of structural change.

We further assume here that $\tau_M > \tau_T$, which is consistent with the data.

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[23] $Y\Omega(1,p)/L = L_M/L * Y_M/L_M + L_T/L * Y_T/L_T$

[24] See Barro and Sala-i-Martin (2003) pg 442-443 for a more detailed discussion.

Now, if we let labor productivity growth in the traditional sector depend on the long-term balanced growth rate of the economy, g, in (8) and the growth rate in the modern sector also depend on g, as well as on convergence within the modern sector[25]. So, growth rates in each sector can be written as:

$$g_T = g \qquad (14)$$

$$g_M = g + \beta_M(logy_M^* - logy_M) \qquad (15)$$

Where:

y_M^* is the productivity frontier in the modern sector, y_M is the labor productivity in the modern sector, β_M is the convergence coefficient in the modern sector, and g is as defined in *(8)*.

Equations *(14)* and *(15)* capture the productivity gap that exists between and within sectors of a host-country economy. They also show that the traditional sector, unlike the modern sector, does not benefit from convergence within the host-country economy.

Combining *(13)*, *(14)*, and *(15)*, it yields:

$$g_y = \alpha\tau_M[g + \beta_M(logy_M^* - logy_M)] + (1-\alpha)\tau_T g + (\tau_M - \tau_T)d\alpha$$

Which can be re-written as:

$$g_y = g + \alpha\tau_M\beta_M(logy_M^* - logy_M) + (\tau_M - \tau_T)d\alpha$$

If we allow g to vary across countries (that is, to be country-specific), then we could model g as a country-specific convergence term, as previously given by *(8)* and combining with the previous equation, the economywide growth rate can be written as:

[25] Setting it up this way allows us to capture the basic asymmetry that exists between the manufacturing and traditional sectors.

$$g_y = \beta(logy^*(\boldsymbol{\theta}) - logy) + \alpha\tau_M\beta_M(logy_M^* - logy_M) + (\tau_M - \tau_T)d\alpha \qquad (16)$$

This equation provides us with a different framework within which the FDI-productivity nexus can be empirically analyzed. This framework allows us to take into account three stylized facts associated with economic development:

1) The presence of different per capita incomes across countries with similar observable characteristics. This is captured by the first term in (16).
2) The convergence within the modern sector of the host economy is captured by the second term.
3) The gradual migration of labor from the traditional, low-productivity sector (T) to the modern, high-productivity sector (M). This structural change is captured by the third term.

According to Rodrik (2014), this kind of framework helps us to better study and explain the different growth outcomes that we have witnessed across developing countries. The core argument here is that the convergence term alone (that is, taking account of proximates and fundamentals) explains only part of long-term convergence. To get a richer picture, convergence requires both fundamentals and structural change.

The *2x2* matrix in *Figure 1* visually presents the argument that structural change without investment in fundamentals may result in growth spurts, which eventually peters out, as has been observed across the African continent. Many countries in the region experienced high growth rates averaging 7% while simultaneously experiencing rapid migration from the rural-agricultural sector into urban cities in search of modern sector employment. However, growth in most of these countries has now lost steam. On the other hand, investment in fundamentals alone results in moderate growth when rapid structural change is absent. Despite significant improvements in policies and institutions in Latin America, the expected improved economic performance has remained elusive (McMillan et al. 2014). Rapid investments and structural transformation have produced rapid and sustained growth in some Asian economies, moving a large share of their population out of poverty and expanding the middle class (Kharas, 2010; Melber, 2013). Ultimately, sustained growth and convergence of productivity levels require both structural transformation and investment in proximates and fundamentals of an economy.

The conventional framework that is used to study the impact of FDI on productivity growth predicts that developing countries should grow faster than their developed counterparts since the marginal productivity of capital is higher in developing countries. This "relative backwardness" should, therefore, promote conditional convergence. The basic hypothesis that emerges from this framework is that relative backwardness, coupled with FDI and structural change should promote faster growth, such that observed gaps in GDP per worker across similar countries should close over time, given different factor endowments. If we believe that FDI is a composite bundle of capital stocks, know-how, and technology, then we can expect FDI to positively contribute to promoting the rate of conditional convergence across developing countries with different factor endowments.

Furthermore, given that we are able to explicitly incorporate two additional channels through which FDI potentially promotes convergence in productivity growth, we can also expect to find stronger FDI-induced convergence effects since we argue that these two terms can boost growth significantly. More specifically, it can be expected, *a priori*, that FDI, given other proximate and fundamental factors, and the rate at which labor migrates from low-productivity sectors to high-productivity sectors (in the tradition of dual economy models), should promote rapid productivity growth. This framework argues that aggregate/economywide growth occurs because of the investments in fundamentals of growth, the movement of labor from the traditional sector to the modern sector, and productivity improvements within the modern sector.

This approach can be viewed as complementary to the microeconomic FDI literature, which focuses primarily on firm/industry productivity within the manufacturing sector but is unable to draw any inferences at the aggregate level. This unifying framework, therefore, allows us to focus on the contribution of FDI to aggregate productivity in a developing economy, while considering the reallocation of labor characterized by sizable differentials in the productivity of labor between sectors. Previous studies[26] have tested this hypothesis without the structural change component due to the absence of relevant and reliable data across developing countries. This study attempts to address this problem.[27] In what follows, we present previously unavailable sectoral data on employment and output across a number of developing countries. We also present FDI data for a number of developing countries over time. We also specify and estimate an empirical model that captures the three channels discussed above through which FDI affects aggregate productivity growth in developing countries.

3.2 Empirical Model

Like many existing FDI studies, this study seeks to test the hypothesis that FDI has growth-promoting effects in developing countries. However, we go a step further by explicitly incorporating structural change, which has been identified as an important source of economic growth (Denison and Poullier, 1967). To estimate the impact of FDI, coupled with structural change, on productivity growth, we adopt the following baseline specification:

[26] Balasubramanyam et al. (1996) and Borensztein et al. (1998) to mention a few.
[27] We do not claim to address the whole slew of empirical issues associated with macro and micro studies on FDI. That is far beyond the scope of the work done here. This study focuses on integrating the notion of dualism into a study of FDI's impact on productivity growth at the aggregate level.

$$\ln y_{i,t} = \gamma \ln y_{i,t-1} + \begin{cases} \beta_1 FDI_{i,t}, HK < \psi \\ \beta_2 FDI_{i,t}, HK \geq \psi \end{cases} + \beta_3 \left[\alpha \tau_M \ln y^*_{j,t} / y^M_{i,t} \right] + \beta_4 S^{T,M}_{i,t} + \beta \boldsymbol{Z}_{i,t} + \delta_i + \delta_t + \varepsilon_{i,t} \quad (17)$$

Where δ_i and δ_t denote a full set of time-invariant country and time fixed effects respectively. By including country fixed effects, we assume that, theoretically speaking, fixed country characteristics that might be simultaneously affecting economic growth and the explanatory variables of interest are taken out (Acemoglu, 2009). $\beta \boldsymbol{Z}_{i,t}$ is a matrix of control variables for country *i* at year *t*, which includes proxies for variables such as the level of human capital ($hk_{i,t}$), inflation rate ($pi_{i,t}$), degree of (financial and trade) openness ($F\_open_{i,t}$ and $T\_open_{i,t}$), and domestic investment ($DI_{i,t}$). The dependent variable, $y_{i,t}$, is labor productivity growth measured by the growth rate of gross valued per-worker in country *i* at year *t*. The variable of interest is $FDI_{i,t}$ which is a proxy for measured FDI in country *i* at year *t*. This specification allows the effects of FDI on growth to take two different values depending on whether the level of human capital development is smaller or larger than the threshold level ψ. The impact of FDI on growth will be $\beta_1 (\beta_2)$ for countries in low (high) regime. Modeling the relationship in this way, we can test for the presence of a threshold effect. That is, how FDI performs in countries with low and high absorptive capacities. This idea is motivated by Borensztein et al. (1998), where they find that FDI is positively associated with growth after certain conditions. That is, FDI is found to positively impact growth in a developing country if the country has a "sufficient" human capital threshold. The third term measures the convergence within modern industries. Its magnitude, as previously shown in *(16)*, depends on the distance from the productivity frontier ($\ln y^*_{j,t} / y^M_{i,t}$), the convergence coefficient (β_3), the productivity premium in M relative to the economy (τ_M), and the share of employment in the modern sector (α). Henceforth, this term will be called

$Convg_{i,t}$. The fourth term, $\beta_4 S_{i,t}^{T,M}$, captures the growth effect of the migration of labor from the traditional sector, T, to the modern sector, M. That is, it measures the reallocation of labor, henceforth called $ROL_{i,t}$.

3.3 Data

The panel dataset is made up of annual series for the period 1970 to 2010 for 30 countries.[28] The decision to select the period and the number of countries in the sample comes down to two reasons: first, available data on measured FDI stretches back to 1970, and second, the data for output per worker at the sectoral level is available for only 32 developing countries. And although the data goes beyond 2010, it is missing for many countries beyond that year. The data can be divided into three groups: 1) structural change, 2) measured FDI, and 3) conditioning variables.

3.3.1 Structural Change

The data employed to construct the structural change terms were sourced from the Groningen Growth and Development Centre (GGDC) 10-sector database. The GGDC 10-sector database provides long-run internationally comparable series on productivity in Africa, Asia, and Latin America at the sectoral and aggregate levels. This includes 11 countries in Sub Saharan Africa (SSA), 10 in Asia, 9 in Latin America (LA), and two in the Middle East and North America (MENA). The GGDC 10-sector database is the first database with this kind of granularity at the sectoral level. The dataset was

[28] Botswana and Taiwan are dropped due to data constraints resulting in being unable to measure some variables.

constructed by employing an in-depth study of available statistical sources on a country-by-country basis.[29]

Table 2 gives an overview of the GGDC 10-sector database. The dataset covers 10 broad sectors, which are classified according to the International Standard Industrial Classification of all Economic Activities, Rev. 3 (ISIC Rev. 3). The variables in this dataset include the number of persons employed, and value added at current, constant and international prices. These variables, therefore, allow us to construct labor productivity at both the sectoral and aggregate levels. Although, for some countries, the series go back as far as 1950, we will begin our analysis with 1970, given that for most of the African countries in the dataset begin in the 1960s.

A closer look at the data, as presented in *Table 3*, we can highlight productivity levels at the end of the period on a country-by-country level. The data appears to lend support to the notion that the agricultural sector operates at relatively low levels of productivity. On the other hand, we observe that the utilities and mining sectors appear to be sectors with the highest productivity levels in 2010. This is not at all surprising; we would expect sectors that operate with relatively higher capital investment and in resource abundant countries to exhibit such patterns. Except for Costa Rica, Zambia, Tanzania and Morocco, all the countries in this dataset fall into one of these two cases. Finally, we also observe that mean annual growth rate, represented by the Compound Annual Growth Rate (CAGR), of the economywide labor productivity between the periods 1990 and 2010 vary across regions.[30] In Latin America and the African countries, average productivity gains appear to be modest at best. On the other hand, labor productivity in Asian economies have seen significant rises, on average, over the same period. *Figures 2* and *3* present the evolution of productivity in the modern and traditional sectors between 1970 and 2010 respectively. With the exception of Colombia, Ethiopia,

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[29] For a detailed discussion of the contents of the database, the selection procedure of sources used, as well as the methods employed see Timmer, de Vries & de Vries (2015).
[30] The starting period (1990) used in Table 3 is for illustrative purposes to mark the beginning of the era of globalization.

Malawi, Nigeria, Peru, Philippines, and Zambia, whose productivity levels remained fairly constant during that period, labor productivity in the modern sector has seen significant rises. For example, China experienced rising productivity growth between 1970 and 2010 in the modern sector. On the other hand, we observe the opposite in the traditional sector. Malaysia and Mauritius experienced sharp declines in labor productivity growth as the productivity growth in their modern sectors rose.

Finally, one key assumption that we make here is that the United States is taken as the economy at the productivity frontier. This is a plausible assumption given that United States has the largest economy throughout the entire period in the data, and therefore, provides an upper limit that is used in the calculation of the convergence term.

3.3.2 Measured FDI

The data on FDI is sourced from UNCTAD, which collects annual data from central banks, statistical offices or national authorities on an aggregated and disaggregated basis for its FDI/TNC database.

We employ data on inward FDI as a percent share of GDP for 30 developing countries to capture cross-border capital investments. The selection of these countries is based solely on the availability of data, with regards to the dependent variable. *Figure 4* depicts the evolution of average inward FDI as a share of GDP by region between 1970 and 2014. The data shows that, on average, FDI as a share of GDP continuously rose between 1970 and 2007 in Africa and Asia, and then appears to become flat thereafter. On the other hand, for Latin America, we observe an up and down trend, on average, within the same period. The trend begins with an initial rise between 1970 and 1990, and then a sharp decline until 1995. This pattern occurs again between 1996-2001 and 2002-2005. It rises again between 2006-2008, then falls thereafter. Two factors have been identified as responsible for this divergence between these regions: 1) the absence of big corporate acquisitions and 2) a slowdown in mining investments due to lower prices for metals (ECLAC, 2014).

The literature provides evidence of a positive impact of FDI on productivity growth, given the channel of a complementary or ancillary variable. We also expect our model to return a similar sort of relation between measured FDI and the dependent variable since we believe that FDI is a composite bundle of capital stocks, know-how, and technology. Furthermore, given that we explicitly incorporate two additional channels through which FDI potentially promotes convergence in productivity growth, we can also expect to find stronger FDI induced convergence effects since we argue that these two terms ($Convg_{i,t}$ and $ROL_{i,t}$) can boost growth significantly. More specifically, it can be expected, *a priori*, that FDI, given other proximate and fundamental factors, modern sector convergence, and the rate at which labor migrates from low-productivity sectors to high-productivity sectors (in the tradition of dual economy models) should promote rapid productivity growth.

3.3.3 Conditioning Variables

We employ a number of conditioning variables. Table 4 provides a succinct description of these variables and the underlying data used for them. These include *initial y*, *hk, GC, DI, pi, T_open and F_open.* More specifically, *initial y* is log of economywide labor productivity growth at the start of the period (1970) and is based on data from Groningen Growth and Development Centre (GGDC) 10-sector database. The *hk* variable is a dummy variable for Human capital index, based on years of schooling and returns to education (where 1 = high absorptive capacity, and 0 = otherwise). This variable is based on data from Penn World Tables (PWT) 9. We adopt the threshold for the dummy variable by following the seminal work of Borensztein et al. (1998). They argue that productivity growth effects of FDI occurs only when a developing country has a minimum threshold stock of human capital. They do not, however, make it plain what threshold they adopt. We explored three options: *hk=2.0*, *2.5*, and *3.0*. In the first case (*hk=2.0*), this is the mean of the underlying data, the level of human capital stock. That is, for each country, we took the average of underlying sample data from PWT. Furthermore, this value was comparable to some developed countries in the data set. For *hk=3*, this is the mean value for South Korea. Given that South Korea has consistently scored highly on educational attainments, has done a great job absorbing the technologies that FDI is assumed to bring, and this value was close to (and in some cases higher than other) developed countries in the data set. And finally, *hk=2.5* was randomly chosen since it was between both values. The results in the analysis were based on *hk=2*. As a result, 55 percent of countries in our sample fall below the threshold while 45 percent are above the threshold.

The *GC* variable is obtained by taking the log of government consumption as a share of GDP at current PPPs, which is obtained from the PWT. *DI* is included as proxy for domestic investment activity by taking log of gross fixed capital formation as a share of GDP at current PPPs. The variable *pi* is nominal inflation rate and is extracted directly from the World Development Indicators (WDI) database. Finally, *T_open and F_open* are variables that proxy for trade and financial openness respectively. Trade openness is the ratio of total exports plus total imports to GDP, and financial openness is an index measuring a country's degree of capital account openness based on data from the International Monetary Fund's Annual Report on Exchange Arrangements and Exchange Restrictions, also called the Chinn-Ito Index.

3.4 Econometric Results

Table 5 displays a summary of the sample data used in the empirical analysis. Furthermore, we show the correlation coefficients between each variable in *Table 6*. The coefficients help assuage initial concerns of multicollinearity of the independent variables.

This study estimates the effects of FDI inflows on productivity growth in developing countries after controlling for structural change and some determinants of productivity growth. As we have noted earlier, similar studies model the FDI-growth nexus in a fashion similar to equation (17) without the inclusion of the structural change terms. Given that we are able to explicitly incorporate two additional channels through which FDI potentially promotes convergence in productivity growth, we examine if there are stronger FDI-induced convergence effects since we argue that these two terms can model growth more accurately.

We begin by commenting on two postestimation tests conducted to determine: 1) the correct model to employ, and 2) if time fixed effects should be included in the regression. To decide between the random effects and fixed effects models, we run the Hausman test. Since we fail to reject the null hypothesis that $\varepsilon_{i,t}$ is uncorrelated with the regressors, we use the fixed-effects model.[31] Furthermore, as shown in equation (17), we add time effects to the country effects in the regression model. This is to control for time effects that affect productivity growth due to unexpected variation or special effects. To arrive at this decision, we conducted a time effects test, which led us to reject the null hypothesis that the coefficients for all years are jointly equal to zero.[32]

Column (1) in *Tables 7* and *8* each present the estimates from the fixed-effects (FE) models for the baseline specification without and with the structural change terms, $Convg_{i,t}$ and $ROL_{i,t}$,

[31] The test returns a Prob > Chi2 that is less than 0.05.

[32] The joint test shows that the ProbF is < 0.05; hence, we reject the H_0

respectively. This specification includes the variables that measure FDI, output per worker in 1970, human capital, and domestic investment. Recall that the dependent variable is the log of economywide labor productivity growth, *y*, and the independent variables include log of FDI (*FDI*), absorptive capacity proxied by a dummy variable of the level of human capital (hk), log of government consumption as a share of GDP (*GC*), domestic investment (*DI*), inflation rate (*pi*), Trade openness (*T_open*), Financial openness (*F_open*). This baseline specification is motivated by a combination of two streams in the literature. The first adopts a production function in which FDI is introduced as an input in addition to human and physical capital (Balasubramanyam et al., 1996; de Mello, 1997; Carkovic and Levine, 2002). The second adopts a similar specification but extends the model by including an ancillary term which is aimed at capturing the absorptive capacity in the host economy (Alfaro et al., 2004; Contessi and Weinberger, 2009; Iamsiraroj, 2015). This is modeled as an interaction term.

In the model without the structural change terms, that is Table 7, the estimates return with the expected signs and, their interpretations are quite intuitive. The coefficients, β_1 and β_2, on the *FDI* and *hki*FDI* variables for countries with a low and high absorptive capacities enter the regressions with negative and positive signs respectively. This can be seen in columns (1) to (5). To understand these results, recall equation (17). For those countries with a low absorptive capacity, FDI is associated with a negative effect on economywide productivity growth. On the other hand, the coefficient on the interation term (β_2) has a positive sign. More specifically, in column (1) when the absorptive capacity is low (that is, *hki=0*) a 1 percent increase in FDI as a share of GDP is correlated with a 1.8 percent decrease in productivity growth. It must be noted that this result is not statistically significantly different from zero. Hence, we do not read much to this. On the other hand, when absorptive capacity is sufficiently high (that is, *hki=1*), a 1 percent increase in FDI as a share of GDP is associated with a 3.2 percent increase in productivity growth on average. The estimate obtained in this specification is both statistically and economically significant. In column (2) and (3), after controlling for inflation and gross fixed capital formation, the FDI coefficients, β_1 and β_2, are pretty much the same. In column (4), we add the trade openness variable to the equation. Here we find that both coefficients, β_1 and β_2, return as statistically significant, albeit at the 5 percent level of significance. Again, we see that a 1 percent increase in FDI is associated with a decrease in productivity growth when absorptive capacity is low. But, unlike the previous results, the sign and magnitude of the coefficient changes when absorptive capacity is sufficiently high. A 1 percent increase in FDI is associated with a 0.37 percent decrease in productivity growth for countries with high human capital. For countries with low human capital, the impact on productivity is strongly negative; as specified in column (4), a 1 percent increase in FDI as a share of GDP is associated with a 4.1 percent loss in productivity. In column (5), we observe that when the absorptive capacity is low, a developing country fails to absorb the FDI benefits. On the other hand, we see that FDI is postively associated with productivity growth when the absorptive capacity is high. That is, a 1 percent increase in FDI is associated with a 2.3 percent decrease and a 3.4 percent increase in productivity growth when absorptive capacity is low and high respectively.

If we agree with the notion that FDI is a vehicle for the adoption of new technologies, then this result suggests that a developing country with a low absorptive capacity will fail to absorb the benefits associated with cross-border investments, which we model as reflected in productivity growth. These estimates, taken together, conform with prior evidence provided in the literature.[33] The caveat here is that a developing economy with a high level of trade as a share of GDP, as we observed in column (4), might attract efficiency-seeking FDI and, therefore, may not capture the expected benefits even with a sufficiently high asorptive capacity.

[33] See Contessi and Weinberger (2009) for an extensive survey and discussion.

Table 8 presents a model that accounts for convergence within the modern sector and reallocation of labor (that is, structural change). Recall that structural change is accounted for by explicitly including the growth effect of the migration of labor from the traditional sector to the modern sector. That is, it measures the reallocation of labor, ROL. In addition to the estimates returning with the expected signs, we find three differences when compared with the model in *Table 7*. First, when the economy is unable to absorb the technologies conveyed by cross-border investments (that is, when absorptive capacity is low) we find that FDI is associated with a negative effect on economywide productivity growth. However, unlike the previous model, human capital is associated with a positive and statistically significant[34] direct effect on productivity growth, while the coefficient on FDI is negative and statistically significant. Second, we also find that when we account for structural change, the R^2 increases significantly. This *may* suggest that the model that accounts for structural change is better fitted than the model that fails to account for structural change. Third, the magnitudes of the coefficients differ across both models. We observe that the models that integrate structural change produce coefficients on the FDI**hki* variable with a relatively smaller magnitude.

More specifically, an increase in FDI is associated with a decrease in productivity growth, regardless of the model specification after we account for structural trade and convergence. For example, in column (1), a 1 percent increase in FDI is associated with a 3.69 percent decrease in productivity growth, when the absorptive capacity is low. We also find that when absorptive capacity is sufficiently high, a 1 percent increase in FDI is associated a 0.34 percent decrease in FDI. These estimates return statistically significant at the 5% level of significance. In column (4), where we control for openness to trade, a 1 percent increase in FDI is associated with a 5.91 percent decrease in productivity, in a low human capital regime. On the other hand, when absorptive capacity is sufficiently high, a 1 percent increase in FDI is associated with a 3.03 percent decrease in productivity.

[34] This is at a 1% level of significance.

The coefficients on the structural change terms return with interesting signs. For example, in column (5) of *Table 8*, a 1 percent decrease in the productivity gap between the productivity frontier in the modern sector (represented by that achieved by the United States) and that of a developing country is associated with an 8 percent increase in labor productivity growth for the developing country in question. The negative sign on this coefficient indicates convergence *within* the modern sector of a developing country is associated with faster growth rates of labor productivity. In the same column and table, we also find that the reallocation term has a positive effect on productivity growth. This result suggests that there is evidence of structural change effects on productivity growth in developing countries.

