LUND UNIVERSITY
School of Economics and Management

Foreign Direct Investment's Effect on Economic Growth in Developing Countries:

Cross-Border Mergers and Acquisitions versus Greenfield Investments

Caroline Ekholm

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Supervisor: Karin Olofsdotter
Lund University School of Economics and Management

Abstract

Foreign direct investment (FDI) occurs when a domestic corporation invests in another company in a foreign country. There are two main entry modes through which corporations can invest into the foreign country, merger and acquisitions (M&A) or greenfield investments. According to endogenous growth theory, FDI in either form should have a significant effect on economic growth in the host country. This study aims to investigate if greenfield and M&A have an effect on economic growth in developing countries. The results are estimated from using panel data methods for 32 countries over the time-period 2003-2015. The study found that the empirical evidence is inconclusive of greenfield investments and M&A impact on economic growth in developing countries.

Keywords: FDI, Greenfield, M&A, Economic Growth, Developing Countries

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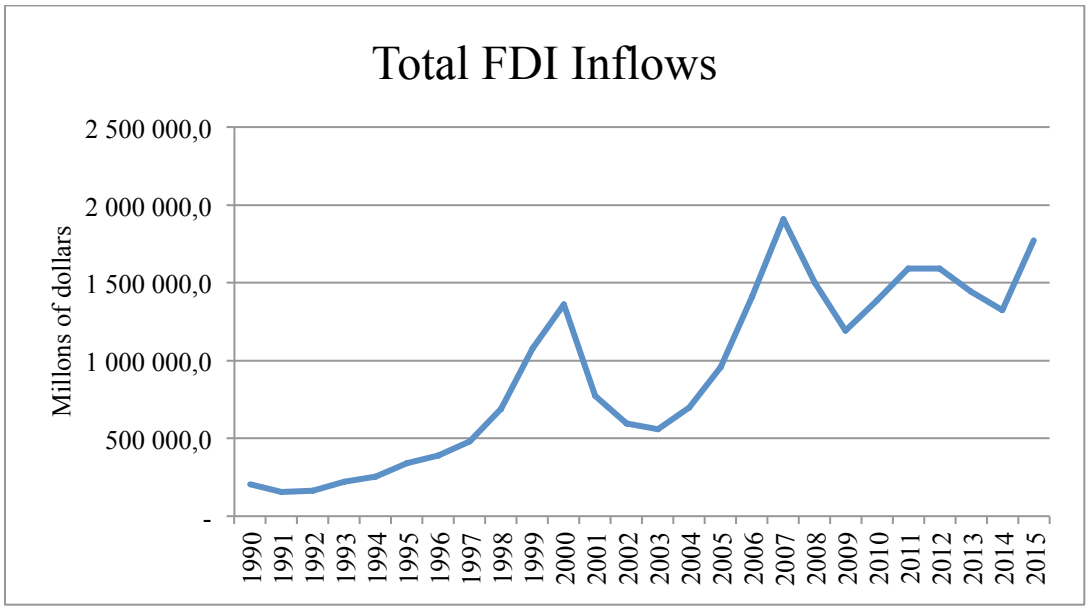
1. Introduction

1.1 Background

Foreign direct investment (FDI) is a key element of economic integration and international economics. FDI has been especially significant since the 1990s when globalization accelerated due to trade liberalization, decreasing transport costs, alleviation of trade barriers, technology, and the development of new financial instruments. This led to an escalation of FDI flows towards developing countries. FDI is considered to be a transfer from foreign companies to host economies of both physical capital and intangible assets such as technology, knowledge and innovations. Because of these characteristics, the concept has been perceived as an essential part of increasing economic growth in countries according to the neoclassical growth theory. The theory emphasizes a positive perception of FDI impact in countries where FDI can provide financial stability, promote economic development and also enhance social well-being. However, the effects of FDI might only be possible if the country has the right policy framework (Mochevičius, 2014; OECD, 2008; Wang & Wong, 2009).

