# Entrepreneurship – the Spark of Prosperity

***How does FDI influence local entrepreneurship in African countries and how do country characteristics affect this relationship?***

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# Abstract

Recently, several international organisations and scholars have recognised entrepreneurship to have an increasingly crucial role in ensuring economic growth and continuous progress in developing countries. As these economies also depend on foreign direct investment (FDI), it seems highly relevant to study the relationship between these two phenomena in order to uncover the impact that FDI inflows have on entrepreneurship in these countries. This paper endeavours to contribute to this topic by examining how FDI inflows influence entrepreneurship in the African region and how different country characteristics affect this relationship. Thus, the thesis applies an econometric model to 23 African countries that measures the impact on an aggregate regional level as well as on individual country levels. Further, the individual effects are studied in depth by investigating country characteristics from a quantitative and qualitative perspective and thus study the spillover effects that FDI inflows create in these economies. The paper finds that FDI influences entrepreneurship positively on the aggregate level but differently across the 23 African countries. Three of them, Ghana, Mali and Zambia, experience significant effects of FDI, while the remaining 20 countries show no impact. In Ghana, FDI influences entrepreneurship negatively but in Mali and Zambia, FDI has a positive effect. The analysis shows that the combination of different country characteristics affects this relationship immensely, creating different dynamics in each country. The key drivers of the significant effects are conditions such as investment flows and directions, business environment, access and quality of education and employment conditions. Thus, the thesis concludes that FDI inflows have a positive effect on the regional level while the effect is more ambiguous across countries in the African region. As the effect depends highly on individual country characteristics, the paper suggests that it is beneficial for governments and policymakers, who wish to improve the ability to transform FDI inflows into entrepreneurship, to focus on issues such as investments and business reforms, the nation's absorptive capacity and domestic employment conditions. Finally, the paper concludes that it is beneficial to study this highly complex topic from a qualitative perspective, focusing in each individual country, as this allows the researcher to uncover underlying mechanisms that a quantitative analysis might not capture.

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Chapter 1

# 1 Introduction to the project

## 1.1 Motivation

At the annual Global Entrepreneurship Summit over 700 entrepreneurs, government officials, investors, banks and supporters from 170 countries participate to show their commitment to supporting entrepreneurship as a key driver of growth and development (World Bank, 2016). The topic of entrepreneurship's role in economic development is highly contemporary in the discussion of how developing countries are to lift themselves out of poverty, as entrepreneurship plays a pivotal role in economic growth through the creation of new businesses, which creates jobs and in turn contributes to economic development (Acs, 2006). Entrepreneurship further acts as a conduit through which knowledge from foreign direct investments (FDI) made by multinational enterprises (MNEs) spills over to the local community (Meyer, 2004). These knowledge spillovers can be on matters such as technology, management and working practices that are transferred to the local environment through diffusion mechanisms (Borensztein, De Gregorio, & Lee, 1998; Javorcik, 2004; Markusen & Venables, 1999).

The literature on the effect of FDI on domestic entrepreneurship in developing countries is still very limited and the results are ambiguous (Danakol, Estrin, Reynolds, & Weitzel, 2017). On a positive note, FDI is found to promote domestic entrepreneurship as locals, previously employed by MNEs, can exploit the often superior knowledge that they have gained from working in a foreign firm to set up their own business (Blomström & Kokko, 1998) and the presence of foreign firms increases demand for local inputs and intermediate goods, which promotes local innovation and new firm creation (Markusen & Venables, 1999). Others point to negative consequences such as increased competition in labour markets (Aitken & Harrison, 1999), meaning that foreign firms can pay higher wages to workers and thus keep locals from starting their own firms or that FDI crowds out domestic investments, which means that local firms struggling to keep up with increased competition are driven out of the market and potential entrepreneurs are kept out (Adams, 2009; Caves, 2007).

An important angle on the effect of FDI on entrepreneurship, and a possible explanation for the unclear direction and magnitude of this effect, is that it depends on country-specific characteristics such as the absorptive capacity of its human capital stock, political stability, the development state of the economy and financial and institutional support of entrepreneurship (Acs, Audretsch,

Braunerhjelm, & Carlsson, 2009; Borensztein et al., 1998; Danakol et al., 2017; Forte & Moura, 2013; Nair-Reichert & Weinhold, 2001). This angle stresses the importance of a cross-country comparison, which might reveal certain country-specific conditions that enable FDI to spur economic growth through local entrepreneurship.

With the huge increase of FDI inflows to developing countries and entrepreneurship's crucial role in economic growth, it seems more pressing than ever to investigate and understand the relationship between FDI and entrepreneurship so that policy makers in developing countries can take action in the best interest of their country's development (Acs, 2006; Baumol & Strom, 2007; Koellinger & Thurik, 2012; Meyer, 2004; Rand, 2015). More specifically, inspired by the request of Meyer (2004), this paper addresses one of the dynamics of MNE's in developing countries by investigating how FDI impacts local entrepreneurship, measured as the yearly increase in newly registered businesses per 1,000 people (New Business Density), across the African countries.

Africa is the least developed region in the world with 33 out of 54 countries classified as least developed countries (United Nations, 2018), while the region itself is referred to as a developing region with 35 pct. of the population living under the poverty line of US$1.90 per day in 2013 (World Bank Group, 2013). Africa is the second most populated continent with 1.2 bn. people in 2018 (World Population Review, 2018) but struggles with some of the highest unemployment rates and lowest GDP levels in the world. The average unemployment rate across all 54 African countries was 7.9 pct. in 2017 compared to a global rate of 5.6 pct. (ILO, 2017). The Human Development Index (HDI) also clearly shows the substandard position of the African region. The HDI ranks all countries on different dimensions such as education and life expectancy, posing as a measure for development that goes beyond economic growth. Out of the 50 lowest ranked countries in the world, 39 are African (UNDP, 2015). Not only is Africa inferior regarding economic development, it is clearly also underdeveloped in relation to health and social standards. However, the continent is not necessarily limited to this position in the future. In the African Economic Outlook of 2013, the African Development Bank (AfDB) stresses that the region has a strong comparative advantage due to the abundance of natural resources, which should be used to foster growth and economic transformation (AfDB, ECA, OECD, & UNDP, 2013). Recent scholars argue that the ability of African countries to realise their potential relies on the mobilisation of entrepreneurship among the population, which would enable them to exploit their natural resources, create jobs for their enormous populations and ultimately alleviate poverty (Edoho, 2015). The report also states that a high demand for natural resources and Africa's' comparative advantage in this regard has drawn investors'

attention to the region (AfDB et al., 2013). Since 1990, FDI inflows to the African region have increased considerably from US$ 2.9 bn. to US$ 54.9 bn. in 2016 (UNCTAD, 2016a). In the same period, the region has been bustling with entrepreneurial activity and governments in the region are beginning to realise the potential of entrepreneurship to drive growth and more countries have procedures in place to foster entrepreneurial development (AfDB, OECD, & UNDP, 2017). However, the link between the increasing FDI activity in Africa and its effect on local entrepreneurship lacks clarity and an understanding of this relationship is crucial for policy makers to be able to continuously strengthen entrepreneurial capabilities in the population (Edoho, 2015).

## 1.2 Problem statement

The promising effect of local entrepreneurship on the state of underdevelopment in Africa combined with the increase of FDI to the region, and the interesting, yet unclear, link between the two, is the motivation behind this paper's primary investigation of FDI's effect on local entrepreneurship in Africa. With this objective, the paper first assesses the hypothesis that the effect of FDI on local entrepreneurship is positive in the overall region but varies within each country, depending on a variety of domestic conditions. Secondly, the paper investigates which domestic conditions facilitate a significant effect of FDI on local entrepreneurship and thus help spur economic growth through entrepreneurship in the African region. This curiosity motivates the paper to propose the following research question:

***How does FDI influence local entrepreneurship in African countries and how do country characteristics affect this relationship?***

The paper endeavours to answer the research question by first presenting a thorough overview of the literature on the relationship between entrepreneurship, FDI and economic growth and thus forming the expectations of the empirical research. Subsequently, the paper provides argumentation for the chosen variables and method of investigation, concluding with an outline of the econometric model. Then, the paper evaluates the relationship between local entrepreneurship and FDI by applying the model to the data in 23 African countries, followed by an in-depth analysis of country characteristics affecting this relationship. The thesis concludes with a discussion of methodology, key findings and implications for policy makers in the African region.

As this paper is addressing the impact of FDI on entrepreneurship on both the aggregate regional level and the individual country level, it offers a great contribution to the limited literature on the subject. Numerous scholars study FDI in general and its effect in different economies however

very few have studied the relation between FDI and entrepreneurship and even fewer have studied this in the African region. Further, none of these few scholars studying the relationship between FDI and entrepreneurship are conducting a cross-country comparison where countries are investigated further based on the effect that FDI has on domestic entrepreneurship in the respective countries. In general, scholars examine the topic with the purpose of finding a definitive relationship with a clear positive or negative direction. However, this paper argues that the approach is naive and that the individual country characteristics are neglected in this pursuit. Therefore, this paper will contribute with a comparative econometric analysis, showing directions of the impact of FDI in 23 countries, and a qualitative analysis that investigates further the characteristics influencing this relation. The thesis concludes that FDI does indeed influence domestic entrepreneurship on an aggregate level as the econometric analysis shows that the overall regional effect is significant and positive. Further, the individual regressions reveal that each country is affected by FDI differently but only three countries experience a significant positive or negative effect on domestic entrepreneurship. This result fosters an in-depth analysis of each of these countries, both quantitatively and qualitatively, which confirms that each country is affected differently as a result of country-specific characteristics.

## 1.3 Delimitation

The purpose of this thesis is to clarify the effect of FDI on local entrepreneurship in Africa, why the relationship is not examined in regards to other regions of the world, implying that the findings are not necessarily applicable to other regions. Africa is chosen based on the current state of immense underdevelopment and entrepreneurship's promising role in facilitating economic growth in the region. Some African countries are excluded from the study as they lack data on several variables, which would bias the results if included in the model. As the paper is limited to the effect of FDI, it excludes the discussion of MNEs' motivation and drivers of FDI. Nor will it go into what motivate entrepreneurs, the decision theory of entrepreneurship or from where opportunities for entrepreneurship arise. The model will take into account that some of these drivers can have an indirect effect on entrepreneurship, why including these variables in the model will eliminate possible endogeneity problems. The analysis is conducted at the aggregate regional and individual country level as the secondary objective of the thesis is to examine what country-specific characteristics facilitate local entrepreneurship. Therefore, an industry- or business-level analysis will not be conducted

although there may be different effects of FDI on entrepreneurship depending on industry or business characteristics.

There is no distinction between horizontal or vertical FDI, indirect or direct FDI or linkage-effects as this is beyond the papers' scope. Due to lack of disaggregate data on FDI in Africa, FDI will not be split into M&A, Greenfield investments or Joint Ventures although entry mode may have different effects on entrepreneurship. Due to data constraints, the thesis is not able to distinguish between opportunity and necessity entrepreneurship although research shows that the former has a significantly positive effect on growth while necessity entrepreneurship has no effect (See Literature Review). Further, the paper is not able to account for survival rates of newly registered firms. The paper refers to Africa as a region of developing countries, although some may call certain countries emerging. A common phrase for the countries is adopted to make the content easily digestible, justified by the fact that UN defines all of Africa's countries as developing countries (UNCTAD, 2017). For the rest of the paper, the 23 African countries included in the analysis are referred to as the African region as they pose as representatives for the region.

# 2 Entrepreneurship and FDI in Africa

The following brief section serves as a fact sheet on the current conditions and roles of entrepreneurship and FDI in Africa.

## 2.1 Entrepreneurship in Africa

In many African countries, the decision to start a new business was traditionally triggered by necessity but now, an increasing share of new business startups are triggered by opportunity. A large portion of this shift can certainly be explained by new technologies but also factors such as a change in attitude towards entrepreneurship and political initiatives in several countries. Another expected important factor is FDI, which in some countries are thought to increase entrepreneurial activity through so-called positive spillover effects, while other countries are negatively affected by multinationals' activities through various negative spillover effects. The importance of this relationship is yet to be determined, which is the aim of this paper. The hypothesis is, that some African countries have certain characteristics that enable the country and its population to utilise the knowledge that spills over from FDI to engage in entrepreneurial activities. In recent years, the entrepreneurial environment in Africa has developed positively and many countries have policies in place to make it easier for the local population to start their own business (GEM, 2018b), resulting in 22 pct. of the working-age population in Africa in 2017 starting new businesses, ranking highest in the world, as well as most African countries having active startup incubators (AfDB et al., 2017).

## 2.2 FDI in Africa

Foreign Direct Investment (FDI) refers to an investment with lasting interest and control by a foreign direct investor, resident in one economy, in an enterprise, resident in another economy, such as a foreign affiliate. FDI inflows comprise capital provided by a foreign direct investor to a foreign affiliate, or capital received by a foreign direct investor from a foreign affiliate. FDI outflows represent the same flows from the perspective of the other country. FDI inflows (hereafter simply FDI) to the African region grew rapidly from 2004-2008 with large multinationals (MNEs) investing heavily in developing countries. A natural downturn followed the global financial crisis of 2007-2008 until FDI activity recovered and strengthened during 2010-2012. Since then, FDI to the region

is back to 2010 levels partly due to weak commodity prices in Sub-Saharan Africa and subdued levels of economic activity and liquidity constraints (UNCTAD, 2016b).

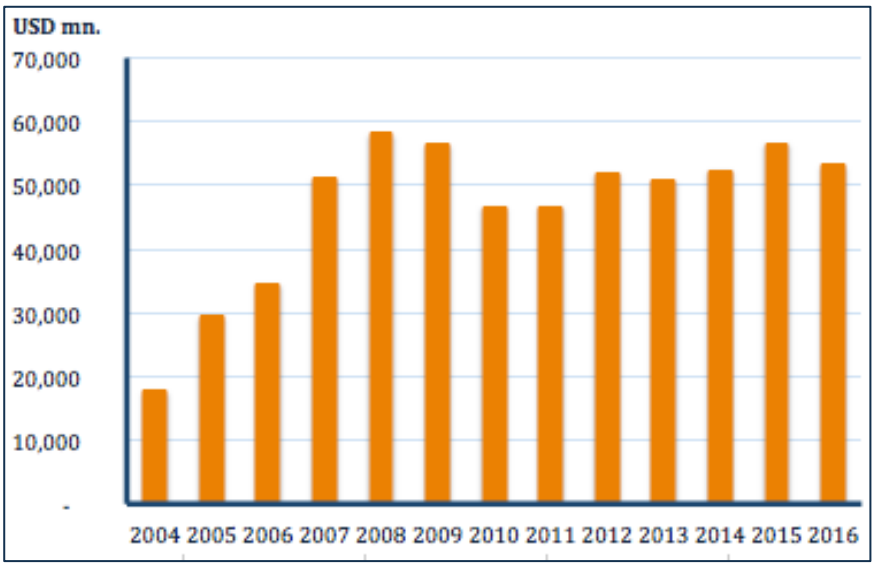


**Figure 1 Development of FDI inflows to Africa in millions of USD from 2004 to 2016. Source: UNCTAD.**

Investors from developed countries initiated 70 pct. of the $59.4 bn. FDI to Africa in 2016, meaning that FDI to African countries in general was positive. Egypt ($8.1 bn.) and Nigeria ($4.5 bn.) were the largest recipients while several others had negative FDI (UNCTAD, 2016a).

| TOP HOST | MILLION USD | BOTTOM HOST | MILLION USD |
|---|---|---|---|
| 1. EGYPT | 8,106 | 50. CAR | 7 |
| 2. NIGERIA | 4,448 | 51. BURUNDI | 0.05 |
| 3. ANGOLA | 4,104 | 52. SOUTH SUDAN | -17 |
| 4. ETHIOPIA | 3,988 | 53. GAMBIA | -27 |
| 5. CONGO | 3,564 | 54. TOGO | -46 |

**Table 1 Top 5 and bottom 5 receivers of FDI in Africa. Source: UNCTAD.**

# 3 Literature Review

The following literature review serves as a foundation for this paper's analyses of the impact of FDI on domestic entrepreneurship in 23 African countries. The review contextualises entrepreneurship and FDI with economic growth and considers the various mechanisms that shape the relationship between the two phenomena, focusing mainly on literature in emerging and developing economies. First, the relation between entrepreneurship and economic growth is addressed through a discussion of the potential of entrepreneurship to foster economic growth in developing countries. Second, the relation between FDI and economic growth is considered in order to uncover the positive and negative spillovers of FDI. Third, the relation between domestic entrepreneurship and FDI is studied with the aim of revealing the spillover mechanisms between the two and thus, form the expectations of the analysis. Fourth, several country characteristics are addressed in order to uncover other relevant factors when discussing evolution of entrepreneurship in African countries. Based on this thorough examination of relevant research, the review is concluded with clear expectations for the findings of the analyses.