In columns (2) to (5) of *Tables 7* and *8*, we include additional regressors for inflation, government consumption, trade openness and financial openness respectively in the model. In the inclusion of these variables in the first model (that is, the model without structural change), we do not observe any significant changes. That is, the coefficients vary very little with the stepwise inclusion of each control variable. This is also the case in the model with the structural change terms. In fact, in both regressions, the coefficients on these variables return with either unexpected signs or not statistically different from zero, except for the variable that measures the extent of trade openness. For example, in column (2) of *Table 8*, we find that a 1 percent change in the inflation rate results in a 1 percent change in productivity growth. This is an odd result, and its culprit may range from omitted variables to selection bias. The results also show that domestic investment, *DI*, is positively related to productivity growth and statistically significant in all specifications. In column (1), a 1 percent change in *DI* is associated with a 0.04 percent change in productivity growth. This translates to roughly $28,497 increase in average output per worker. This suggests that the estimate obtained here is economically significant in a developing country context. The results are not significantly changed in all the specifications in columns (2) to (5).

3.5 Sensitivity Analysis

Since the dependent variable, productivity growth, is observed over time, we can estimate a dynamic model by specifying the dependent variable for each country to depend in part on its values in previous years. We can do this using the Arellano-Bond estimator or the two-step Generalized Method of Moments (GMM) estimator.

Table 9 presents results from the two-step GMM estimations for regressions with and without the structural change terms and other control variables. In the first model, the FDI coefficient enters the equation as positive and significant. In the model with the structural change terms, however, the coefficient enters the regression as positive and not statistically different from zero. In column (3) the coefficient enters as positive and significant at the 5% level of significance.

In *Table 10* we present the estimates from the quantile regressions for the models with and without structural change. Again, we find differences in the magnitude of the estimates between both models. In the model with structural change, for those developing countries with low labor productivity growth, FDI is associated with a negative and significant effect on productivity growth. This changes for those countries in the .75 quantile, that is those countries with relatively high aggregate productivity. This pattern is similar in the model without structural change. However, there is a marked difference between these estimates. In columns (3) and (6), for example, for those countries in the .75 quantile the coefficient on the FDI variable is positive and statistically significant. This is not the case in the model that does not account for structural change, where we find that the coefficient is negative and not statically different from zero.

In our model, poorer countries tend to experience faster convergence within the modern sector relative to their more productive developing counterparts. Furthermore, developing countries with relatively low aggregate labor productivity, the reallocation of labor between the traditional and modern sectors is associated with greater effects on growth relative to their more productive developing counterparts.

The estimates are largely unchanged for both the GMM and quantile regressions. The differences in these estimated coefficients between both models provide evidence for the argument of adopting a dual economy approach in growth regressions in general, and FDI regressions in particular.

3.6 Conclusion

In this chapter we have attempted to empirically analyze the effects of FDI inflows on productivity growth in developing countries. Although this has been studied extensively in the literature, we approach this question differently. More specifically, we extended the traditional growth equation used in analyzing the FDI-growth relationship by capturing the growth effect of the migration of labor from the traditional sector to the modern sector and the convergence within the modern sector. That is, we control for structural change in addition to some determinants of productivity growth. The argument here is that convergence requires both fundamentals and structural change. The basic hypothesis that emerges from the framework used here is that relative backwardness, coupled with FDI and structural change should promote faster growth, such that observed gaps in GDP per worker across similar countries should close over time, given different factor endowments. If we believe that FDI is a composite bundle of capital stocks, know-how, and technology, then we can expect FDI to positively contribute to promoting the rate of conditional convergence across developing countries with different factor endowments.

The model specification allowed the effects of FDI on growth to take two different values depending on whether the level of human capital development is smaller or larger than the threshold level. Modeling the relationship in this way, we were able to examine how FDI performs in countries with low and high absorptive capacities. Furthermore, by explicitly incorporating structural change, which has been identified as an important source of economic growth, we examined the relationship between FDI and productivity growth in a dual economy. The existence of a dual economy implies that these two distinct parts of the economy should not be aggregated into one homogenous unit. Accumulation, innovation, and productivity growth are assumed to take place in the modern-nonagricultural sector, while the traditional-agricultural sector remains technologically backward. Therefore, aggregate productivity growth depends largely on the rate at which labor is reallocated between both sectors.

To tackle this, we employed a panel dataset for the period 1970 to 2010 for 30 developing countries. The data was divided into three groups: 1) structural change, 2) measured FDI, and 3) conditioning variables. The structural change data was constructed from comparable series on productivity in Africa, Asia, and Latin America at the sectoral and aggregate levels. The measured FDI data is inward FDI as a percent share of GDP for 30 developing countries to capture cross-border capital investments. And finally, conditioning variables were used to capture domestic investment, macroeconomic stability, trade and financially openness, size of the government, and the level of development.

We use these variables to test the above hypothesis in two ways: a specification without structural change and one with the structural change terms that we constructed. The fixed-effects regressions yield a few key results. First, in the regressions that do not include the structural change terms, FDI is found to be positively associated with an increase in labor productivity when the absorptive capacity is relatively high. Second, we find that FDI does not crowd out domestic investment when a developing economy has a high absorptive capacity. Third, we find that after controlling for structural change, FDI in developing countries with both low and high absorptive capacities is associated with negative productivity growth. We find convergence *within* the modern sector of a developing country is associated with increases in growth rates of labor productivity. We also find that the reallocation term has a positive effect on productivity growth. These results suggest why we find a negative relationship with FDI and productivity growth. One possibility is that the rate at which labor migrates from low-productivity sectors to high-productivity sectors and the convergence rate within the manufacturing sector are not fast enough to realize the assumed benefits of FDI. The inclusion of these two channels provide an additional approach to examining the FDI-productivity nexus and also explaining the productivity growth experiences in developing countries.

Chapter 4: South-South vs North-South FDI: Are they Different?

Location determinants of inward FDI have primarily been focused on North-North (that is, an FDI flow originating in a developed country with its final destination in a developed country) and North-South (an FDI flow originating in a developed country with its final destination in a developing country) flows. It is not difficult to observe that a South-South piece is missing from the picture. Significantly less attention has been devoted to empirically analyzing the emergence of FDI from developing countries to other developing countries and what may be driving these investments. The emergence, and growth, of these FDI flows from the South may have important implications for developing countries for a number of reasons (Aykut and Goldstein, 2007). Therefore, we have a body of work on the determinants of FDI that is extensive but incomplete.

This chapter attempts to address this gap that exists in the empirical literature. To do this we employ a novel dataset that tracks cross-border capital expenditures on new investments (that is, greenfield FDI) by origin and destination country. The data on FDI is sourced from fDi Markets database of the Financial Times Ltd, which collects comprehensive data of cross-border greenfield investments, covering over 200 countries. This allows us to identify the source and destination of country by FDI. We then merge this data with data sets from Total Economy Database (TED), The GeoDist database of the CEPII, World Employment and Social Outlook (WESO), Penn World Table, and Human Rights Reports by the U.S. Department of State.

We examine which factors within home and host countries are associated with FDI inflows and if these factors differ for countries in the global North and South. As highlighted in Chapter 2, a few commentators have argued that Southern FDI 'behaves' differently from Northern FDI along several dimensions (Aykut and Goldstein, 2007; Gleb, 2005; Kabelwa, 2004). But only a few have offered compelling empirical evidence. We attempt to test this claim.

Empirically, prior work on the location determinants of FDI have deployed a gravity-type framework, where the size of the market and geographic distance provide explanatory power and have primarily used data on bilateral country-level FDI activity. In this chapter we employ the same framework plus an augmented framework that accounts for a host's country's proximity to alternative FDI locations. This framework allows us to model the attractiveness of a particular location to foreign investors that depends not only upon the attributes of the location, but also upon the location's proximity to alternative FDI locations. In a sense, this framework transforms the traditional non-spatial gravity framework into a spatial gravity framework for studying FDI.

The results suggest that unlike South-South investments, North-South greenfield FDI is primarily efficiency seeking. We are able to identify this important distinction only after we control for geographical agglomeration and economic sentiments. South-South FDI, on the other hand, we find to be market seeking. Taken together, the differences we find between both kinds of flows are important ones and have implications for policy. The differences are strongly conditioned on geographical agglomeration. Previous research has shown that foreign firms with origins in the North are attracted by agglomeration. We find that this is also the case for Southern investments.

4.1 Model and Estimation Strategy

Hasson and Tinbergen (1966) and Poyhonen (1963) applied the gravity model in economic research for the first time to study trends in global trade flows. Since then, it has been employed by researchers as they seek to uncover cross border investment behavior. The empirical success of the gravity model has made it popular for estimating a geographic view of FDI. The gravity model is a popular formulation for empirical analyses of bilateral flows between different geographical entities. It has been demonstrated to be effective in explaining bilateral trade and FDI flows (Engel and Rogers, 1996; Jarvocik et al., 2011).

In its simple form the model aims to measure the potential countries have for FDI and also explain the "natural" pattern of FDI flows (Bellos and Subasat, 2012). In this simple form, its components include the relative market sizes of the host and source countries, and the geographic distance between their main economic centers (usually proxied by the capital cities). These features, therefore, allow the FDI potential between the host and source countries to be estimated.

A more complex form of this model will add more variables to the model. For instance, the level of corruption in the host country (*ibid*), common language, ethnicity, or border and colonial links (Subasat and Bellos, 2013), trade (Kane et al., 2007), the level of skilled and/or unskilled labor, institutions difference between source and host countries (Demir and Hu, 2016), and the market potential of countries proximate to the host (Blonigen et al., 2007) to mention a few.

Formally, in its simplest form, the gravity model can be defined as:

$$F_{ij} = \frac{KGDP_i^{\alpha} GDP_j^{\beta}}{D_{ij}^{\theta}} \quad (18)$$

Where, F_{ij} is the transaction flows between countries *j* and *i*, GDP is the Gross Domestic Product value of both the host and source countries *i* and *j*, D_{ij} is the absolute physical distance between the trading partners, and K is a constant.

In its more advanced form, this equation can be further expressed in log-linear form:

$$lnF_{ij} = lnK + \alpha lnGDP_i + \beta lnGDP_j - \theta lnD_{ij} + \delta Z_{ij} + \varepsilon_{ij} \quad (19)$$

Where, Z_{ij} is a vector of control variables that could affect bi-lateral FDI flows and ε_{ij} is a stochastic or error term.

We now turn to the econometric analysis of the FDI location decisions. Given the wide use of the gravity model in FDI studies, a variant of it is also adopted here to estimate the differences in foreign investment behavior between the developing and developed countries.[35] We begin with a baseline model and then extend our estimation using an augmented gravity equation.

To estimate the differences highlighted above, we adopt the following baseline specification:[36]

$$FDI_{ijt} = \beta_0 + \beta_1 GDP_{it} + \beta_2 Gr_{it} + \beta_3 TL_{ijt} + \beta_4 D_{ij} + \beta_5 Link_{ij} + \beta_6 InstD_{ijt} + \beta_7 HK_{it} + \beta_8 LSI_{it} + \beta_9 MFEXP_{it} + \varphi_i + \varphi_j + \varphi_t + \varepsilon_{ijt} \quad (20)$$

Here *i* and *j* indicate the host and source country respectively and *t* denotes time. φ_i, φ_j and φ_t are a full set time-invariant host-country, home-country, and time fixed effects respectively. The dependent variable is the sum of greenfield FDI inflows from country *j* to all sectors of the economy in country *i* in year *t*.

GDP_{it} is log of the gross domestic product (GDP) in the host country *i* at time *t*, and it used as a proxy for the size of the market in country *i*. This variable proxies for the market size of a host country. Including the market size of the host economy accounts for cross-border investors aiming to maximize their returns by pursuing a relatively larger consumer base. The size of the market is expected affect a firm's decision to expand its operations across borders. A large consumer base holds

[35] We use the terms "South" and "North" to represent developing and developed countries respectively following prior representation in the literature.
[36] The variables are given abbreviations here to avoid cluttering the regression equation. For a fuller description, see *Table 11* for a description of each variable and data sources.

the potential for a greater demand for the output of the firm. Hence, we expect a positive relationship between the size of the market and FDI, given that FDI inflows are market seeking.

$\mathrm{Gr}_{\mathrm{it}}$ is the growth rate of the host economy *i* at time *t*. High growth economies provide high profit opportunities, which in turn motivate foreign firms to set up new production facilities in these economies. Countries that are experiencing rapid economic growth are also generating more profitable opportunities, and they give the promise of growing markets and growing profits. This variable, therefore, allows us to capture this dynamism in a host economy. We, therefore, expect a positive association between this variable and our target variable, FDI.

The Trade Likelihood variable, TL_{ijt}, is the log of the product of GDP between countries *i* and *j* at time *t*, and is used as a proxy for the likelihood to trade between countries *i* and *j* at time *t*. In gravity model treatments, this product captures the fact that similarly sized economies are more likely to trade with another than differently sized ones.

Information frictions and transaction costs are captured with the distance, D_{ij}, between countries *i* and *j*, and a dummy variable $Link_{ij}$ that takes on the value 1 when *i* and *j* share a common language and share a common border. A shared language and culture are assumed to reduce transaction costs, which in turn could facilitate cross-border investments among these countries. Following prior studies, we account for this here.

$InstD_{ijt}$ is the difference in institutions between the destination and origin country, *i* and *j*, at time *t*. Following the literature, we are able to examine if institutional differences between host and home countries work as a significant barrier to entry for, not only North-South FDI flows but also, South-South flows. It is assumed that firms from the South have easier access to markets in the South due to relatively lower risk aversion and comparative advantage in operating in poor institutional environments. This variable provides a key channel in exploring the differences between South-South and North-South FDI inflows. Hence, we expect a negative association between this variable and

North-South FDI; that is, a larger institution difference between a home country in the North and a host country in the South should deter FDI inflows. In the case of South-South FDI, we expect a similar result, however, with a smaller coefficient.

HK is the stock of human capital in country *i* at time *t*. As briefly discussed earlier, since FDI tends to flow more towards the services and technology intensive sectors (Miyamoto, 2003), human capital is considered an important determinant of FDI location decisions, particularly efficiency-seeking FDI. This is because this kind of FDI provides a developing country with an opportunity to integrate into the global economy and ascend the value chain. Furthermore, this kind of FDI creates a set of diversified new jobs that produce greater productivity and value, it transfers technology and boosts R&D and economic upgrading (Fruman, 2016). The stock of human capital in a host country is traditionally considered an indicator of the level of absorptive capacity which plays a crucial role in maximizing the benefits of new technologies directly and indirectly conveyed by inward FDI. We, therefore, expect to see a positive association between the stock of human capital and FDI, regardless of origin.

LSI is the log of the ratio of the highest to the lowest levels of low-skilled labor in the two countries, *i* and *j* in time *t*, and it acts as a proxy for differences in low-skilled labor supply between host and source countries.[37] The availability of a higher supply in a host country relative to a home country could help us identify any efficiency seeking motivations. $MFEXP_{it}$ is manufacturing exports, which controls for the structure of trade in country *i* in time *t*. φ_i and φ_j are fixed-effects that account

[37]

$$\log\left[\frac{\max(F_{it}, F_{jt})}{\min(F_{it}, F_{jt})}\right]$$

Where F_{it} is the number of low-skilled labor in host-country and F_{jt} is the number of low-skilled labor in source-country at time *t*.

for time-invariant country characteristics in the host and source country, respectively. φ_t is a vector of time fixed effects.

Afterwards, we turn to the augmented gravity model. We extend the model by adding new variables to the regression equation. The $WFDI$ variable is pulled directly from Blonigen et al. (2007). It differs from the standard gravity geographic distance that captures the distance between the source and destination countries; this variable captures the proximity of the observed host to other host countries and can be thought of as a variable that accounts for geographical agglomeration. W is a block matrix of dimension *nxn*, with each block capturing a single year's observation.

For this analysis, ∀ year, t ∈ $[2003, 2015]$ we define

$$W_t = \begin{bmatrix} 0 & w_t(d_{i,k}) & w_t(d_{i,n}) \\ w_t(d_{k,i}) & 0 & w_t(d_{k,n}) \\ w_t(d_{n,i}) & w_t(d_{n,k}) & 0 \end{bmatrix}$$

Where $w_t(d_{i,k})$ is the functional form of the distance-based weights, decreasing in distance, $d_{i,k}$, between any two host countries *i* and *k*. These elements are user-defined to reflect the assumed nature of the spatial relationship between the countries (Blanc-Brude et al., 2013). Since distances are time invariant, $W_{2003} = W_{2004} = \cdots = W_{2015}$. Therefore, the full weight-matrix, W, is given by:

$$W = \begin{bmatrix} W_{2003} & \cdots & 0 \\ \vdots & \ddots & \vdots \\ 0 & \cdots & W_{2015} \end{bmatrix}$$

$$w_t(d_{i,k}) = \frac{SBD}{d_{i,k}} \forall\, i \neq k,$$

where SBD is the shortest bilateral distance within the sample (which in this case is the distance between Angola and Nigeria).

This variable captures the potential for interdependence in FDI across regions. FDI location decisions might involve an interdependence across countries due to agglomeration economies. That is, FDI activity in proximate countries increases FDI inflows to another host country.

Indisputably, economic decisions are driven by narratives and psychology (Shiller, 2019). Traditionally, this factor is assumed away in the economic literature and is yet to be formalized in FDI empirical work till date. An attempt is made here to account for the narratives that may influence FDI location-decisions made by corporations. The *ES* variable is a proxy for such economic and political narratives.

This augmented model allows us to incorporate the notion that the attractiveness of a particular location to foreign investors depends not only upon the attributes of the location but also upon the location's proximity to alternative FDI locations and to economic and political narratives.

4.2 Data

The panel data set used here is composed of annual series for the period 2003 to 2015 for the 34 developing countries on which we have complete data.[38] The decision to select the period and the number of countries in the sample is influenced primarily by the choice of the dependent variable. The available data on greenfield cross-border investments, the dependent variable, began to be collected at the macroeconomic level by the *Financial Times* in 2003. Furthermore, since this data is proprietary it requires funds to access; we were only able to access up until 2015, given the research budget.

[38] Taiwan is dropped during the empirical analysis due to constraints in the availability of data.

The variable definitions and the respective data sources employed in this study are provided in *Table 11*. *Tables 12 - 16* provide descriptive statistics for the sample variables. The data can be divided into three groups: 1) greenfield FDI, 2) standard gravity variables, and 3) conditioning variables.

The data on FDI is sourced from fDi Markets database of the Financial Times Ltd, which collects comprehensive data of cross-border greenfield investments, covering over 200 countries. As discussed briefly above, the selection of the 34 sample countries is driven solely by the availability of FDI data. We are able to separate both the origin and destination of these investments. *Figure 5* depicts the total FDI inflows for all the countries in the sample for the period 2003-2015 by origin-destination country. China and India receive the lion share of FDI from the South and North. For example, as shown in *Figures 6* and *7,* India and China attracted the largest FDI inflows in 2015 from the South and North respectively. The data reveals that, on average, China and India received the largest amounts of FDI inflows from both the South and North between 2003 and 2015. We present this finding in *Figures 8* and *9*.

The data on greenfield FDI are complete and contain enough information for conclusions to be drawn. By complete we mean that there are no missing records. Although a few countries in the data set have zero entries, this is also actual data. This is because in any given year, it is possible for a country to not receive any new greenfield investment. Therefore, each zero entry is an actual data point and there are no gaps. The data has been checked for duplications and there are no erroneous duplicates across the entire data set. According to the Financial Times, this data is collected in real time as announced by a company and updated online. Data goes through a rigorous quality control process, before being published at the end of each month. Data on capital investments associated with a FDI project are tracked. The data associated with each FDI project identified is cross-referenced against multiple sources, with primary focus on direct company sources. In reality, since companies do not always release information on the amount of investment, the Financial Times uses a proprietary econometric model to estimate the investment where the actual value is not known. Although the data undergoes a rigorous quality control process, Financial Times Ltd takes no responsibility for the accuracy or otherwise of the data. So the accuracy of the data is limited to what the Financial Times reports.

A brief exploratory analysis of the data shows that with the exception of three years (2003, 2005, and 2011), South-South FDI flows were larger, on average, than the North-South FDI. This can be seen at a glance in *Figure 10*. South-South FDI starts much smaller than North-South FDI and then outgrows North-South flows in the following years. A deeper dive into the data shows that the continent of Asia, on average, consistently received the largest amount of FDI inflows from the global South and North. On the other hand, Africa received the smallest volume of FDI inflows, on average, for both the South-South and North-South directions relative to other regions. This data also shows one interesting pattern: for the South-South direction, in 2008, there is a significant spike for all regions. We do not, however, see a similar pattern for North-South FDI flows. Furthermore, total amount of FDI by region again shows that developing Asia received 66 and 65 percent of the total amount of FDI, by far the largest share relative to other regions, from both the Global South and North respectively between 2003 and 2015. Developing Africa on the other hand received only 10 percent of Greenfield investments from both the South and the North in that same period. This information is captured in *Tables 17* and *18* and visually in *Figures 11-13*, where we show the total amount of inward FDI and the respective shares at the regional level.

One of the factors that may account for the oversized share of FDI flows into developing Asia relative to other regions is the presence of special economic zones (SEZs). The developing countries in Asia host over 74 percent of the SEZs in the world (UNCTAD, 2019). According to UNCTAD (2019), the development of new SEZs accounts for greenfield investment activities, particularly in the construction of industrial establishments and power generation such as the construction of zones in Indonesia, Thailand and Viet Nam, two of which were among the top recipients of South-South and North-South FDI between 2003-2015. As other countries in the region continue to build more SEZs, we can expect the region to continue to hold the lion's share of FDI flows both from the North and South.

Diving even further deeper, as noted earlier, we find that China and India were the favorite destinations for FDI flows from both the South and North for the period 2003-2015; with China receiving significantly more than any other country in the sample. On the other hand, Kenya and Costa Rica received the smallest FDI flows from both the South and North respectively for the same period.

The data further reveals that of the top 10 countries that received the largest amount of FDI from the Global South and North between 2003 and 2015, 50 percent of them are in developing Asia. Of the top 10 recipients of South-South FDI China receives the largest share, with a 28 percent share of the total FDI among the top 10 countries. This is also the case for North-South FDI, where China received 23 percent of the total. This data is reported in *Tables 19* and *20*. Please note that this data captures only greenfield FDI.