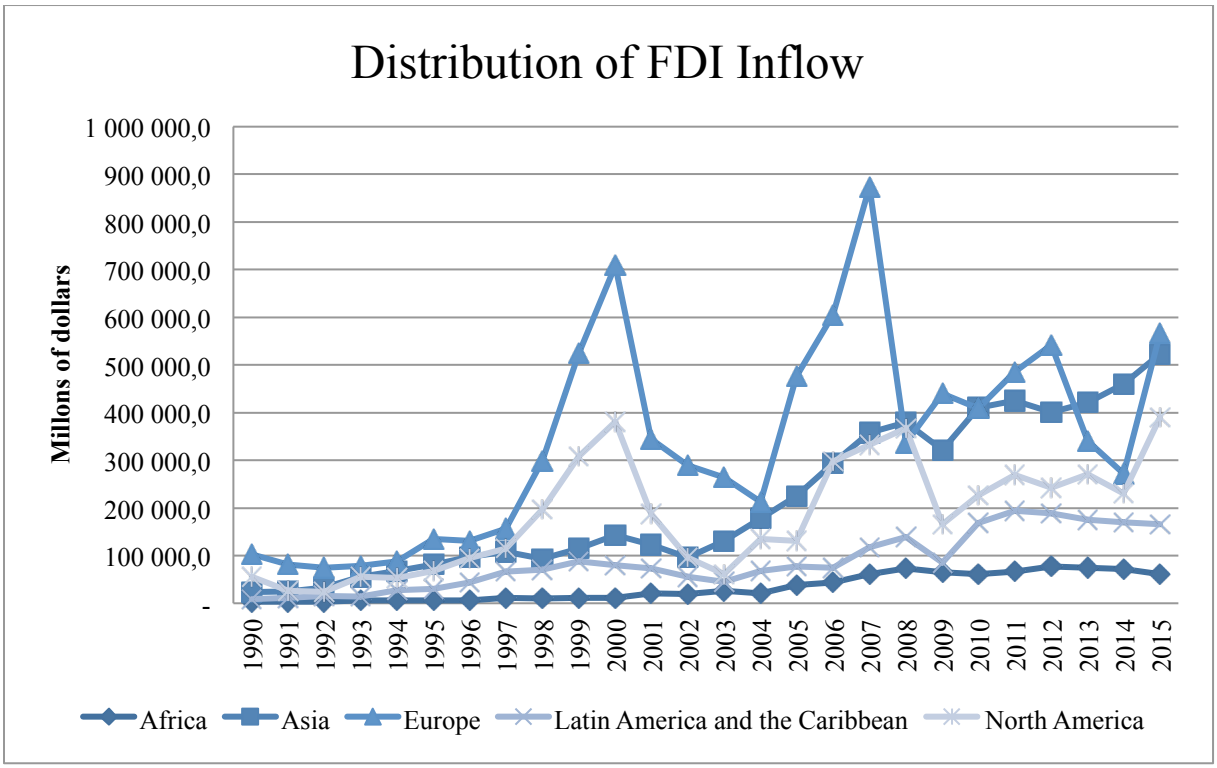
Figure 1. Total FDI Inflow



Source: UNCTAD, FDI inflows, by region and economy, 1990-2016

Global FDI flows have continued to grow since the 1990s, reaching $1,762 billion dollars in 2015, but the distribution of FDI in the world is uneven between regions as well as between countries (UNCTAD, 2016). This can sometimes be explained by market preference, as countries often have different ambitions and motivations to attract FDI inflows. The theory of FDI stimulating economic growth has led to developing countries being especially motivated to attract FDI. This is because, for developing countries, it is particularly important to increase resources inflows to fill the savings and foreign exchange gaps, which will ultimately allow them to attain sustainable development. Developing countries demonstrate a great deal of confidence in FDI's ability to solve some of their economic problems. This confidence is reinforced since FDI does not create additional debt for the country. It has been crucial for the continent of Africa to increase the external resources since most countries are low-income (Adams & Opoku, 2015; Williams, 2015). Africa do only receive $54 billion dollars in 2015 out of the total $1,762 billion dollars, while Europe and Asia are the continents that receive the highest amount of FDI inflows. The distribution between developed and developing countries is almost equal, as developing countries receive a combined 43,4 percentage of the global FDI inflow. Nevertheless, the regional gaps between the amount of inflows is large, which can be viewed in Figure 1 (UNCTAD, 2016).

Figure 2. Distribution of FDI Inflow



Source: UNCTAD, FDI inflows, by region and economy, 1990-2016

Even though the distribution of FDI inflow is uneven, the theory suggests that FDI will create economic growth due to capital inflow towards the host country. Countries have therefore promoted liberalization policies in order to attract more FDI inflow. FDI can occur through two main foreign entry modes, either from greenfield investment or from cross-border merger and acquisitions, henceforth M&A. Previous studies usually focus on examining the relationship between total FDI flow and economic growth. Because FDI is expected to generate economic growth, the assumption is that the entry modes should have similar impacts on economic growth in the host countries. The two entry modes are assumed to constitute alternatives of FDI modes for home and host countries. Therefore, it is expected for the entry modes to have a positive impact on economic growth. But in reality greenfield and M&A are rarely perfect substitute for each other. From the host country's perspective, the substitutability depends on the modes characteristics as well as the host country's economic development, FDI policy, institutional framework and specific circumstances (Neto et al., 2010; UNCTAD, 2000).

1.1.1 Aims and Significance

This research aims to investigate the impact that greenfield and cross-border M&A have on economic growth in developing countries. Even though there are several other studies that have looked at the relationship between FDI inflow and economic growth, there is a gap in the literature about the impacts greenfield and M&A have on economic growth. Since the definition of greenfield and M&A are different, we do also expect to find different impacts on growth. The limited number of articles which investigate the entry modes' effects use countries around the world, both developed and developing. There is however no previous study that focuses primarily on developing countries. The purpose of looking at developing countries, and not doing a general analysis, is that developing countries have specifically pursued a development program that is promoting FDI to gain sustainable development. Therefore, the research tries to answer this question: *Does greenfield investment and cross-border M&A have an impact on economic growth in developing countries?*

The findings of this study are significant for policymaking in developing countries. This is because the host countries' governments would get a clearer picture of the impact of

greenfield investments and M&A on their economic growth. For example, governments in host countries are already concerned with the effects M&A has in their country. The concerns are mainly about potential employee layoffs and transfer of domestic firm ownership to foreign counties. Consequently, governments have taken action and implemented certain restrictions when it comes to M&A sales in order to protect domestic firms (UNCTAD, 2006). Therefore, it is vital to investigate the potential effects of M&A and greenfield investments on the host countries.

The results are also interesting from the corporations' perspective. Because of the globalized world, corporations will continue to invest in foreign countries. Hence, the concept of FDI will remain in the future. Corporations' interest originates from the debate in the 1990s after western corporations' operations in the global south were revealed to the public. The debate led to awareness and pressure on multinational corporations to become more conscious of their impact on society and also to act responsibly, or in a sustainable manner, throughout their operations. Thus, multinational corporations have already become a more prominent actor in socio-economic discussions (Blowfield & Frynas, 2005). Therefore, this research is also noteworthy for corporations since they get a better understanding of their potential impact.

1.2 Concepts

To understand the impact of FDI, M&A and greenfield on economic growth, it is important to have a clear comprehension of what these concepts really imply. This section will discuss the definitions of the concepts and thereafter describe the political concerns that arise with greenfield and M&A.

1.2.1 Foreign Direct Investment

A company that is active in the home country and in one or several other countries is usually called a multinational or transnational corporation. When that multinational corporation makes an investment in a foreign economy, it is often referred to as a foreign direct

investment. The definition of FDI derives from the Organization for Economic Co-Operation and Development (OECD) description of FDI:

"Direct investment is a category of cross-border investment made by a resident in one economy (the direct investor) with the objective of establishing a lasting interest in an enterprise (the direct investment enterprise) that is resident in an economy other than that of the direct investor. The motivation of the direct investor is a strategic long-term relationship with the direct investment enterprise to ensure a significant degree of influence by the direct investor in the managing of the direct investment enterprise. The 'lasting interest' is evidenced when the direct investor owns at least 10% of the voting power of the direct investment enterprise." (OCED, 2008:17).

Corporate decision-making on becoming a multinational depends on three potential sources of advantage; ownership advantage, locational considerations and internal asset keeping. The ownership advantages are key to explaining why multinational corporations exist. This is commonly modeled in terms of level of productivity among corporations. Helpman, Melitz and Yeaple (2004) provides a model of horizontal motives for FDI, with the assumption that the productivity differs between corporations. A potential firm must pay a sunk cost to determine its productivity. The model indicates that the low-productivity firms will only produce for the home market, while the medium-productivity firms will pay a higher fixed cost to export their product to other markets. It is only the most productive firms that will engage in FDI (Stepanok, 2015). When it comes to the locational advantages, research is often assessing FDI by type, either it is 'horizontal' or 'vertical'. Horizontal FDI occurs when a firm decides to replicate the domestic production to the foreign market in order to improve its market access. Vertical FDI, however, aims to reduce the production costs and it therefore establishing itself in the foreign market. The FDI type is therefore motivated from either improvement to market access or in reducing production costs. Finally, the internalization, which might be one of the most important elements, explains why some activities are carried on within firms and other through arms-length transactions. The firm tries to find the optimal degree of internalization, which reflects the balance of the transactional costs of using the foreign market and the organizational cost of running a firm (Neary).