## 3.1 Domestic entrepreneurship and economic growth

This section provides an overview of the literature that addresses the influence of domestic entrepreneurship on economic growth. The relation between entrepreneurship and GDP growth is generally found and perceived as positively correlated (Acs, 2006; Baumol & Strom, 2007; Koellinger & Thurik, 2012) but there are also cases where local entrepreneurship has negative or no effect on the economy (Baumol, 1990).

Several studies find a positive relationship between entrepreneurship and economic growth and they provide different explanations for this correlation. Acs (2006) poses that domestic entrepreneurship influences economic growth positively by creating innovation and increasing the competition in the marketplace. Thus, as more and more firms enter the market with innovative products or services, competition increases and incumbent firms are incentivised to improve productivity and innovative processes. Further, Baumol and Strom (2007) study the impact of entrepreneurship on economic growth and find a positive relation between the two. This is explained by the idea that entrepreneurs ensure that inventions are transformed into efficiently used innovations, enabling growth and productivity and ultimately improving social welfare (Baumol & Strom, 2007). Another

theoretical approach by Koellinger and Thurik (2012) is backed by empirical research and poses that entrepreneurship causes economic growth for two reasons. First of all, as entrepreneurship flourishes, technology and products are diffused into the business environment and this results in more effective use of productive resources. Secondly, entrepreneurs are willing to take on more risk and they are therefore able to discover more cutting-edge solutions, which leads to a higher degree of innovation than what established firms would create.

Even though the general perception among scholars is that entrepreneurship influences economic growth positively, some studies show a negative or no effect. Baumol (1990) goes as far as to say that at times entrepreneurs might even lead a parasitical existence but that the influence of entrepreneurs depends heavily on the rules of the game, namely the reward structure of the economy. Thus, the supply of entrepreneurs is secondary and scholars should rather study the entrepreneurial environment of the economy in order to suggest policy changes. He further argues that the level of entrepreneurial activity indicates the competitive pressures within the domestic market and how it responds to exogenous changes in technology and demand patterns. Thus, entrepreneurship should be seen as a measure by which the economy can be assessed rather than as a key driver of growth (Baumol, 1990). Despite these findings, most scholars still concur with the aforementioned positive relation between entrepreneurship and economic growth and this perception is therefore carried forward in this paper.

### 3.1.1 Necessity and opportunity-driven entrepreneurship

In the context of entrepreneurship and its influence on economic growth in developing countries, it is highly relevant to discuss the type of entrepreneurship. Acs (2006) distinguishes between necessity- and opportunity-driven entrepreneurship. Necessity-driven entrepreneurship is when individuals start a business solely because the best option to earn money is through self-employment. On the contrary, opportunity-driven entrepreneurship is when individuals actively choose to start a business based on the belief that unexploited business opportunities exist in the market (Acs, 2006). The distinction between the two types of entrepreneurship is crucial, as the relation to economic growth varies significantly with the definition. Acs (2006) finds that necessity entrepreneurship has no effect on economic growth and that it might even be negative in low-income countries, while opportunity entrepreneurship has a significant and positive effect. This finding is consistent with the study by Koellinger and Thurik (2012) where entrepreneurship is found to be positively affected by the unemployment cycle, indicating that when unemployment is high, people are forced into entre-

preneurship (necessity), which may not be growth accelerating due to a lack of innovation and sustainable employment.

Further, Albulescu and Tămăşilă (2014) find a positive effect of FDI inflows on opportunity entrepreneurship in 16 European countries, while it has a negative effect on necessity entrepreneurship. Thus, when possible, the distinction between these two categories is highly relevant in the assessment of FDI's entrepreneurial impact and hence economic growth.

### 3.1.2 Summary

The vast majority of studies find a positive relationship between entrepreneurship and economic growth and this relationship is explained by various mechanisms such as increased innovation, improved productivity, efficient use of new inventions and technology and product diffusion in the business environment. A few studies find that entrepreneurship has a destructive force, however, as the majority of scholars find a positive relation, this paper proceeds with the notion that entrepreneurship influences economic growth positively. As a final remark, the distinction between necessity- and opportunity-driven entrepreneurship is addressed, as these affect economic growth and interact with the business cycle differently. The next section discusses the literature that studies the relation between FDI and economic growth.

## 3.2 FDI and economic growth

Several studies find a significant relationship between FDI and economic development in one or more countries, while some find no such relationship (Akinlo, 2004; Carkovic & Levine, 2002; Karahan, 2016). Thus, the effect of FDI on economic growth in host countries is ambiguous and it depends on a variety of domestic conditions (Borensztein et al., 1998; Forte & Moura, 2013; Nair-Reichert & Weinhold, 2001). Bengoa and Sanchez-Robles (2003) find that adequate human capital, economic stability and liberalised markets are necessary conditions for FDI's positive impact on development.

Zhang (2001) examines the relationship between FDI and economic growth in 11 developing countries over a 30-year period. In five of the studied countries, he finds that FDI has a positive effect on GDP and moreover in seven countries, he finds that GDP has a positive effect on FDI. Thus, the relationship between the two variables is not completely clear and not necessarily unidirectional. The study shows that two of the countries exhibit bidirectional causality, which reveals an

interdependent relation between FDI and GDP. Zhang argues that the causality between the two is highly sensitive to country-specific characteristics such as trade strategies and human capital (Zhang, 2001). Further, he explains the clear positive influence of FDI on GDP with concepts such as spillover efficiency, technology transfer and export promotion, and poses that the ability of host countries to exploit FDI depends significantly on its absorptive capability (Zhang, 2001). Adding to Zhang's results, Lin, Seyoum and Wu (2015) find bidirectional Granger causality between FDI and growth, however this is also not homogenous across countries. Hansen and Rand (2005), on the other hand, find that causality runs from FDI to economic growth and not the other way around, supporting the FDI-led growth hypothesis in developing countries.

Another factor that influences the impact of FDI on economic growth is the level of openness to trade that a country exhibits. Nair-Reichert and Weinhold (2001) finds that at very low levels of openness, FDI influences economic growth negatively whereas at high levels of openness, FDI has a positive impact on economic growth. Thus, the effect of FDI is highly heterogeneous, depending on country-specific conditions (Nair-Reichert & Weinhold, 2001).

Many scholars agree that FDI plays an important and positive role in economic growth, especially for developing countries, as spillover effects, such as flows of capital, technology, knowledge and skills from MNEs to local firms, create opportunities for less developed countries to catch up with developed ones (Acs et al., 2009; Bengoa & Sanchez-Robles, 2003; Borensztein et al., 1998; Caves, 2007; Javorcik, 2004; Markusen & Venables, 1999). Others find a negative impact of FDI on economic growth and attribute it to the crowding-out effect (Adams, 2009; Caves, 2007) or competition effects (Aitken & Harrison, 1999). The following subsections provide an overview of the different positive and negative spillover effects that FDI can entail.

### 3.2.1 Positive spillover effects

The diffusion of MNEs' capabilities can be direct or indirect and occurs through different channels such as licensing, international labour mobility, imitation, import of high-technology products, adoption of foreign technology and human capital acquisition (Borensztein et al., 1998; Connolly, 1997). Direct diffusion relates to specific identifiable firm-to-firm knowledge transfers, while indirect diffusion relates to previous mentioned spillover effects, often examined through horizontal or

vertical linkages at industry or firm level[1].

An increase in FDI activity along with improvements in domestic firm productivity is popularly interpreted as the result of technology and knowledge diffusion from MNEs to domestic firms (Connolly, 1997; Danakol et al., 2017) or positive competition effects (Blomström & Kokko, 1998). Economists agree that technology diffusion plays a central role in long-term economic development (Romer, 1990) and that the growth rates in developing countries can be partly explained by a catch-up process in the technology level. Apart from knowledge and technology diffusion, Kumar and Pradhan (2005) note that FDI usually flows as a bundle of resources such as organisational and managerial skills, marketing knowhow and market access through the marketing networks of MNEs, that local players can utilise.

In a cross-country study of FDI flows from industrial countries to 69 developing countries between 1970-1989, Borensztein et al. (1998) find an overall positive relationship between FDI and economic growth over the two decades. They find that the magnitude of this effect depends on the stock of human capital available in the host country and that countries with very low levels of human capital see a negative effect on economic growth from FDI activity. This suggests that for the host country to be able to absorb the flow of advanced technologies, a minimum threshold stock of human capital is necessary. Akinlo (2004) supports these findings.

The level of human capital stock directly influences productivity by determining countries' capacity to innovate and adopt new technologies for domestic production (Benhabib & Spiegel, 1994; Romer, 1990). Furthermore, Benhabib and Spiegel (2005) find that a higher level of education speeds up the process of technology diffusion and thus the impact of FDI on economic growth. Moreover, the ability of FDI to foster economic growth is improved when host countries adopt liberalised trade policies and uphold macroeconomic stability as this allows for sufficient competition and export, which ensures efficient markets (Bengoa & Sanchez-Robles, 2003; Zhang, 2001).

Another kind of spillover that positively affects economic development occurs if multinational entry increases competition in the host country markets and thus contributes to a restructuring of the economy (Caves, 1974). This forces local firms to become more efficient and stimulates domestic research and development (Blomström & Kokko, 1998; Walz, 1997). Other scholars see po-

[1] Horizontal linkages refer to spillovers between foreign and local firms within an industry. Vertical linkages refer to spillovers from foreign firms to local suppliers (backward linkages) and from foreign suppliers to local firms (forward linkages) (Danakol et al., 2017; Markusen, 1995).

tential advantages to the host country through demonstration and imitation effects[2], which can promote new local businesses (Barry, Görg, & Strobl, 2003; Findlay, 1978) and better export performance (Görg & Greenaway, 2004).

### 3.2.2 Negative spillover effects

Some scholars draw attention to potential negative effects of FDI on economic development (Aitken & Harrison, 1999; Danakol et al., 2017; De Backer & Sleuwaegen, 2003). Negative spillovers can derive from reduced market competition through entry-deterrence, which makes domestic entry much more costly (Dixit, 1980). Positive knowledge spillovers within an industry may further be counterbalanced by the competition effect. Thus, as local firms lose market share to foreign entrants, they suffer from lower productivity since their fixed costs suddenly are spread over fewer products (Aitken & Harrison, 1999). This is in line with what Harrison (1994) finds in a case study in Venezuela where the productivity of domestic competitors was hurt because the presence of MNEs decreased their market share.

Another negative spillover from FDI is the potential crowding-out of domestic investment (Caves, 2007; Danakol et al., 2017). This effect implies that if domestic firms are not able to implement superior technology and production processes in response to increased competition from foreign firms, FDI might force them to exit the market. Thus, the competition effect that could potentially increase growth as firms become more efficient, can on the contrary crowd out domestic investment and thus potentially harm the host country's economic growth (Caves, 2007; Danakol et al., 2017). Further, in a study by Adams (2009) on FDI's effect on economic development in 42 Sub-Saharan African countries from 1990-2003, he finds that domestic investment (including entrepreneurship) is positively related to economic growth both in the OLS regression and the fixed effects model, while FDI is only significantly positively correlated with growth in the OLS estimation. Thus, as domestic investment clearly increases economic development, FDI exhibits an ambiguous effect (Adams, 2009). Adams further finds that FDI is initially negatively correlated to domestic investment, which suggests the same crowding-out effect as the one presented above.

In regards to the labour force, MNEs' use of more advanced technologies may lead to the need of fewer workers, than that used by local firms, which leads to an increase in unemployment, negatively impacting development (Forte & Moura, 2013). Adding to this, Li and Liu (2005) argues

[2] Local firms imitate or learn the technologies of foreign firms.

that FDI impacts growth in developing countries negatively when the technology gap between the foreign and domestic market is substantial because of the lacking ability of developing countries to absorb technology from foreign firms.

### 3.2.3 Summary

In many cases, FDI is found to influence economic growth positively, however, the diverging results from above studies underline that host country characteristics play a crucial role in enabling FDI to influence economic growth positively through spillovers. The findings emphasise the difference in and importance of absorptive capacity between countries to adopt FDI. The effects of spillovers from FDI can be studied through various perspectives but as the previous section revealed, domestic entrepreneurship has a positive effect on economic growth and the following section will therefore address the influence of FDI on local entrepreneurship and provide an overview of the literature on this topic.

## 3.3 Domestic entrepreneurship and FDI

As mentioned, the effect of FDI on economic growth is ambiguous and the direction between the two is unclear. The link between domestic entrepreneurship and economic growth is however more clearly positive (Acs et al., 2009), although the direction is ambiguous here too, as it is unclear whether better economic conditions promote entrepreneurship or the other way around. Nonetheless, domestic entrepreneurship is perceived a key driver of economic growth in developing countries, why FDI's impact on entrepreneurship is interesting to examine. As economic development depends on the successful combination of entrepreneurship and existing businesses (Acs, 2006), it is highly relevant to investigate whether the entry of foreign firms can facilitate entrepreneurial capabilities in the host countries, and under what conditions this mechanism is most prominent.

As with the impact on economic growth, the influence of FDI on local entrepreneurship is highly dependent on the country-specific characteristics. Scholars have found that skilled local employees may leave MNEs to set up new local firms (Fosfuri, Motta, & Rønde, 2001; Markusen, 1995). The L2C Programme supports this theory and finds this to be a common phenomenon and that these new domestic entrepreneurs frequently hire employees trained by MNEs. Spillovers are thus often manifested in terms of spin-offs and labour market competition, why it is important to maintain flexible and well-functioning labour markets to help facilitate localised productivity gains

from FDI (Rand, 2015). Thus, entrepreneurship can be related to the ability to absorb and facilitate benefits from foreign investments in terms of technology, knowledge and managerial skills that may spill over to the host economy. This point stresses the importance of investigating the different characteristics that can potentially influence the impact of FDI on local entrepreneurship. The following two subsections address the positive and negative effects that FDI has on domestic entrepreneurship.