We can split the data into two distinct periods, 2003-2008 and 2009-2015. We show this in *Tables 21-24*. The rationale for this split is driven by events of the global financial crisis that occurred in 2008/2009. Given this "shock" to the global economy, we are curious how both kinds of greenfield FDI flows are impacted. We are able to observe the data in the period before and after an event that may have had a massive impact on global FDI flows. Again, China dominates as the top destination country for both South-South and North-South FDI during the 2003-2008 period, with roughly 27 percent and 25 percent of the total respectively. The composition of the top 10 countries remains the same for the most part relative to the entire period being considered here. However, the share of total

North-South FDI received by China during the 2009-2015 period drops significantly to 18 percent. Also, no country in the developing Africa region is among the top 10 countries that received North-South FDI, which was not the case when we considered the entire period. This raises the question: is South-South FDI more resilient to economic shocks to North-South FDI? The economic shock in question is the 2008/2009 financial crisis, that affected countries in the Global North significantly more than economies in the Global South. Hence, one might conclude that the observed decrease of FDI flows from the North to the South was due to the negative effects of the financial crisis between 2008-2009.

The descriptive statistics are broken into three categories: the full sample, South-South sample and the North-South sample. Examining the data this way quickly reveals that the largest volume of inward greenfield FDI between 2003 and 2015 originated in the South. Also, on average, FDI inflows were larger from the South than the North. In the following chapter we discuss the model results from the variables included in the regression model. Recall that the variables used include: the market size, trade likelihood, geographic distance, link, institutional distance, growth rate, labor skill, manufacturing exports, human capital stock, WFDI, and economic sentiment. The first model employs all of these variables except for the WFDI and economic sentiment variables. We should provide some detail about how we calculated some of the variables. The *WFDI* vis a spatial autoregression variable (data that contains observations on geographical with a spatial representation) that captures the proximity of the observed host, *i*, to the other host countries, *k*. It is an attempt to capture geographical agglomeration. Mathematically, it is a block matrix of dimension *nxn*, with each block capturing a single year's observations, multiplied by our dependent variable, FDI.

Economic Sentiment calculated using a Python library for processing textual data; we obtain polarity scores from text documents, in this case the US department of State reports on developing countries in each year. A polarity score is a float value within the range [-1, 1] where 0 indicates neutral,

+1 indicates a very positive sentiment and -1 represents a very negative sentiment. These scores are further binarized (0 for negative and 1 for positive) using a threshold. More precisely sentiment analysis, the computational analysis of the opinions people have about events and entities, is calculated by identifying the number of occurrences of positive and negative words in each document (report for country *i* at year *t*) is counted to determine the sentiment score. Every positive word is assigned a +1 and each negative a -1. The distributions of the polarity scores and the resulting sentiment scores are shown in *Figures 14* and *15*. Since this is extremely tedious to do manually, we use a power full computational library in Python to work "under the hood" and produce these sentiment scores. Labor skill is a proxy for the availability of labor in the home country relative to the host country. It is arrived at by taking the log of the ratio of the highest to the lowest levels of low-skilled labor in the two countries[39]. The calculation of the *Institutional Distance* variable follows Bénassy-Quéré et. al (2007) and is the between the origin, *j*, and destination, *i*, countries' governance indicators in year *t*. In the second model we include the WFDI and Economic sentiment variables. We include these variables because they allow us to incorporate the notion that the attractiveness of a particular location to foreign investors depends not only upon the attributes of the location but also upon the location's proximity to alternative FDI locations and to economic and political narratives.

4.3 Model Results

This chapter estimates the factors associated with the location choices of greenfield FDI. It departs from prior analyses in the literature by explicitly modeling North and South FDI flows to see

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$\log\left[\frac{\max(F_{it},F_{jt})}{\min(F_{it},F_{jt})}\right]$, Where F_{it} is the number of low-skilled labor in host-country and F_{jt} is the number of low-skilled labor in source-country at time *t*.

the differences, if any, between these sources of investment. We begin by briefly commenting on a postestimation test conducted to determine the correct statistical model to employ. To decide between the random effects and fixed effects models, we ran the Hausman test. Since we fail to reject the null hypothesis that $\varepsilon_{i,t}$ is uncorrelated with the regressors, we use the fixed-effects model.[40]

Table 25 presents the results from the baseline model for both South-South and North-South regressions in columns (1) and (2) respectively. That is, we report the results for the South-South regression in column (1) and those for the North-South regression in column (2). Note that all variables have been standardized using the standard scaler, which is equivalent to z-scores. The z-score is given as $z = (x - \bar{x}) / S$. Here, $\bar{x}$ is the sample mean, and S is the standard deviation of the sample.

Turning now to the results in Table 25, the standard gravity variables yield the expected signs in both regressions with the exception of host country *GDP,* which is negative but economically small and not statistically significant. Also included in both model specifications is the *Growth Rate*, which is a proxy for economic dynamism. The results in the baseline models suggest that there is a positive relation between FDI and economic growth, holding all else constant.[41] That is, high growth countries, on average, attract FDI from both Northern and Southern investors. The South-South regression in column (1) suggests that a one standard-deviation increase in the growth rate of a developing country is associated with an approximately $35 million increase in FDI. When compared with the North-South specification in column (2), we see an approximately $28 million increase in FDI. These values in a developing country context can be considered economically significant. These results also suggest that, given certain conditions (discussed below), South-South FDI differs from North-South FDI when we consider economic growth in a host country. After testing for the differences in coefficients,

[40] The test returns a Prob > Chi^2 that is less than 0.05.
[41] It is assumed that all other variables are held constant (*ceteris paribus*) when interpreting the results here.

we find that there is no significant difference between the coefficient in the South-South and North-South specifications.

The *Link* variable, which captures whether home and host countries share a common border or language, is positively associated with bilateral FDI flows. This is the case for both the South-South regression in column (1) and the North-South regression in column (2), with the variable's coefficient in the North-South equation having a relatively smaller magnitude in every model considered here. The positive association observed here confirms the role that a shared language and culture facilitates cross-border investments for both Northern and Southern countries. The larger magnitude on this variable for the South versus the North also suggests that South-South FDI may respond more strongly to countries with which it has a historical link in the form of a language or ethnicity. We arrive at this conclusion because we test the differences in the coefficients using a z-test for hypothesis testing. In addition to statistical significance, a shared language or border is also economically significant. The estimates suggest that a historical link between an origin and destination country should result in approximately $62 million in South-South FDI, and approximately $45 million in North-South FDI.

The *Geo Distance* variable is negative and statistically significantly associated with inward FDI in both regressions. This result is unsurprising; the empirical literature consistently shows this to be case. However, these studies only present results for the behavior of FDI originating from the North. Here we provide evidence that FDI originating from the South also takes distance into account. The distance coefficients for both South-South and North-South FDI are negative and statistically and economically significant, holding all else constant.

The results returned for the *Institutions Difference* variable are negative and statistically significant in both the South-South and North-South specifications. The results suggest that, on average, investors from both the South and North prefer to invest in economies in the South whose institutions are closer to theirs in "quality". That is, a larger difference in institutions between origin and destination economies, in either the South-South or North-South direction, is negatively associated with inward FDI. This result conforms to previous findings in the literature in the North-South case. It is plausible to assume that it is more costly for investors from strong-institution countries to invest in weak-institution countries. The result is, however, not expected in the South-South case. We assumed that since home and host countries in the South likely have *weak* institutions which are not significantly different/distant, South-South FDI would not be deterred. The data and empirical results both suggest differently. The descriptive statistics also show that on average, the Institutional Distance variable does not differ between both North-South and South-South samples, and we fail to reject the null hypothesis of equality of coefficients. The results show that, in general, institutions in the host country do matter to an investor regardless of the source country. The results show that a host country in the South is associated with decreases of approximately $100 million and $88 million in South-South and North-South FDI respectively for one standard deviation change in the institution difference between a host and home country. It must be highlighted that this analysis only tests for institutional gaps between home and host countries. This is significant and underscores the importance of institutional similarities in attracting FDI regardless of the country of origin. It is plausible to assume that Southern countries have lower institutional quality on average. Yet our results show that these Southern investors do care about these gaps.

The coefficients on the *Human Capital* variable are positive and significant in both South-South and North-South regressions, as is expected. A one standard-deviation increase in the stock of human capital in a host economy is associated with an approximately $38 million increase in South-South FDI and $35 million increase in North-South FDI. The results suggest that the Northern FDI is more sensitive to the stock of human capital in a developing country than FDI emanating from the South, as confirmed by the difference in the coefficient estimates being statistically significant. This is intuitive and confirms our priors. We see from these results that, all else equal, FDI is more likely to flow into countries with a large stock of human capital. The skills, knowledge, and experience possessed by the working population within a Southern country are important for attracting FDI from the North more than it is from the South. This finding likely points to differences in the kind of FDI that flows from the North versus from the South. We explore this question below.

We control for the relative availability of low skilled labor using the *Labor Skill Index* variable, which measures the log of ratio of the highest to the lowest levels of low-skilled labor supply across the host and home countries. The higher the index, the greater the difference. The coefficient on the *Labor Skill Index* variable is positive but not statistically different from zero in the South-South regression in Table 25 column (1). On the other hand, this variable is negative and not statistically significant in the North-South regression in column (2). This can be *loosely* interpreted to suggest that the availability of a low-skill workforce in a host economy, relative to the origin economy, is positively associated with FDI emanating from the South. It is also plausible this result shows that the pool of labor in both countries are not sufficiently different to generate a meaningful result. The result from the North-South FDI, on the other hand, suggests that Northern investors do take into account the pool of low-skilled labor in the home country relative to the host country, though again it is not statistically different from zero. Given the other variables included in the model, including in particular trade likelihood, human capital, and manufacturing exports, it could be that the relative supply of unskilled labor – a measure presumably associated with efficiency-seeking FDI – is captured by these other variables.

The *Trade Likelihood* variable, a standard gravity variable measured as the log of the product of host and source country GDP, is found to be positively associated with FDI in both the South-South and North-South specifications, as expected. In line with the gravity model's predictions, the results suggest that a host country, with a similar sized economy to an origin country, (which are likely to trade with each other) attracts FDI. This is the case even after controlling for manufacturing exports. Here, the likelihood to trade is estimated to be the most important variable in the regression equations. It is estimated that a one standard deviation in the likelihood to trade is associated with an approximately $506 million increase in greenfield investment in a developing country from the South and an approximately $365 million increase from North-South FDI.

Table 26 presents the regression results from the augmented model, where we introduce the WFDI variable and an economic sentiment variable. Columns (1) and (3) present the results for South-South FDI, and columns (2) and (4) for North-South. We add the WFDI and economic sentiment variables because they allow us to incorporate the notion that the attractiveness of a particular location to foreign investors depends not only upon the attributes of the location but also upon the location's proximity to alternative FDI locations and to economic and political narratives. Again, the *GDP* variable, which proxies for the size of the market, returns coefficients that not statistically different from zero. We do not find any evidence of a difference with the results from the model in *Table 25*.

The *Growth Rate* of a host economy is found to be positively associated with FDI in both the South-South and North-South regressions. However, unlike in the previous results in *Table 25*, in the South-South regressions the coefficient estimates are not statistically different from zero, while the coefficients in the North-South regressions are statistically significant. The coefficient estimate in the column (1) for South-South implies that a one standard-deviation increase in the growth rate of a developing country is associated with a 1.5 percent increase in FDI inflows. On the other hand, in the North-South regression, that is column (2), a one standard-deviation increase in the growth rate is associated with 7 percent increase in FDI. The results are similar for the regressions in columns (3) and (4). The statistical significance remains even after we control for agglomeration effects and economic sentiments in the North-South regression in column (4). This, therefore, suggests that FDI from the North is more likely to flow into a developing country with greater economic dynamism as reflected in higher economic growth, even after controlling for economic sentiments.

The *Link* variable, which is a proxy for cultural ties as reflected in a common language or border, is again significantly and positively associated with FDI inflows. This is the case for both the South-South and North-South regressions. This again highlights that a shared language and culture fosters cross-border investments for both Northern and Southern countries. The larger magnitude on this variable for the South vs the North also suggests that Southern FDI may respond more strongly to countries with which it has a historical link in the form of a language or ethnicity. In addition to statistical significance, a shared language and culture is also economically significant.

Again, the *Geo Distance* variable returns the expected results, just like in *Table 25*. The distance coefficients for both South-South and North-South FDI are negative and statistically and economically significant, holding all else constant. The further away the home country's capital city is from the host country's capital city, the less FDI will flow to the host country. Employing the z-test, the coefficients do show that Northern investors are more sensitive to geographic distance than their Southern counterparts.

The coefficients returned for the *Institutions Difference* variable are negative and statistically significant in all specifications, consistent with the results in Table 25 though the magnitudes are smaller. As before, these results confirm that FDI is deterred in host economies whose institutions differ considerably from investor economies in both the South and North. Furthermore, we find that the coefficients in the South-South regressions are not statistically different from the coefficients in the North-South regressions.[42] Hence, Southern investors appear to respond to host country institutions (relative to those at home) in similar form as their Northern counterparts. Comparing to

[42] Since we fail to reject the Null hypothesis that the coefficients in both specifications (in columns 1 and 2) are equal.

Table 25, then, the results on institutional differences do not change even after controlling for geographical agglomeration and economic or investor sentiments.

The *Human Capital* coefficient estimates differ by source country. The coefficients in the South-South regressions, in columns (1) and (3), are positive but small and not statistically significant, while those in the North-South regressions, columns (2) and (4), are positive, larger and statistically significant. This differs from the results in the baseline regression in Table 25, where we found the coefficient on this variable in both the South-South and North-South regressions to be positive and statistically significant, though we also found the coefficient estimates for South-South versus North-South to be statistically different. Turning back to the results in Table 26, a one standard-deviation increase in the stock of human capital is associated with an approximately \$4.3 - \$5.6 million and \$14.7 - \$15.8 million increase in South-South FDI and North-South FDI respectively. This is an intuitive and interesting result. First, it suggests that countries with higher levels of human capital are more likely to attract FDI. Furthermore, it suggests that, once we control for agglomeration and economic sentiments, North-South FDI does take into account the skills, knowledge, and experience possessed by the working population within a developing country, but the significant association with human capital for South-South FDI falls away. This result is consistent with North-South FDI being more likely to be efficiency seeking and is also consistent with the findings on the labor skill index. This is particularly important for developing countries because this kind of FDI is not only a source of capital, but it also has the potential to create new jobs that are more diversified with relatively greater productivity and value relative to traditional sources of income generation. It potentially also leads to expertise and technology transfers, promoting research and development, and economic upgrading. Adding both geographical agglomeration and economic sentiments to the regression allows us to identify this difference between South-South and North-South FDI. Comparing the results here to those in the baseline regression in *Table 25*, where we do not control for geographical agglomeration and economic sentiments, further reinforces that North-South FDI is efficiency seeking while South-South is not.

The results from the *Human Capital* variable are reinforced by controlling for the availability of low-skilled workers in the host country relative to the home country. This is proxied by the *Labor Skill Index* variable. The coefficients on the *Labor Skill Index* variable are negative and statistically significant across all specifications, unlike the results in Table 25. This means that a large pool of low-skilled workers in the host country, relative to the home/origin country, is negatively associated FDI, a relationship that emerges once we control for agglomeration and economic sentiments. This confirms the importance of efficiency seeking FDI, for both North-South and South-South flows.

The *Trade Likelihood* variable is again found to be positively associated with FDI in both the South-South and North-South regressions. That is, a host country with a similar sized economy to that of a home economy attracts FDI, after controlling for manufacturing exports. It is shown here that a one standard-deviation change in the likelihood to trade between a home and host country is associated with an approximately $249 million and $193 million in South-South and North-South FDI respectively. Unlike the baseline model, Trade likelihood is not the most important feature of the model; it is now the second most important feature in the model after the agglomeration feature.

Geographical agglomeration, captured by the spatial lag term *WFDI*, is positive and significant in the South-South and North-South regressions for all specifications. We find that a one standard deviation in geographical agglomeration should result in approximately $462 and $422 million in South-South and North-South FDI respectively. These are potentially economically significant effects and, therefore, highlight the importance of geographical agglomeration in attracting FDI regardless of the origin country. Furthermore, these findings demonstrate that capital expenditures should flow into countries and/or regions where large numbers of firms, services and industries exist in close proximity. Although the magnitude of the coefficients in the North-South specification are larger than those in the South-South specification, we do not find sufficient evidence that the coefficients are statistically different from one another.

Finally, we look at the *Economic Sentiment* coefficient estimates. The results suggest that, although economic sentiments are positively associated with South-South and North-South FDI, they are not statistically different from zero in either columns (3) and (4), nor does their inclusion significantly affect any of the other coefficient estimates. In column (3), for instance, a one standard-deviation improvement in economic sentiment is associated with 0.7 and 0.3 percent standard deviation increase of South-South and North-South FDI respectively; approximately $7 million and $5 million increases in FDI respectively. The magnitudes further make a case against the relevance of this variable in the regression. We, therefore, do not find any compelling empirical evidence for this phenomenon here. That is, the estimates are neither statistically nor economically significant.

4.4 Sensitivity Analysis

One of the challenges of macro econometric analysis is potential multicollinearity: When some individual variables are highly correlated, we might have difficulty in distinguishing between their individual effects on the dependent variable. This concern is addressed in two ways. First, a correlation matrix (seen in *Figure 16*) shows the correlation coefficients of the independent variables. Second, the Variance Inflation Factor (VIF)[43] presented in *Table 27*. The results from both approaches show no evidence of multicollinearity among the independent variables.

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[43] $VIF = \frac{1}{1-R^2}$

Where, R^2 is the coefficient of determination in linear regression. The greater the value of R^2, the greater is the VIF. Hence, greater VIF denotes greater correlation. This is in agreement with the fact that a higher R^2 value denotes a stronger collinearity. Generally, a VIF > 5 indicates a high multicollinearity.

We also assume that there is no correlation between the residuals. In other words, the residuals are assumed to be independent. We determine if this assumption is met by performing a Durbin-Watson test,[44] which is used to detect the presence of autocorrelation in the residuals of each regression in this study. We find that there is no correlation among the residuals.[45]

Furthermore, to verify the robustness of the above results, a simple sensitivity analysis is conducted. The data shows that China in particular accounts for a very large share of FDI inflows and may, therefore, bias the results, by inflating the coefficients. We check our assumptions by excluding China from the dataset and run our augmented regressions. *Table 28* presents the results from these regressions. The regression results remain unchanged, for the most part. This empirical analysis suggests that the regression results are robust. It demonstrates that the coefficients are robust even when China, which may be considered as an outlier and may have an outsized impact on the results, is filtered from the data.

4.5 Conclusions

This chapter examined a missing piece in the FDI literature. It tackled this by explicitly isolating inward FDI that has its origins in Developing countries (that is South-South inflows). Prior studies have only looked at North-South and North-North flows. More precisely, we employ a novel dataset developed from a number of sources, that tracks cross-border capital expenditures on new investments (that is, greenfield FDI) by origin and destination country. We examine which factors

[44] $DW = \sum_{t=2}^{T}(e_t - e_{t-1})^2 / \sum_{t=1}^{T} e_t^2$; where e_i are the residuals of the regression.

[45] As a rule of thumb, test statistic values between the range of 1.5 and 2.5 are considered normal. However, values outside of this range could indicate that autocorrelation is a problem. The values returned from the Durbin Watson test range between 1.74 and 1.8.

within home and host countries are associated with FDI inflows and if these factors differ for countries in the global North and South.

The findings here for some of the fundamental variables follow prior expectations. FDI, regardless of its origin is positively associated with the geographic distance between the home and host capital cities. Also, countries with shared a language and culture, that have historical links, have a strong positive association with the inflow of FDI. The likelihood for a home and host country to trade also returns with the expected results. We do not, however, find any strong evidence for market seeking motives for either South-South or North-South FDI, as was expected. We find that unlike South-South investments, North-South greenfield FDI is primarily efficiency seeking. This, we note, is beneficial for developing countries. We are able to identify this important distinction only after we control for geographical agglomeration and economic sentiments. South-South FDI, on the other hand, we find to be resource seeking. That is, investments with origins in developing countries appear to be motivated by interests in accessing and exploiting natural resources. Furthermore, FDI is deterred in host economies whose institutions differ considerably from investor economies regardless of the investment origin. That is, both North-South and South-South FDI respond negatively to poor institutions.

Taken together, the differences we find between both kinds of flows are important ones and have implications for policy. The differences are strongly conditioned on geographical agglomeration. Previous research has shown that foreign firms with origins in the North are attracted by agglomeration. We find that this is also the case for Southern investments.

Chapter 5: Conclusion and Policy Implications

This chapter concludes on the empirical work done in chapters 3 and 4 and then briefly discusses the implications of the findings for policy. Recall that in chapter 3 we examined the notion that FDI has growth-promoting effects in developing countries. To do this we explicitly incorporated structural change, which has been identified as an important source of economic growth. More specifically, we adopted a simple model that captures the heterogeneity of productive structures observed in developing countries and allows for different types of growth, while incorporating FDI. In chapter 4, employing a novel dataset that tracks cross-border capital expenditures on new investments by origin and destination country, we examined the spatial and non-spatial factors associated with FDI inflows and if these factors differ for countries in the global North and South. The policy implications of these findings are briefly discussed here.

5.1 Dual Economy Framework

The conventional framework that is used to study the impact of FDI on productivity growth predicts that developing countries should grow faster than their developed counterparts. In these models, growth depends on savings, accumulation of capital (both physical and human), and on endogenized technological change (Aghion and Howitt, 2009; Rodrik, 2013). These models, however, fail to capture the existence of multiple productive structures in developing economies. Growth analysis within this one-sector framework has been argued to yield erroneous results (Lewis, 1954; Temple, 2005; Acemoglu, 2009; Rodrik, 2014), and may be, therefore, insufficient for studying the growth-enhancing effects of FDI within a developing country context.

A more suitable framework for studying FDI within the heterogeneity of productive structures observed in developing countries may be the use of a general equilibrium approach that explicitly acknowledges the important linkages between different sectors, and which permits different types of growth experiences (Temple and Wöessmann, 2006). The basic hypothesis that emerges from this framework is that relative backwardness, coupled with FDI and structural change should promote faster growth, such that observed gaps in GDP per worker across similar countries should close up over time, given different factor endowments.

We find that accounting for structural change, something that previous models fail to do, provides more plausible estimates for the growth-enhancing effects of FDI in developing countries before and after controlling for additional variables used in growth equations. Previous studies have argued that FDI regression coefficients may be proportionally overestimated (Borensztein et al., 1998). We also find that economies which have a low level of human capital may jeopardize the role of FDI as a means for advanced technology transfer. FDI is assumed to be a vehicle for the adoption of new technologies. However, the training required to prepare the labor force to work with such technologies suggests that the technologies received by host economies may be below the skill level of the labor force, hence hurting growth. We also find that the model that accounts for heterogeneous productive structures performs better than the model that does not.

If the estimates presented here are to be believed, the main regression results indicate that FDI has a positive overall effect on productivity growth, although the magnitude of this effect depends on the absorptive capacity, that is the stock of human capital available in the host economy, and structural change. As expected, in countries with a relatively high absorptive capacity, FDI appears to perform well. However, in countries with a relatively low absorptive capacity the coefficient on the FDI variable enters the regressions with a negative sign. This indicates that the foreign investment in those developing countries may actually hurt productivity growth.