Corporations that want to engage in FDI also need to think about the host countries' policies towards FDI. In recent years, countries have started to add restrictions regarding FDI

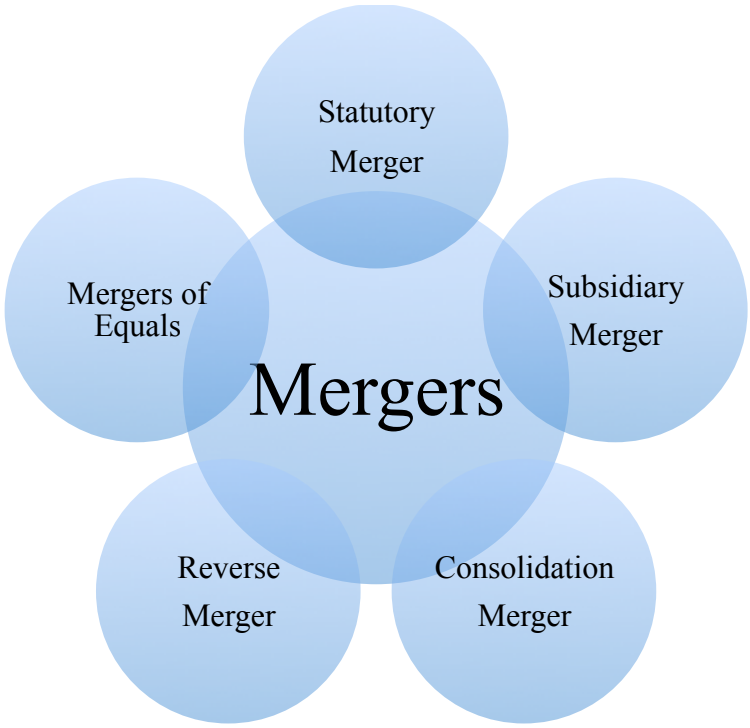
activities to protect domestic interests. An FDI index has therefore been established, which measures the countries restrictiveness towards FDI. This measurement includes four main characteristics of restrictions on FDI. These types are: foreign equity limitations, screening or approval mechanisms, restrictions on the employment of foreigners as key personnel and lastly operational restrictions. These restrictions explain, to some extent, the country's investment climate, which thereby has an effect on FDI (OCED, FDI Regulatory Restrictiveness Index).

1.2.2 Mergers and Acquisitions

The terms mergers and acquisitions are often used as substitutes even though the terms do not relate to the same sort of operations. Although this thesis uses the terms as one category of FDI entry mode, it is useful to differentiate the terms. A merger occurs when two or more companies agree to merge into a new single company, and create business cooperation instead of operating separately. An acquisition is usually defined as a business purchase existing shares of another company and thus increasing the level of ownership or control over the acquiring company (OECD, 2008).

What characterizes a merger is that two companies combine though shared resources to achieve common goals. There are several ways a merger can happen. For instance, a *statutory merger* relates to when the merged companies cease to exist after they merge into a new business. Another way a merger can occur is through a *consolidation*, which means that two or more companies join together and create a new company. A *reverse merger* occurs when the acquiring company ceases to exist and merge into the targeted company. A *subsidiary merger* indicates that the acquired company will become a subsidiary of the parent company. The last type of merger is *mergers of equals*, which means that the companies involved in the deal are of similar size (OECD, 2008).

Figure 3. Types of Mergers



Additional to the different types of mergers, mergers can also be referred to as a horizontal merger, vertical merger, market-extension merger, product-extension merger as well as a conglomerate merger. A *horizontal merger* happens when two competiting companies decides to merge which consequently leads to an increased market power. A *vertical merger* however is when two companies with complementary activities merges. For instance, a vertical merger can be between companies that have a buyer-seller relationship. With a *market-extending merger*, it indicates a merger between companies with identical products also sell their products on the same market. Another strategy can occur, merging companies that sells different but relatable products on the same market, this is called a *product-extension merger*. Finally, the *conglomerate merger* is basically all other transitions combining two or more companies (OECD, 2008).

Acquisitions, however, is a process in which a transfer of ownership can occur. This transaction can happen between the two companies through the acquiring company purchasing the targeting company's stock or assets. The targeted company can either become a subsidiary, associate or a part of a subsidiary of the acquiring company. Takeover is a form of acquisitions and implies that the acquiring firm is a lot larger in corporate size than the

targeted company. If the targeted company is bigger than the acquiring company it is instead called a reverse takeover. A takeover can signal a hostile transation in which the targeted companies management is resisting the acquisition. However, the vast majority of acquisitions are through friendly transactions. A friendly transaction is when the buyer and seller negotiate a deal on a voluntary basis. The deal is based upon mutual accommodation of the interests between the parties where they believe the deal is in their best interest (OCED, 2008; Reed et al., 2007:4,6). In a cross-border acquisition, the control of assets and operations is transferred from the host country to the foreign company.

1.2.3 Greenfield Investment

The definition of greenfield investment is a lot shorter than M&A. This is because greenfield investment simply entails when a multinational corporation decides to "start from scratch" in a foreign country. The multinational corporation is begins by purchasing real estate and then builds their own venture by constructing new operational facilities. In addition to building a new facility, most parent companies create long-term jobs in the host country by hiring new employees (OECD, 2008). The companies that are engaging in greenfield FDI are the most productive ones out of the group of FDI companies (Stepanok, 2015).

1.2.4 Concerns with the Entry Modes

A corporation's decision on whether to apply a greenfield or a M&A approach might have a potential negative effect on the relationship between FDI and economic growth. Mencinger (2003) drew that conclusion from finding a negative relationship between FDI and economic growth. But, there are political concerns among several host countries about FDI entry mode. They have specifically focused on acquisitions as a mode of entry, where it is claimed that acquisitions are less beneficial for economic development in host countries compared to greenfield investments. For developing countries, this is a significant challenge since acquisitions are common while mergers are rare. The political concern for transfer of ownership and control to foreign countries is therefore legitimate. Acquisitions do often also indicate lay-offs as well as closing production or functional operations. If the acquiring

corporation has market dominance, M&A might even lead to reduced competition in the domestic market. M&A can thereby threaten local entrepreneurial and technological capacity building. These concerns are not only economic, they are also social, political and cultural by for instance threatening the host country's culture or identity. Consequently, these concerns with M&A in developing countries emphasize that cross-border M&A is "bad" while greenfield is "good" (UNCTAD, 2000).

However, greenfield investments might be less beneficial than M&A according to several studies. Bresman et al. (1999) and Conyon et al., (2002) find empirical evidence that M&As are likely to improve productivity in the host country while greenfield investments could have a negative impact on the productivity of domestic firms in the same industry (Balsvik & Haller, 2011). Blonigen and Slaughter (2001) find evidence that greenfield investments do not increase the skill level in the host country, which is expected through technology transfer. Since the definition for greenfield FDI involves new capital assets and M&A is mainly a transfer of existing assets, it is more likely for greenfield to have an effect on economic growth through the increase of physical capital. M&A by contrast should have affected FDI by enhancing productivity growth. Nonetheless, due to the failure to distinguish between the two entry modes and their uncertain effects on the host country, governments get concerned.

2. FDI Trends

The most important factors explaining the surge of FDI inflow to developing counties have been the foreign acquisition of domestic firms in the process of privatization, the globalization of production and increased economic and financial integration. The FDI inflow into developing economies reached a peak of $765 billion dollars in 2015, which is a 9 percent increase from 2014. However, it has been concentrated in a few leading economies in Southeast Asia, while the inflows towards Latin America and the Caribbean remain flat and Africa decreases its overall inflow (De Mallo, 1997; UNCTAD, 2016). Since there is a considerable variance of FDI in the different regions, this section will focus on describing the FDI trends in the different regions as well a bit about the entry modes in these regions.