### 3.3.1 Positive effects

Domestic entrepreneurship is an important channel through which FDI diffuses technology, human capital and managerial skills into the host economy (Acs, Brooksbank, O'Gorman, Pickernell, & Terjesen, 2007) but this channel has not until recently caught scholars' eyes, why the literature hereon is limited (Danakol et al., 2017), especially in regards to the African region. There are many ways that FDI can foster domestic entrepreneurship. First of all, local employees working for an MNE can leave and start their own firms utilising the knowledge gained from working in an international firm (Ayyagari & Kosová, 2010). Secondly, foreign firms can stimulate domestic entry through a demonstration effect as local entrepreneurs can observe and learn from failures and successes of MNEs (Acs et al., 2009; Caves, 2007). Thirdly, the presence of foreign firms can increase the demand for existing local inputs and intermediate goods or generate a demand for completely new inputs in upstream industries (backward linkages), which induces local entrepreneurship (Markusen & Venables, 1999). In a similar way, foreign firms in upstream industries offer new or higher quality inputs to local customers and therefore increase demand for domestic output in downstream sectors (forward linkages). All of this represents new business opportunities that encourage domestic entry (Ayyagari & Kosová, 2010), and the spillover effects are strengthened in countries where the population has the capacity to identify and pursue these new business opportunities. This can be driven by factors such as human capital and innovative culture (Acs et al., 2007).

Strengthening this point, Görg and Strobl (2002) find a positive effect of FDI on domestic entry in the Irish manufacturing industry. This empirical result stems from the theoretical perspective that MNEs influence the entry of new domestic firms through two effects. Firstly, the production of final goods by MNEs increases the demand for production inputs, which incentivises domestic entrepreneurs to enter the market of intermediate goods. Secondly, the increase of domestic producers of intermediate goods drives down the price of inputs, which ultimately leads to higher entry in the final goods market. Thus, the increasing presence of MNEs increases the entry of domestic

firms (Görg & Strobl, 2002). Similarly, Ndikumana and Verick (2008) reveal that FDI crowds in domestic private investment, including entrepreneurship, and thus enhances domestic capital accumulation and growth in a study of 38 Sub-Saharan African countries from 1970-2005. This result points to the same effects as mentioned above.

### 3.3.2 Negative effects

Despite the findings presented above, some studies find that FDI can have negative consequences for local entrepreneurship. Danakol et al. (2017) investigate the relationship between FDI inflows, measured as cross-border mergers and acquisitions, on domestic entrepreneurship, using an unbalanced micro-panel of more than 2,000 individuals in 70 different developed and developing countries from 2000-2009. They find that FDI is negatively correlated with domestic entrepreneurship across all economies at the national and industry level, but that the effect is enhanced for developing countries. However, what should be noted here is the timeframe, covering an economic upswing until the beginning of the financial crisis in 2008-2009. This specific period may lead to some bias as entrepreneurial activity can be assumed to be less during a crisis, due to difficulties in obtaining loans to start a business, shortage of demand for goods and hesitance to start a firm during hard times (OECD, 2009).

De Backer and Sleuwaegen (2003) study the Belgian manufacturing sector from 1990-1995, and come to the conclusion that FDI crowds out entrepreneurship in both labour and product markets, which stimulates exit of domestic entrepreneurs. Thus, the presence of MNEs crowds out entrepreneurship in the labour market as the workers with best skills and capabilities are employed in the foreign companies instead of starting their own businesses or being available for startups. Further, crowding out happens through the product market as competition among final goods producers increases, which ultimately decreases profits for each firm. This drives out the least competitive firms and restrains new ones from entering the market (De Backer & Sleuwaegen, 2003). Conclusions drawn from this study should however be careful due to the very short timeframe. The study even suggests that the negative effect may be reversed in the long run due to long-term positive effects of FDI on domestic entrepreneurship through learning, demonstration, networking and linkage effects between foreign and domestic firms (De Backer & Sleuwaegen, 2003). Adding to the crowd-out effect in the labour market, MNEs may be able and willing to pay higher wages than local firms, which means that scarce domestic managerial talent and skilled labour may be tied up as employees of multinationals instead of starting domestic businesses (Danakol et al., 2017).

### 3.3.3 Summary

Based on the studies presented above, it is fair to assume that FDI has an impact on domestic entrepreneurship. However, the impact is ambiguous and may have either positive or negative effects, presumably depending on a variety of factors that constitute the current conditions of the host country, such as human capital levels, financial market development, technological capacity and labour market conditions. The theoretical arguments for whether the effects are positive or negative are inconclusive, which highlights the need for more empirical evidence. The following section investigates which country characteristics are relevant to include in the analysis in order to best capture the relationship between FDI and domestic entrepreneurship as well as control for influents on entrepreneurship in the model.

## 3.4 Domestic entrepreneurship and country characteristics

In addition to FDI inflows, there are several different country characteristics that are found to influence the evolution of domestic entrepreneurship significantly. The impact of these factors on entrepreneurship is an expression of the underlying societal environment of the country. Thus, the characteristics discussed below are institutional aspects such as labour market conditions, business environment and other broad societal matters of the 23 African countries studied in this paper.

As the labour market is tightly connected to the concept of entrepreneurship, the conditions of the labour market influence the evolution of domestic entrepreneurship through various mechanisms. First of all, as previously mentioned, MNEs may be able and willing to pay higher wages to workers, implying that talented workers become employees in foreign firms rather than entrepreneurs (Danakol et al., 2017). This can partly be due to government policies that are in place to foster FDI, presumably limiting entrepreneurship as a side effect. Pavlinek (2004) reports that MNEs in the Czech Republic receive $5000 for each newly created job, which is partly used to pay higher wages, confirming the hypothesis of Danakol et al. (2017). These government policies that are favouring FDI, help foreign firms outcompete domestic firms in the local labour markets, limiting the incentive to start a local business. On the contrary, government initiatives that are set up to support development of small or medium sized local enterprises are basically non-existent (Pavlinek, 2004). This points to the importance of government policies when addressing the topic of domestic entrepreneurship.

As well as wage differences partly fostered by government policies, domestic entrepreneur-

ship reacts to unemployment fluctuations at the national level, meaning that a higher unemployment rate induces entrepreneurship (Koellinger & Thurik, 2012). This evidence might be explained by the idea that individuals are likely to pursue entrepreneurial activities due to current unemployment, implying that when a larger share of the population is unemployed, a larger share of the labour force will start new businesses. Policy changes regarding unemployment benefits might influence this relationship as higher safety nets can reduce incentives of entrepreneurial activities (Koellinger & Thurik, 2012).

In addition to labour market conditions, the business environment influences the evolution of entrepreneurship. There are simple factors such as startup costs (Fonseca, Lopez-Garcia, & Pissarides, 2001) and procedures to start a business (Djankov, Ganser, McLiesh, Ramalho, & Shleifer, 2010) that influence the accessibility of entrepreneurship in a country. If these are high, some potential entrepreneurs might be forced to stay in their current job or unemployment. Further, there are factors dependent on the institutional setting that might deter firm entry, namely, entry laws (Djankov, La Porta, Lopez-de-Silanes, & Shleifer, 2002), labour market regulations (Botero, Djankov, La Porta, Lopez-de-Silanes, & Shleifer, 2004), property rights and corporate tax rates (Djankov et al., 2010; Koellinger & Thurik, 2012). These characteristics add into the general measure, ease of doing business, that the World Bank proposes, which reflects the business environment that current and potential enterprises are subjects to (Amit, Guillén, & Klapper, 2010). Thus, the more accessible startup procedures and less regulatory constraints to start a business, the more individuals will take the risk of starting a business of their own (Amit et al., 2010).

Adding to the institutional framework of the business environment, the degree of competition in the market can also influence potential entrepreneurs. Highly competitive landscapes are known to induce innovation and thus entrepreneurship through rapid generation of new ideas, and a higher degree of competition in local markets is therefore expected to foster establishments of new businesses (Baumol, 1990; Danakol et al., 2017).

Further, Etzioni (1987) reports that entrepreneurial culture is also important to the evolution of entrepreneurship. He poses that a higher level of legitimacy of entrepreneurship enables a wider manifestation within society, which results in more attention to entrepreneurship in the educational system, higher social status for entrepreneurs and more tax incentives to encourage business startups. These mechanisms will in turn lead to a higher supply of entrepreneurs (Etzioni, 1987). The influence of the broader societal structure is also evident from the study by Hechavarria and Reynolds (2009) that finds culture in general, measured by the degree of secularisation and indus-

trialisation of the country, to have a significant impact on entrepreneurship. Thus, traditional countries with a low degree of secularisation have a larger share of opportunity entrepreneurs than highly secular countries. This shows that traditional countries are more rigid and social mobility is less accessible, why many people are incentivised to pursue entrepreneurship in order to improve social conditions. Highly secular countries, on the other hand, provide several opportunities to find eligible career paths within established enterprises. Further, the study poses that self-expressive countries with a high degree of industrialisation have a larger share of entrepreneurs due to entrepreneurship being a method for pursuing personal realisations (Hechavarria & Reynolds, 2009). These findings suggest that countries' underlying structures and level of development influence the evolution of entrepreneurship immensely.

In line with the industrialisation of the countries, the level of human capital is found to be positively related to entrepreneurship, as a higher level of education is positively related to identifying entrepreneurial opportunities (Autio & Levie, 2008) and new firm creation (Acs & Armington, 2002). Thus, populations with a stronger knowledge exhibit higher cognitive capabilities and are thus more able and likely to recognise and execute entrepreneurial opportunities. In this context, it is however important to discuss whether individuals with high human capital have the incentives to pursue entrepreneurial activities rather than staying in a job. Shane and Venkataraman (2000) find that the opportunity costs of starting a new business must be higher than staying in the current job in order for individuals to become entrepreneurs, and if this is not the case, the level of human capital might not influence entrepreneurship positively. Adding to human capital, Acs et al. (2007) find that the presence of public research institutes is of importance, and similarly that the R&D level in a country promotes entrepreneurship (Acs et al., 2009).

Other general societal factors that influence new firm creation are income and population growth, which drive the evolution of entrepreneurship through demand effects. Population growth has a natural demand effect as a higher density of people leads to higher absolute demand. Income growth, on the other hand, drives demand upwards through higher purchasing power in the population, increasing the relative demand. Thus, the demand effects are found to influence entrepreneurship positively (Acs & Armington, 2002). Further, Munemo (2017) finds that there is a threshold level of financial market development that allows for FDI to exhibit a positive impact on economic growth, which reflects the fact that the ability to obtain financing influences entrepreneurship and well-developed financial markets can thus stimulate entrepreneurial activity. This also relates to the impact of the institutions and the development stage of the country, which Acs (2006) finds to be

significant. Institutions can shape economic behaviour and act as both constraints and facilitators for entrepreneurial activity. Thus, characteristics such as political regime, level of corruption as well as aforementioned institutional and judicial conditions (policies, tax, property rights, education, etc.) play a significant role in the evolution of entrepreneurship (Djankov et al., 2010). Further, economic development can influence entrepreneurship in different ways depending on the current stage of development (Acs, 2006). This supplies factors such as GDP growth and inflation with relevance when discussing impact on entrepreneurship (Djankov et al., 2010).

## 3.5 Expectations

The literature review covers various studies that examine the relation between economic growth, entrepreneurship and FDI. Entrepreneurship mainly influences economic growth positively whereas the effect of FDI is ambiguous and depends highly on specific characteristics of the host country. This ambiguous nature also applies to the relationship between FDI and entrepreneurship. Thus, it is unclear whether FDI influences entrepreneurship positively or negatively, though theory suggests that there is a definite impact of the FDI inflow and most scholars find a positive relation. Therefore, this paper expects that the overall effect of FDI inflow on domestic entrepreneurship is significant and positive, suggesting that domestic entrepreneurship generally benefits positively from higher FDI inflows in the African region.

Further, for each individual country, this paper expects to find that FDI affects entrepreneurship significantly in most countries, showing mostly positive but also negative impacts. Aligning with the literature, this suggests that the specific direction of the impact depends on the presence and magnitude of the positive and negative spillover effects, which rely on the absorptive capacity of the countries, such as human capital, R&D levels and ease of doing business. This effect can be closer investigated by looking at specific characteristics that constitute the current condition of the countries. Thus, this paper expects to find that the impact of FDI on domestic entrepreneurship differs between the 23 African countries depending on their absorptive capacities.

In addition to FDI, there are several other factors to consider when addressing domestic entrepreneurship and this paper expects that characteristics such as unemployment rates, government policies, ease of doing business, population growth and political regime influence domestic entrepreneurship in the African countries. For this reason, they are included in the econometric model in order to avoid omitted variable bias. Based on the characteristics of the individual countries and the presence of certain conditions, this paper endeavours to evaluate each of the countries with signifi-

cant effects qualitatively, in order to determine whether these results are aligned with theoretical suggestions and can be explained by the positive or negative spillover mechanisms.

Thus, the thesis has three levels of expectations: First, the paper expects to find that FDI inflows influence domestic entrepreneurship significantly and positively on an aggregate level. Secondly, the impact of FDI is expected to differ between the 23 African countries, depending on their absorptive capacities. Lastly, the paper expects to find that various societal factors influence domestic entrepreneurship and in turn, the relation between FDI and entrepreneurship.

# 4 Methodology and Methods

This chapter presents the methodology and methods applied in this paper. First, the methodological perspective is addressed in order to define the philosophical framework in which the research question is studied. Secondly, the data collection and processing is presented by describing the dataset and the different variables of the model. Third, the model specification is addressed where the estimation method is presented along with the specification of the models applied in the analysis. Lastly, limitations of the research design are assessed with regards to validity and reliability.

## 4.1 Methodological perspective

When seeking to answer the research question of this paper, it is relevant to consider the philosophical position from which the question is addressed, and this section thus introduces the methodological stand of the paper. The overall philosophy of science that this paper employs is the positivist approach to scientific research. Positivists believe that social science should be studied by deriving hypotheses based on theory and then testing these with data in the attempt to falsify them (Furlong & Marsh, 2002). The data should be quantitative in order to reach the highest possible level of objectivity. In this way, the exact nature of social phenomena is found and causal relationships can thus be established (Marsh & Furlong, 2002). As this paper endeavours to uncover the causal relationship between entrepreneurship and FDI in African countries, it is reasonable to put forth hypotheses and use quantitative data to test them.

This methodological approach is highly connected to the underlying assumptions of the position, namely its ontology and epistemology. Derived from positivism, the ontological position of the paper is that the world exists independently of individuals' knowledge of it, which implies that the world is real and is not constructed socially (Marsh & Furlong, 2002). This means that direct observations are sufficient for testing theories, and in the context of this paper, it suggests that the relationship between entrepreneurship and FDI can be observed and explained directly from the data. In a similar vein, the epistemological position assumes that the researcher objectively can identify mechanisms in social phenomena through direct observation and testing of hypotheses. This paper endeavours to uncover causal relationships by objectively studying the data from African countries and testing the hypothesis that FDI has an impact on entrepreneurship in the region. Thus, the positivist's view of what and how we can obtain knowledge fits the approach adopted in this paper

well. As such, the positivist's epistemology clearly matches the ontology as the objectivity of the researcher stems from the fact that the world exists independently of our knowledge of it, and causal relationships can thus be identified neutrally (Marsh & Furlong, 2002).