In the light of our depiction of a typology of growth outcomes in *Figure 1*, taken together, the results that emerge from this framework suggest that relative backwardness, coupled with FDI and structural change should promote faster growth, such that observed gaps in GDP per worker across similar countries should close over time, given different factor endowments.

It is possible that our empirical findings are driven in part by methodological issues. Furthermore, the framework presented here could be extended and applied in other ways. One possible extension, with more granular data, would be to identify the sectors that FDI flows into when it enters a country. This would allow us to analyze in more depth any possible linkages created by cross-border investments at both the sectoral and aggregate level.

5.1.1 South-South vs North-South FDI

Does South-South FDI differ from North-South FDI? We find that unlike South-South FDI, North-South FDI does take into account the skills, knowledge, and experience possessed by the working population within a developing country. Therefore, developing countries with higher levels of human capital are more likely to attract North-South FDI. This is interpreted to mean that North-South FDI is efficiency seeking, while South-South FDI provides no evidence to make a similar argument. Rather, we find that South-South FDI to be market seeking. That is, these investments flowing from other developing countries in appear to be motivated primarily by investor interest in accessing and exploiting natural resources. We also find that a shared language and culture facilitates cross-border investment inflows for both Northern and Southern countries. However, this relationship is stronger for Southern countries that have a historical link in the form of a language or ethnicity with developing host economies.

We also provide initial evidence that FDI from the South and the North behave in similar ways. For example, the results for the South-South regressions suggest that FDI originating in the South, which we assume to have relatively weaker institutions than their Northern counterparts and, therefore, closer in institutional distance to host countries in the South, is also deterred by weak institutions even when the source country has similar institutions. Here, we do not find a marked difference between FDI from the South and those originating in the North. The results show that institutions in the host country do matter to an investor regardless of the source country.

In general, the results presented here demonstrate that FDI-growth empirical analysis could benefit from a closer engagement with dual economy-like models. This study is an attempt to fill a gap in the literature. Several studies on bilateral FDI flows have only empirically examined either the North-South or the North-North FDI relationship. The work done here incorporates South-South FDI exchanges and empirically examines if FDI inflows from the South differ from those that originate in the North. This is done by employing a novel dataset, which is analyzed using the gravity equation. This dataset, aside from identifying the source-country of FDI flows, also includes annual capital expenditures on greenfield investments. Finally, we demonstrate that geographical agglomeration plays an important role in attracting FDI from other developing countries as well. Past research has shown this to be case for North-South and North-North FDI; we provide empirical evidence for South-South FDI here.

This study inevitably has a number of limitations. First, our sample data covers a thirteen-year period (2003-2015) for which greenfield FDI data were available. We would have preferred to have data that covered the years before 2003 and after 2015. However, this was not the case[46]. Future studies should attempt to use datasets that cover longer time periods. Second, some of our control variables are not entirely satisfactory. For instance, the variable that proxies for institutional distance is a

[46] Data for the years before 2003 do not exist form the source and data after 2015 was more expensive to obtain.

subjective measure, even though it is arrived at using quantitative data and methodologies. Third, there may be better suited control variables that could be employed in this study to capture investment motivations. For example, to capture resource seeking motivation of FDI, a variable that measures relative skill share in an economy may be better suited. Fourth, it is obvious that narratives play an important role in affecting economic decisions and events. Although a good attempt is made to measure economic sentiment, the use of Term Frequency–Inverse Document Frequency (TF-IDF) vectorizer, and eventually a dimensionality reducing technique, to build the model may yield a more accurate way to capture economic narratives. Also, the data used to calculate economic sentiment may not be representative and, therefore, biased. We recommend using various sources of text data, including social media and financial news articles. Finally, our analysis is limited to North-South and South-South relations. It can easily be extended to include a South-North dimension.

5.2 Policy Implications

The results from this work may have some consequences for policymakers. We, therefore, conclude by highlighting a few policy implications that can be inferred from the empirical work. These can be grouped into three broad components: 1) host country policies, 2) home country policies, and 3) regional policies.

5.2.1 Host country policies

The empirical findings underscore the vital role that human capital plays both in attracting FDI and impacting productivity growth in developing countries. Governments, therefore, need to provide good quality and appropriate education to realize any benefits from inward FDI. In the context of attracting FDI and improving the impact of FDI on productivity growth, developing country governments need to clearly define what an 'appropriate' education means and how it can be realized fairly quickly. This does not just involve following a normal development strategy, but also one which considers how FDI fits in. But it is quickly obvious that the pursuit and attainment of these policy goals should exclude developing countries from the need of using FDI to move up the development ladder. So, we are forced to ask if it makes sense for host countries to employ incentives that are aimed at attracting FDI or directly target development? The work done here has a key finding: North-South investors are motivated by the benefits that access to factors that foster increased competitiveness in international markets. That is, production is broken up into processes consisting of different factor intensities. On the other hand, South-South FDI is largely resource-seeking in its motivations. This difference between North-South and South-South FDI have different consequences for how FDI affects employment and productivity growth in a host economy.

Resource-seeking FDI, although important in terms of value-added in certain countries, is not known to generate large number of new jobs. On the other hand, efficiency-seeking FDI in manufacturing may have significant employment effects for low-skilled workers (te Velde, 2004). This is particularly important for developing countries because efficiency-seeking FDI is not only a source a capital, but it also creates new jobs that are more diversified with relatively greater productivity and value. It potentially also leads to expertise and technology transfers, promoting research and development, and economic upgrading. Hence, if host country governments seek to attract FDI, then these policies should target a number of objectives, including

a) encouraging foreign investors to utilize advanced technologies that will foster the transformation of the traditional sector and promote the modernization of agriculture. This should lead to rapid structural transformation and upgrading.

b) generating and increasing the level of manufactured exports. This implies that these policies must reduce the exports of raw materials/natural resources. Our findings lead us to conclude that North-South FDI is primarily efficiency-seeking. Host country governments should invest in developing industrial clusters with the aim of promoting geographical agglomeration of industries locally and regionally, and competition among foreign investors. This can help develop the capacities to increase FDI, which in turn leads to more FDI, creating a virtuous cycle.

c) protecting domestic firms and industries. Our results show that they play an important role in productivity growth alongside inward FDI and structural change. Therefore, host country policies should incorporate preventing crowding-out effects as they seek to absorb the technologies embodied by FDI. For example, policies that encourage domestic firms to compete with the wages and salaries paid by their foreign counterparts. This way it can encourage technology transfer in the form of employees moving from foreign firms to local firms. This can come in form of extended tax breaks and incentives for domestic firms to which foreign firms do not have access, government funded parental leave for employees of domestic firms in industries with rival foreign firms, extending similar incentives to domestic firms that foreign firms receive, and requiring collaboration and technical support in many forms between foreign and domestic firms.

Although developing countries have embraced FDI from other developed countries, there is some skepticism among African countries towards FDI from the North and little to none towards those from the South. This skepticism is driven partially by colonial histories on the continent that have taken root in core political ideology. On the other hand, on the Sub-Saharan African continent, there appears to be an "eyes-shut-open-arms" approach towards FDI from other developing countries such as China, India, and South Africa. Here we have identified South-South FDI as primarily resource-seeking. This extractive kind of FDI may not realize the benefits that these governments hope for and has led some to believe that these exchanges are a form of neo-colonial relationships. This has led some to call for a "sitting on the fence" approach with relation to FDI, particularly in extractive industries. Therefore, host country policy must implement good governance and regulation of these kind of investments from the South.

5.2.2 Home country policies

Although this study does not focus on the outcomes of FDI in home countries, home country policy decisions can still play a key role in driving outward FDI and hence enabling productivity growth within host countries. In general, home country policies can be expected to promote the interests of the home country's economy. Therefore, the governments within these countries, particularly those from the South, should have full autonomy over the design and implementation of their policies. Home country governments can work with governments in host countries by offering them technical assistance that will enable them develop capacities which in turn will foster an investment friendly climate. For example, since weak institutions act as a deterrent to FDI, developed country governments can provide anti-corruption initiatives (such as open government partnerships) that directly and indirectly address state capture and anti-democratic incentives and behaviors in Developing countries.

Home country governments can also help by encouraging domestic content requirements to ensure that these foreign firms create the platform for technology transfer. This can be good foreign policy for these home-country governments to bolster relationships with countries in developing countries beyond the old paradigm of foreign aid with strings attached.

5.2.3 Regional policies

Since there exists an interdependence in FDI across regions due to agglomeration economies, international organizations, such as the ADB (in both Asia and Africa) and the World Bank, should work with individual governments in developing countries to help them forge some sort of market or regional cooperation and integration. Such regional policies can influence infrastructure spending on transportation, renewable-energy and communication networks, which in turn may contribute to reducing the frictions from distance and hence increase labor participation and market efficiency. These policies must also be proactive to find ways to mitigate the negative effects, such as job loss, that arise from economic integration. This may include sector specific policies, similar to the Common Agricultural Policy (CAP), that protects domestic workers within specific sectors.

Furthermore, as mentioned earlier (in section 5.2.1), the "eyes-shut-open-arms" approach taken by developing countries towards Southern FDI from other developing countries such as China, India, and South Africa needs to be tackled not just at the individual country, but at the regional level. This is particularly important to prevent a race to the bottom as we have witnessed on the African continent. The Sino-African relations, in particular, have made it difficult for individual countries to form policies that counter the "perceived" threat of neo-colonialism through the rapid economic expansion on the African continent. African regional and subregional communities, such as the African Union (AU), Economic Community of West African States (ECOWAS) and Common Market for Eastern and Southern Africa (COMESA), should collaborate to develop policies that ensure that their sovereignty over natural resource extraction is used to create more equal exchanges that result in mutual benefit for both parties. Again, this design must be done at the regional or subregional level to prevent a race to the bottom. This could also help shift the power asymmetry that exists between

China and some African countries. This is very important and can help African countries and could result in more equitable trade and investment outcomes.

Tables and Figures

Table 1: Overview of the Micro Literature

	Author(s)	Country	Year	Data[a]	Aggregation[b]	Result[c]
1	Blomstrom and Persson (1983)	Mexico	1970	CS	Industry	+
2	Blomstrom (1986)	Mexico	1970/1975	CS	Industry	+
3	Haddad and Harrison (1993)	Morocco	1985-89	Panel	Firm and Industry	?
4	Blomstorm and Wolff (1994)	Mexico	1970/1975	CS	Industry	+
5	Kokko (1994)	Mexico	1970	CS	Industry	+
6	Kokko (1996)	Mexico	1970	CS	Industry	+
7	Kokko et al. (1996)	Uruguay	1990	CS	Firm	?
8	Blomstrom and Sjoholm (1999)	Indonesia	1991	CS	Firm	+
9	Sjoholm (1999a)	Indonesia	1980-91	CS	Firm	+
10	Sjoholm (1999b)	Indonesia	1980-91	CS	Firm	+
11	Chuang and Lin (1999)	Taiwan	1991	CS	Firm	+
12	Aitken and Harrison (1999)	Venezuela	1976-89	Panel	Firm	-
13	Kathuria (2000)	India	1976-89	Panel	Firm	?
14	Kokko et al. (2001)	Uruguay	1988	CS	Firm	?
15	Kugler (2001)	Colombia	1974-98	Panel	Industry	?
16	Buckley et al. (2002)	China	1995	CS	Firm	?, +
17	Wei and Liu (2006)	China	1998-2001	Panel	Firm	+
18	Abraham et al. (2010)	China	2002-2004	Panel	Firm	+
19	Takii (2011)	Indonesia	1990-2003	Panel	Firm	?,+
20	Du et al. (2011)	China	1998-2003	Panel	Firm	?
21	Wang et al. (2016)	China	1998-2009	Panel	Industry	+
22	Hoang et al. (2020)	Vietnam	?	Panel	Firm and Industry	+
23	Yongchang (2020)	China	2009-2018	Panel	Firm	+

Source: Navaretti, G. B., & Venables, A. J. (2005). Multinational Firms in the World Economy. Princeton: Princeton University Press.
Extended and updated by the author
Notes. (a) Data: CS denotes cross-sectional data. (b) Aggregation: use of either Industry- or Firm-level data in the analysis. (c) Result: regression analysis finds a '+' (positive and statistically significant), '- '(negative and statistically significant), '?' (mixed results or statistically insignificant sign on the FDI variable).

Table 2: Overview of the GGDC 10-Sector Database

Economic Activities Distinguished (ISIC Rev. 3.1 Code):	
	1. Agriculture, hunting & forestry, fishing (A+B) 2. Mining and quarrying (C) 3. Manufacturing (D) 4. Electricity, gas & water supply (E) 5. Construction (F) 6. Wholesale and retail trade, repair of motor vehicles, motorcycles and personal and household goods, hotels & restaurants (G+H) 7. Transport, storage & communications (I) 8. Finance, insurance, real estate and business services (J+K) 9. Public administration and defense, education, health & social work (L, M, N) 10. Other community, social and personal service activities, activities of personal households (O, P)
Countries Included:	
	SSA: Botswana, Ethiopia, Ghana, Kenya, Malawi, Mauritius, Nigeria, Senegal, South Africa, Tanzania, Zambia Asia: China, Hong Kong, India, Indonesia, Korea (Rep. of), Malaysia, Philippines, Singapore, Taiwan, Thailand LA: Argentina, Bolivia, Brazil, Chile, Colombia, Costa Rica, Mexico, Peru, Venezuela MENA: Egypt, Morocco

Source: Timmer, M. P., de Vries, G. J., & de Vries, K. (2015). Patterns of Structural Change in Developing Countries. In J. Weiss, & M. Tribe, Routledge Handbook of Industry and Development (pp. 65-83). Routledge

Table 3: Economywide Productivity in the Era of Globalization

Country	Economywide productivity (2005 PPP $)	Sector with highest labor productivity*		Sector with lowest labor productivity*		Compound annual growth rate of economywide productivity
Latin America		Sector	Labor Productivity	Sector	Labor Productivity	(1990-2010)
Colombia	16,238.64	uti	263,077.80	ag	7104.45	0.25%
Chile	10,671.77	min	57,193.64	trade	4239.60	2.86%
Costa Rica	5,389.50	trans	9,042.06	ag	3099.65	1.14%
Mexico	174.62	min	3,249.83	per	42.49	-0.31%
Argentina	33.98	min	262.50	per	13.17	1.93%
Venezuela	28.19	min	232.28	ag	12.46	-0.57%
Peru	24.68	uti	156.94	ag	7.23	1.76%
Brazil	20.35	uti	216.54	per	6.40	0.68%
Bolivia	17.59	min	284.77	con	6.31	0.73%
Asia						
South Korea	33,761.31	uti	299,523.10	ag	17,019.06	3.21%
Indonesia	31,313.01	min	292,720.20	ag	10,734.49	2.81%
Taiwan	1,104.96	min	30,024.21	con	320.07	3.34%
Hong Kong	430.49	uti	2,779.42	ag	81.93	3.24%
Thailand	213.38	min	6,272.24	govt	43.52	2.95%
Philippines	192.53	uti	1,897.55	per	56.33	1.53%
India	101.67	uti	792.91	ag	29.91	4.74%
Singapore	90.47	uti	263.52	ag	10.16	2.08%
Malaysia	54.77	min	1,155.98	con	18.87	3.04%
China	39.85	uti	247.12	per	7.28	9.71%
SSA						
Zambia	14,223.23	bus	112,910.30	ag	1,843.30	3.20%
Senegal	1,057.08	uti	67,471.10	ag	362.67	1.02%
Tanzania	968.83	con	7,315.61	per	345.02	1.90%
Mauritius	367.28	min	732.88	per	235.11	3.62%
Nigeria	348.63	min	44,710.53	per	68.44	1.66%
South Africa	104.88	uti	380.97	ag	18.98	1.47%
Kenya	99.94	min	1,177.57	ag	49.32	-0.51%
Botswana	78.99	min	745.71	ag	5.87	1.87%
Malawi	72.58	min	1,810.97	ag	33.30	1.53%
Ethiopia	3.99	uti	72.71	ag	2.25	2.58%
Ghana	2.02	uti	9.69	trade	0.93	3.09%
MENA						
Morocco	64.37	bus	564.98	govt	28.78	1.07%
Egypt	31.95	min	3,230.71	govt	11.11	1.86%

Note: Author's calculations based on data from GGDC 10-sector database. All values are for 2010 unless otherwise stated.
**All data are calculated for 2010 unless otherwise stated.*

Table 4: Data Description

Variable	Explanation	Source
Dependent Variable		
y	Log of economywide labor productivity growth	Author's calculations based on data from Groningen Growth and Development Centre (GGDC) 10-sector database.
Conditioning Variables		
initial y	Log of economywide labor productivity growth at the start of the period	Author's calculations based on data from GGDC 10-sector database.
FDI	Log of Foreign Direct Investment Inflows as a share of Gross Domestic Product (GDP)	Authors' calculations based on data from UNCTAD Statistics and Total Economy Database (TED)
hk	A dummy variable for Human capital index, based on years of schooling and returns to education (where 1 = high absorptive capacity, and 0 = otherwise).	Author's calculations based on data from Penn World Tables (PWT) 9
GC	Log of government consumption as a share of GDP at current PPPs	PWT 9 database
Convg	The product of the ratio of modern sector productivity in the US to modern sector productivity in country *i*, the productivity of labor in the modern sector relative to the economy and the share of employment in the modern sector	Author's calculations based on data from GGDC 10-sector database.
Rel	Difference in the productivity of labor in both sectors relative to the economywide productivity multiplied by the share of employment in the modern sector	Author's calculations based on data from GGDC 10-sector database.
DI	Log of gross fixed capital formation as a share of GDP at current PPPs	PWT 9 database
pi	Nominal inflation rate	World Development Indicators (WDI) database
T_open	Ratio of total exports plus total imports to GDP	WDI database
F_open	Index measuring a country's degree of capital account openness based on data from the International Monetary Fund's Annual Report on Exchange Arrangements and Exchange Restrictions (AREAER)	Chinn-Ito Index (Chinn, Menzie D. and Hiro Ito (2006). "What Matters for Financial Development? Capital Controls, Institutions, and Interactions," Journal of Development Economics, Volume 81, Issue 1, Pages 163-192 (October))

Table 5: Summary Statistics

Variable	**Obs**	**Mean**	**Std. Dev.**	**Min**	**Max**
y	1220	4.94	2.56	-0.09954	10.42707
y_{70}	1230	5.07	2.62	0.961296	9.398111
hk	1230	0.45	0.50	0	1
FDI	1217	0.01	0.02	-0.03159	0.202919
DI	1185	2.96	0.69	1.24E-05	4.605576
pi	1204	2.41	1.22	-2.74793	9.371663
GC	1230	0.16	0.08	0.016492	0.551213
F_open	1212	-0.26	1.42	-1.8948	2.38919
T_open	1176	0.40	0.53	0.023488	4.834753
Convg	1220	0.02	3.23	-9.75532	5.292426
ROL	1220	1.20	0.55	-1.32011	4.643911

Table 6: Correlation Matrix

	y	y_{70}	*hk*	*FDI*	*DI*	*pi*	*GC*	*F_open*	*T_open*	*Convg*	ROL
y	1										
y_{70}	0.89	1									
hk	0.20	0.17	1								
FDI	0.06	0.05	0.40	1							
DI	0.02	-0.002	0.06	0.08	1						
pi	-0.06	-0.07	-0.16	-0.28	-0.12	1					
GC	-0.08	-0.11	-0.11	-0.15	-0.04	-0.02	1				
F_open	0.11	0.16	0.08	0.40	0.04	-0.34	-0.22	1			
T_open	0.10	0.10	0.47	0.79	0.10	-0.32	-0.11	0.40	1		
Convg	-0.91	-0.81	-0.27	-0.07	-0.01	0.06	0.01	-0.05	-0.06	1	
ROL	0.004	-0.01	0.24	0.46	0.02	-0.13	-0.13	0.26	0.34	0.06	1

Table 7: Fixed-Effects Estimates (without Structural Change)

y	(1)	(2)	(3)	(4)	(5)
y_{70}	--	--	--	--	--
hk	-0.00747	-0.00667	-0.00569	0.00209	-0.0124
	(0.0250)	(0.0254)	(0.0255)	(0.0243)	(0.0249)
FDI	-1.775	-1.733	-1.757	-4.153**	-2.270
	(1.399)	(1.427)	(1.429)	(1.360)	(1.392)
*hki*FDI*	5.011***	5.111***	5.158***	3.779**	5.709***
	(1.333)	(1.358)	(1.365)	(1.313)	(1.333)
DI	0.0461***	0.0489***	0.0487***	0.0513***	0.0418***
	(0.0102)	(0.0103)	(0.0103)	(0.00984)	(0.0101)
pi		0.00644	0.00599	0.00377	0.000820
		(0.00754)	(0.00764)	(0.00722)	(0.00783)
GC			-0.0504	-0.214	-0.118
			(0.135)	(0.129)	(0.136)
T_open				0.284***	
				(0.0340)	
F_open					0.000615
					(0.00759)
N	1162	1139	1139	1124	1134
R_w^2	0.367	0.366	0.367	0.415	0.369
R_o^2	0.00557	0.00557	0.00587	0.0122	0.00544
R_b^2	0.00237	0.00218	0.00288	0.0109	0.00120

Robust Standard errors in parentheses
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Group variable = Country; Time variable = year. Time effects are suppressed to avoid clutter

Table 8: Fixed-Effects Estimates (with Structural Change)

y	(1)	(2)	(3)	(4)	(5)
y_{70}	--	--	--	--	--
hk	0.0634^{**}	0.0594^{*}	0.0634^{*}	0.0581^{*}	0.0556^{*}
	(0.0242)	(0.0246)	(0.0248)	(0.0236)	(0.0241)
FDI	-3.688^{**}	-3.914^{**}	-4.014^{**}	-5.908^{***}	-4.477^{***}
	(1.326)	(1.358)	(1.360)	(1.302)	(1.320)
*hki*FDI*	3.352^{**}	3.426^{**}	3.560^{**}	2.878^{*}	4.097^{**}
	(1.264)	(1.292)	(1.295)	(1.256)	(1.262)
DI	0.0413^{***}	0.0437^{***}	0.0432^{***}	0.0465^{***}	0.0364^{***}
	(0.00956)	(0.00972)	(0.00973)	(0.00936)	(0.00950)
Convg	-0.0797^{***}	-0.0804^{***}	-0.0799^{***}	-0.0661^{***}	-0.0814^{***}
	(0.0105)	(0.0107)	(0.0107)	(0.0105)	(0.0104)
Rel	0.0923^{**}	0.101^{**}	0.107^{***}	0.114^{***}	0.0981^{**}
	(0.0294)	(0.0313)	(0.0315)	(0.0302)	(0.0305)
pi		0.0111	0.00957	0.00722	0.00519
		(0.00712)	(0.00720)	(0.00687)	(0.00736)
GC			-0.176	-0.293^{*}	-0.227
			(0.129)	(0.124)	(0.129)
T_open				0.212^{***}	
				(0.0335)	
F_open					0.00280
					(0.00714)
N	1162	1139	1139	1124	1134
R_w^2	0.441	0.438	0.439	0.473	0.444
R_o^2	0.660	0.665	0.666	0.580	0.679
R_b^2	0.907	0.909	0.912	0.866	0.910

Standard errors in parentheses
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Group variable = Country; Time variable = year. Time effects are suppressed to avoid clutter

Table 9: Two-step GMM

y	(1) GMM	(2) GMM	(3) GMM	(4) GMM
Lagged y	0.761***	0.801***	0.762***	0.784***
	(0.0455)	(0.0555)	(0.0777)	(0.161)
y_{70}	0.211***	0.183***	0.209**	0.201
	(0.0407)	(0.0474)	(0.0677)	(0.131)
hk	0.0807**	0.0607	0.127**	-0.0412
	(0.0289)	(0.0310)	(0.0471)	(0.0612)
FDI	1.068***	0.944***	0.863*	0.566
	(0.211)	(0.256)	(0.342)	(0.421)
DI	0.00159	0.00177	0.00256**	0.00231**
	(0.000935)	(0.00108)	(0.000849)	(0.000855)
pi	-0.00703***	-0.00671***	-0.00837***	-0.0103***
	(0.00148)	(0.00158)	(0.00181)	(0.00195)
GC	-0.378*	-0.414*	-0.193	-0.244
	(0.182)	(0.174)	(0.169)	(0.172)
F_open	0.00249	0.00281	0.00486**	0.00298
	(0.00197)	(0.00193)	(0.00148)	(0.0100)
Convg			-0.0527***	-0.000162
			(0.00874)	(0.0169)
Rel			-0.116	0.151
			(0.0913)	(0.177)
N	1067	1067	1067	1067

Standard errors in parentheses
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Columns (2) and (4) nclude contemporaneous regressors and one lag is used as an instrument. Endogenized regressors include: FDI, Human capital, and the structural change terms.