2.1 Africa

Africa has the smallest regional share of the global FDI inflow of 3.1 percent in 2015, which decreased 7.2 percent over the previous year. Since 2009, the overall inflow has varied between 3.0 percent and 4.6 percent of the global FDI. This indicates that Africa is now in a lower stage of receiving FDI, but the prognosis indicate that the inflow will have a modest increase in 2016 (UNCTAD, 2016). The domestic political and economic institutions marginalize African countries from receiving more of the global FDI flow. It also makes them unattractive to foreign investors. Significant barriers to FDI include the relatively small market size, high level of poverty, insufficient infrastructure but it is foremost due to inadequate institutions (Ferreira & Ferreira, 2016). FDI is in Africa is largely driven by natural resources (Asiedu, 2006).

Even though multinational enterprises from developing economies are becoming more active in Africa, the main investors come from developed countries. The largest investors in Africa are from the United Kingdom, United States, France, China and South Africa. The M&A sales are mostly in the manufacturing sector and especially in the furniture industry, although this varies year to year. The service sector attracts the most greenfield investments. Greenfield is a preferred entry mode for these companies compared to M&A investments (UNCTAD, 2016). Thus, it is through greenfield investments that Africa receives the most of their FDI inflow

2.2 Asia

FDI has played a significant role in development in Asia. The region is the largest recipient of FDI inflow in the world and has also surpassed half a trillion dollars in 2015. However, a majority of the FDI inflow is in relatively high-income and/or large economies. Hong Kong, China, Singapore and India receive more than 75% of the total inflow in Asia. Nevertheless, the remaining countries in Asia are still receiving a high FDI inflow compared to other countries on different continents. Asia has historically been associated with the positive effect of FDI. For instance FDI has benefited the continent with accumulated capital, technological transfers, employment, export generation, which have all promoted economic growth and development (Jarvis, 2012; UNCTAD, 2016).

When it comes to the FDI entry modes, the value of greenfield investments in Asia is substantially larger than the value of cross-border M&A sales. It is the service sector as well as the manufacturing sector that generate the most value of greenfield investments. The service sector is also the most significant contributor towards cross-border M&A sales (UNCTAD, 2016).

2.3 Latin America and the Caribbean

Latin America and the Caribbean, excluding the Caribbean offshore financial centers, have been an attractive destination for FDI from the United States. However, boom of FDI flow towards China has led to higher competition, as the Latin American and Caribbean countries need both cheap labor and skilled workers to attract American corporate investment (Williams, 2015). Despite this, the FDI inflow has been relative stable since the rush of inflow in 2009. The vast majority of FDI to Latin America and the Caribbean comes from investments into South American countries. It is especially the United States and Spain that invest most into the region (UNCTAD, 2016).

Corporations that are investing in Latin America and the Caribbean seem to have similar preferences towards the different foreign entry modes, cross-border M&A sales and greenfield projects. Greenfield investments are more popular in the service sector, specifically the electricity, gas and water industry. Alternatively, corporations in the manufacturing sector prefers M&A investments, where the food, beverages and tobacco industry create the largest investments (UNCTAD, 2016).

3. FDI and Economic Growth

Economic growth is traditionally acknowledged as a combination of the production factors, capital and labour, in a country during a certain period of time. These are also the elements in the so-called Cobb-Douglas production function where the output is a function of variable capital and labour. Changes in total output in the country, which is typically measured as GDP, are also affected by an increase in capital, labour or technology. Technology has a

central impact on the GDP, in which case the human capital becomes important since it affects the populations' ability to absorb technological developments. Due to the differences in the skills of the labour force, the value of capital stock and the level of technology that is used in the production, countries have different potential productiveness. Consequently, this leads to differences in economic levels. The major gaps in economic levels among countries are a consequence of the initial conditions and the ability to successfully promote economic growth policies. A country's productiveness depends upon two key elements: the efficiency of labor and capital intensity. The efficiency of labor describes how technology is deployed to increase the amount of output a worker can produce. Capital intensity is defined as how real capital is used to enhance productivity of workers when technology is fixed. The relationship between the quality of labour, quality of capital and the level of technology determines the nations production function. These two variables are the main components in the standard long-run growth theory called Solow's growth model. The model shows that, through savings and investments, the economy can increase capital intensity. In the long run, the model emphasizes that the country's technological process is the crucial factor to increase GDP growth (Berg, 2008; DeLong).

One of the most significant parts of macroeconomic theory and policy to this research is economic growth. The dynamic equilibrium issue is something that economic growth theory emphasizes, and the theory attempts to find a solution to the question of what kind of variables can generate sustainable increases in real gross domestic product per capita in the long run (Sredojević, et al, 2016). The theoretical foundations that are applied while examining the relationship between FDI and economic growth derive from the neoclassical models or the endogenous growth models. The neoclassical model promotes economic growth through increases in investment volumes or its efficiencies. While the new endogenous growth model indicates that the growth rate is an outcome from technological transfers, diffusion and spillover effects (Neto et al., 2010).

The endogenous growth model is developed from the neoclassical model to understand long-term growth. The neoclassical model views technological change, which is a key variable of economic growth, as exogenous and is therefore unable to explain technological change's significance for the economic growth rate. The endogenous growth model, however, emphasizes the factors necessary to intensify economic development in countries. The highlighted factors are, for example, the creation of knowledge, education and technological

transfer. Consequently, the endogenous theory acknowledges the strength of influence on the growth rate as well as why growth can be increased. Endogenous growth models have determined that the character of both human capital and technology are complementary determinants of economic growth rate and the level of per capita income. The ability to obtain technological knowledge varies among countries and might be a result of economic agents' behavior and the government's economic policy. Technology is a specific knowledge and is differentiated from the general knowledge, which can be applied anywhere in the same way. It is therefore important for countries to support investment in social and human resources to promote their technological capacities. Endogenous growth theory is thereby justifying countries to have active policies to encourage growth through direct or indirect investments to improve human capital. The model is therefore also supportive of foreign entities' investments whether it is directly through capital accumulation or the indirect knowledge spillover effects from their activities in the country (Sredojević et al, 2016).

The neoclassical view is that FDI does not enhance the long-run growth rate but is instead tied to the level of output. Increasing the FDI inflow would result in a temporary increase in capital and income per capita because the long run decreases the returns on capital. FDI would therefore have a limited effect on economic growth through capital accumulation. However, the neoclassical model argues that FDI can increase economic growth in the long run through technological enhancements and from population growth, since that implies a larger labour force. The endogenous growth model, in contrast, argues that FDI can increase growth in the long run by research and development, human capital and from technological and knowledge spillover effects. The endogenous growth model is therefore assuming that there will be increasing returns to scale from FDI, while the neoclassical model emphasizes diminishing returns of the marginal product of capital in the long run (Adams & Opoku, 2015; Neto et al., 2010).