As discussed later in the paper, there are certain conditions of some of the African countries, which cannot be observed directly but will inevitably have an effect on entrepreneurship. This is inconsistent with the positivist approach and the methodological position of the paper is therefore also partly influenced by critical realism. Critical realists, like positivists, pose that the world exists independently of our knowledge of it, however in contrast to positivists, they argue that there are underlying structures, which researchers cannot observe and study quantitatively as they are constructed between agents in society (Knutsen & Moses, 2012). Thus, this paper takes a positivist approach to science but at the same time recognises that there are structures in society, which cannot be observed with purely quantitative data. Therefore, the findings from the regressions are considered valid but it is still acknowledged that not every relation and mechanism can be uncovered from this type of analysis and other types should therefore be employed in order to move closer towards the true relationship of entrepreneurship and FDI. This position becomes evident in the qualitative analysis and discussion of the findings.

In alignment with positivism, this paper employs the statistical method to obtain knowledge and detect causal relationships in order to answer the first part of the research question. As such, expectations have been formulated on the causality between FDI and domestic entrepreneurship and these will be tested with quantitative data. Thus, a deductive approach is used to answer the research question as expectations are suggested based on established theoretical frameworks and afterwards tested quantitatively (Knutsen & Moses, 2012). The empirical study is thus guided by theory, and as some scholars might question this method, the approach will be discussed in terms of validity and reliability later on. In order to cope with challenges of a purely statistical and positivist mindset, such as underlying, unobservable mechanisms in certain countries (Knutsen & Moses, 2012), the paper utilises comparative and case-based approaches to study the relationship further. By investigating certain contexts in each country through a qualitative lens, the research question can be answered with more nuance and the mechanisms behind the causality can be uncovered in more depth (Knutsen & Moses, 2012). The qualitative analysis builds on reports from acknowledged institutions such as the AfDB and studies on the different subjects. By combining the properties of quantitative and qualitative analysis, this paper moves closer towards the true impact of FDI

on domestic entrepreneurship and the underlying structures of societal and economic mechanisms in each African country.

In practice, the regression results for each country are evaluated and the coefficients and P-values are listed in order to provide an overview of the results. The countries with significant effects of FDI are then further investigated both quantitatively and qualitatively. First, the results are compared with the average values of three control variables in order to evaluate whether some of these factors influence the impact of FDI on domestic entrepreneurship and how they do so. The qualitative analysis then considers each of the countries from the perspective of quantifiably unobservable characteristics, such as regulations, environments and education system. As mentioned, this combined approach of positivism and critical realism leaves the paper with an ability to move closer to the causality in each country.

## 4.2 Data collection and processing

Based on the literature review, a relevant dataset has been constructed in order to test the relationship between FDI and domestic entrepreneurship in African countries. The following section presents the dataset and provides an overview of the collection and processing procedures of the variables. Following this, the model and estimation methods are presented.

### 4.2.1 Dataset

The final panel dataset consists of 23 African countries with data observed over 13 years from 2004 to 2016, summing to 299 observations. There are 54 countries on the African continent, however, 31 of them are excluded due to either lack of sufficient data for the dependent variable, domestic entrepreneurship, or extreme outliers. As an example, South Sudan first gained its independence in 2011, why this country naturally has no data on annually registered new businesses before this year. Another reason for excluding a country can be exemplified by Togo, where data suggests that the country only has one new local business per year, which is highly doubtful. Further, five other countries are excluded as they exhibit extreme values for the dependent variable and therefore pose a threat of biasing the results. A plot of the data both including and excluding the outliers can be found in the quantitative analysis.

For some of the included countries, a few years are missing and in these instances the data is imputed by averaging the data points on each side of the missing years or using the average growth

rate for the surrounding years. This method has only been used in few cases and is therefore assumed not to bias the dataset. The time period is chosen based on data availability, meaning that for this period a sufficient number of countries have data. Thus, broadening the period would eliminate several countries and limiting the period to 13 years of data therefore enables the inclusion of most countries while still maintaining a sufficient number of data points.

The independent variables have been collected from widely used and eligible sources such as; the World Bank, United Nations Conference on Trade and Development (UNCTAD), UNCTAD World Investment Report Series (WIR Series), International Monetary Fund (IMF), Organisation for Economic Co-operation and Development (OECD), Transparency International and United Nations Development Program (UNDP). The dependent variable has been thoroughly and carefully collected from each country's statistics databases and business registry authorities as well as the World Bank. It has been necessary to translate from different languages, such as French and Portuguese, to identify the appropriate data, which has been a time consuming effort although also the best course of action to achieve the best representative data. As there is no complete datasets available with newly registered businesses in African countries, the combination of national source and the World Bank is perceived as the best option. Validity of the data is discussed later on. A variable overview can be found in Appendix A and the definition, collection, processing and evaluation, including potential bias, of each variable is described in depth in the following section.

### 4.2.2 Definition, collection and processing of variables

The following section defines the variables in the dataset. It presents the collection process, construction, evaluation and expectation of the chosen variables, including a discussion of potential bias and alternative measures. In Appendix B, an overview of the variables and measurements used in the relevant literature can be found. Where it makes sense, the variables below are chosen based on this overview while some variables are included based on the assessment that it is important for the development of local entrepreneurship in order to limit omitted variable bias and other possible endogeneity problems. In addition to the dependent variable, independent variable and control variables, this paper employs an instrumental variable and this will also be presented in this section.

## The dependent variable: New Business Density

### *Definition*

This paper measures domestic entrepreneurship through the metric *New Business Density* (NBD), which is defined as the annual number of newly registered local firms per 1,000 people in the population. As NBD is used to measure domestic entrepreneurship, the two terms will be used interchangeably.

### *Collection*

The data on the annual number of newly registered local firms is collected from each of the 23 African countries' national statistical bureaus and business registries as well as the World Bank from 2004-2016. A complete list of the specific sources can be found in Appendix C. As the data from the World Bank is insufficient in most countries, the data has been collected from the national institutions and the growth rate each year is then compared to World Bank's data in order to check whether it is plausible. As many of these African institutions' records are not highly developed, the data collection process has not been completely straightforward. First of all, several countries do not disclose any records of business registries and for this reason, several countries have been excluded from the analysis. Additionally, the bureaus define newly registered businesses in various ways and it is therefore necessary to determine whether the records can be compared across countries. As comparability between countries is key for the analysis and discussion of this paper, countries have only been included if there were no doubt that the available data measured total number of newly registered businesses for that year. Further, only official government webpages and reports have been used in order to ensure that a formal institution has verified the data. The population of each country is collected from the World Bank covering the same period from 2004-2016.

### *Construction*

The dependent variable is constructed by dividing the annual number of newly registered local firms with that years' population in 1000's for each country during the years from 2004-2016, creating a yearly fraction of the two numbers. As an example, Burundi's annual number of newly registered local businesses are collected from Burundi's government site (ISTEEBU) from year 2004-2016 and it's population in 1000's during that same period is collected from World Bank (World Bank, 2018a). The two numbers are then divided for each year to obtain the NBD in Burundi.

### *Evaluation*

The collection process of the NBD variable is not as optimal as downloading a full dataset from a recognised source such as the World Bank. However, as countries with too high uncertainty in the validity of the business record have been excluded and data for the included countries has been collected carefully, this paper assumes a relatively high validity of data and a fair representativeness. The comparability of the countries is thus satisfactory, however, the conclusions drawn from the regression results should still include some degree of discretion.

Another point to address when evaluating the NBD variable is the potential bias that the data contains. As it has been collected from national sources in a continent where many of the governments are challenged by corrupt state officials, the data should be considered with some discretion. Some government agencies might be incentivised to boost the country's investment attractiveness by for example providing higher business figures than the actual figures. This issue is difficult to cope with, making the sources less trustworthy. However, they are the best alternative and one might argue that the countries where corruption is at its worst, there might not be a well-functioning statistics division and these countries are therefore most likely already excluded from the analysis. The issue of validity will be discussed further later on but in general, the challenges with the collection method are not perceived to be sufficiently critical to undermine the analysis, why the thesis is carried forward with this dependent variable. Of course, the challenges are kept in mind when discussing the analysis.

The challenges inherent in the dependent variable fuel the need to discuss alternative measurements of domestic entrepreneurship and why these are not chosen instead. The NBD measure employed in this paper is chosen based on the perception that it gives a good picture of the entrepreneurial landscape and the actual startup activity. It resembles the measure used by Munemo (2017) and the Global Entrepreneurship Monitor's (GEM) new business ownership rate, which is the percentage of the adult population (18-64 years old) who has owned a firm for more than three months but less than 42 months. This measure is applicable for our purpose too but GEM lacks data on many African countries, why NBD is used instead. GEM is currently the largest and most widely recognised cross-country research initiative used to study the determinants, prevalence and consequences of entrepreneurship (Koellinger & Thurik, 2012). They collect annual data on entrepreneurial activity based on random samples of 2,000 individuals in each of the participating countries (Autio et al., 2005). Several studies use GEM's total early-stage entrepreneurial activity (TEA) var-

iable (Albulescu & Tămăşilă, 2014; Danakol et al., 2017), which measures the percentage of the adult population (18-64 years old) who are classified as nascent or new firm owner-manager.

Despite the wide acceptance of GEM's measures, this paper argues that the NBD measure applied here gives a better picture of the actual entrepreneurial landscape than other measures used by other scholars, such as these measures from GEM, at least for the purpose of this paper. First of all, as mentioned, the GEM measure is inadequate when it comes to the African continent and it can therefore not be used for the comparative purposes of this paper. Secondly, the data is collected based on qualitative surveys where individuals answer three questions, which may lead to biases from subjective perceptions. Finally, based on the questions, the measure does not only account for actual entrepreneurial activity, such as the actual establishment of a new local firm, but also takes into account if one is on his way to start a business, i.e. has "saved money the past twelve months" or "looked for equipment". Therefore, when attempting to measure the actual entrepreneurial activity through the establishment of new firms across many different African countries, NBD serves as a better alternative to the TEA variable by GEM.

Another alternative measure is the increase in annual newly registered local firms as a fraction of annual total businesses as seen in Görg and Strobl (2002) and Ayyagari and Kosová (2010). However, this can lead to bias in the case of many incumbent firms being dissolved that year, creating a 'fake' increase in relative firms. The fraction of new firms relative to the total number of firms would then be artificially higher, creating a positive bias in the estimate of FDI's effect on entrepreneurship. This bias is not present in NBD, as population primarily increases in all of the countries meaning that in worst-case, there will be a slightly negative bias in the effect of FDI inflow on entrepreneurship. Based on the evaluation of the NBD variable, this paper chooses to move forward with this definition of domestic entrepreneurship, as it is perceived to be the best possible alternative when measuring such a broad term in countries as underdeveloped as the African countries.

## The independent variable: FDI inflow

### *Definition*

FDI inflow is defined as real FDI inflow as a fraction of real GDP for each country in the period 2004-2016. FDI inflow is the capital provided by a foreign investor to a foreign affiliate or capital received by a foreign direct investor from a foreign affiliate such as M&A-activity, Joint Ventures and Greenfield investments (UNCTAD, 2016b). Both FDI inflow and GDP are reported in millions

of US dollars.

### *Collection*

FDI inflow is collected from UNCTAD's statistics database. UNCTAD continuously collects FDI data directly from central banks, statistical offices and national authorities, constituting the main sources for data on FDI flows (UNCTAD, 2016b). GDP levels are collected from World Bank's development indicators. Inflation rates have also been collected from World Bank's development indicators.

### *Construction*

The FDI inflow variable is constructed as real FDI inflow over real GDP. As FDI and GDP are subject to currency fluctuations, they have been converted into real terms in order to remove any inflation effects and thus create complete comparability. Thus, both FDI inflows and GDP levels have first been adjusted for inflation by dividing by 1 plus the inflation rate for each year in each country. Then, the two terms have been divided by each other, creating a fraction of FDI inflow to GDP. This is done in order to scale the FDI inflows so that the data can be compared across all African countries.

### *Evaluation*

As posed by the overall expectations of this paper, FDI inflows are expected to have a positive and significant effect on domestic entrepreneurship on the aggregate level. Further, it is expected to have a significant effect in most countries on the national level, where most of these will have a positive impact but some also negative. The varying positive and negative effects on national level could cause an ambiguous effect on the aggregate level, however, as most of them are expected to be positive, the overall impact should also be so.

Due to the nature of the independent variable and in general the complex topic with many different mechanisms present, it is plausible to suspect a certain degree of endogeneity in the model. Endogeneity creates severe bias in a statistical model and it is therefore important to cope with this issue. Therefore, this paper performs a two-stage-least-squares (2SLS) estimation by instrumenting FDI inflows with imports in order to test whether this estimation is more correct for our purpose. The instrumental variable is explained in more detail below. Besides the potential bias of the FDI variable, there are no other significant concerns for this measure as it is collected from a highly

acknowledged source and it measures an easily quantifiable phenomenon.

As FDI inflow is one of the most important variables in the model, it is relevant to consider whether the employed measurement method is the most accurate one. FDI inflows are usually divided into M&A-activity, Joint Ventures and Greenfield investments where the latter seems to have a larger effect on long-term growth than M&A (Harms & Méon, 2018), though there are very few studies on this subject. In fact, Danakol Estrin, Reynolds, and Weitzel (2013) mentions that cross-border M&A transactions (which Danakol et al., 2017 use as a measure for FDI) have a more immediate impact on local entrepreneurship than Greenfield projects, as Greenfield requires more time and effort to be operational and to build up links in the local economy.

Albulescu and Tămăşilă (2014) use the FDI stock volume as a measure for FDI. This does, however, not reflect how the change in FDI inflows affect entrepreneurship and this measure is therefore not relevant for the purpose of this paper, although the stock level may have an indirect effect in itself. Due to difficulty in obtaining data on FDI inflows at a disaggregated level, the measure of total real FDI inflows in each country, containing both M&A investments, Greenfield investments and Joint Ventures, is used as a fraction of real GDP. As the effect of different types of FDI on local entrepreneurship is not the focus of this paper, this does not challenge the model but the matter is still addressed in the discussion chapter.

## The instrumental variable: Imports

As stated above, there might be a problem with endogeneity in the model and to cope with this problem, this paper both estimates the model with regular OLS and 2SLS IV regression. This section presents the instrumental variable employed in the second estimation.

### *Definition*

The variable used to instrument FDI inflow, in order to cope with potential endogeneity, is total real import in each country for every year in the period 2004-2016. Total import is defined as total imports of goods and services in millions of US dollars, thus it comprises the value of every good and service that each African country received from the rest of the world. In order to ensure comparability between the countries, import is measured by dividing real imports with real GDP.

### *Collection*

Total imports, GDP levels and inflation are collected from World Bank's database as this is consid-

ered to be a highly trustworthy source.

### *Construction*

In order to remove currency fluctuations from imports and GDP, both of these are adjusted for inflation in the same manner is FDI inflows. Then, the two terms are divided for each country and each year, creating a fraction of real imports to real GDP.

### *Evaluation*

An instrumental variable (IV) should satisfy two conditions: relevance and exogeneity. This means that the variable should be relevant to the model by being correlated with the variable that it instruments. Also, it should be exogenous to the model by being uncorrelated with the error term, thus only influencing NBD indirectly through FDI inflow. From an intuitive perspective, import meets these conditions. First of all, as imports is related to a country's trade position and hence how much it purchases from foreign suppliers, FDI inflows should be somewhat correlated with imports. For example, firms that sell a significant amount of products to a foreign country might have incentives to open a subsidiary in that country. Thus, increased imports could lead to increased FDI (Anbalagan, Jayakumar, & Kannan, 2014). Secondly, imports is most likely exogenous to domestic entrepreneurship as the small impact it might have on entrepreneurship runs solely through multinationals and FDI. Thus, import in itself is assumed not to influence the creation of new businesses (GEM, 2018b). Import is therefore expected to be both a valid (relevant) and a strong (exogenous) instrument and for this reason, it is used for testing endogeneity in the model and running the 2SLS.