Table 10: Quantile Regression Estimates

y	(1) .25	(2) .50	(3) .75	(4) .25	(5) .50	(6) .75
y_{70}	0.958***	0.993***	0.949***	0.370***	0.477***	0.587***
	(0.00942)	(0.00449)	(0.00931)	(0.0229)	(0.00997)	(0.0104)
hk	-0.0939	-0.0404	0.452***	0.156**	0.221***	0.207***
	(0.0492)	(0.0245)	(0.0487)	(0.0510)	(0.0330)	(0.0438)
FDI	-9.013***	6.367***	1.775	-17.27***	-2.570**	3.501***
	(1.156)	(0.542)	(0.951)	(1.196)	(0.788)	(0.882)
DI	0.0322	0.0625***	0.153***	0.0858*	0.0856***	0.121***
	(0.0330)	(0.0166)	(0.0351)	(0.0342)	(0.0213)	(0.0289)
Convg				-0.507***	-0.409***	-0.329***
				(0.0177)	(0.00783)	(0.00757)
Rel				0.525***	0.476***	0.466***
				(0.0514)	(0.0314)	(0.0338)
N	1162	1162	1162	1162	1162	1162
Pseudo R^2	0.47	0.66	0.75	0.63	0.73	0.80

Standard errors in parentheses
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 11: Data Description

Variable	Explanation	Source
Dependent Variable		
FDI	Capital Expenditures in millions of US dollars.	fDi Markets database of the Financial Times Ltd
Standard Gravity Variables		
GDP	Log of real GDP in the host country	Author's calculations based on data from the Total Economy Database (TED).
Trade Likelihood	Log of the product of Gross Domestic Product (GDP) between the host and source countries.	Author's calculations based on data from the TED.
Geo Distance	Log of geodesic distance (using geographic coordinates of the capital cities)	The GeoDist database of the Centre d'Études Prospectives et d'Information Internationales (CEPII).
Link	A variable captures two variables: First, if the host and source country share a common border. Second, if host and source country share a common language (i.e. if a language is spoken by at least 9% of the population in the host and source countries)	The GeoDist database of the CEPII.
Institutional Distance	Institutional Differences between the source and destination countries.	Author's calculation based on World Governance Indicators (WGI).
Growth Rate	Log of GDP growth rate in the host country.	Author's calculations based on data from the Total Economy Database (TED).
Labor Skill	Log of the ratio of the highest to the lowest levels of low-skilled labor in the two countries.	World Employment and Social Outlook (WESO) data by International Labor Organization (ILO).
Manufacturing Exports	Manufacturing Exports in millions of US dollars.	World Development Indicators
Human Capital	Human capital index based on the average years of schooling from Barro and Lee (BL, 2013) and an assumed rate of return to education, based on Mincer equation estimates around the world (Psacharopoulos, 1994).	Penn World Table 9.0
Conditioning Variables		
WFDI	A spatial autoregression term that captures the proximity of the observed host, *i*, to the other host countries, *k*. It is attempts to capture geographical agglomeration. It is a block matrix of dimension *nxn*, with each block capturing a single year's observations, multiplied by our dependent variable, FDI.	Author's calculations based on data from fDi Markets database of the Financial Times Ltd.

Variable	Explanation	Source
Economic Sentiment	Economic sentiment calculated using a Python library (TextBlob) to obtain polarity scores from text documents. A polarity score is a float value within the range [-1, 1] where 0 indicates neutral, +1 indicates a very positive sentiment and -1 represents a very negative sentiment. These scores are further binarized (0 for negative and 1 for positive) using a threshold.	Author's calculations based on (text) data from the annual Human Rights Reports by the U.S. Department of State.

Table 12: Descriptive Statistics, Full Sample (2003-2015)

Variable	N	mean	std	min	max
FDI	16008	182.45	768.06	0	22,365.30
Trade Likelihood	16008	1.65	5.55	0	1.45
GDP	16008	1,216,234.41	1,450,649.55	36,040.01	7,788,919.45
Growth Rate	16008	4.98	3.02	-7.82	14.05
Geo Distance	16008	7,100.72	4,441.61	139.01	19,447.35
Link	16008	0.21	0.40	0	1
Institutional Distance	16008	-0.90	1.04	-3.49	2.64
WFDI	16008	5.08	28.71	0	1,125.27
Labor Skill Index	16008	2.93	2.33	0	11.84
Economic Sentiment	16008	0.48	0.50	0	1
Manufacturing Exports	16008	39.97	28.52	0.81	95.81
Human Capital	16008	2.39	0.44	1.22	3.37

Table 13: Descriptive Statistics, South-South Sample (2003-2015)

Variable	N	mean	std	min	max
FDI	8307	195.23	825.320018	0	22,365.3
Trade Likelihood	8307	1.67	5.69	0	1.45
GDP	8307	1,204,190.67	1,418,934.68	36,040.01	7,788,919.45
Growth Rate	8307	4.93	3.02	-7.82	14.05
Geo Distance	8307	7,141.00	4,459.94	139.01	19,447.35
Link	8307	0.20	0.40	0	1
Institutional Distance	8307	-0.90	1.05	-3.49	2.64
WFDI	8307	5.58	30.72	0	1,125.27
Labor Skill Index	8307	2.92	2.31	0	11.84
Economic Sentiment	8307	0.49	0.50	0	1
Manufacturing Exports	8307	40.01	28.41	0.81	95.81
Human Capital	8307	2.39	0.44	1.22	3.37

Table 14: Descriptive Statistics, North-South Sample (2003-2015)

Variable	N	mean	std	min	max
FDI	7701	168.66	700.87	0	15697
Trade Likelihood	7701	1.62	5.38	0	1.31
GDP	7701	1,229,225.88	1,484,083.25	36,040.01	7,788,919.45
Growth Rate	7701	5.03	3.01	-7.82	14.05
Geo Distance	7701	7,057.27	4,421.63	139.01	19,447.35
Link	7701	0.21	0.41	0	1
Institutional Distance	7701	-0.90	1.04	-3.41	2.63
WFDI	7701	4.53	26.35	0	1,008.03
Labor Skill Index	7701	2.95	2.36	0	11.84
Economic Sentiment	7701	0.47	0.50	0	1
Manufacturing Exports	7701	39.94	28.64	0.81	95.81
Human Capital	7701	2.38	0.44	1.22	3.37

Table 15: South-South FDI Summary Statistics, by Country (2003-2015)

Host Country	Direction	Number of Years	mean	std	min	max
Algeria	SS	13	110.01	132.36	0	420.00
Angola	SS	12	124.54	200.27	0.14	593.94
Argentina	SS	13	93.97	90.54	5.49	289.08
Bahrain	SS	13	52.47	58.26	7.7	213.09
Bangladesh	SS	13	36.99	59.17	0	223.2
Bolivia	SS	13	41.18	56.52	0	207.33
Brazil	SS	13	487.61	360.56	14.47	1130.88
Chile	SS	13	150.48	163.16	0.45	541.76
China	SS	13	1,257.81	843.84	8.61	2,623.38
Colombia	SS	13	119.72	120.12	17.54	355.45
Costa Rica	SS	13	27.92	40.12	0	151.43
Ecuador	SS	12	20.93	21.55	0	60.71
Egypt	SS	13	171.21	126.62	20.11	406.74
Ethiopia	SS	13	20.01	29.77	0	84.87
Ghana	SS	13	75.54	97.18	0	317.49
Hong Kong	SS	13	70.42	54.15	0.02	155.41
India	SS	13	531.04	532.30	1.46	1417.84
Indonesia	SS	13	271.07	184.30	26.45	719.55
Kenya	SS	13	19.16	12.96	2.79	38.49
Malaysia	SS	13	198.90	189.88	3.11	619.77
Mexico	SS	13	403.60	332.54	34.8	1,018.25
Morocco	SS	13	62.27	47.13	5.45	156.53
Nigeria	SS	13	228.20	261.08	30.46	941.67
Peru	SS	13	139.63	112.90	21.84	413.93
Philippines	SS	13	141.62	103.40	0	337.46
Russia	SS	13	425.15	374.90	96.17	1181.45
Saudi Arabia	SS	13	234.79	259.15	51.4	985.26
South Korea	SS	13	152.11	111.96	5.45	315.80
Taiwan	SS	13	82.88	50.15	3.64	183.43
Thailand	SS	13	167.99	97.62	75.26	440.78
Turkey	SS	13	223.83	208.77	21.72	688.66
Ukraine	SS	13	91.97	75.81	2.34	260.35
Venezuela	SS	13	97.54	100.49	0	302.93
Vietnam	SS	13	392.79	391.70	17.74	1433.40

Table 16: North-South FDI Summary Statistics, by Country (2003-2015)

Host Country	Direction	Number of Years	mean	std	min	max
Algeria	NS	13	106.34	189.98	1.21	726.62
Angola	NS	12	106.97	161.44	0	464.94
Argentina	NS	13	103.46	53.36	32.96	206.54
Bahrain	NS	13	68.06	73.45	9.45	238.01
Bangladesh	NS	12	37.46	50.22	0.76	163
Bolivia	NS	11	38.75	52.90	0	163.28
Brazil	NS	13	307.03	328.01	33.19	992.67
Chile	NS	13	250.69	362.92	0	1,342.05
China	NS	13	775.96	711.41	18.01	2,496.09
Colombia	NS	13	104.91	103.16	13.85	313.52
Costa Rica	NS	13	19.30	16.70	0	44.24
Ecuador	NS	13	32.89	56.98	0	209.2
Egypt	NS	13	164.57	148.99	7.43	507.73
Ethiopia	NS	13	36.72	50.17	0	177.16
Ghana	NS	13	35.37	42.94	0	151.08
Hong Kong	NS	13	77.97	62.61	9.23	214.95
India	NS	13	398.93	433.64	1.86	1,404.72
Indonesia	NS	13	363.88	231.94	85.00	777.59
Kenya	NS	13	23.68	28.31	1.20	92.19
Malaysia	NS	13	154.92	114.99	8.69	368.10
Mexico	NS	13	320.02	258.56	14.45	655.52
Morocco	NS	13	120.80	156.59	15.38	613.85
Nigeria	NS	13	116.45	86.54	9.04	290.94
Peru	NS	13	119.91	107.61	0	296.8
Philippines	NS	13	129.63	91.60	11.36	262.28
Russia	NS	13	310.52	388.03	16.81	1,232.39
Saudi Arabia	NS	13	196.57	195.34	1.75	629.07
South Korea	NS	13	158.75	196.34	7.23	696.44
Taiwan	NS	13	74.82	68.18	0.74	195.11
Thailand	NS	13	108.50	131.34	2.05	431.65
Turkey	NS	13	147.88	101.47	12.10	306.86
Ukraine	NS	12	49.93	21.55	18.07	85.42
Venezuela	NS	13	55.99	100.10	0	335.02
Vietnam	NS	13	342.61	218.36	38.69	724.46

Table 17: South-South FDI by Region (2003-2015)

Region	Direction	FDI ($ Millions)	FDI Share
Developing Africa	SS	271,992	0.10
Developing Asia	SS	1,832,433	0.66
Eastern Europe	SS	113,993	0.04
Developing LA&C	SS	560,407	0.20

Source: fDi Markets database of the Financial Times Ltd

Table 18: North-South FDI by Region (2003-2015)

Region	Direction	FDI ($ Millions)	FDI Share
Developing Africa	NS	212,923	0.10
Developing Asia	NS	1,382,000	0.65
Eastern Europe	NS	75,715	0.04
Developing LA&C	NS	452,089	0.21

Source: fDi Markets database of the Financial Times Ltd

Table 19: Top 10 South-South FDI by Region (2003-2015)

Host Country	Direction	Region	FDI ($ Millions)	FDI (% share of GDP)
China	SS	Developing Asia	16351.48	1.12
India	SS	Developing Asia	6903.54	1.13
Brazil	SS	Developing LA	6338.89	2.04
Russia	SS	Eastern Europe	5526.98	1.47
Mexico	SS	Developing LA	5246.74	2.30
Viet Nam	SS	Developing Asia	5106.28	11.2
Indonesia	SS	Developing Asia	3523.93	1.64
Saudi Arabia	SS	Developing Asia	3052.27	2.20
Nigeria	SS	Developing Africa	2966.62	3.30
Turkey	SS	Eastern Europe	2909.84	1.80

Source: fDi Markets database of the Financial Times Ltd

Table 20: Top 10 North-South FDI by Region (2003-2015)

Host Country	Direction	Region	FDI ($ Millions)	FDI (% share of GDP
China	NS	Developing Asia	10087.44	6.91
India	NS	Developing Asia	5186.11	0.85
Indonesia	NS	Developing Asia	4730.43	2.20
Viet Nam	NS	Developing Asia	4453.94	9.76
Mexico	NS	Developing LA	4160.26	1.82
Russia	NS	Eastern Europe	4036.81	1.08
Brazil	NS	Developing LA	3991.42	1.29
Chile	NS	Developing LA	3258.93	2.56
Saudi Arabia	NS	Developing Asia	2555.41	1.84
Egypt	NS	Developing Africa	2139.38	2.54

Source: fDi Markets database of the Financial Times Ltd

Table 21: Top 10 South-South FDI (2003-2008)

Host Country	Direction	Region	FDI ($ Millions)	FDI (% share of GDP
China	SS	Developing Asia	7751.21	2.0
India	SS	Developing Asia	3564.55	1.5
Russia	SS	Eastern Europe	3027.11	2.3
Vietnam	SS	Developing Asia	2920.72	1.8
Mexico	SS	Developing LA	2224.29	2.4
Brazil	SS	Developing LA	2157.79	7.4
Nigeria	SS	Developing Africa	2078.06	2.2
Saudi Arabia	SS	Developing Asia	1841.04	4.1
Indonesia	SS	Developing Asia	1476.85	2.5
Turkey	SS	Eastern Europe	1382.39	19.2

Source: fDi Markets database of the Financial Times Ltd

Table 22: Top 10 North-South FDI (2003-2008)

Host Country	Direction	Region	FDI ($ Millions)	FDI (% share of GDP
China	NS	Developing Asia	5711.33	1.11
Russia	NS	Eastern Europe	2850.31	2.10
Vietnam	NS	Developing Asia	2220.62	14.58
Brazil	NS	Developing LA	2148.92	1.99
Indonesia	NS	Developing Asia	1839.06	2.92
Chile	NS	Developing LA	1828.53	13.08
India	NS	Developing Asia	1769.27	0.90
South Korea	NS	Developing Asia	1339.59	1.65
Mexico	NS	Developing LA	1267.3	1.39
Morocco	NS	Developing Africa	1117.17	12.87

Source: fDi Markets database of the Financial Times Ltd

Table 23: Top 10 South-South FDI (2009-2015)

Host Country	Direction	Region	FDI ($ Millions)	FDI (% share of GDP
China	SS	Developing Asia	8600.28	0.85
Brazil	SS	Developing LA	4181.1	2.07
India	SS	Developing Asia	3338.99	0.80
Mexico	SS	Developing LA	3022.45	2.21
Russia	SS	Developing Asia	2499.88	1.04
Vietnam	SS	Developing Asia	2185.56	7.19
Indonesia	SS	Developing Asia	2047.08	1.34
Chile	SS	Developing LA	1715.61	6.77
Turkey	SS	Eastern Europe	1527.44	1.41
Malaysia	SS	Developing Asia	1441.53	3.20

Source: fDi Markets database of the Financial Times Ltd

Table 24: Top 10 North-South FDI (2009-2015)

Host Country	Direction	Region	FDI ($ Millions)	FDI (% share of GDP
China	NS	Developing Asia	4376.11	0.43
India	NS	Developing Asia	3416.85	0.82
Mexico	NS	Developing LA	2892.96	2.11
Indonesia	NS	Developing Asia	2891.37	1.90
Vietnam	NS	Developing Asia	2233.32	7.35
Brazil	NS	Developing LA	1842.5	0.91
Saudi Arabia	NS	Developing Asia	1566.01	1.66
Chile	NS	Developing LA	1430.39	5.64
Egypt	NS	Developing Africa	1337.71	2.33
Malaysia	NS	Developing Asia	1266.4	2.81

Source: fDi Markets database of the Financial Times Ltd

Table 25: Baseline Regression Results

Dependent Variable: FDI Two-Way Fixed Effects		
Baseline Model		
	(1)	(2)
GDP	-0.0162	-0.0179
	(-0.0215)	(-0.0215)
Growth Rate	0.0425***	0.0397***
	(-0.0098)	(-0.0097)
Geo Distance	-0.0521***	-0.0563***
	(-0.0079)	(-0.0095)
Trade Likelihood	0.6136***	0.5210***
	(-0.0656)	(-0.0848)
Link	0.0749***	0.0643***
	(-0.0103)	(-0.0111)
Institutions Difference	-0.1211***	-0.1254***
	(-0.0076)	(-0.0092)
Labor Skill Index	0.0122	-0.0143
	(-0.0104)	(-0.0095)
Human Capital	0.0458***	0.0504***
	(-0.0066)	(-0.0069)
Manufacturing Exports	0.0459***	0.0476***
	(-0.0073)	(-0.0091)
No. Observations:	9903	9254
No. Countries	31	31
R^2:	0.398	0.29
Covariance Type:	Robust	Robust

note:

Std. error in parentheses.

** p<.1, ** p<.05, ***p<.01*

Table 26: Augmented Regression Results

Dependent Variable: FDI Two-Way Fixed Effects				
Augmented Model				
	(1)	(2)	(3)	(4)
GDP	0.0164	0.0061	0.0163	0.0058
	(-0.0126)	(-0.0122)	(-0.0126)	(-0.0122)
Growth Rate	0.005	0.0237**	0.0038	0.0228**
	(-0.0089)	(-0.0092)	(-0.0089)	(-0.0092)
Geo Distance	-0.0165**	-0.0346***	-0.0169**	-0.0351***
	(-0.0083)	(-0.0086)	(-0.0083)	(-0.0086)
Trade Likelihood	0.3018***	0.2747***	0.3017***	0.2747***
	(-0.0528)	(-0.0518)	(-0.0528)	(-0.0518)
Link	0.0640***	0.0380***	0.0638***	0.0376***
	(-0.0111)	(-0.0108)	(-0.0111)	(-0.0108)
Institutional Difference	-0.0661***	-0.0569***	-0.0670***	-0.0577***
	(-0.0088)	(-0.0085)	(-0.0089)	(-0.0086)
Labor Skill Index	-0.0186*	-0.0169**	-0.0185*	-0.0165**
	(-0.0106)	(-0.0076)	(-0.0107)	(-0.0077)
Human Capital	0.0052	0.0210**	0.0068	0.0225***
	(-0.0096)	(-0.0082)	(-0.0095)	(-0.0086)
Manufacturing Exports	0.0283***	0.0161**	0.0300***	0.0174**
	(-0.0072)	(-0.0075)	(-0.0072)	(-0.0076)
WFDI	0.5603***	0.6019***	0.5605***	0.6021***
	(-0.0915)	(-0.1218)	(-0.0915)	(-0.1218)
Economic Sentiment			0.008	0.0074
			(-0.0074)	(-0.0073)
No. Observations:	8307	7701	8307	7701
No. Countries	28	28	28	28
R^2:	0.538	0.551	0.538	0.551
Covariance Type:	Robust	Robust	Robust	Robust

note:

Std. error in parentheses.

** p<.1, ** p<.05, ***p<.01*

Table 27: Variance Inflation Factor

Variable	VIF
Trade Likelihood	1.36
GDP	1.30
Growth Rate	0.95
Geo Distance	1.18
Link	1.08
Institutions Difference	1.01
WFDI	1.12
Labor Skill Index	1.09
Economic Sentiment	1.02
Manufacturing Exports	1.00
Human Capital	0.28

Note: VIF is calculated using the python statsmodel library

Table 28: Sensitivity Analysis

	Dependent Variable: FDI Two-Way Fixed Effects	
Sensitivity Analysis		
	(1)	(2)
GDP	0.0039	-0.0171
	(-0.0153)	(-0.0153)
Growth Rate	0.0027	0.0186**
	(-0.009)	(-0.0093)
Geo Distance	-0.0235***	-0.0404***
	(-0.0084)	(-0.0086)
Trade Likelihood	0.3141***	0.3175***
	(-0.0584)	(-0.0563)
Link	0.0600***	0.0338***
	(-0.0106)	(-0.0103)
Institutions Difference	-0.0636***	-0.0524***
	(-0.0082)	(-0.0081)
Labor Skill Index	-0.0105	-0.0042
	(-0.0106)	(-0.0081)
Human Capital	0.0055	0.0248***
	(-0.0097)	(-0.0086)
Manufacturing Exports	0.0296***	0.0158**
	(-0.0075)	(-0.0076)
WFDI	0.5454***	0.5776***
	(-0.0918)	(-0.1223)
Economic Sentiment	0.0091	0.0035
	(-0.0075)	(-0.0072)
No. Observations:	8132	7552
No. Countries	27	27
R^2:	0.538	0.567
Covariance Type:	Robust	Robust

note:

Std. error in parentheses.