3.1 FDI Impact on Economic Growth

Developing countries face inadequate savings and liquidity constraints, which result in the important role of FDI inflow to gain more capital in order to achieve sustainable development. Foreign corporations are able to introduce new products in the host economy and the domestic firms can benefit from accelerated diffusion of new technology. The technological benefits and additional direct capital inflow suggest that FDI plays a crucial part in modernizing host economies and promoting growth. Hence, FDI is expected to affect economic growth through two angles. Firstly, by directly increasing the stock of capital in the host country. It is also expected that FDI will increase growth by encouraging integration of new technology and inputs in the production process. The second impact FDI has on economic growth is indirect knowledge transformation. FDI is predicted to enhance the existing knowledge level in the host country through teaching the employees new skills from labour training or from introducing alternative management and organization practices, which would increase the labour productivity. However, the magnitude of the indirect growth effects depends upon the economic and institutional development in the host country (Adams & Opoku, 2015; Alfaro et al., 2004; Elkomy et al., 2016; Neto et al., 2010).

The general consensus is that the effect of FDI is determined by the capacity to absorb the technological and knowledge transfers. Thus, there is a threshold of domestic human capital needed for FDI to affect economic growth. For example, Borensztein, Gregorio and Lee (1998) developed an endogenous growth model where FDI causes long-run economic growth through FDI's effect on the rate of technological differences between the industrialized and host countries. They used a Seemingly Unrelated Regression with instrumental variables estimation to conduct the cross-country analysis with panel data of 69 countries during the time periods 1970-1979 and 1980-1989. The evidence suggests that the effects from FDI on economic growth is dependent on the level of human capital available in the host country. This means that the relationship between FDI and human capital is strongly positive. The beneficial technological transfers and knowledge spillovers are therefore not a natural phenomenon that happened due to FDI inflow. It is however a consequence of appropriate economical policies and supportive institutional framework in the host countries. However, other studies argue that the effects of FDI on economic growth relate to the domestic stock of human capital (Elkomy et al., 2016)

The empirical literature on the subject, while large, is nevertheless inconclusive of FDI effect on economic growth. A lot of studies that have investigated the relationship between

economic growth and FDI have been on the macroeconomic level. These studies conclude that FDI has an unclear impact on overall economic growth, but in the cases of developing countries the evidence supports the theory, and emphasize that FDI has a positive impact on growth (Neto et al., 2010). However, the effects might depend on which sector foreign companies invest in. Alfaro (2003) finds evidence that the FDI inflows in the different sectors in the economy exercise different effect on economic growth. FDI inflow into manufacturing sector has a positive effect on growth while into the primary sector has a negative effect. The evidence on the service sector is however, debatable.

Furthermore, it is only a small amount of literature that narrows it down to investigate the FDI entry modes relationship with economic growth. A study that has analyzed greenfield and M&A impact on growth is for example Calderón, Loayza and Servén (2004). They investigated the links between the two entry modes and their dynamic relationship with domestic investments and economic growth in a large cross-country time-series data set, including 72 countries during the time-period 1987-2001. They conclude that expansions in M&A would be followed by an increase in greenfield investments. Consequently, an increase in greenfield investments would ensure that the FDI boom would continue in the future even after the privatization has stopped. Regarding the entry modes' link to domestic investments, it is concluded that the entry modes lead domestic investments but they are also led by economic growth. Consequently, FDI do not lead to economic growth, which in turn serve as a pull factor for foreign investments.

Another empirical study is Wang and Wong (2009), which is following the empirical specification in Borensztein et al (1998) but separates the foreign entry modes to investigate the effects on economic growth in the host country. Their sample contains 84 countries over the timespan 1987 to 2001, using a weighted least square estimation for their regressions. The study concluded that the growth effect of greenfield is significant positive while M&A is negative. Like Borensztein, they find that for M&A to have a positive affect on economic growth, the host country need to have a certain human capital level. In contrast, greenfield investments promotes economic growth without the dependence on human capital level.

The evidence of greenfield investment and M&A effect on economic growth in developing host countries is consequently unclear. This research therefore aims to further investigate these impacts.

4. Empirical Specification

The empirical literature on FDI impact on economic growth has inconsistent evidence of the effects of FDI. Some studies find evidence of a positive FDI influence on economic growth while others find insignificant or even negative relationships. The issue has emerged from insufficient data. However, it is possible to resolve the issue by conducting panel data models to analyze FDI and growth, which is a common method among researchers. Thus, we are able to correct for the differences and evolving factors in the different countries such as technology, socioeconomic and production. By using a panel data model, we are therefore allowed to control country-specific effects as well as include dynamic, lagged variables that can assist in controlling for omitted variables and endogeneity problems (Neto et al., 2010). Hence, this research will therefore conduct a panel data model to examining how greenfield and M&A affect economic growth.

To assess the empirical effect of FDI in host country *i* on the per capital real GDP growth (Growth) at the time *t,* we following the empirical specification from Borensztein et al (1998). The most basic formulation to empirically assess the effects FDI has on economic growth is expressed in equation 1. To analyze the relationship between FDI and economic growth involves running regressions for the rate of growth on the rate of FDI inflow as a percentage of real GDP (*FDI*). Equation 1 captures FDI, human capital (*H*), initial GDP (*Y*) in the host country and A, which is a set of explanatory variables that affects economic growth.

$$Growth_{it} = \beta_1 + \beta_2 FDI_{it} + \beta_3 H_{it} + \beta_4 Y_{it} + \beta_5 A + \varepsilon_{it} \quad (1)$$

Additional control variables are included to control for other influences on the economic growth in host countries. These additional explanatory variables are identified from Levine and Renelt (1992), which focuses on finding a set of robust variables, to create a growth regression. The core explanatory variables (*A*) for economic growth include population growth, human capital, initial GDP and the degree of trade openness. These explanatory variables are used in several other studies, such as Neto et al. (2010) and Wang and Wong (2009). Since previous research has also highlighted the significance of a certain level of

human capital for FDI to have a positive impact on economic growth, we are also including an interaction term (FDI*H), which is common to most of the previous studies. Additionally, there is also an expectation that FDI will have a lagged effect on growth, since the technological transfer and knowledge spillover takes time to create an effect on the growth rate.

Since this research is aiming to specifically investigating how the different entry modes affect economic growth in host countries we are also including the variables value of cross-border M&A sales (*MA*) in the host country and the value of greenfield projects (*GF*). Which is expressed in equation 2.

$$Growth_{it} = \beta_1 + \beta_2 GF_{it} + \beta_3 MA_{it} + \beta_4 H_{it} + \beta_5 Y_{it} + \beta_6 A + \varepsilon_{it} \qquad (2)$$

4.1 Data Description

The majority of our data is collected from the World Bank and the UNCTAD databases. The dependable variable is in these regressions the logarithm of *per capita real GDP growth* in the host countries. Explanatory variables such as population growth, inflation, and government expenditure are all obtained from the World Bank, as well as the dependent variable. *Population growth* is the annual growth of the population. *Inflation* is defined as the logarithm of consumer price index (CPI). *Government expenditure* is another significant variable for economic growth and is measured as a percentage of GDP.