Potential bias of the IV can arise in the case where import is not a valid and strong instrument for FDI inflow. This might be the case if it is either uncorrelated with FDI or highly correlated with NBD. As explained above, FDI inflow is expected to be highly correlated with import, as they are both a result of trade and general business with foreign firms, so the relevance is not expected to be an issue. Further, the correlation with NBD should not be high, however, it is allowed to be non-zero, and it should therefore not pose an issue either. This will be tested thoroughly in the analysis in order to ensure limited bias. In addition, imports have been collected from a highly reliable source, which suggests that there should be no issues with the data quality.

In order to create the best possible IV model, several different instruments have been proposed and tested. The most interesting potential instrument is FDI distance, which is used by Danakol et al. (2017). This instrument is constructed from the bilateral distances between host and

source countries, weighted by the respective portions of FDI. This is an ideal instrument as the literature supports it, however, the test revealed that it was neither valid nor strong in our case. Other potential instruments have also been tested, such as exchange rate volatility, colonial ties and current account balance. However, none of them have shown to be better instruments than import.

## Control variables

### *Human capital*

The average years of schooling among the population is used as a measure for the level of human capital. The data is collected from the United Nations Development Program (UNDP). Human capital is believed to have a positive relationship with NBD as it increases the absorptive capacity of the population. Potential bias or collection issues are assumed to be very low with this variable as it is collected from a well-regarded source on development data. The variable is utilised in plenty of studies, as seen in the literature review, why it is deemed a valid measure for the broad term of human capital, as it is fair to assume that the absorptive capacity of a country increases with the average years of education. Other sources use literacy as a proxy for human capital, however, this paper believes that the average years of schooling is a better measure, as it is more directly linked to domestic entrepreneurship as it is connected with actual knowledge providing the ability to identify business opportunities.

### *Startup costs*

The startup costs variable is defined as the cost of starting a business in pct. of income per capita and it is collected from the Doing Business database from the World Bank. For some countries, the costs are so high that the number of startups is limited naturally by these costs. As an example, the cost was almost 1500 pct. of income per capita in Sierra Leone in 2004, which has gone down to about 30 pct. in 2016. This paper believes a central constraint for individuals wanting to start a business is the startup cost itself, why this measure is expected to be negatively related to entrepreneurship. There are no obvious alternatives for this variable but it is created by the World Bank with the purpose of studying business environments, and is therefore considered reliable and valid.

### *Innovative culture*

The innovative culture is measured by the innovation index from the Global Competitiveness Index

(Schwab, 2016), which evaluates world economies based on their innovative environment. The innovation score grades countries on a continuous scale from 1-7 where 7 is the highest possible score, and the variable is therefore expected to have a positive relationship with NBD. Potential bias might arise from the fact that it is not a purely quantitative measure but rather a score based on both objective and subjective considerations. However, the score is constructed by a highly acknowledged institution and bias should therefore not be a significant issue. As an alternative measure, and a widely used one, the R&D level in the country, measured as total expenditure on R&D relative to GDP, could be used successfully too. The R&D level reflects the investment in knowledge and is important for the absorption of FDI spillovers and entrepreneurship in itself. However, no such data exists for the 23 African countries, why the innovation index will have to cover instead and it is believed to be a satisfactory measure.

### *Foreign presence*

For measuring foreign presence, this paper utilises the annual change in the real FDI stock level relative to real GDP, similar to the proxy used in Albulescu and Tămăşilă (2014), collected from UNCTAD. Foreign presence is believed to have a positive relationship with NBD, as it shows the openness to trade and the development of the business environment. Potential bias can arise from multicollinearity with FDI inflows and this should therefore be considered in the analysis. Other measures could have been the number of foreign firms or number of M&A deals, but data on these variables is very limited for Africa why the FDI stock level is chosen as proxy.

### *Real GDP*

Real GDP is measured as the growth rate of real GDP per capita in order to ensure comparability across time and countries. GDP, inflation and population is collected from World Bank and real GDP is found by deflating the GDP level in each country and year with the respective inflation rates. Real GDP per capita is then computed by dividing with the population in each country and year. The year-to-year growth rate is found and used as the final variable, supported by the literature. Real GDP is a measure for the development state of the country, which in the literature review is found to be significant for the development of entrepreneurship, and the variable is therefore expected to have a positive relationship with NBD. The source is highly reliable and there should be no issues with this variable. When estimating economic development, real GDP is a broadly adopted measure among scholars and it is therefore assumed to be the best possible proxy.

### *Unemployment rate*

The unemployment rate is defined as the fraction of the labour force (age 15 and older) that is currently unemployed. The unemployment rate is collected from the International Labour Organisation (ILO), which is one of the largest international labour databases. The variable is expected to have a positive relationship with entrepreneurship, which may seem counterintuitive, but the dependent variable, NBD, is comprised of both opportunity and necessity entrepreneurship and studies show that higher unemployment leads to more people starting new businesses out of necessity. There are no apparent bias or collection issues with this variable, and alternative measurements are not relevant as the variable is directly quantifiable by the measurement method employed here.

### *Corruption*

Corruption is measured with the Corruption Perceptions Index (CPI) from Transparency International. The CPI ranks countries based on national surveys from 0-100 where 100 is least corrupt and thus the closer to 1, the more corrupt the country is perceived to be (Transparency International, 2018). Most of the newer CPI values are downloaded directly while for year 2004-2009 and 2013 the values are plotted from the website directly. Prior to 2009, Transparency International ranked the countries from 0-10, why these values have simply been multiplied by ten to ensure data homogeneity. The paper expects corruption to be positively related with NBD as the higher the CPI, the lower the corruption, and high corruption is expected to influence NBD negatively. The source is well regarded and this paper therefore assumes that there are no issues with collection. However, the index is based on surveys, which exhibits a high degree of subjectivity. The measure is therefore influenced by subjective perceptions, which might entail some degree of bias. Transparency International is, however, assumed to carry out reliable and plausible surveys as it is an acknowledged institution, and it should therefore be trustworthy. Further, there are no completely objective measures for corruption, due to the nature of the phenomenon, and it is therefore the best possible alternative.

### *Financial market development*

The development of the financial market is measured as the domestic credit provided by the financial sector to the private sector (pct. of GDP). The variable is collected directly from the World Bank and as it reflects the extent of lending to the private sector, it is expected to have a positive relationship with NBD. As the startup costs variable does not contain this specific information,

there should be no problem with multicollinearity, and further it is collected from a reliable source, eliminating potential bias in the model. The measure has been used in several studies and reflects the ease of obtaining credit for the private sector, which is highly relevant for entrepreneurs, and it is therefore considered to be the best proxy.

## Excluded variables due to data constraints

### *Entrepreneurial culture*

Entrepreneurial culture is hard to define as both the presence of physical new startups can indicate the entrepreneurial landscape while a more psychological measure, such as the wish to engage in startups can also indicate the entrepreneurial culture in a country. This study would have used the equally weighted measure from the World Values Survey (WVS) made up by *traditional values vs. secular-rational approach* and *individual survival vs. self-expression* as in Danakol et al. (2017). The first involves respect for authority, strong religious practices and family ties in contrast to open, collective decision making, while the latter contrasts economic and physical security with emphasis on personal expression and self-development. Both measures have previously been used in entrepreneurship research by Hechavarria and Reynolds (2009) and Suddle, Beugelsdijk and Wennekers (2010). However, data is only available for 7 African countries. Due to difficulties in finding an appropriate proxy for entrepreneurial culture, this variable is excluded from the analysis and this is an important factor to keep in mind when evaluating the results, as it may lead to omitted variable bias. However, we do include the innovation index, which may capture some of the explanation of entrepreneurial culture and the bias is therefore assumed not to skew the results so immensely that no conclusion can be drawn from the analysis.

### *Ease of doing business*

The ease of doing business measure from Doing Business database by the World Bank includes startup costs and procedures, ease of obtaining financing, tax payments and levels plus protection of investors, which could have been an interesting variable to include in the model. Due to lack of data in African countries before 2015 for the aggregate measure of ease of doing business, this study instead includes the cost of starting a business and financial market development. Other indicators for the ease of doing business could have been used such as time (in days) required to set up a business or number of procedures (Munemo, 2017), business licensing and permits indicators (Apostolov,

2017), financing constraints and legal restrictions (Acs et al., 2007). However, this paper assumes that a major constraint for individuals wanting to start a business is the cost itself, why this measure is deemed to be the best alternative for including the effect of the business environment.

## 4.3 Model specification

The following section presents potential estimation methods that this paper could use for estimating the relation between FDI and domestic entrepreneurship with the panel dataset in hand. The inherent assumptions and conditions for each of these estimation techniques are considered, setting the basis for choosing between the methods in the analysis chapter. Further, the model specifications are presented in order to clarify the exact model the paper intends to estimate.

### 4.3.1 Estimation method

This paper considers three different ways in which this panel data model can be estimated: pooled Ordinary Least Squares (OLS), Fixed Effects (FE) and Random Effects (RE). Further, the paper evaluates whether the model should be estimated with the instrumental variable presented above.

A panel data model should be estimated with pooled OLS in the case where there are no cross-sectional or temporal effects (Pillai N., 2016). In this paper, it means that the model could be consistently estimated with pooled OLS if the impact of FDI on domestic entrepreneurship is constant across all 23 African countries and over the period from 2004 to 2016. The fact that it should be constant across countries is a clear contrast to the expectations of this paper, and for that reason it does not make sense to estimate the model with pooled OLS. Additionally, most of the countries have developed significantly over the past 13 years and therefore, it is highly unlikely that the impact is constant over time. For the sake of thoroughness, pooled OLS estimations are reported in Appendix D, albeit these being biased and inconsistent, why they are not commented on.

The other two estimation methods, FE and RE, are common panel data methods as they allow for changes across time and country. These estimation methods allow for the unobserved factors to consist of two types, time-constant and time-varying factors (Wooldridge, 2016). Such a model is as follows:

$$y_{it} = \beta_0 + \beta_1 x_{1,it} + \ldots + \beta_k x_{k,it} + a_i + u_{it}$$

Here, *i* denotes each country, *t* indicates the time period and *k* denotes the specific independent variable. Further, *a* represents the time-constant unobserved factors and *u* denotes the usual error-term

that varies over time. The time-constant unobserved factors is what interests us particularly as this is what distinguishes these estimation methods from pooled OLS (Wooldridge, 2016), and it is commonly referred to as unobserved heterogeneity. The main difference between FE and RE is how this term is treated and this determines which method is most appropriate for the model of this paper. FE estimators allow for the unobserved heterogeneity to be correlated with the regressors and for this reason, any variables that are constant over time are omitted from the estimation. On the other hand, RE estimators assume that the unobserved heterogeneity is uncorrelated with any of the explanatory variables, which allows for time-constant variables in the regression (Wooldridge, 2016).

Due to this assumption, RE is difficult to apply in many econometric models as regressors are often outcomes of complex underlying structures and are thus likely to be correlated with time-fixed effects inherent in the studied entities (Wooldridge, 2016). In this paper, it is highly plausible to expect that some of the regressors are correlated with unobserved effects captured by the unobserved heterogeneity. For this reason, it makes logical sense to choose FE as the estimation method. However, in order to support these claims, the two methods are tested against each other with the Hausman test in the analysis (Wooldridge, 2016). The choice is thus based on both theory and a quantified test.

Besides choosing the panel data estimation method, this paper considers the possibility of estimating the model with an instrumental variable. Thus, it should be decided whether it is most appropriate to estimate the model with a regular FE or RE estimator or with an instrumental FE or RE estimator. This paper suspects that there might be a degree of endogeneity in the model, and to cope with this issue, the model can be estimated using 2SLS IV regression with import as an instrument for FDI inflow. The suspicion derives from the fact that endogeneity may occur through several channels in the relation between FDI and domestic entrepreneurship (Stock & Watson, 2012).

First of all, FDI inflow may be correlated with the error term due to omitted variable bias, causing unbiased and inconsistent OLS estimators. Secondly, reverse causality might also pose a threat to the unbiasedness of OLS as it makes economic sense that the relationship between FDI inflows and entrepreneurship could be of an interdependent nature, meaning that FDI inflows promote entrepreneurship and in turn that higher entrepreneurial activity attracts FDI inflows. Lastly, endogeneity can stem from wrongfully measured variables (Stock & Watson, 2012). In order to de-

termine whether the model should be estimated with or without the IV, the analysis chapter includes an endogeneity test combined with relevant literature.

The model is estimated on two distinct levels of aggregation, namely an overall regional regression and a country-level regression for each of the 23 African countries. The overall regional regression is estimated with pooled OLS, fixed effects, random effects and instrumental variable regression in order to ensure complete transparency, though only the results from fixed effects are analysed. The individual country regressions enable this paper to study further the countries with significant effects in order to evaluate the characteristics of these countries. These are estimated with time series regression using HAC standard errors in order to ensure validity. This is discussed further later on.

## 4.3.2 Model specifications

This section presents the exact model specifications that the paper examines. As the model is estimated with both regular FE, RE and IV estimation, there are two specifications. Both models examine the relationship between NBD and FDI inflow controlling for the above-mentioned factors on two levels of aggregation, i.e. the full panel data set with all 23 African countries and on an individual level for each country. In order to enhance interpretation of the results, the logarithm has been taken for both the dependent, independent and instrumental variable and these are used in both specifications.

### Fixed effects and Random effects Model

The model estimated by the FE and RE is as follows:

$$ln(NBD)_{it} = \beta_0 + \beta_1 ln(RealFDI)_{it} + \beta_2 humancapital_{it} + \beta_3 startupcosts_{it} + \beta_4 innovation_{it} + \beta_5 foreign_{it} + \beta_6 RealGDP_{it} + \beta_7 unemployment_{it} + \beta_8 corruption_{it} + \beta_9 finmarkdev_{it} + a_i + u_{it}$$

where i = 1, … , n; t = 1, … , T.

### Instrumental Variables Model

The model estimated with the instrumental variable and 2SLS is as follows:

*First stage:*

$$ln(RealFDI)_{it} = \beta_0 + \beta_1 ln(RealImport)_{it} + \beta_2 humancapital_{it} + \beta_3 startupcosts_{it} + \beta_4 innovation_{it} + \beta_5 foreign_{it} + \beta_6 RealGDP_{it} + \beta_7 unemployment_{it} + \beta_8 corruption_{it} + \beta_9 finmarkdev_{it} + v_{it}$$

From this stage, the fitted values of FDI, $ln(\widehat{RealFDI})_{it}$, are found and these are used as the instrument for FDI inflow in the second stage.

*Second stage:*

$$ln(NBD)_{it} = \beta_0 + \beta_1 \widehat{v_{it}} + \beta_2 humancapital_{it} + \beta_3 startupcosts_{it} + \beta_4 innovation_{it} + \beta_5 foreign_{it} + \beta_6 RealGDP_{it} + \beta_7 unemployment_{it} + \beta_8 corruption_{it} + \beta_9 finmarkdev_{it} + a_i + u_{it}$$

These two model specifications are tested in the following chapter.