** p<.1, ** p<.05, ***p<.01*

		Structural Change	
		Slow	Rapid
Ω	Slow	No growth	Episodic growth
	Rapid	Slow/Moderate growth	Rapid, sustained growth

Source: Rodrik, D. (2014). An African Growth Miracle? NBER Working Paper.

Notes: Ω denotes Investment in proximates and fundamentals (i.e. FDI and human capital)

Figure 1: A Typology of Growth Outcomes

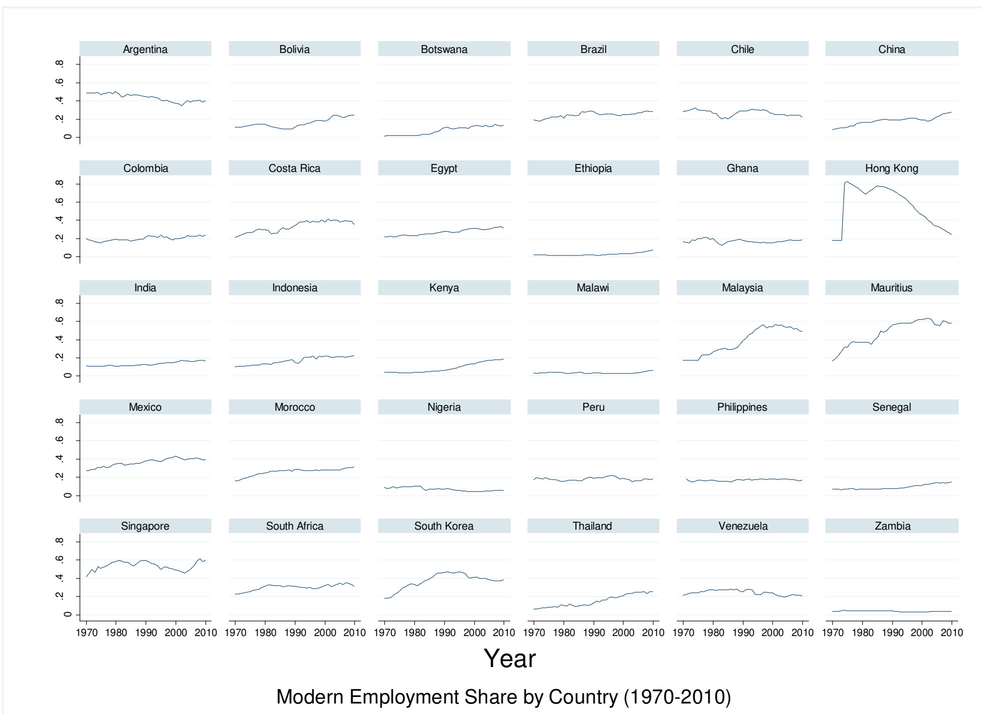


Figure 2: Evolution of Modern Sector Productivity (% share)

Figure 3: Evolution of Traditional Sector Productivity (% share)

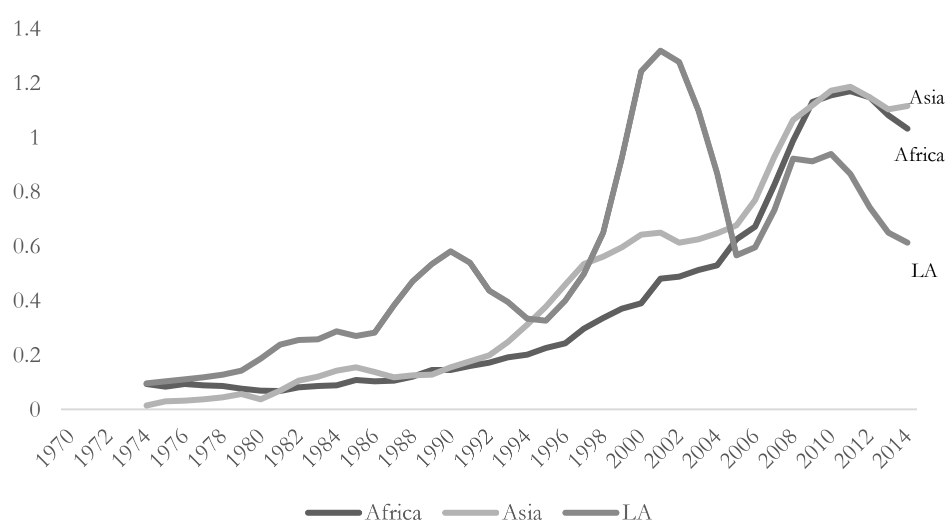
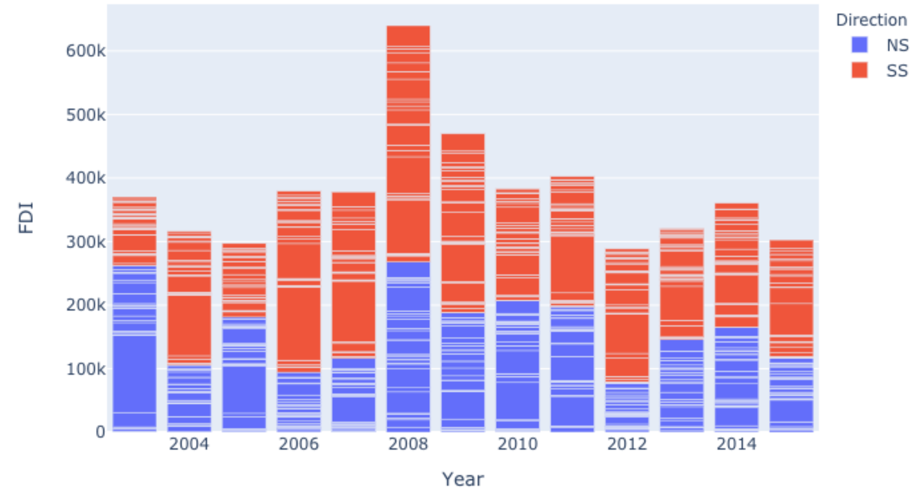
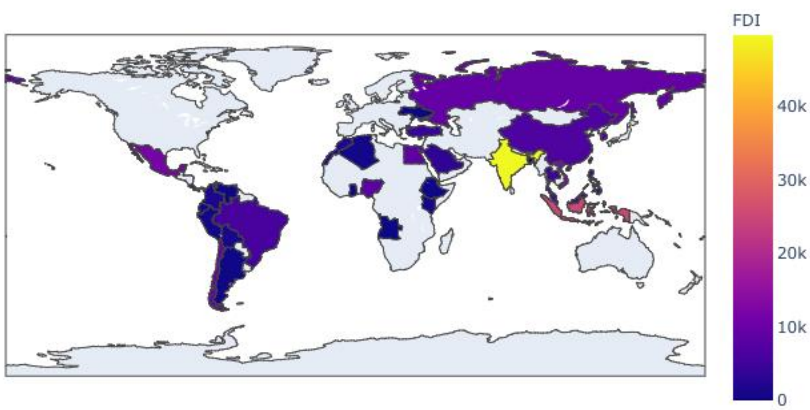


Figure 4: FDI Inflows as a % Share of GDP by Region (5-Year Moving Average)



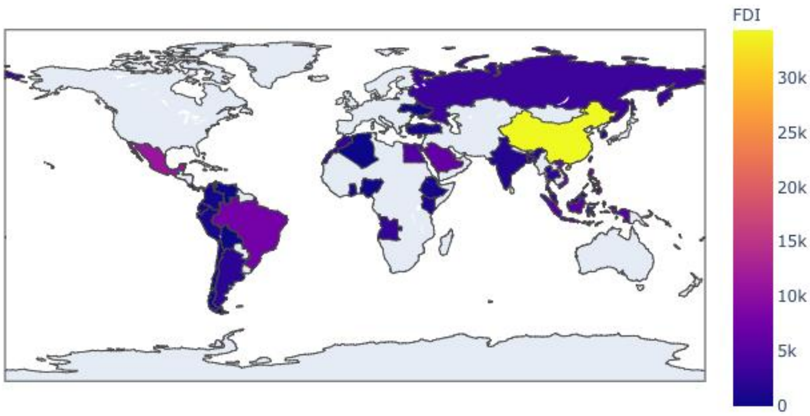
Source: fDi Markets database of the Financial Times Ltd

Figure 5: North-South vs South-South FDI (2003-2015)



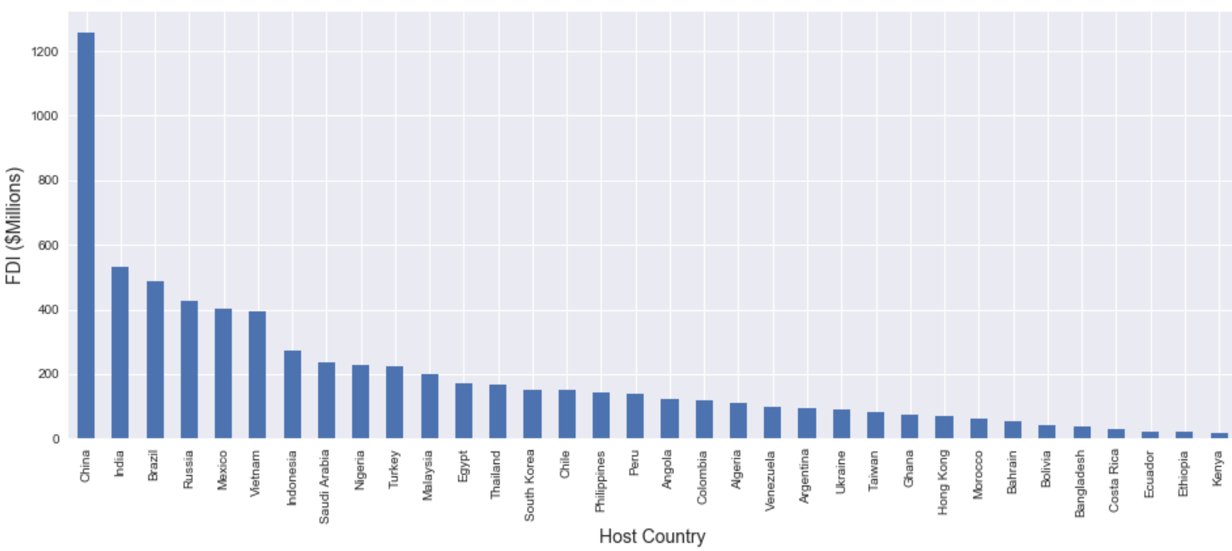
Source: fDi Markets database of the Financial Times Ltd

Figure 6: Total South-South Greenfield FDI Inflows by Country (2015)



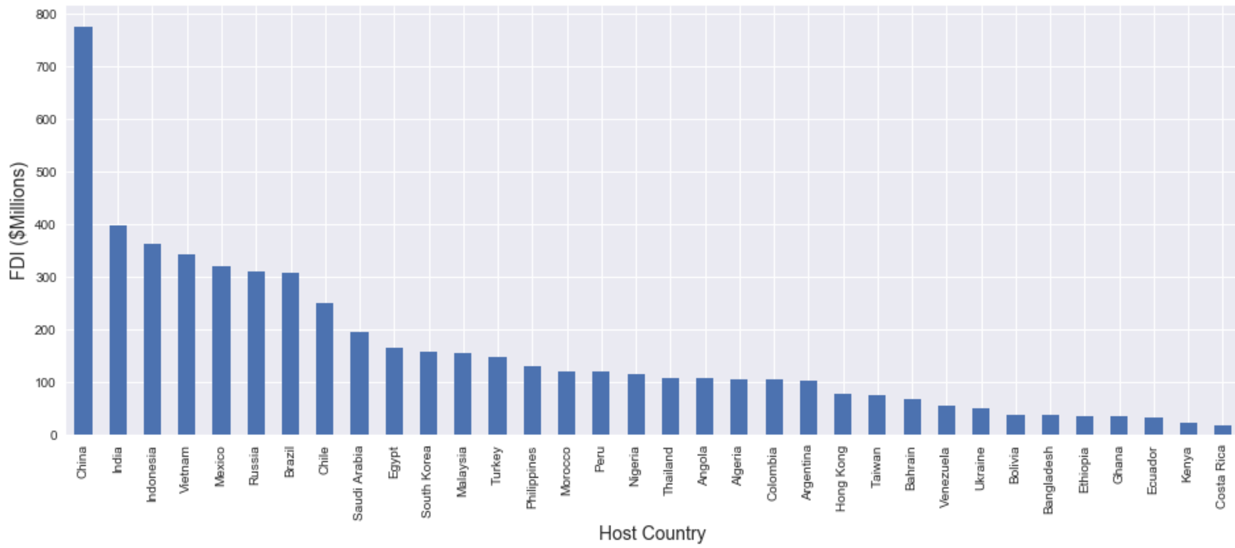
Source: fDi Markets database of the Financial Times Ltd

Figure 7: Total North-South Greenfield FDI Inflows by Country (2015)



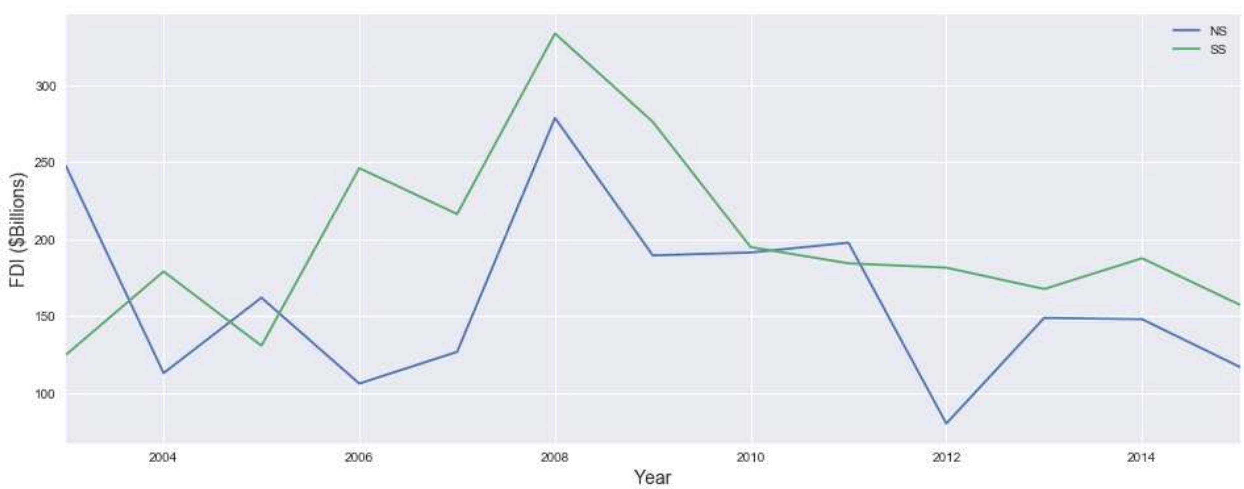
Source: fDi Markets database of the Financial Times Ltd

Figure 8: Average South-South FDI Flows between 2003-2015 (USD Millions)



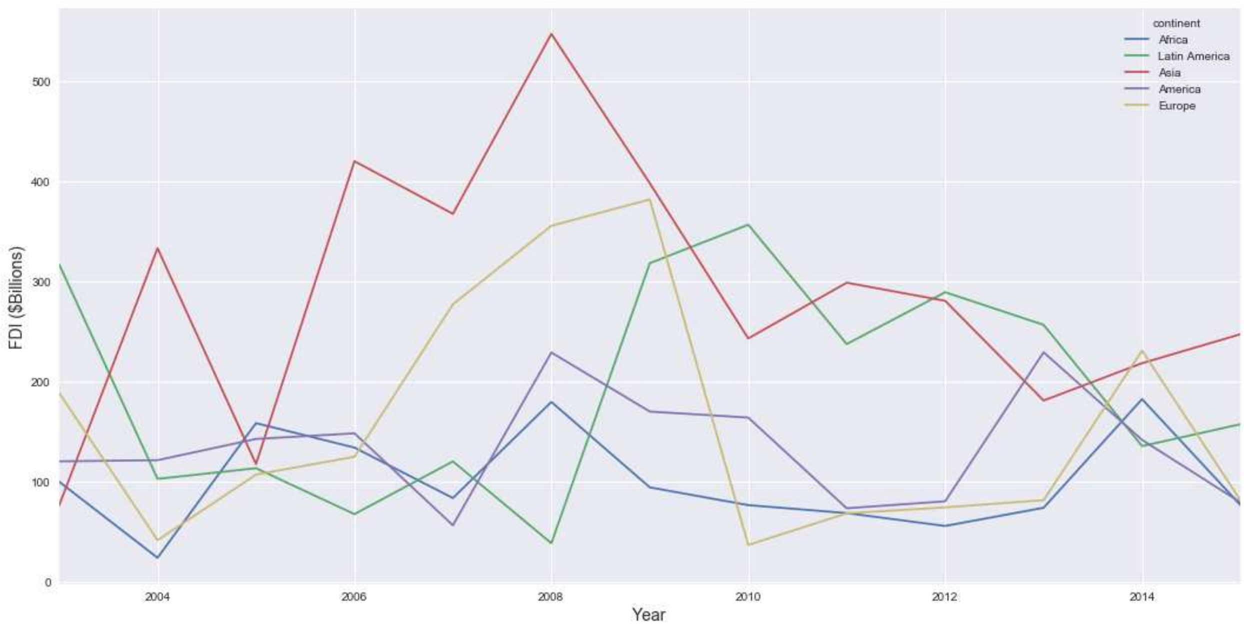
Source: fDi Markets database of the Financial Times Ltd

Figure 9: Average North-South FDI Flows between 2003-2015 (USD Millions)



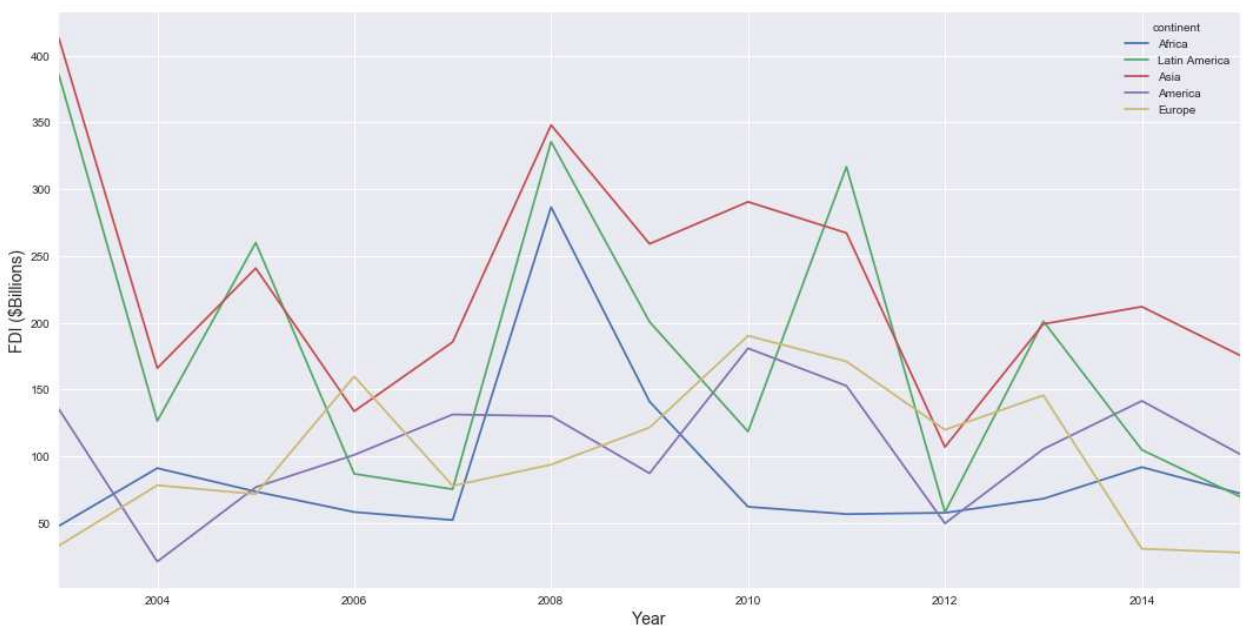
Source: fDi Markets database of the Financial Times Ltd

Figure 10: South-South vs. North-South: Average FDI Flows (2003-2015)



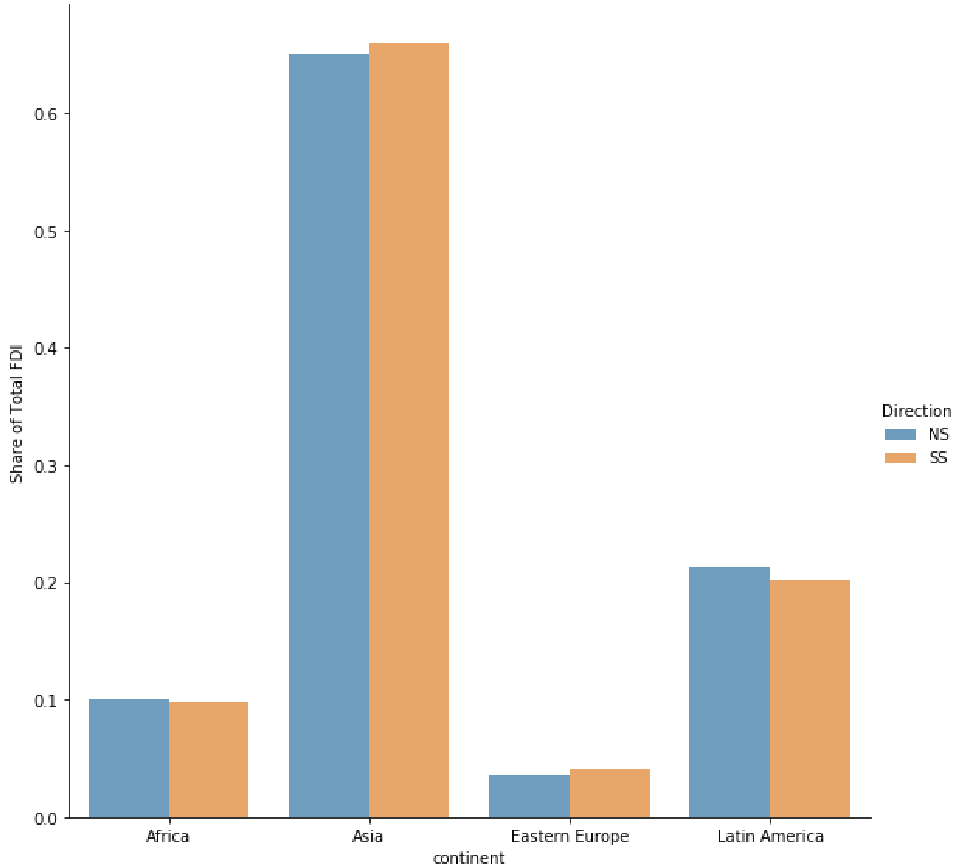
Source: fDi Markets database of the Financial Times Ltd

Figure 11: Average South-South FDI by region (2003-2015)