The data on FDI, greenfield investments, M&A comes from the UNCTAD World Investment Report Annexes, while trade openness is from their statistical database. *FDI* is defined as the FDI inflow as a ratio of GDP. FDI inflow is describes as a net increase in liabilities with three components: equity capital, reinvested earnings and intra-company loans. It is thereby possible for the FDI inflows to be negative if one of theses components is negative and is not offset by positive amounts in the remaining components (UNCTAD, FDI Flows). *Greenfield investment* is the value of greenfield projects by destination as a percentage of GDP. *Cross-border M&A* is the real value of M&A sales as a percentage of GDP in the host country. A cross-border M&A sale is calculated on a net basis as the sales of companies in the host

economy to the foreign multinational corporation minus sales of foreign affiliates in the host economy. The data is also restricted to only cover the deals that involve acquisition of more than 10 percent of the equity. *Trade openness* is an explanatory variable for economic growth. Trade openness is a measurement of total import and export of goods and services as a ratio of GDP.

Human capital is a significant factor in economic growth as emphasized above. Since there is no real data on human capital, it is very common to use education as a proxy for human capital. A well-educated population is usually connected with a high level of labour productivity. It also implies larger numbers of skilled workers that have the ability to absorb advanced technology from developed countries (Barro & Lee, 2011). The variable of education level, average years of schooling for the population over 15 years old, is collected from the Barro and Lee well-established educational dataset. Barro and Lee have constructed a dataset covering 146 countries between 1950 and 2010. However, the dataset is collected and reported upon on a five-year interval and not yearly. In order to fill the missing observations we have used the data for 2000 for 2003 and 2004, 2005's observation for the period 2005-2009 and 2010's observations for 2010-2015. We provide a summary of the statistics in Table 1.

Table 1
Summary Statistics

Variables	Obs.	Mean	Std. Dev.	Minimum	Maximum
Growth Rate (%)	369	1.117958	0.8190039	-3.933589	2.769611
FDI (%)	416	0.04304	0.0625412	-0.0238243	0.6069461
Greenfield investment (%)	416	0.0531418	0.1902067	0.0005663	3.710713
M&As (%)	416	0.0059853	0.0124187	-0.0353561	0.0962631
School (in years)	416	7.646154	1.895028	3.82	12.05
Inflation (%)	406	5.807134	4.327516	-2.673797	26.67495
Government Expenditure (%)	416	18.04389	9.75683	0	38.6081
Population Growth Rate (%)	416	1.623095	1.287561	-1.474533	7.773737
Initial GDP (%)	416	11.6479	1.434448	8.858363	14.69098
Trade openness (%)	416	98.25699	84.80648	0	444.1567

4.3 Potential Endogeneity Problems

A noticeable concern with conducting cross-country regressions is that there may be endogeneity problems. This is because the correlation between FDI, and its entry modes, and economic growth rate can emerge from an endogenous calculation of FDI, which suggests that FDI for instance is influenced by the same factors as the growth rate. This specifically indicates that FDI can promote both economic growth and a higher growth rate simultaneously could attract more foreign corporation. A correlation can therefore exist between FDI and the country-specific error term. However, the endogeneity problem can be avoided by including instrumental variables. It is necessary for the instrument to be highly correlated with the endogenous variable but at the same time not be error term in the regression. Therefore, we have included instrumental variables to control for the possible endogenous problem in the regressions. The instruments we are using in the regressions are the lagged values of FDI, greenfield and M&A, the logarithmic value of initial GDP, a logarithmic value of land size, dummy variables for the continents as well as the measurement of political stability. The data on land size comes from World Bank Indicators and measurement of political stability is collected from Worldwide Governance Indicators.[1]

[1] View Appendix B for more information about the data description.

4.2 Data Limitation

The research has obtained data between 2003 and 2015. The timespan is restricted due to limited reported data on greenfield investments from the UNCTADs World Investment Report. Previous research has assumed that the value of greenfield investment is the gap between value of FDI inflows and value of M&A. Although this construction of data is a known approach to establish a longer timeline of greenfield data, this research prefers to focus on the actual reported data. The reported greenfield values started to be collected in 2003 and the latest reported data is from 2015.

Additionally, unlike the other studies, this research focuses specifically on developing countries. The definition of which countries that are classified as developing, rather than transitional or developed, comes from the World Bank. However, all countries do not have observable data for the selected time period in the various variables, resulting in a limitation of countries included in our sample. The majority of countries that got excluded were because of lack in data on the value of FDI, M&A and greenfield investments. For a country to be included it needed to have at least 7 observations in each variable throughout the 13-year timespan. Thereafter, other countries were dropped because of lack of observations in the other determining variables. For example, China does not have reported data on government expenditure and was therefore excluded. Consequently, the amount of countries applicable for the research is 32 countries[2].

5. Empirical Results

The purpose of empirical investigation is to estimate the effects of FDI on economic growth and specifically how greenfield investments and M&A affect growth. As mentioned above, we are expecting to find that the entry modes will have different effects on growth due to their different characteristics. For the results to be statistical significant for our research the coefficient needs to have a p-value smaller than 0.1.

[2] See Appendix A for the list of countries that is included.

From running several regressions with OLS methods, it become noticeable that it was necessary to perform a Hausman test to decide whether or not to use random or fixed effects. The null hypothesis in the Hausman test implies that random effects is preferred over fixed effects. In this case, the research could not reject the null hypothesis because the p-value is high. Therefore, the regressions will be estimated with random effects.

5.1 The Effects From FDI on Economic Growth

We present the estimated results in Table 2, which highlight the overall FDI impact on economic growth. Specification (2.2) is the general growth model as explained in equation 1 earlier. It includes FDI, schooling as our proxy for human capital and some of the robust variables that were identified in Levine and Renelt (1992). FDI is statistically significant and positive in the majority of regressions. Interestingly, the coefficient in regression (2.3) – (2.5) indicates that FDI has a huge impact on growth, as a 1 percent increase in FDI would lead to around 20 percent increase in economic growth. It might be due to the importance of external resources, which is not debt related, in these developing countries. Other variables that are significant for economic growth is government expenditure and population growth. In specification (2.3) we add the interaction term between FDI and schooling as well as the lagged value of FDI. Both of which are significant in our findings and have a negative effect on growth. The interaction term is able to capture any complementarity between human capital and FDI or to test if there is a technological diffusion or transfer. If there would be a technological transfer we are expecting a positive coefficient, however, our results emphasize a negative linkage.

Our results are supporting the theory in which FDI has a significant impact on economic growth, which many policymakers and academics stress as well. These results are different, however, from the ones in Borensztein et al. (1998), which find that the coefficient of FDI is significantly negative and that the interaction term is significant positive. Our results suggest significant positive coefficients for FDI as well as a significant negative relationship with the interaction term.