### Time series with HAC standard errors

Each of the 23 individual country regressions are estimated with a static time series regression using HAC standard errors:

$$ln(NBD)_t = \beta_0 + \beta_1 ln(RealFDI)_t + \beta_2 humancapital_t + \beta_3 startupcosts_t + \beta_4 innovation_t + \beta_5 foreign_t + \beta_6 RealGDP_t + \beta_7 unemployment_t + \beta_8 corruption_t + \beta_9 finmarkdev_t + u_t$$

where t = 1, …, n.

## 4.4 Limitations of research design

This section addresses the potential limitations of the research process, by discussing the validity and reliability of the data and the procedures employed.

### 4.4.1 Validity

The validity of a research paper considers whether the research truly measures what was initially intended and thus whether the data and methods allow the researcher to capture the relations and mechanisms in question. In this regard, the researcher's involvement in the data collection and research process influences the validity greatly. Therefore, it is important to assess the degree of va-

lidity of this thesis in order to evaluate whether the conclusions drawn from the analysis are trustworthy and even useful (Golafshani, 2003).

First of all, the data collection process is central for the validity of the paper. As will be elaborated later, most of the variables in the regression are collected from acknowledged sources, such as UNCTAD, World Bank and ILO, who all follow accepted standards, and data obtained from these sources is therefore considered valid. In addition, the dependent variable has been collected from various national statistics databases and business registries in each African country. As there are no complete, publicly available datasets that contain the number of newly registered businesses each year in African countries, this procedure was necessary, though slightly questionable. In order to ensure a certain data quality and comparability between countries, the process has been very strict and 31 countries have therefore been eliminated from the dataset. Thus, only countries where the definition of a newly registered business aligns with the common definition are included in the dataset. As a result of this collection process, the validity of the study might suffer. However, the strict selection criteria and the willingness to exclude 31 countries, despite their potentially interesting country profiles, indicate that only the data with high quality and comparability is included in the analysis, yielding a valid dataset. Adding to this, the data from national sources has been supplemented and compared to data from the World Bank, which is a highly acknowledged source.

Another point is that the data collected from different databases and agencies is secondary data, which means that it is collected from institutions that has gathered the data, rather than collecting the data first hand. As it is solely collected from official sources, secondary data should be sufficiently valid for the purpose of this paper. The last issue to consider is the objectivity of the research process and whether the procedures are sufficiently detached from the research question (Golafshani, 2003). The variables have been collected from either trustworthy sources or with strict criteria, and the data in itself should therefore be as objective as possible. Further, the variables included in the regressions are chosen based exclusively on previous literature and thus, acknowledged scholars' perception that the variables are relevant for the relation between FDI and domestic entrepreneurship. The objectivity of the quantitative analysis is therefore rather solid. The qualitative analysis is based on data from acknowledged sources that highlight important issues to consider when evaluating different African countries. Therefore, no arbitrary data has been included in the analysis, guided by the research question, and this analysis is therefore also considered to be valid. For these reasons, the dataset and process are considered to fulfil the required validity standards.

### 4.4.2 Reliability

Reliability of a study considers whether the same results could be reached by other researchers and at another time using the same methodology. Thus, it assesses whether the results are consistent across researchers and over time (Golafshani, 2003). With the statistical method, most procedures are highly standardised as calculations are performed with statistical software packages and in accordance with statistical theory. Thus, the results of this paper should be repeatable using the same valid dataset. Further, other highly acknowledged scholars have found similar relations between FDI and domestic entrepreneurship, suggesting that others have been able to replicate the process and reach the same results, and will also be so in the future. With regards to the qualitative analysis, other researchers should be able to reach similar conclusions if taking into account the same country characteristics as in this paper. These factors are chosen based on frameworks posed by institutions such as AfDB and GEM, why they are perceived to by reliable.

# 5 Quantitative analysis

This chapter presents the quantitative analysis of the paper where the dataset is analysed with descriptive statistics, regression results and inference. First, the chapter offers a plot of the data, summary statistics and a correlation matrix between the variables included in the model. Secondly, the model is tested with regards to potential issues in order to determine the proper estimation method. Thirdly, the regression results are presented for inference purposes. The last section is divided between the overall regression for the entire sample and the individual country regressions. The chapter is concluded with a robustness check, considering the issues of omitted variable bias, heteroskedasticity, autocorrelation and alternative specifications.

## 5.1 Plotting the data

In order to determine whether there is a risk of the data distorting the regression results, the average of the dependent variable is plotted in Figure 2 below. From the figure, it is evident that there is a risk of biasing the regression results if including several countries.

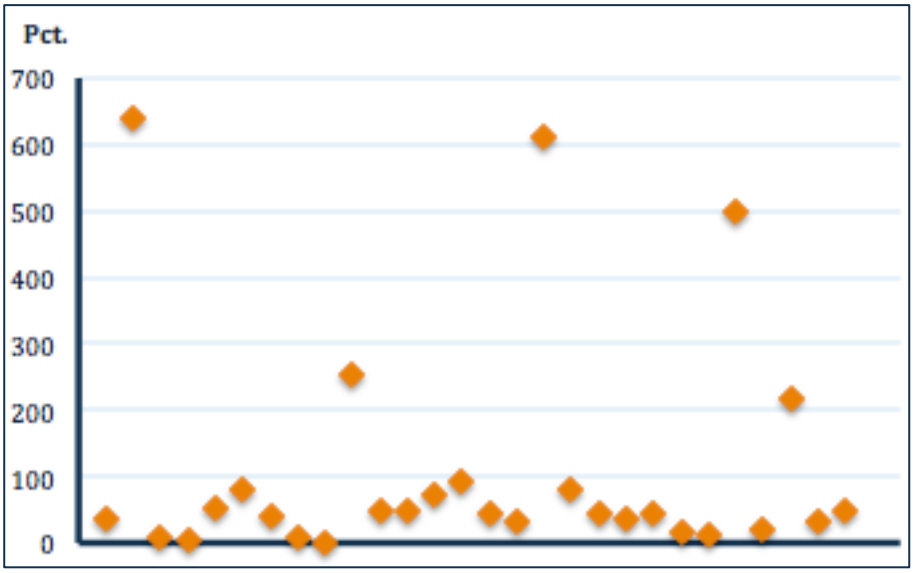


**Figure 2 Dispersion of average NBD across all countries**

Therefore, the outliers, Botswana, Mauritius, South Africa, Gabon and Tunisia, are excluded from the analysis to avoid a positive bias in the regression results. After excluding these 5 countries, the data looks more evenly distributed, referring to the Figure 3 below, and is now ready for analysis.

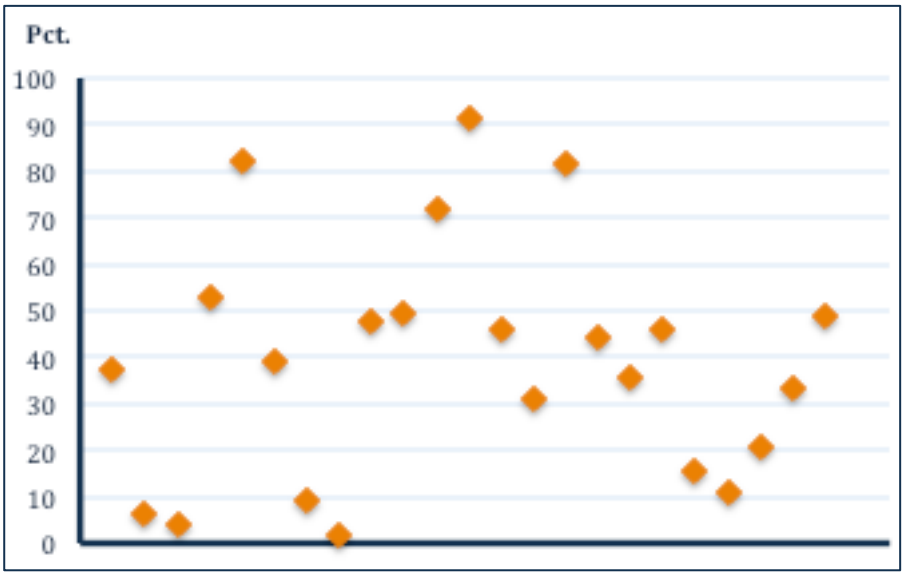


**Figure 3 Dispersion of average NBD across all countries, excluding outliers**

## 5.2 Summary statistics

The following table shows the summary statistics for each of the variables included in the model.

| VARIABLE | OBS | MEAN | STD. DEV. | MIN | MAX |
|---|---|---|---|---|---|
| NBD | 299 | 0.394865 | 0.316321 | 0.009699 | 1.751909 |
| REAL FDI INFLOWS | 299 | 0.055091 | 0.075563 | 0.000018 | 0.567329 |
| HUMAN CAPITAL | 299 | 4.717178 | 1.724248 | 1.300000 | 7.904000 |
| FOREIGN | 299 | 0.050767 | 0.426395 | -2.430797 | 6.257480 |
| INNOVATION | 299 | 3.012165 | 0.482625 | 2.059371 | 5.458642 |
| STARTUP COSTS | 299 | 88.06421 | 158.8076 | 4.700000 | 1,491.600 |
| REAL GDP | 299 | 0.080220 | 0.168339 | -0.436720 | 1.079562 |
| UNEMPLOYMENT | 299 | 0.083017 | 0.065393 | 0.007000 | 0.360000 |
| CORRUPTION | 299 | 31.90970 | 8.996375 | 16.00000 | 60.00000 |
| FIN. MARK. DEV. | 299 | 0.215452 | 0.157880 | 0.020972 | 0.716380 |
| REAL IMPORTS | 299 | 0.463913 | 0.304900 | 0.104924 | 2.363918 |

**Table 2 Summary statistics of all variables**

Table 2 illustrates the sample average of each of the 11 variables across 23 African countries during the period from 2004-2016.

### 5.2.1 New Business Density

The mean of NBD, defined as the average annual number of newly registered local firms per 1,000 people, is 0.394865. This number may be a bit difficult to grasp but it is equivalent to saying that on average, 9,332[3] new local businesses are registered yearly in an African country. This number may seem low compared to for instance Denmark, which had approximately 35,000 new businesses in 2017 or an NBD of approximately 6 new local businesses per 1,000 people. However, it is an average for an entire region with very different characteristics than Denmark and huge differences among the countries within the region as well.

An important thing to realise is that even though some countries register a large number of new businesses each year, it does not mean that these countries are the ones with highest entrepreneurial activity. This is because entrepreneurial activity is population based, so that larger countries will have to establish proportionally more local businesses than smaller countries to achieve the same NBD. Figure 5 below illustrates the entrepreneurial landscape with average NBD measures for each of the 23 African countries and their respective average yearly new business registrations from 2004-2016.

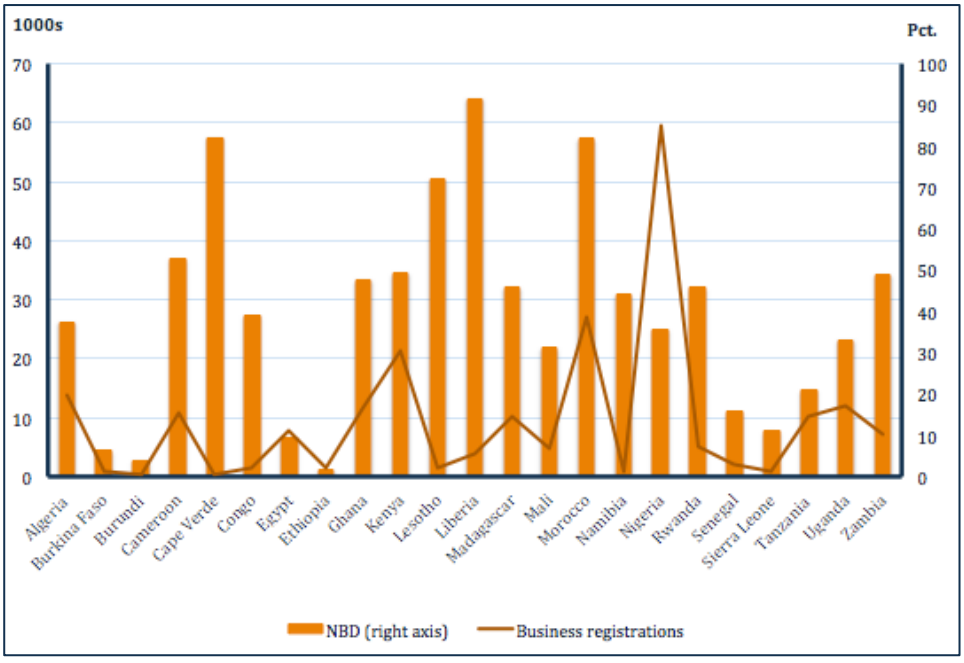


**Figure 4 Average NBD and business registrations for each country**

[3] NBD multiplied by the average African population in thousands over the years 2004-2016.

## Most entrepreneurial countries

The country with the highest average NBD of 0.9164 is Liberia, which corresponds to an average of 3,824 yearly new business registrations. Liberia is further responsible for the maximum NBD over the years from 2004-2016 of 1.751909, which occurred in 2016 where the number of business registrations had more than doubled from 2010, meaning that Liberia is by far the most promising country when it comes to entrepreneurship, although its number of business registrations are close to the mean.

Cape Verde has an NBD of 0.8220 and average new business registrations of only 412, while Morocco follows closely with an average NBD of 0.8184 and business registrations of 29.984, being the third most entrepreneurial country in the region and the country with the second highest number of business registrations (Nigeria has 59,468 new registrations on average but due to a large population its' NBD is just 0.3565). On a strong fourth place, Lesotho is listed with an average NBD of 0.7207 and average business registration of 1,497 per year, with Cameroon following closely with NBD of 0.5270 and 10,677 new businesses registered on average per year.

The data illustrates that even though NBD is very high in e.g. Liberia and Cape Verde, they do not account for the highest average business registrations, stressing that the entrepreneurship measure is population dependent. Naturally, this goes the other way around too; Nigeria accounts for the highest average registration of almost 60,000 firms per year during 2004-2016, a lot more than Morocco and Denmark, but due to their large population, the average NBD is just around 0.360, implying that entrepreneurship is not widely spread amongst the population even though the country has the highest number of business registrations.

## Least entrepreneurial countries

At the other extreme, Ethiopia has an average NBD of 0.0163 with an average of 1,462 yearly business registrations. However, Ethiopia is not responsible for the minimum NBD value, that is Burundi with 0.0097 back in 2005 and the country also takes second last place with an average NBD of 0.0392 with average business registrations of only 358, being the country with the lowest average business registrations for the period of 2004-2016. Other countries with low NBD are: Burkina Faso with an average of 0.0623 and 1,009 new firms per year, Egypt with NBD of 0.0920 and 7,918 new firms registered and Sierra Leone with NBD of 0,1098 and 724 new firms registered.

Overall this shows that Liberia, Cape Verde, Morocco, Lesotho and Cameroon are the most entrepreneurial countries in the African region measured by average NBD in 2004-2016, while

Ethiopia, Burundi, Burkina Faso, Egypt and Sierra Leone are the most limited in entrepreneurial activity. Even though this does not say anything about the effect of FDI on the entrepreneurial landscape it is still interesting to have an idea of which countries are in the lead when it comes to entrepreneurial activity.