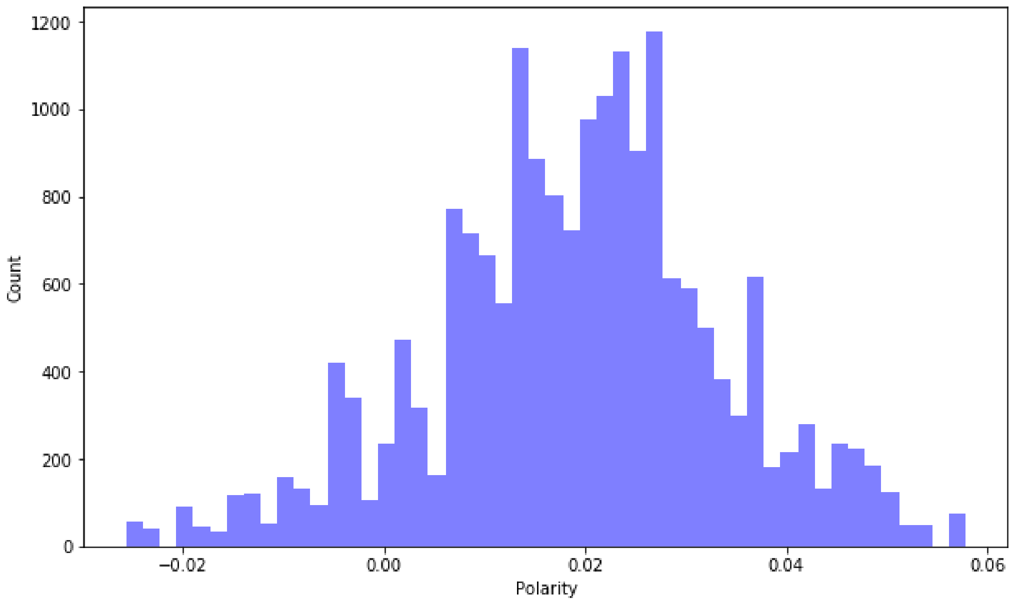
Source: fDi Markets database of the Financial Times Ltd

Figure 12: Average North-South FDI by region (2003-2015)

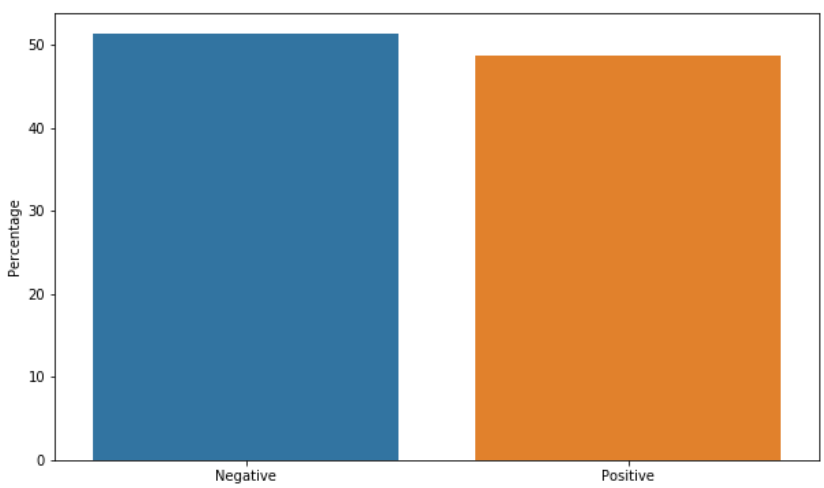


Source: fDi Markets database of the Financial Times Ltd

Figure 13: Share of Total FDI by Region (2003-2015)



Source: Author's calculations based on data from the annual Human Rights Reports by the U.S. Department of State.
Figure 14: Distribution of Polarity Scores[47]



Source: Author's calculations based on data from the annual Human Rights Reports by the U.S. Department of State.
Figure 15: Distribution of the Economic Sentiment Variable

[47] A polarity score is a float value within the range [-1, 1] where 0 indicates neutral, +1 indicates a very positive sentiment and -1 represents a very negative sentiment. These scores are further binarized (0 for negative and 1 for positive) using a threshold.

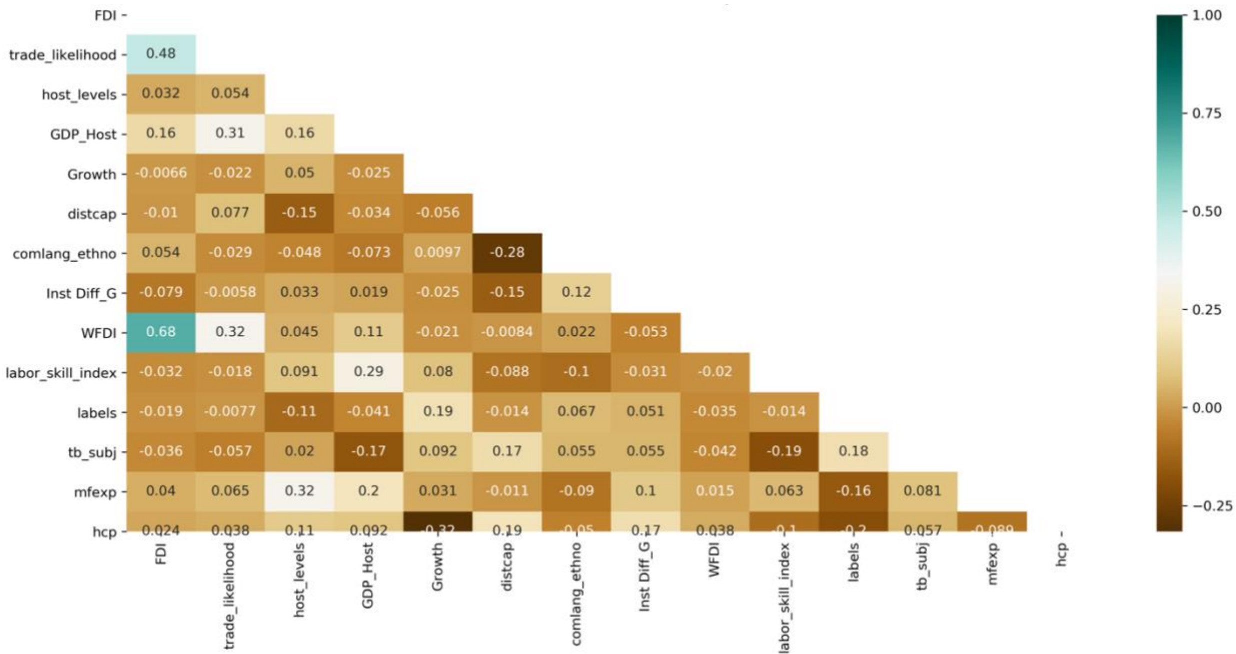


Figure 16: Correlation Matrix

References

Abraham, F., Konings, J., & Slootmaekers, V. (2010). FDI Spillovers in the Chinese Manufacturing Sector: Evidence of Firm Heterogeneity. *Economics of Transition*, 143-182.

Acemoglu, D. (1997). Training and Innovation in an Imperfect Labor Market. *The Review of Economic Studies, 64*(3), 445-464.

Acemoglu, D. (2009). *Introduction to Modern Economic Growth.* Princetion: Princeton University Press.

Adams, S. (2009). Foreign Direct investment, domestic investment, and economic growth in Sub-Saharan Africa. *Journal of Policy Modeling, 31*(6), 939-949.

Aggarwal, R. (1982). Foreign Operations of Third World Multinationals: A Literature Review and Analysis of Indian Companies. *Journal of Developing Areas, 17*(1), 13-30.

Aghion, P., & Howitt, P. (2009). *The Economics of Growth.* Cambridge: MIT Press.

Agosin, M. R., & Machado, R. (2007). Foreign Investment in Developing Countries: Does it Crowd in Domestic Investment? *Oxford Development Studies, 33*(2), 149-162.

Aitken, B. J., & Harrison, A. E. (1999). Do Domestic Firms Benefit from Direct Foreign Investment? Evidence from Venezuela. *American Economic Review* , 605-618.

Akinlo, A. E. (2004). Do Domestic Firms Benefit From Direct Foreign Investment? *Journal of Policy Modeling, 26*(5), 627-639.

Akyuz, Y. (2015). *Foreign Direct Investment, Investment Agreements, and Economic Development.* Geneva: South Center.

Alesina, A., Spolaore, E., & Wacziarg, R. (2005). Trade, growth and the size of countries. *Handbook of economic growth, 1*, 1499-1542.

Alexsynska, M., & Havrylchyk, O. (2012). FDI from the South: The role of institutional distance. *European Journal of Political Economy*, 38-53.

Alfaro, L., & Chanda, A. (2006). How Does Foreign Direct Investment Promote Economic Growth? Exploring . *NBER Working Paper*.

Alfaro, L., & Charlton, A. (2013). Growth and the Quality of Foreign Direct Investment: Is All FDI Equal? *International Economic Association Series* , pp. 162-204.

Alfaro, L., Chanda, A., Kalemli-Ozcan, S., & Sayek, S. (2004). FDI and Economic Growth: The Role of Local Financial Markets. *Journal of International Economics*, 89-112.

Alfaro, L., Kalemli-Ozcan, S., & Volosovych, V. (2008). Why doesn't capital flow from rich to poor countries? An empirical investigation. *The Review of Economics and Statistics, 90*(2), 347-368.

Amendolagine, V., Coniglio, N. D., & Seric, A. (2016). FDI and Structural Change in Africa: Does the Origin of Investors Matter? *United Nations Industrial Development Organization (UNIDO)*.

Anderson, J., Bernstein, D. S., Brun, J. P., Habershon, A. M., Recanatini, F., M., V. D., & Zimmermann, S. S. (2019). *Anti-corruption Initiatives: Reaffirming Commitment to a Development Priority*. Washington, D.C.: World Bank Group.

Antras, P., & Yeaple, S. (2014). Multinational Firms and the Structure of International Trade. *Handbook of International Economics*, pp. 55-130.

Asiedu, E. (2002). On the Determinants of Foreign Direct Investment to Developing Countries: Is Africa Different? *World Development, 30*(1), 107-119.

Assuncao, S., Forte, R., & Teixeira, A. (2011). Location Determinants of FDI: Determinants of FDI: A Literature Review.

Autor, B. D., Dorn, D., & Hanson, G. H. (2016). The China Syndrome: Local Labor Market Effects of Import Competition in the United States. *American Economic Review, 103*(6), 2121-2168.

Aykut, D., & Goldstein, A. (2007). *Developing Country Multinationals: South-South Investment Comes of Age*. OECD Working Paper.

Aykut, D., & Ratha, D. (2004). South-South Flows: How Big Are They? . *Transnational Corporations*, pp. 149-176.

Azman-Saini, W. N., Law, S. H., & Ahmad, A. H. (2010). FDI and Economic Growth. *Economic Letters, 107*(2), 211-213.

Baily, M., & Solow, M. N. (2001). International Productivity Comparisons Built from the Firm Level. *Journal of Economic Perspectives, 15*(3), 151-172.

Bair, J., & Gereffi, G. (2003). Upgrading, Uneven Development, and Jobs in the North American Apparel Industry. *Global Networks, 2*, 143-169.

Balasubramanyam, B. E., Haltiwanger, J., & Scarpetta, S. (1996). Foreign Direct Investment and Growth in EP and IS Countries. *The Economic Journal*, 92-105.

Bardhan, P., & Udry, C. (1999). *Development Microeconomics* . OUP Oxford.

Barro, R., & Sala-i-Martin, X. (2003). *Economic Growth*. Cambridge: MIT Press.

Bartelsman, B. E., Haltiwanger, J., & Scarpeta, S. (2013). Cross-Country Differences in Productivity: The Role of Allocation and Selection. *The American Economic review, 103*(1), 305-334.

Basu, K. (2003). *Analytical Development Economics: The Less Developed Economy Revisited*. Cambridge: MIT Press.

Bellos, S., & Subasat, T. (2012). Corruption and foreign direct investment: A panel gravity model approach. *Bulletin of Economic Research, 64*(4), 565-574.

Bénassy-Quéré, A., Coupet, M., & Mayer, T. (2007). nstitutional determinants of foreign direct investment. *World economy, 30*(5), 764-782.

Bernard, A. B., & Jones, C. I. (1996). Productivity and Convergence Across U.S. States and Industries. *Empirical Economics* , 113-135.

Bhagwati, J. N. (1988). Export-Promoting Trade Strategy: Issues and Evidence. *The World Bank Research Observer*, 27-57.

Blalock, G., & Gertler, P. J. (2005). Foreign Direct Investment and Externalities: The Case for Public Intervention. In T. H. Moran, E. M. Graham, & M. Blomstrom, *Does Foreign Direct Investment Promote Development* (pp. 73-106). Peterson Institute.

Blanchard, O., & Acalin, J. (2016). *What Does Measured FDI Actually Measure.* Washington D.C. : Peterson Institute of International Economics.

Blomstrom, M., & Persson, H. (1983). Foreign Investment and Spillover Efficiency in an Underdeveloped Economy: Evidence from the Mexican Manufacturing Industry. *World Development*, 493-501.

Blomstrom, M., & Wolff, E. N. (1989). Multinational Corporations and Productivity Convergence in Mexico. *NBER Working Paper*, 1-35.

Blonigen, B. A., Davies, R. B., Waddell, G. R., & Naughton, H. T. (2007). FDI in space: Spatial autoregressive relationships in foreign direct investment. *European economic review, 2, 51*(5), 1303-1325.

Blonigen, W., & Wang, M. G. (2005). Inappropriate Pooling of Wealthy and Poor Countries in Empirical FDI Studies. In T. H. Moran, E. M. Graham, & M. Blomstrom, *Does Foreign Direct Investment Promote Development?* (pp. 221-224). Peterson Institute .

Bolt, J., & van Zanden, J. L. (2014). The Maddison Project: collaborative research on historical national accounts. *The Economic History Review, 67*(3), 627–651.

Borensztein, E., De Gregorio, J., & Lee, J. W. (1998). How Does Foreign Direct Investment Affect Economic Growth? *Journal of International Economics*, 115-135.

Bourguignon, P. (1990). Growth and Inequality in the Dual Model of Economic Development . *Review of Economic Studies* , 215-228.

Braunstein, E. (2006). *Foreign Direct Investment, Development, and Gender Equity: A Review of Research and Policy.* New York : United Nations Research Institute for Social Development (UNRISD).

Braunstein, E., & Epstein, G. (2004). Bargaining Power and Foreign Direct Investment in China: Can 1.3 Billion Consumers Tame the Multinationals? In W. Milberg, *Labor and the Globalization of Production* (pp. 209-248). Palgrave Macmillan .

Buckley, P. J., Clegg, J., & Wang, C. (2002). The Impact of Inward FDI on Performance of Chinese Manufacturing Firms. *Journal of International Business Studies, 33*(4), 637-655.

Burns, A., van der Mensbrugghe, D., & Timmer, H. (2006). The Developmental Potential of Surging Capital Flows. *Global Developmental Finance*.

Cameron, A. C., & Trivedi, P. K. (2010). *Microeconometrics Using Stata.* College Station: Stata Press.

Campos, N. F., & Kinoshita, Y. (2002). Foreign Direct Investment as Technology Transferred: Some Evidence from the Transition Economies. *Manchester School, 70*(3), 398-419.

Carkovic, M., & Levine, R. (2005). Does Foreign Direct Investment Accelerate Growth? In T. H. Moran, & M. Blomstrom, *Does Foreign Direct Investment Promote Growth?* (pp. 195-220). D.C.: Peterson Institute.

Chanda, A., & Dalgaard, C. J. (2008). Dual Economies and International Total factor Productivity Differences: Channeling the Impact from Institutions, Trade, and Geography. *Economica, 75*(300), 629-661.

Chowdhury, A., & Mavrotas, G. (2006). FDI and Growth: What Causes What? *The World Economy, 29*(1), 9-19.

Christiano, L. J. (1981). *A Survey of Measures of Capacity Utilization.* Staff papers - International Monetray Fund .

Clark, G. (1987). *Why isn't the Whole World Developed? Lessons from the Cotton Mills.* Cambridge University Press.

Clarke, G. R., & Xu, L. C. (2004). Privatization, Competition, and Corruption: How Characteristics of Bribe Takers and Payers Affect Bribes to Utilities . *Journal of Public Economics*, 2067-2097.

Contessi, S., & Weinberger, A. (2009). Foreign Direct Investment, Productivity, and Country Growth. *Review*, pp. 61-78.

Cuervo-Cazurra, A. G. (2008). Transforming Disadvantages into Advantages: Developing-Country MNEs in the Least Developing Countries. *Journal of International Business Studies, 39*(6), 957-979.

Cypher, J. M., & Dietz, J. L. (1997). *Process of Economic Development* . New York: Routledge.

Das, S., Mourmouras, A., & Rangazas, P. C. (2015). *Economic Growth and Development: A Dynamic Dual Economy Approach*. Springer.

De Gregorio, J., Giovanni, A., & Wolf, H. C. (1994). International Evidence on Tradables, Inflation and Nontradables. *European Economic Review*, 1225-1244.

De La Fuente, A. (1997). The Empirics of Growth and Convergence: A Selective Review . *Journal of Economic Dynamics and Control*, 23-73.

De Long, J. B., & Summers, L. H. (1990). Equipment Investment and Economic Growth. *NBER Working Paper*.

De Long, J. B., & Summers, L. H. (1993). How Strongly Do Developing Economies Benefit from Equipment Investment. *Journal of Monetary Economics, 32*(3), 395-415.

de Mello, L. R. (1997). Foreign Direct Investment In developing Countries and Growth: A Selective Survey. *Journal of Development Studies, 34*(1), 1-34.

Denison, E. F., & Poullier, J.-P. (1967). *Why Growth Rates Differ: Postwar Experience in Nine Western Countries*. Washington DC: Brookings Institution.

Desmet, K., Ortuno-Ortin, I., & Wacziarg, R. (2012). The Political Economy of Linguistic Cleavages. *Journal of Development Studies, 97*(2), 322-338.

Dobbs, R., Madgavkar, A., Barton, D., & Labaye, E. (2012, June). *The World at Work: Jobs, Pay, and Skills for 3.5 Million People.* Retrieved from McKinsey Global Report: http://www.mckinsey.com/global-themes/employment-and-growth/the-world-at-work

Du, L. A. (2011). Testing for Horizontal and Vertical Foreign Investment Spillovers in China, 1998–2007. *Journal of Asian Economics.*

Du, L., Harrison, A., & Jefferson, G. H. (2012). Testing for Horizontal and Vertical Foreign Investment Spillovers in China 1998-2007. *Journal of Asian Economics, 23*(3), 234-243.

Durham, J. B. (2004). Absorptive Capacity and the Effects of Foreign Direct Investment and Equity Foreign Portfolio Investment on Economic Growth. *European Economic Review* , 285-306.

Durlauf, S. N., Johnson, P. A., & Temple, J. R. (2005). Growth Economics. *Handbook of Economic Growth*, pp. 555-677.

Easterly, W. (2001). The Lost Decades: Developing Countries' Stagnation in spite of Policy Reform. *Journal of Economic Growth, 6*, 135-157.

Eberhardt, M. (2015). *Macro Data.* Retrieved from MevDevEcon: https://sites.google.com/site/medevecon/home

Eberhardt, M., & Teal, F. (2013). Structural Change and Cross-Country Growth Empirics. *World Bank Economic Review, 27*(2), 229-271.

Edel, M. M., & Chan, W. Y. (2018). *China in Africa: A Form of Neo-Colonialism?* Retrieved from E-International Relations: https://www.e-ir.info/2018/12/02/china-in-africa-a-form-of-neo-colonialism/

Eslava, M., Haltiwanger, J., Kugler, A., & Kugler, M. (2013). Trade Reforms and Market Selection: Evidence from Manufacturing Plants in Colombia. *Review of Economic Dynamics, 16*(1), 135-158.

Farole, T., & Winkler, D. (2014). *Making Foreign Direct Investment Work for Sub-Saharan Africa: Local Spillovers and Competitiveness in Global Value Chains.* World Bank .

Feenstra , R. C., Inklaar , R., & Timmer, M. P. (2015). The Next Generation of the Penn World Table. *American Economic Review, 105*(10), 3150-3182. Retrieved from www.ggdc.net/pwt

Feenstra , R. C., Inklaar, R., & Timmer , M. (2013). *Recasting international income differences: The next-generation Penn World Table* . Retrieved from VOX: http://voxeu.org/article/recasting-international-income-differences-next-generation-penn-world-table

Feenstra, R. C., Inklaar, R., & Timmer, M. P. (2015). *Human Capital in PWT 9.0.* Retrieved from Penn World Table version 9.0: http://www.rug.nl/ggdc/productivity/pwt/

Feenstra, R. C., Inklaar, R., & Timmer, M. P. (2015). The Next Generation of the Penn World Table. *American Economic Review, 105*(10), 3150-3182.

Fernandes, A. M. (2007). Trade Policy, Trade Volumes, and Plant-Level Productivity in Columbian Manufacturing Industries. *Journal of International Economics, 71*(1), 52-71.

Ferrantino, M. J. (1991). Appropriate Technology in a Model of Multinational Duopoly. *Canadian Journal of Economics, 24*(3), 660-678.

Fields, G. S. (1975). *On Inequality and Economic Growth, Yale University.* Retrieved from Economic Growth Center: http://www.econ.yale.edu/growth_pdf/cdp233.pdf

Fields, G. S. (1992). Modern Sector Enlargement or Traditional Sector Enrichment? GNP Effects with Induced Migration. *Journal of Population Economics, 5*(2), 101-112.

Findlay, R. (n.d.). Relative Backwardness, Direct Foreign Investment, and the Transfer of Technology: A Simple Dynamic Model. *The Quarterly Journal of Economics, 92*(1), 1-16.

Fruman, C. (2016, February 05). *Why does efficiency-seeking FDI matter?* Retrieved from World Bank Blogs: https://blogs.worldbank.org/psd/why-does-efficiency-seeking-fdi-matter

Geeks-for-Geeks. (2020, August 29). *Detecting multicollinearity with vif*. Retrieved from Geeks-for-Geeks: https://www.geeksforgeeks.org/detecting-multicollinearity-with-vif-python/

Gelb, A., Meyer, C. J., & Ramachandran, V. (2014, February). Development as Diffusion: Manufacturing Productivity and Sub-Saharan Africa's Missing Middle. *CGD Working Papers*.

Gerschenkron, A. (1962). *Economic Backwardness in Historical Perspective: A Book of Essays* . Cambridge: MIT Press.

Glass, A. J., & Saggi, K. (1998). International Technology Transfer and the Technology Gap. *Journal of Development Economics, 55*(2), 369-398.

Glass, A. J., & Saggi, K. (1999). Foreign Direct Investment and the Nature of R&D. *Canadian Journal of Economics, 32*(1), 92-117.

Golub, S., & Hayat, F. (2014). Employment, Unemployment, and Underemployment in Africa . *Wider Working Paper*.

Gorynia, M., Howak, J., & Wolniak, R. (2007). Motives and modes of FDI in Poland: An exploratory qualitative study. *ournal of East European Management Studies, 12*(2), 132-151.