Table 2

FDI Impact on Economic Growth

VARIABLES	(2.1)	(2.2)	(2.3)	(2.4)	(2.5)
FDI	1.273	2.618**	21.47***	20.34***	19.59***
	(1.064)	(1.035)	(5.489)	(5.535)	(5.427)
School	-0.0382	-0.0980**	-0.0215	-0.0414	-0.0340
	(0.0415)	(0.0414)	(0.0394)	(0.0435)	(0.0387)
Inflation		-0.0568	-0.0461	-0.0269	-0.0636
		(0.0672)	(0.0668)	(0.0690)	(0.0680)
Government Expenditure		0.0134***	0.0111**	0.0118***	0.0100**
		(0.00443)	(0.00439)	(0.00442)	(0.00439)
Population Growth		-0.321***	-0.249***	-0.267***	-0.283***
		(0.0555)	(0.0547)	(0.0558)	(0.0528)
Initial GDP		0.0391	0.0335	0.0387	-0.142**
		(0.0553)	(0.0464)	(0.0504)	(0.0629)
FDI*School			-1.482***	-1.482***	-1.342***
			(0.515)	(0.518)	(0.503)
Lagged FDI			-6.115***	-7.071***	-6.041***
			(1.717)	(1.778)	(1.769)
Trade openness				0.00246**	0.00186
				(0.00122)	(0.00138)
Political Stability				-0.00576	0.105
				(0.0888)	(0.0855)
Africa dummy					-0.626***
					(0.185)
Latin America and the Caribbean dummy					-0.717***
					(0.185)
Land size					0.151***
					(0.0467)
Constant	1.330***	1.615**	1.035	0.959	1.680**
	(0.314)	(0.699)	(0.646)	(0.668)	(0.699)
Observations	369	362	332	332	332
Number of countrygroup	32	32	32	32	32

Standard errors in parentheses

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

5.2 Greenfield Investment and M&A Effects on Economic Growth

The purpose of this research is to investigate how greenfield investments and M&A affects economic growth. Since the theory implies that there should be a positive impact on growth

due to the transfer of physical capital accumulation and the knowledge and technological transfer, we are expecting the relationship to have a positive coefficient. Table 3 presents greenfield investments and cross-border M&A impact on economic growth in developing countries.

In table 3 we find that M&A is only significant in specification (3.2) but otherwise showing a positive relationship. Greenfield is positive and insignificant in (3.1) and (3.2) and thereafter negative and significant in (3.3) and (3.4). Both entry modes are however insignificant in (3.5) which is the specification that includes all explanatory variables and IV instruments and is thereby the specification that tries to eliminate potential endogenous problems. Since none of these entry modes are statistically significant, this supports Blomstrom et al. (1996) and Calderón et al. (2004), that these entry modes don't have an impact on economic growth. However, they conclude that growth leads to investments in greenfield and M&A and not the other way around.

It is also interesting that M&A seems to have positive coefficients while greenfield has negative ones. In developing countries, firms seem to prefer greenfield over M&A, except in Latin America and the Caribbean where there is no preference. Furthermore, there are political concerns that indicate that M&A is "good" and greenfield is "bad" for host countries. However, according to theses specifications, greenfield looks to create negative impact on economic growth while M&A is the "good" entry mode for host countries, which is opposite to Wang and Wong's (2009) evidence. What we see is also that greenfield investments and M&A have different effects on economic growth, as expected.

Greenfield does seem to have a significant positive relationship when it comes to the interaction term. This emphasizes that greenfield investments are affected by the level of education in the country while M&A is not affected. None of the lagged variables has significance. The indirect effects of greenfield and M&A might take longer than a year to affect growth.

Table 3

Greenfield FDI and Cross-Border M&A Impacts on Economic Growth

VARIABLES	(3.1)	(3.2)	(3.3)	(3.4)	(3.5)
Greenfield	0.0712	0.0724	-5.860*	-5.769*	-4.337

	(0.200)	(0.188)	(3.319)	(3.332)	(3.278)
M&A	4.842	6.884**	12.53	18.42	16.10
	(3.585)	(3.453)	(14.60)	(15.03)	(14.63)
School	-0.0261	-0.0651*	-0.0825**	-0.0992**	-0.0865**
	(0.0391)	(0.0380)	(0.0394)	(0.0440)	(0.0421)
Inflation		-0.0504	-0.0383	-0.0222	-0.0754
		(0.0672)	(0.0687)	(0.0702)	(0.0695)
Government Expenditure		0.0120***	0.0116***	0.0130***	0.0108**
		(0.00441)	(0.00445)	(0.00456)	(0.00451)
Population Growth		-0.318***	-0.279***	-0.292***	-0.314***
		(0.0553)	(0.0556)	(0.0561)	(0.0550)
Initial GDP		0.0345	0.0250	0.0303	-0.174***
		(0.0539)	(0.0437)	(0.0468)	(0.0641)
Greenfield*School			0.895*	0.878*	0.655
			(0.499)	(0.501)	(0.493)
M&A*School			-0.872	-1.753	-1.338
			(1.700)	(1.779)	(1.731)
Lagged Greenfield			0.0702	0.0637	0.0146
			(0.188)	(0.188)	(0.184)
Lagged M&A			2.224	1.308	2.535
			(3.697)	(3.747)	(3.667)
Trade Openness				0.00156	0.00209*
				(0.000953)	(0.00113)
Political Stability				-0.0214	0.105
				(0.0860)	(0.0870)
Africa dummy					-0.639***
					(0.186)
Latin America and the Caribbean dummy					-0.712***
					(0.177)
Land Size					0.173***
					(0.0471)
Constant	1.261***	1.498**	1.664***	1.558***	2.254***
	(0.309)	(0.685)	(0.600)	(0.604)	(0.686)
Observations	369	362	332	332	332
Number of country group	32	32	32	32	32

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

The relationship between economic growth and average years of schooling is significant but negative. For example, an increase in schooling with one year would result in a decrease of 0.08 percent in growth in specification (3.5). The idea that schooling would have a negative impact on economic growth is interesting since it is inverse to what the theory says about human capital being an essential element in growth.

5.3 Robustness Check

A few previous studies have included domestic investments while examining FDI impact on economic growth. This is because domestic investments are also contributing to physical capital accumulation in the host country, which can in turn have an effect on economic growth (Wang & Wong, 2009). The purpose with doing a robustness check is important to empirical ensure that the regressions are structural valid. The test examines how certain core regression coefficient estimates, in our case greenfield and M&A, behave when the regression specification is modified by adding or removing variables. If the coefficients don't change much, it is considered evidence that the coefficients are then robust (Lu and White, 2014). By controlling for domestic investment, we can test if the effects of greenfield and M&A are robust in our study. The variable domestic investment is measured as a share of GDP and the data is gathered from the World Bank Indicators. Table 4 reports the estimation with the addition of domestic investment. The coefficients of domestic investment are positive and significant for all the regressions. For example, in regression (4.3), we find that a 1% increase in domestic investment would lead to an increase in economic growth of 0.0318 %. This means that the sample's average growth rate of 1.12% would increase by 2.8 percentage points.