The overall development of NBD and FDI inflows are seen below in Figure 5. The region has had a highly positive development in entrepreneurship during the period, with small drops after the financial crisis and a hit again from 2013-2014 from which the region is rebounding. In the same period, FDI has risen steadily, with a drawback in the period 2011-2014, which it is slowly recovering from. Overall the two seem to be moving in the same direction, which is confirmed in the correlation matrix in Table 3 and it is therefore not unthinkable that there could be a significant effect of FDI on NBD in the overall regression.

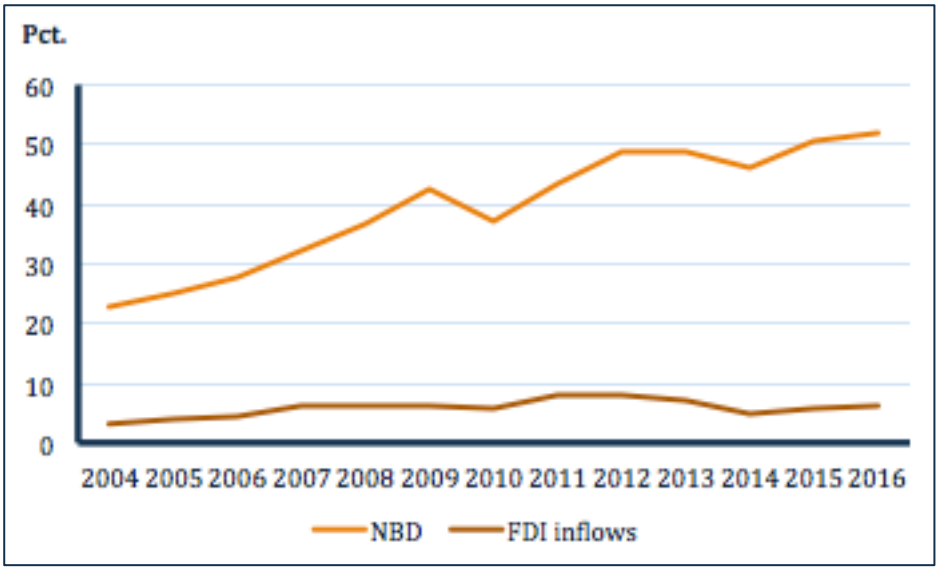


**Figure 5 Average regional NBD and FDI inflows from 2004 to 2016**

## 5.2.2 FDI inflows

On average, FDI amounts to 5.13 pct. of national GDP in real terms across the African region with a minimum as low as 0.002 pct. and a maximum of 56.73 pct. in Burundi in 2016 and Liberia in 2012, respectively. Figure 6 below shows the average FDI/GDP and average growth of GDP per capita in all 23 countries.

Once again, Liberia ranks in the top with the highest FDI share of GDP of 29.37 pct. This could definitely indicate that a higher FDI share of GDP translates into a more entrepreneurial economy, as Liberia was the country with the highest NBD too. However, it is not the country with the highest GDP per capita growth, which indicates that GDP growth in itself does not necessarily

mean that FDI levels increase. This pattern is general for Figure 6 below: there are countries with high FDI/GDP levels and low GDP per capita growth, such as Congo, and others where the reverse is present, such as in Ethiopia and Nigeria. As the thesis has delimited itself from discussing what attracts FDI, the issue is not discussed any further but it seems that high GDP growth in itself does not increase inflows of FDI/GDP.

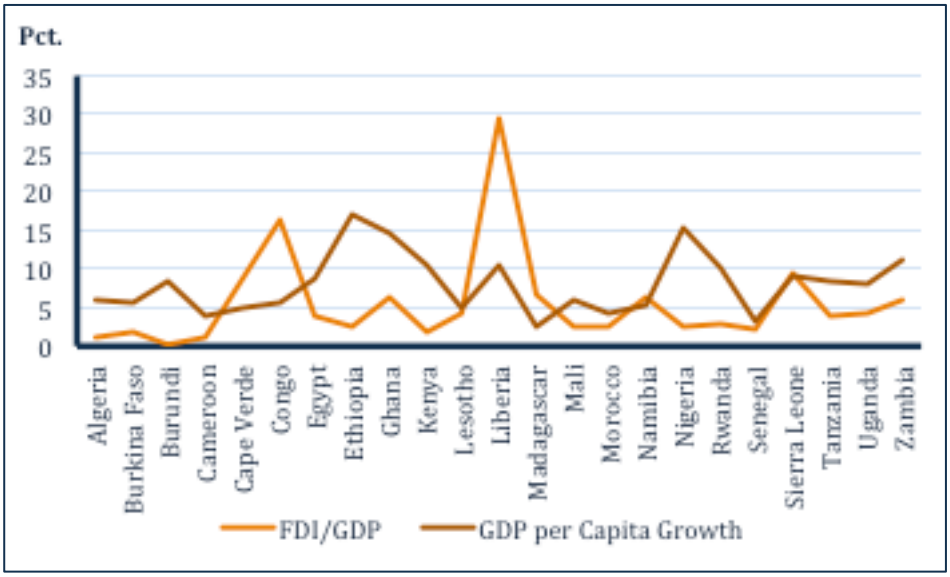


**Figure 6 Averages of real FDI inflows over real GDP and real GDP per Capita Growth for each country**

The same conclusion goes for the relationship between FDI/GDP and GDP per Capita pictured in Figure 7 below. There seems to be little relationship between the development state of the country and the amount of FDI/GDP, which is very interesting as this is one of the relationships, presumably positive, that are widely discussed in the literature.

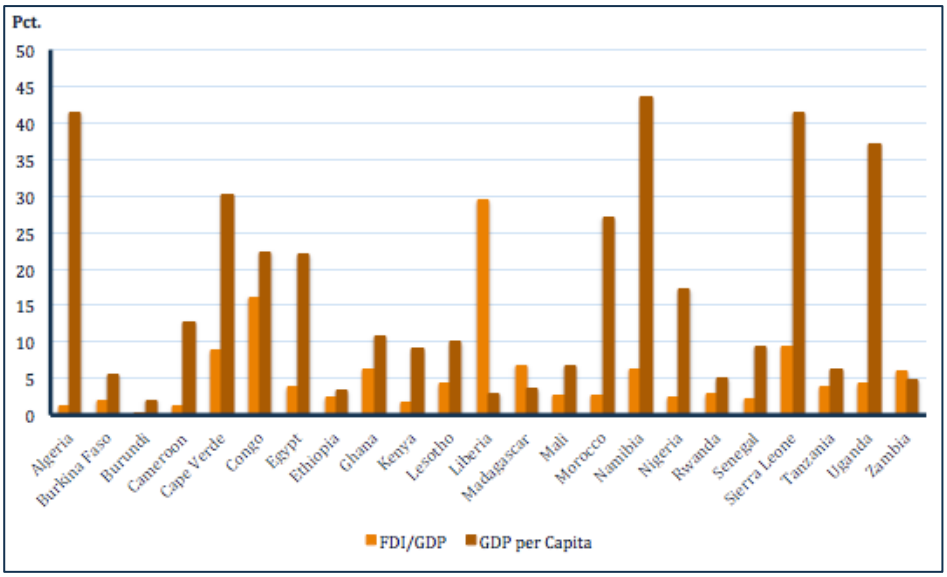


**Figure 7 Averages of real FDI inflows over real GDP and real GDP per Capita for each country**

### 5.2.3 Control variables

Startup costs is by far the control variable with the largest disparity ranging from about 4 pct. of national income in Rwanda in 2011 to 1491 pct. in Sierra Leone back in 2004 with a regional average of 88.64 pct. Since 2004, Sierra Leone has brought down this extremely high level to around 30 pct. of national income in 2016, showing regulatory willingness to improve the business environment. This stresses the fact that the sample averages are static pictures of average values over the whole period from 2004-2016 and are therefore only useful as a snapshot of how these developments have been.

In general, the summary statistics indicate a region with high corruption levels, 31.90 on average, where 100 means least corrupt, low human capital levels, with the population averaging only 4.71 years of school and an unemployment rate of 8.30 pct., with a maximum of 36 pct. in Lesotho back in 2005. However, it is important to keep in mind, that these averages do not show the present situation in the region, where many countries have improved a lot during the recent years.

Further, they do not indicate where the region is heading, which is therefore addressed in the country analysis section, where regional averages are used as baselines to enable a comparison of the performance of each country with a significant FDI effect. As we are not concerned with the level of entrepreneurship per se but the effect of FDI on the entrepreneurial environment, it is not necessarily the countries with the highest NBD that will be examined further. Rather, the regressions show which countries benefit or suffer from FDI, in regards to NBD, and these are thus studied further.

## 5.3 Correlations

The correlation matrix in Table 3 below displays Pearson's product-moment correlation coefficients and indicates the direction and strength of the linear relationship between the variables in the model. It shows what direction to expect between NBD and FDI and how the control variables vary with NBD, FDI and each other. It is important to mention here, that although there may be a linear relationship, it is not necessarily a meaningful one and there may be better descriptions of the correlations, such as a curved one. Appendix E displays all the correlations in scatter plots, which show that a linear relationship is in fact the best suited for this dataset why both OLS and 2SLS estimation are appropriate in describing the relationship between NDB and FDI inflows. Further, the correlations do not say anything about causality. The first thing worth noting is, that there is no perfect

multicollinearity or questionably high correlations in the dataset (Wooldridge, 2016). This means that none of the covariates needs to be excluded at first glance.

| CORRELATIONS | lnNBD | lnREALFDI | lnREALIMPORT | HUMANCAPITAL | FOREIGN | INNOVATION | STARTUPCOSTS | REALGDP | UNEMPLOYMENT | CORRUPTION | FINMARKDEV |
|---|---|---|---|---|---|---|---|---|---|---|---|
| lnNBD | 1.00 | 0.41 | 0.21 | 0.55 | 0.04 | 0.09 | -0.29 | -0.12 | 0.33 | 0.37 | 0.23 |
| lnREALFDI | 0.41 | 1.00 | 0.42 | 0.22 | 0.08 | 0.24 | -0.01 | -0.03 | 0.16 | 0.31 | 0.08 |
| lnREALIMPORT | 0.21 | 0.42 | 1.00 | -0.02 | 0.08 | 0.01 | -0.01 | -0.07 | 0.39 | 0.27 | 0.14 |
| HUMANCAPITAL | 0.55 | 0.22 | -0.02 | 1.00 | 0.00 | -0.08 | -0.28 | -0.06 | 0.36 | 0.08 | 0.06 |
| FOREIGN | 0.04 | 0.08 | 0.08 | 0.00 | 1.00 | 0.09 | 0.01 | 0.09 | -0.01 | -0.01 | -0.03 |
| INNOVATION | 0.09 | 0.24 | 0.01 | -0.08 | 0.09 | 1.00 | 0.49 | -0.04 | -0.17 | -0.07 | -0.03 |
| STARTUPCOSTS | -0.29 | -0.01 | -0.01 | -0.28 | 0.01 | 0.49 | 1.00 | 0.07 | -0.22 | -0.31 | -0.29 |
| REALGDP | -0.12 | -0.03 | -0.07 | -0.06 | 0.09 | -0.04 | 0.07 | 1.00 | -0.02 | -0.17 | -0.16 |
| UNEMPLOYMENT | 0.33 | 0.16 | 0.39 | 0.36 | -0.01 | -0.17 | -0.22 | -0.02 | 1.00 | 0.30 | 0.28 |
| CORRUPTION | 0.37 | 0.31 | 0.27 | 0.08 | -0.01 | -0.07 | -0.31 | -0.17 | 0.30 | 1.00 | 0.55 |
| FINMARKDEV | 0.23 | 0.08 | 0.14 | 0.06 | -0.03 | -0.03 | -0.29 | -0.16 | 0.28 | 0.55 | 1.00 |

**Table 3 Correlation matrix including all variables**

### 5.3.1 Correlation with NBD

As expected, FDI inflow has a semi-high and positive correlation with NBD of 0.41, which strengthens the hypothesis that the relationship between FDI and NBD on an overall regional level is positive. This gives a good base for further research of the relationship, with the continuing assumption that the relationship can vary between countries and in fact be negative in some. The instrument, import, has a weaker, although existing correlation, with NBD, which indicates that the instrument might not be the strongest one, however it has a high correlation of 0.42 with FDI inflows, indicating that it may be a suitable instrument.

Human capital (0.55), corruption (0.37) and unemployment (0.33) all have strong positive relationships with NBD, as expected. A higher corruption score is related to higher NBD levels, as higher corruption scores means less corruption. The fact that a higher unemployment rate is related to more entrepreneurship, may be because NBD measures both necessity and opportunity entrepreneurship and research finds that unemployment may spur necessity entrepreneurship (Koellinger & Thurik, 2012), which can be the relationship seen here. Startup costs (-0.29) are negatively correlated with NBD, which makes sense while financial market development (0.23) and innovation (0.09)

have positive correlations with NBD on an overall level, as expected, although the correlation with innovation is a bit low.

The two variables with surprising results are real GDP (-0.12) and foreign presence (0.04). Real GDP per capita growth was assumed to have a positive effect on NBD but again this may be related to the fact that in worse times, people start businesses out of necessity, as in times with higher unemployment rates and in good times, this type of entrepreneurship is diminishing so that the NBD measure actually decreases. The relationship is however very weak and may not be meaningful on an aggregate level as it may depend on the development state, i.e. the level of GDP per capita in the country, as suggested by theory, and not simply the growth rate. Foreign presence shows almost no correlation with NBD on an aggregate level, which does not mean that there could not be a relationship on country level, why it is still included in the aggregate model as a control.

## 5.4 Testing the model

The following section elaborates on the discussion of estimation methods that was first introduced under model specification. First, a Durbin-Wu-Hausman (DWH) test is conducted to support the choice between FE and RE, which is also backed by theoretical argumentation. Further, the section tests whether the model suffers from endogeneity with the use of the regression-based Hausman test. Together with theoretical arguments, this test supports the choice between estimating the model with or without an instrumental variable.

### 5.4.1 Fixed vs. Random effects

As previously mentioned, panel data models can be estimated using several different methods and this paper considers two potential candidates: fixed effects and random effects. The key difference is that RE assumes that unobserved heterogeneity is uncorrelated with any of the regressors, while FE allows for this to be untrue. In order to choose between the two methods, this paper presents logical arguments of why one is preferred over the other and subsequently conducts a DWH test. Based on arguments and results of the test, one method is chosen over the other.

Due to the strict assumption of the RE estimator, this paper argues that FE is the most appropriate estimation method. The complexity of the relationship between societal phenomena such as FDI and domestic entrepreneurship fosters a model in which it seems naive to assume that there should be no correlation between the regressors and time-fixed factors such as geographical loca-

tion, native language or colonial background. These factors are not relevant to include in the model but as they are captured by the unobserved heterogeneity, they are most likely correlated with one or several of the regressors. For this sole reason, it is fair to assume that FE is the most suitable estimator for the model in question. In addition, the model does not include any time-invariant variables, why it is unnecessary to use the RE estimator.