Greenaway, D., & Kneller, R. (2007). Firm Heterogeneity, Exporting, and Foreign Direct Investment. *The Economic Journal*, F134-F161.

Grossman, G., & Helpman, E. (1994). Foreign Investment with Endogenous Protection. *NBER Working Paper*.

Hanson, G. (2005). Comment. In T. H. Moran, E. M. Graham, & M. Blomstrom, *Does Foreign Direct Investment Promote Development?* (pp. 175-178). Peterson Institute.

Hanson, G. H. (2001, February). Should Countries Promote Foreign Direct Investment? *G-24 Discussion Paper Series*, pp. 1-38.

Harris, J. R., & Todaro, M. P. (1970). Migration, Unemployment and Development: a Two-Sector Analysis. *The American Economic Review*, 126-142.

Herzer, D., Klasen, S., & Nowak-Lehmann, D. F. (2008). In Search fro FDI-Led Growth in Developing Countries. *Economic Modeling, 25*(5), 793-810.

Hoang, D. T., Do, A. D., & Trinh, M. V. (2021). Spillover effects of FDI on technology innovation of vietnamese enterprises. *The Journal of Asian Finance, Economics, and Business, 8*(1), 655-663.

Holmes, R. M., Miller, T., Hitt, M. A., & Salmador, M. P. (2013). The Interrelationships Among Informal Institutions, Formal Institutions, and Inward Foreign Direct Investment. *Journal of Management, 39*(2), 531-566.

Huizinga, H. (1995). Taxation and the Transfer of Technology by Multinational Firms. *The Canadian Journal of Economics, 28*(3), 648-655.

Iamsiraroj, S. (2015). The Foreign Direct Investment-Economic Growth Nexus. *International Review of Economics and Finance*, 116-133.

Iamsiraroj, S., & Doucouliagos, H. (2015). Does growth attract FDI? *Economics Discussion Papers*, pp. 2015-2018.

IMF. (2015). *Glossary of Foreign Direct Investment Terms.* Retrieved from IMF Investment Terms and Definitions: http://www.imf.org/external/np/sta/di/glossary.pdf

Inklaar , R., & Timmer, M. P. (2014). The Relative Prices of Services. *Review of Income and Wealth*, 727-746.

International Labor Organization. (2016). *Trends 2016*. Retrieved from World Employment and Social Outlook: http://www.ilo.org/global/research/global-reports/weso/2015/lang--en/index.htm

Javorcik, B. S. (2004). Does Foreign Direct Investment Increase the Productivity of Domestic Firms? In Serach of Spillovers through Backward Linkages. *The American Economic Review, 94*(3), 605-627.

Javorcik, B. S., Saggi, K., & Spatareanu, M. (2004). Does it Matter Where You Come from: Vertical Spillovers from Foreign Direct Investment from Foreign Direct Investment and the Origins of Investors. *Journal of Development Economics, 96*(1), 126-138.

Jorgenson, D., & Griliches, Z. (1967). The Explanation of Productivity Change. *The Review of Economic Studies, 34(3)*, 249-283.

Kabelwa, G. (2004). *Technology Transfer and South African Investment in Tanzania.* Da res Salaam: Economic and Social research Foundation.

Kabiraj, T., & Marjit, S. (1993). International Technology Transfer Under the Threat of Entry: A Cournot-Nash Framework. *Journal of Development Economics, 42*(1), 75-88.

Kathuria, V. (2000). Productivity Spillovers From Technology Transfer to Indian Manufacturing Firms. *Journal of International Development, 12*(3), 343.

Keller, W. (1996). Absorptive Capacity: On the Creation and Acquisition of Technology in Development. *Journal of Development Economics, 49*(1), 199-227.

Kharas, H. (2010). *The Emerging Middle Class in Developing Countries.* OECD Development Center.

Kheng, V., Sun, S., & Anwar, S. (2016). Foreign direct investment and human capital in developing countries: A panel data approach. *Economic Change and Restructuring, 50*(4), 341-365.

Kokko, A. (1994). Technology, Market Characteristics, and Spillovers. *Journal of development economics, 43*(2), 279-293.

Kokko, A., Tansini, R., & Zejan, M. C. (1996). Local technological capability and productivity spillovers from FDI in the Uruguayan manufacturing sector. *The Journal of Development Studies, 32*(4), 602-611.

Krueger, A. (2011). Comments on "New Strucutral Economics" by Justin Yifu Lin. *World Bank research Observer*, 222-226.

Kumar, N., & Pradhan, J. P. (2002). *FDI, Externalities, and Economic Growth in Developing Countries: Some Empirical Explorations and Implications for WTO Negotiations on Investment.* RIS Discussion Paper.

Lall, S. (1982). The Emergence of Third World Multinationals: Indian Joint Ventures Overseas. *World Development, 10*(2), 127-146.

Lall, S. (2001). Competitivness Indices and Developing Countries: An Economic Evaluation of the Global COmpetitveness Report. *World Development, 29*(9), 1501-1525.

Lecraw, D. J. (1977). Direct Investment by Firms from Less Developed Countries. *Oxford Economic Papers, 29*(3), 442-457.

Lecraw, D. J. (1984). Bargaining Power, Ownership, and Profitability of Transnational Corporations in Dveloping Countries. *Journal of International Business Studies, 15*(1), 27-43.

Lee, C. C., & Chang, C. P. (2009). FDI, Financial Development, and Economic Growth: International Evidence. *Journal of Applied Economics, 12*(2), 249-271.

Lewis, W. A. (1954). Economic Development with Unlimited Supplies. *The Manchester School.*

Li, X., & Liu, X. (2005). Foreign Direct Investment and Economic Growth: An Increasingly Endogenous Relationship. *World Development, 33*(3), 393-407.

Lin, J. Y. (2011). New Structural Economics: A Framework for Rethinking Development. *World Bank Research Observer, 26*(2), 193-221.

Lin, P., & Saggi, K. (2005). Mulitnational Firms and Backward Linkages: A Critical Survey and a Simple Model . In T. H. Moran, E. M. Graham, & M. Blomstrom, *Does Foreign Direct Investment Promote Development?* (pp. 159-174). D.C. : Peterson Institute.

Lipsey, R. E. (2002). Home and Host Country Effects of FDI. *The European Journal of Health Economics, 8*(4), 305-312.

Lipsey, R. E., & Sjoholm, F. (2005). The Impact of Inward FDI on Host Countries: Why Such Different Answers? In T. H. Moran, E. M. Graham, & M. Blomstrom, *Does Foreign Direct Investment Promote Development?* (pp. 23-43). Peterson Institute.

Lipsey, R. E., & Sjoholm, F. (2011). The Role of South-South FDI in the Economies of Developing Asia. *ADB Economics Working Paper Series*.

Lora , E., & Pagés, C. (2011). Face to Face with Productivity. *Finance and Development*, pp. 16-19.

Lucas, R. E. (1990). Why doesn't capital flow from rich to poor countries? *American economic review, 80*(2), 92-96.

Mahmoodi, M., & Mahmoodi, E. (2016). Foreign direct investment, exports and economic growth: evidence from two panels of developing countries. *Economic research-Ekonomska istraživanja, 29*(1), 938-949.

Majeed, M. T., & Ahmad, E. (2007). FDI and exports in developing countries: theory and evidence. *The Pakistan development review*, 735-750.

Mankiw, G. N., Romer, D., & Weil, D. N. (1992). A Contribution to the Empirics of Economic Growth. *Quarterly Journal of Economics, 107(2)*, 407-437.

Mano, R., & Castillo, M. (2015). The Level of Productivity in Tradded and Non-Traded Sectors for a Large Panel of Countries. *International Monetary Fund, 15*(48), 1-49.

Markusen, J. R., & Venables, A. J. (1999). Foreign Direct Investment as a Catalyst for Industrial Development. *European Economic Review, 43*(2), 335-356.

Matsuyama, J. R. (1992). Agricultural Productivity, Comparative Advantage, and Economic Growth. *Journal of economic Theory, 58*(2), 317-334.

Mawugnon, A. K., & Qiang, F. (2011). The relationship between foreign direct investment and economic growth in togo (1991–2009). *In Proceedings of the 8th International Conference on Innovation and Management*, *73.* Kitakyushu, Japan.

McKinsey . (2003). *Turkey: Making the Productivity and Growth Breakthrough.* Retrieved from McKinsey Global Institute: http://www.mckinsey.com/global-themes/europe/turkey-making-the-productivity-and-growth-breakthrough

McMillan, M., & Rodrik, D. (2011). Globalization, Structural Change, and Productivity Growth. *NBER Working Paper*.

McMillan, M., Ebenstein, A., Zhao, Y., & Zhang, C. (2011). Understanding the Role of China in the Decline of US Manufacturing. *Manuscript, Hebrew University of Jerusalem*.

McMillan, M., Rodrik, D., & Verduzco-Gallo, I. (2014). Globalization, Structural Change, and Productivity Growth, with an Update on Africa. *World Development* , 11-32.

Melber, H. (2013). *The Rise of the South: Human Progress in a Diverse World.* UNDP.

Meyer, K. E., & Sinani, E. (2009). When and Where Does Foreign Direct Investment Generate Positive Spillovers? A Meta-Analysis Abstract. *Journal of International Business Studies* , 1075-1094.

Milberg, W. (1990). Foreign Direct Investment and Development: Balancing Costs and Benefits. *International Monetary and Financial Issues*.

Miller, J. E., & Rodgers, Y. V. (2008). Economic importance and statistical significance: Guidelines for communicating empirical research. *Feminist Economics, 4*(2), 117-149.

Moran, T. H. (2014). Foreign Investment and Supply Chains in emerging Markets: Recurring Problems and Demonstrated Solutions. *Peterson Institute for International Economics Working Paper*.

Moran, T. H., & Blomstrom, M. (2005). *Does Foreign Direct Investment Promote Development.* Washington, D.C.: Center for Global Development .

Mundlak, Y., Butzer, R., & Larson, D. F. (2012). Heteregeneous Technology and Panel Data: The Case of the Agricultural Production Function. *Journal of Development Economics, 99*(1), 139-149.

Murphy, K. M., Shleifer, A., & Vishny, R. W. (1989). Industrialization and the Big Push. *Journal of Political Economy*, 1003-1026.

Nanda, N. (2009). Growth Effects of FDI: Is Greenfield Greener? *Perspectives on Global Development and Technology, 8*(1), 26-47 .

Navaretti, G. B., & Venables, A. J. (2005). *Multinational Firms in the World Economy.* Princeton: Princeton Unversity Press.

Nayak, D., & Choudhury, R. N. (2014). A Selective Review of Foreign Direct Investment Theories. *Asia-Pacific Research and Training Network on Trade Working Paper*.

Ndikumana, L., & Verick, S. (2008). Linkages between FDI and Domestic Investment: Unravelling the Developmental Impact of Foreign Investment in Sub-Saharan Africa. *Development Policy Review, 26*(6), 713-726.

Nelson, R. R., & Edmund, S. P. (1966). Investment in Humans, Technological Diffusion, and Economic Growth. *American Economic Review*, 69-75.

NYU Developoment Reserach Institute. (2015). *Macro Tine Series* . Retrieved from Global Development Network Growth Database: https://wp.nyu.edu/dri/resources/global-development-network-growth-database/

OECD. (2015). *Glossary of Foreign Direct Investment Terms.* Retrieved from OECD Investment Statistics: https://www.oecd.org/daf/inv/investment-policy/2487495.pdf

OECD. (2017). *Purchasing Power Parities (PPP).* Retrieved from OECD Statistics: https://data.oecd.org/conversion/purchasing-power-parities-ppp.htm

Ohakim, J. (2019, May 17). *NLP Project: Predicting Interest Rates with the Federal Reserve Beige Book.* Retrieved from GitHub: https://github.com/iceberg425/NLP_Projects/tree/master/DSI_Project

Paci, R., & Pigliaru, F. (1999). IS Dualism Still a Source of Convergence in Europe? . *Applied Economics*, 1423-1436.

Papaioannou, E. (2009). What Drives International Financial Flows? Politics, Institutions, and Other Determinants. *Journal of Development Economics, 88*(2), 269-281.

Paus, E., Reinhardt, N., & Robinson, M. (2003). Trade Liberalization and Productivity Growth in Latin American Manufacturing 1970-98. *Policy Reform, 6*(1), 1-15.

Pavcnik, N. (2002). Trade Liberalization, Exit, and Productivity Improvements: Evidence from Chilean Plants. *Review of Economic Studies, 69*(1), 245-276.

Radelat, S. (2010). *Emerging Africa: How 17 Countries Are Leading the Way*. Center For Global Development.

Rappaport, J. (2000). How Does Openness to Capital Flows Affect Growth. *FRB Kansas City Reserach Working Paper*.

Razmi, A. (2009). Does Pleasing Export-Oriented Foreign Investors Help Your Balance of Payments? A General Equilibrium Analysis. *Oxford Economic Papers, 61*(1), 128-149.

Reitmer, S., & Steensma, H. K. (2010). Human Development and Foreign Direct Investment in Developing Countries: The Influence of FDI Policy and Corruption. *World Development, 38*(12), 1678-1691.

Restuccia, D. (2013). The Latin American Development Problem: An Interpretation. *Economia, 13*(2), 69-100.

Rodrik, D. (1992). Political Economy and Development Policy. *European Economic Review*, 329-336.

Rodrik, D. (2008). The Real Exchange Rate and Economic Growth. *Brookings Papers on Economic Activity*, pp. 365-412.

Rodrik, D. (2011). Comments on "New Structural Economics" by Justin Yifu Lin. *World Bank Observer*, 277-299.

Rodrik, D. (2012). Why We Learn Nothing from Regressing Economic Growth on Policies. *Seoul Journal of Economics, 25*(2), 137-151.

Rodrik, D. (2013). Structural Change, Fundamentals, and Growth: An Overview. *Institute for Advanced Studies.*

Rodrik, D. (2013). Unconditional Convergence in Manufacturing. *Quarterly Journal of Economics, 128*(1), 165-204.

Rodrik, D. (2014). An African Growth Miracle? . *NBER Working Paper.*

Rodrik, D. (2015). *Work and Human Development In a Deindustrializing World* . UNDP Human Development Report Office .

Rodrik, D. (2016). Premature Deindustrialization. *Journal of Economic Growth, 21*(1), 1-33.

Rodrik, D., & Rosenzweig, M. R. (2010). Development Policy and Development Economics: An Introduction. *Handbook of Development Economics.*

Romer, P. (1986). Increasing Returns and Long-Run Growth. *Journal of Political Economy, 94*(5), 1002-1037.

Romer, P. (1990). Endogenous Technological Change. *Journal of Political Economy, 98*(5), S71-S102.

Romer, P. (1993). Idea Gaps and Object Gaps in Economic Development. *Journal of Monetary Economics, 32*(3), 543-573.

Romer, P. (1994). The Origins of Endogenous Growth. *The Journal of Economic Perspectives, 8*(1), 3-22.

Romer, P. (2016). The Trouble with Macroeconomics. *The American Economist.*

Saggi, K. (2002). Trade, Foreign Direct Investment, and International Technology Transfer: A Survey. *The World Bank Research Observer, 17*(2), 191-235.

Santiago, C. E. (1987). The impact of foreign direct investment on export structure and employment generation. *World development, 15*(3), 317-328.

Schumpeter, J. (1961). *The Theory of Economic Development.* Cambridge: Havard University Press.

Seguino, S. (2007). Is More Mobility Good? Firm Mobility and the Low Wage-Low Productivity Trap. *Structural Chnage and Economic Dynamics, 18*(1), 27-51.

Shapiro, H., & Taylor, L. (1990). The State and Industrial Strategy. *World Development, 18*(6), 861-878.

Sjoholm, F. (2016). Foreign Direct Investment and Value Added In Indonesia. *LUND University Working Paper*, 1-36.

Subasat, T., & Bellos, S. (2013). Governance and foreign direct investment in Latin America: A panel gravity model approach. *Latin american journal of economics, 50*(1), 107-131.

Takii, S. (2011). Do FDI Spillovers Vary Among Home economies?: Evidence from Indonesian Manufacturing. *Journal of Asian Economics, 22*(2), 152-163.

Takii, S. (2011). Do Spillovers Vary Among Home Economies?: Evidence from Indonesian Manufacturing. *Jpurnal of Asian Economics, 22*(2), 152-163.

te Velde, D. W. (2001). *Policies Towards Foreign Direct Investment in Developing Countries: Emerging Best-Practices and Outstanding Issues.* London: Overseas Development Institute.

te Velde, D., & Morrisey, O. (2004). Foreign direct investment, skills and wage inequality in East Asia. *Journal of the Asia Pacific Economy, 9*(3), 348-369.

Temple, J. (2005). Dual Economy Models: A Primer for Growth Economists. *Manchester School, 73*(4), 435-478.

Temple, J., & Wößmann, L. (2006). Dualism and Cross-Country Growth Regressions. *Journal of Economic Growth, 11*(3), 187-228.

The Common Agricultural Policy. (2020, January 29). Retrieved from Economics Online: https://www.economicsonline.co.uk/Global_economics/Common_Agricultural_Policy.html

The Conference Board. (2016). *Total Economy Database*. Retrieved from The Conference Board: https://www.conference-board.org/data/economydatabase/index.cfm?id=27762

The World Bank. (2020, December 14). *Combating Corruption*. Retrieved May 2021, from The World Bank: https://www.worldbank.org/en/topic/governance/brief/anti-corruption

Timmer, M. P., de Vries, G. J., & de Vries, K. (2015). Patterns of Structural Change in Developing Countries. In J. Weiss, & M. Tribe, *Routledge Handbook of Industry and Development* (pp. 65-83). Routledge.

Tobergte, D. R., & Curtis, S. (2013). Moving Out of Agriculture: Structural Chnage in Vietnam. *Journal of Chemical Information and Modeling, 53*(9), 1689-1699.

Todaro, M. P. (1969). A Model of Labor Migration and Urban Unemployment in Less Developed Countries . *The American Economic Review*, 138-148.

UNCTAD. (2006). FDI from Developing and Transition Economies: Implications for Developing (Drivers and Determinants). *World Investment Report*.

UNCTAD. (2007). Asian Foreign Direct Investment in Africa: Towards a New Era of Cooperation Among Developing Countries. *World Investment Report*.

UNCTAD. (2009). *Training Manual on Statistics for FDI and the Operations of TNCs.* Geneva: UNCTAD.

UNCTAD. (2009). *UNCTAD Training Manual on Statistics for FDI and the Operations of TNCs Volume I.* New York: United Nations.

UNCTAD. (2013). Global Value Chains: Investment and Value Added Trade in the Global Economy. *World Investment Report*.

UNCTAD. (2017). *FDI Flows*. Retrieved from United Nations Conference for Trade and Development: http://unctad.org/en/Pages/DIAE/Investment%20and%20Enterprise/FDI_Flows.aspx

UNCTAD. (2019). *Developing countries in Asia receive more than $500 billion in investments*. UNCTAD.

University of Gronigen. (2014). *Economic Commission for Latin America and the Caribbean*. Retrieved from United Nations ECLAC: http://cepal.org/en/pressreleases/foreign-direct-investment-latin-america-declines-23-first-half-2014

University of Gronigen. (2016). *Penn World Tables*. Retrieved from Gronigen Growth and Development Centre: http://www.rug.nl/ggdc/productivity/pwt/

Veblen, T. (1915). *Imperial Germany and the Industrial Revolution.* New York: Macmillan.

Vergina, G., & Grell, M. (2009). Foreign Affiliates Statistics (FATS). *Eurostat*, 107-113.

Vollrath, D. (2009). How Important are Dual Economy Effects for Aggregate Productivity? *Journal of Development Economics, 88*(2), 325-334.

Wang, C. C., & Wu, A. (2016). Geographical FDI knowledge spillover and innovation of indigenous firms in China. *International Business Review, 25*(4), 895-906.

Weeks, J. (2007). Exports, Foreign Investment and Growth in Latin America: Skepticism by Way of Simulation. In A. Shaikh, *Globalization and the Myths of Free Trade: History, Theory and Empirical Evidence* (pp. 116-138). Routledge.

Wei, Y., & Liu, X. (2006). Productivity Spillovers from R&D, Exports and FDI in China's Manufacturing Sector. *Journal of International Business Studies*, 544–557.

Wei, Y., & Liu, X. (2006). Productivity Spillovers from R&D, Exports, and FDI in China's Manufacturing Sector. *Journal of International Business Studies, 37*(4), 544-557.

Wheeler, D., & Mody, A. (1992). International investment location decisions: The case of US firms. *Journal of international economics, 33*(1-2), 57-76.

Woolridge, J. M. (2002). *Econometric Analysis of Cross-Section and Panel Data.* MIT Press.

Woolridge, J. M. (2009). On Estimating Firm-Level Production Functions Using Proxy Variables to Control for Unobservables. *Economic Letters, 104*(3), 112-114.

World Bank. (2017). *World Development Databank* . Retrieved from World Development Indicators: http://databank.worldbank.org/data/reports.aspx?source=world-development-indicators

World Bank. (n.d.). The East Asian Miracle. *World Bank Policy Report* , 1-347.

Xu, B., & Wang, J. (2000). Trade, FDI, and International Technology Diffusion. *Journal of Economic Integration, 15*(4), 585-601.

Yao, S., & Wei, K. (2007). Economic Growth in the Presence of FDI: The Perspective of Newly Industrializing Economies. *Journal of Comparative Economics, 35*(1), 211-234.

Yeaple, S. R. (2001). *The determinants of US outward foreign direct investment: market access versus comparative advantage.* University of Pennsylvania.

Yeung, H. W. (1994). Third World Multinationals Revisited: A Research Critique and Future Agenda. *Third World Quaterly, 15*(2), 297-317.

Yongchang, H. (2020). *Does FDI have spillover effects on Chinese indigenous innovation and how do the effects vary among different regions?* . Retrieved from https://libproject.hkbu.edu.hk/trsimage/hp/15251993.pdf

Zeira, J., & Zoabi, H. (2012). *Modern Sectors Vs. Traditional Sectors and Economic Growth.* Retrieved from Weebly: http://hosnyzoabi.weebly.com/uploads/7/9/7/2/7972742/zeirazoabi.pdf

Zhang, K. H., & Markusen, J. R. (1999). Vertical multinationals and host-country characteristics. *Journal of Development Economics, 59*(2), 233-252.

Zhang, Y., Li, H., Li, Y., & Zhou, L. A. (2010). FDI spillovers in an emerging market: the role of foreign firms' country origin diversity and domestic firms' absorptive capacity. *Strategic Management Journal, 31*(9), 969-989.

Zhao, Y. (2001). Foreign Direct Investment and Relative Wages: The Case of China. *China Economic Review, 12*(1), 40-57.

Zhuang, H., & Griffith, D. (2013). The Effect of Mergers & Aquisitions and Greenfield FDI on Income Inequality. *International Journal of Applied Economics*, 29-38. Retrieved from Southeastern,edu.