The importance of adding domestic investments as a control variable was to see if the coefficient of greenfield investments and cross-border M&A would be robust. We can see in Table 4 that the significance for the variables is similar to those in Table 3. The coefficients for M&A remain positive and it continues to be only the second regression that is significant. Greenfield coefficients remain positive in the first two regressions and negative in the last three. The significance for the third and fourth specification has become more significant, when comparing with Table 3. Neither of the lagged variables not the interaction terms with human capital change while adding the control variable. Due to lack of large changes in the coefficients, we are thereby able to conclude that the coefficients are robust.

Table 4

Greenfield FDI and Cross-Border M&A Impacts on Economic Growth with Domestic Investment

VARIABLES	(4.1)	(4.2)	(4.3)	(4.4)	(4.5)
Greenfield	0.0289	0.0261	-6.969**	-6.659**	-4.813

	(0.199)	(0.187)	(3.244)	(3.262)	(3.262)
M&A	4.821	7.435**	11.71	17.02	16.11
	(3.517)	(3.407)	(14.23)	(14.76)	(14.55)
Domestic Investment	0.0306***	0.0320***	0.0318***	0.0309***	0.0192**
	(0.00961)	(0.00943)	(0.00801)	(0.00818)	(0.00899)
School		-0.0755**	-0.0838**	-0.0875**	-0.0825**
		(0.0365)	(0.0358)	(0.0400)	(0.0404)
Inflation		-0.0880	-0.0469	-0.0400	-0.0836
		(0.0670)	(0.0659)	(0.0683)	(0.0688)
Government Expenditure		0.0106**	0.00953**	0.0112**	0.0101**
		(0.00436)	(0.00435)	(0.00450)	(0.00449)
Population Growth		-0.314***	-0.253***	-0.265***	-0.290***
		(0.0538)	(0.0516)	(0.0525)	(0.0539)
Initial GDP		0.0166	0.0178	0.0134	-0.153**
		(0.0513)	(0.0380)	(0.0416)	(0.0613)
Greenfield*School			1.053**	1.004**	0.722
			(0.487)	(0.490)	(0.491)
M&A*School			-0.734	-1.492	-1.289
			(1.642)	(1.743)	(1.719)
Lagged Greenfield			0.0257	0.0229	-0.0142
			(0.188)	(0.187)	(0.185)
Lagged M&A			2.343	1.737	2.821
			(3.662)	(3.729)	(3.670)
Trade openness				0.00119	0.00189*
				(0.000878)	(0.00109)
Political Stability				-0.0545	0.0620
				(0.0783)	(0.0855)
Africa dummy					-0.545***
					(0.180)
Latin America and the Caribbean dummy					-0.536***
					(0.184)
Land Size					0.146***
					(0.0459)
Constant	0.305	1.067	0.968*	0.925*	1.743**
	(0.252)	(0.662)	(0.542)	(0.550)	(0.684)
Observations	369	362	332	332	332
Number of country group	32	32	32	32	32

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

6. Conclusion

FDI has become an important source of external finance for developing countries. These countries emphasize the benefits of FDI since it does not require borrowing from foreign

countries and increasing public debt. The FDI inflow towards developing countries has increased in recent years and will likely continue due to the globalized world we live in. FDI is considered to be a vehicle, transferring both physical capital and technology to host economies. Thus, the economic growth theory implies that there should be an effect on economic growth from FDI. However, the empirical evidence is inconclusive about how FDI can affect growth and whether there are some determining factors that must be in place for the inflow to have an impact on the growth level in the host country. Since there is a gap in the literature on FDI entry modes' impact on economic growth, it is assumed that the entry modes also would have positive impact on growth. However, since M&A involves purchasing existing domestic firms facilities and greenfield investments means that the corporation starts by setting up a new facility in the host country, we are therefore expecting the two different forms of FDI to have different impacts in the host country (Wang & Wong, 2009).

In this research we are therefore investigating if the entry modes have an impact on economic growth in developing countries. Based on data from 32 developing countries during the time period 2003-2015, we found that neither greenfield investment nor M&A have a significant impact on economic growth, which supports the findings in Blomstrom et al. (1996) and Calderón et al. (2004). In addition, the results indicate that greenfield investments and M&A are not depend upon the host country's level of human capital. In general, the results support that greenfield and M&A have different impacts on economic growth, since greenfield have negative coefficients and M&A positive ones. Consequently, our results cannot provide evidence that greenfield investments or M&A have an effect on economic growth.

Furthermore, the literature on greenfield and M&A impacts in host countries is lacking and need to expand. More research is needed to assessing the benefits of greenfield and M&A is needed on both country and industry levels. This is significant for both governments and corporation. For corporations, it is important to know their impact in the host countries to become more conscious. Governments need to know how the entry modes affect their country in order to have suitable FDI policies that are supporting domestic interests.

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Appendix

Appendix A - List of Countries

List of Countries		
Bahrain	India	Peru
Bangladesh	Indonesia	Philippines
Botswana	Jordan	Singapore
Brazil	Kenya	South Africa
Chile	Korea, Republic of	Sri Lanka
Colombia	Kuwait	Thailand
Egypt	Malaysia	Tunisia
El Salvador	Mauritius	Turkey
Ghana	Morocco	Uruguay
Guatemala	Nicaragua	Vietnam
Hong Kong	Pakistan	

Annex B - Data Description

Variable	Definition	Source
Growth	GDP per capita growth (annual %)	World Bank Indicators

FDI	Real FDI inflow (% of GDP)	UNCTAD, FDI/MNE database
M&A	Real M&A value of seller (% of GDP)	UNCTAD cross-border M&A database
Greenfield	Real value of greenfield investment (% of GDP)	UNCTAD, based on information from the Financial Times Ltd, fDi Markets
School	Average years of schooling for the population aged 15 and over (In Years)	Barro and Lee Database www.barrolee.com
Inflation	Consumer price index (annual %)	World Bank Indicators
Trade	Trade openness indicator – Total trade of goods and services, total sum of export and import (% of GDP)	UNCTAD statistical database
Government Expenditure	Expense (% of GDP)	World Bank Indicators
Population growth	Population growth (annual %)	World Bank Indicators
Domestic Investment	Gross capital formation (% of GDP)	World Bank Indicators
Political Stability	Political stability and Absence of Violence/Terrorism (estimate of governance performance)	Worldwide Governance Indicators
Land Size	Land area (sq. km)	World Bank Indicators
Lagged FDI		UNCTAD, FDI/MNE database
Lagged Greenfield		UNCTAD, based on information from the Financial Times Ltd, fDi Markets
Lagged M&A		UNCTAD cross-border M&A database

FDI* School	Interaction term	UNCTAD, FDI/MNE database / Barro and Lee Database
Greenfield*School	Interaction term	UNCTAD, based on information from the Financial Times Ltd, fDi Markets / Barro and Lee Database
M&A*School	Interaction term	UNCTAD cross-border M&A database / Barro and Lee Database