In order to support these theoretical claims, a DWH test is conducted, which examines whether the two methods produce significantly different coefficients on the time-varying regressors, which would mean that the FE estimator should be applied. The hypothesis of the test is thus that the RE assumption is true, and if this is rejected it must be that one or several of the regressors are correlated with the unobserved heterogeneity (Wooldridge, 2016). Figure 8 shows the results of the test.

| | Coefficients (b) fe | (B) . | (b-B) Difference | sqrt(diag(V_b-V_B)) S.E. |
|---|---|---|---|---|
| lnRealFDI | .0736395 | .0760306 | -.0023911 | .0038307 |
| humancapital | .5027277 | .4129003 | .0898274 | .0512417 |
| foreign | -.003829 | -.0040053 | .0001764 | . |
| innovation | -.1130811 | -.0866479 | -.0264332 | .0069616 |
| startupcosts | -.0003942 | -.0004687 | .0000745 | .0000286 |
| realGDP | .2098542 | .1722326 | .0376216 | .0154684 |
| unemployment | 2.446372 | 1.438634 | 1.007738 | .7927902 |
| corruption | .0345351 | .0361335 | -.0015984 | .0017596 |
| finmarkdev | .2038436 | .1372598 | .0665839 | .1589632 |

b = consistent under Ho and Ha; obtained from xtreg
B = inconsistent under Ha, efficient under Ho; obtained from xtreg

Test: Ho: difference in coefficients not systematic

chi2(8) = (b-B)'[(V_b-V_B)^(-1)](b-B)
= 200.82
Prob>chi2 = 0.0000
(V_b-V_B is not positive definite)

**Figure 8 Durbin-Wu-Hausman Test**

The DWH test yields a $X^2$ value of 200.82 and a P-value of 0.00, which suggests that there is a statistically significant difference between the coefficients, and we should therefore reject the hypothesis. In turn, this test supports the above claim that the FE estimator is most suitable for the model of this paper. This paper bases the analysis on the results of the FE estimation method but will report RE results too. Further, the IV estimation is only conducted with FE.

### 5.4.2 Endogeneity

As mentioned several times, the relationship studied in this paper is suspected of entailing some degree of endogeneity. For this reason, the following presents an overview of the different arguments for estimating the model with or without an instrumental variable. The arguments are based on both theoretical grounds supported by consultation with the relevant literature and an endogeneity test using import as IV.

As mentioned, endogeneity, where a regressor is correlated with the error term, might arise from three different sources: omitted variable bias, reverse causality and measurement errors (Wooldridge, 2016). First, omitted variable bias is a threat to a statistical model and should therefore be avoided. This paper has carefully chosen eight different control variables based on acknowledged scholars' work in order to avoid the issue of omitted variable bias. For this reason, it seems reasonable to assume that there should be no omitted variable bias. There are two variables that have been excluded due to data insufficiency, culture and ease of doing business, which may create problems of endogeneity. However, as mentioned previously, their effect is should be captured by some of the included variables, such as innovative culture and startup costs, why there is no further cause for concern.

Secondly, endogeneity can arise from reverse causality between the dependent variable and the regressors, which occurs if not only FDI can explain changes in domestic entrepreneurship but domestic entrepreneurship also explains changes in FDI. Due to the complexity of the relation, this is not completely unthinkable, as thriving entrepreneurial activity might attract FDI, which raises a cause for concern. However, the issue is only severe if the exact variable for domestic entrepreneurship in our specific model is explaining changes in FDI inflows, and as this is measured by NBD, there might not be reason to believe that it has an impact on FDI. As FDI inflows are streams of capital from foreign corporations, it is most likely explained by factors such as general development of the population, institutional stability and business opportunities within the specific industry of that firm. Therefore, it makes intuitive sense that the NBD variable does not have any explanatory power for changes in FDI inflows. Further, none of the articles studied on the subject, not even Danakol et al. (2017) (who are the only scholars using IV), raise any awareness to this issue, and it is therefore fair to assume that there is no bilateral causality.

The third issue that can cause endogeneity is measurement error in any of the regressors. As this issue is thoroughly dealt with in the data collection process, it is not seen as a severe threat to the model. Each variable is carefully chosen and collected, and most importantly, only included if

the data is sufficiently available. Therefore, measurement errors are not considered to be the main reason to suspect endogeneity and are not dealt with further.

In addition to the above, it seems reasonable to consult with the relevant literature. The articles considered in this paper have several different ways of measuring similar relationships as the one studied in this paper. Only one of the papers, Danakol et al. (2017), estimates the model using an instrument for the independent variable, FDI inflow, as they argue that there is an endogeneity problem. However, no other article considers the potential of estimating the model with an IV, as they do not suspect the relation to exhibit sufficient endogeneity to require an adjusted estimation method. Due to this clear overweight of scholars disregarding potential endogeneity, it is reasonable for this paper to assume absence of endogeneity, unless the test reveals the opposite.

Now that the theoretical arguments have been presented, the endogeneity test is conducted in order to finally determine whether the model should be estimated with the use of an IV. The paper will proceed with IV estimation only if the test reveals a clear sign of endogeneity in the model.

```
R-sq:                                           Obs per group:
     within  = 0.4717                                        min =        13
     between = 0.4020                                        avg =      13.0
     overall = 0.4036                                        max =        13

                                                F(10,22)          =      7.02
corr(u_i, Xb)  = -0.4220                        Prob > F          =    0.0001

                              (Std. Err. adjusted for 23 clusters in countryID)
```

| lnNBD | Coef. | Robust Std. Err. | t | P>\|t\| | [95% Conf. | Interval] |
|---|---|---|---|---|---|---|
| lnRealFDI | .0804689 | .038547 | 2.09 | 0.049 | .0005273 | .1604105 |
| humancapital | .4731783 | .1368996 | 3.46 | 0.002 | .1892659 | .7570907 |
| foreign | -.012251 | .021284 | -0.58 | 0.571 | -.0563913 | .0318893 |
| innovation | .0128209 | .1565146 | 0.08 | 0.935 | -.3117705 | .3374123 |
| startupcosts | -.00091 | .0004179 | -2.18 | 0.040 | -.0017765 | -.0000434 |
| realGDP | .2472983 | .1342045 | 1.84 | 0.079 | -.0310248 | .5256215 |
| unemployment | 2.446802 | 2.818215 | 0.87 | 0.395 | -3.397818 | 8.291422 |
| corruption | .0402526 | .0153499 | 2.62 | 0.016 | .008419 | .0720863 |
| finmarkdev | 1.054489 | 1.276039 | 0.83 | 0.417 | -1.591854 | 3.700832 |
| uhat1 | -.3738966 | .3110386 | -1.20 | 0.242 | -1.018951 | .271158 |
| _cons | -6.35222 | 1.538151 | -4.13 | 0.000 | -9.542151 | -3.16229 |
| sigma_u | .88315625 | | | | | |
| sigma_e | .35686706 | | | | | |
| rho | .85963692 | (fraction of variance due to u_i) | | | | |

**Figure 9 Second regression of Endogeneity Test**

The endogeneity test is the one proposed by Hausman, where the coefficients of the two estimations are compared in order to determine whether the difference is statistically significant. If this is the case, the regressor must be endogenous. The test is performed by first regressing FDI inflow on all the control variables and the IV, import. Then the residuals from this regression are found and included in a second regression, which is the model in question, where NBD is dependent and FDI is independent. If then the coefficient on the residual is statistically significant, FDI inflow is endogenous and the IV regression is more appropriate to apply. The results from the second regression are reported above in Figure 9, where the residual is called *uhat1*.

The relevant information in the figure is the significance of *uhat1*. The P-value is 0.242 and the t-statistics is -1.20, which suggests that the coefficient is not statistically significant, and thus that there is no significant difference between estimating the model with regular FE and with IV. In addition, the regression results presented in the next section show that if estimating both the regular FE and the IV, it is evident that the confidence intervals of the coefficients overlap, which suggests that the two could in fact be equal. With these results in mind, the paper proceeds with regular FE estimation, as theoretical arguments, literature and a quantitative test support this.

Before proceeding to the regression results and inference, it is relevant to critically reflect on the endogeneity test. So far, it is the only officially acknowledged method for testing whether a model exhibits endogeneity, and it is therefore the best possible alternative to intuition and theoretically based arguments. However, this does not necessarily mean that the test is completely reliable. The main condition for the test is that the researcher has a valid and strong IV to instrument the endogenous regressor with, and this is not always the case. For the purpose of this paper, several potential IVs are tested and the best alternative is import as none of the others explain FDI sufficiently. Import was justified as an IV theoretically in the data collection section, however, it should also be justified statistically by evaluating whether it meets the first criteria of an IV, namely relevance. Figure 10 below shows the first stage of the IV regression, which suggests whether import can be used as an IV for FDI inflows.

Import has a P-value of 0.032 and a t-statistics of 2.30, which suggests that the variable is statistically significant and it is therefore highly relevant in explaining FDI inflows. This aligns with the correlation between the two of 0.42. Thus, it can both explain movements in and is correlated with FDI, making it a relevant IV. However, the table shows that the F-statistics has a value of 6.17 and as the threshold for a strong instrument is an F-test of 10 or above (Stock & Watson, 2012), import does not serve as a particularly strong instrument.

First-stage within regression

Fixed-effects (within) regression — Number of obs = 299
Group variable: countryID — Number of groups = 23

R-sq: — Obs per group:
within = 0.0977 — min = 13
between = 0.1829 — avg = 13.0
overall = 0.1542 — max = 13

F(9,22) = 6.17
corr(u_i, Xb) = 0.0181 — Prob > F = 0.0002

(Std. Err. adjusted for 23 clusters in countryID)

| lnRealFDI | Coef. | Robust Std. Err. | t | P>\|t\| | [95% Conf. | Interval] |
|---|---|---|---|---|---|---|
| humancapital | -.0132167 | .2786296 | -0.05 | 0.963 | -.5910592 | .5646258 |
| foreign | -.0197791 | .0540137 | -0.37 | 0.718 | -.1317968 | .0922385 |
| innovation | .3416469 | .1991754 | 1.72 | 0.100 | -.0714176 | .7547115 |
| startupcosts | -.0012681 | .0007098 | -1.79 | 0.088 | -.0027401 | .0002038 |
| realGDP | .1535016 | .2290666 | 0.67 | 0.510 | -.3215535 | .6285568 |
| unemployment | -.3520617 | 3.437338 | -0.10 | 0.919 | -7.480664 | 6.77654 |
| corruption | .0197577 | .01403 | 1.41 | 0.173 | -.0093386 | .0488541 |
| finmarkdev | 1.543702 | 1.142657 | 1.35 | 0.190 | -.8260226 | 3.913427 |
| lnRealimport | .563218 | .2453817 | 2.30 | 0.032 | .0543275 | 1.072108 |
| _cons | -4.899077 | 1.434814 | -3.41 | 0.002 | -7.8747 | -1.923455 |
| sigma_u | 1.1237468 | | | | | |
| sigma_e | .86827704 | | | | | |
| rho | .62617118 | (fraction of variance due to u_i) | | | | |

**Figure 10 First stage of IV regression**

Thus, there are conflicting results about import as the IV and the relevance is therefore questioned. In turn, this suggests that potential endogeneity might not be captured completely by the above endogeneity test. As it is not possible to test for exogeneity empirically (Stock & Watson, 2012), this paper relies on theoretical arguments for imports being exogenous for the model. This reflection suggests that there are crucial issues with the endogeneity test and its results should therefore be interpreted with some degree of discretion. However, as theoretical arguments suggest that the IV is strong and as it is significantly different from zero in the regression, the proposed absence of endogeneity might be true. Further, if import does not function well as an IV, the IV regression cannot be estimated unbiasedly. Therefore, partly due to the issue of not being able to find a more suitable IV for the model, the paper proceeds with regular FE to estimate the model. Appendix F shows test results for several potential IVs, though none of them show satisfying results.

## 5.5 Regression results and inference

The following section presents the regression results and provides inference on both aggregate regional level and individual country level.

### 5.5.1 Aggregate level regression

As discussed and tested above, the relationship between FDI inflows and entrepreneurship is best described by a multiple linear regression estimated by OLS with fixed effects. For this reason neither the pooled OLS nor the random effects model are commented here, as both are irrelevant and the latter does theoretically not make sense but to have full transparency they are enclosed in Appendix D. The IV regression is reported in Figure 12 below even though the model test concluded that there is no reason to be alarmed about endogeneity, and as stated above, only one scholar in the literature conducts an IV regression. The IV regression is compared to the fixed effects model to evaluate whether the beta coefficients are far from each other, which could indicate other endogeneity issues not caught by the test, such as bilateral causality, which is one of the potential biases, however not suspected to be a problem here. The controls are not commented on, as they are primarily included to avoid omitted variable bias and are not of primary interest. Figure 11 below shows the fixed effects estimation results on the aggregate level.

The impact of FDI inflows on domestic entrepreneurship in the African region is significant at the 10 pct. level, which is the chosen cut-off level in this paper, with a P-value of 0.073 and a t-statistics of 1.88. Secondly, $R^2$ is 0.4637, meaning that 46.37 pct. of the variation in NBD is explained by the model, which is deemed satisfactory. The F-test rejects the joint hypothesis test of all coefficients being zero. With these results, it is possible to analyse the coefficient on FDI inflow. The coefficient on FDI inflow is 0.0736, which means that when FDI inflows to the African countries increase with 1 pct., NBD in the region increases with 0.0736 pct. This seems like a realistic, though quite small effect, which may be due to the fact that even though most countries are expected to have positive effects from FDI, some may have negative or no effect, which brings down the magnitude of the overall positive effect of FDI inflows on the region's entrepreneurial landscape. Though the effect seems small, it means that in an average African country, if FDI inflows increase by 1 pct. from 2016, amounting to USD 13M, business registrations would increase with 968. Thus, in practice the effect of FDI is more impactful than the coefficient might seem at first.

```
Fixed-effects (within) regression               Number of obs      =       299
Group variable: countryID                       Number of groups   =        23

R-sq:                                           Obs per group:
     within  = 0.4637                                         min =        13
     between = 0.4200                                         avg =      13.0
     overall = 0.4167                                         max =        13

                                                F(9,22)            =      4.97
corr(u_i, Xb)  = -0.4470                        Prob > F           =    0.0010

                              (Std. Err. adjusted for 23 clusters in countryID)
------------------------------------------------------------------------------
             |               Robust
       lnNBD |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
   lnRealFDI |   .0736395   .0391411     1.88   0.073    -.0075342    .1548133
humancapital |   .5027277   .1380693     3.64   0.001     .2163895    .7890659
     foreign |   -.003829   .0207987    -0.18   0.856    -.0469629     .039305
  innovation |  -.1130811   .1881531    -0.60   0.554    -.5032867    .2771246
startupcosts |  -.0003942   .0003806    -1.04   0.312    -.0011835    .0003951
     realGDP |   .2098542   .1259541     1.67   0.110    -.0513587    .4710671
unemployment |   2.446372    2.85209     0.86   0.400    -3.468501    8.361245
  corruption |   .0345351   .0160637     2.15   0.043      .001221    .0678492
  finmarkdev |   .2038436   .9649499     0.21   0.835     -1.79734    2.205027
       _cons |  -4.465024   1.082075    -4.13   0.000    -6.709111   -2.220938
-------------+----------------------------------------------------------------
     sigma_u |  .88210866
     sigma_e |  .35889022
         rho |  .85797811   (fraction of variance due to u_i)
------------------------------------------------------------------------------
```

**Figure 11 Fixed Effects regression results on the aggregate regional level**

As an example of the wide difference between the countries, take Congo with FDI inflows of 16.18 pct. of GDP, which amounted to USD 2,006M in 2016, an increase of USD 20M. If FDI inflows increased by 1 pct., a 0.0736 pct. increase in NBD would in this case imply an increase from 566 businesses in 2016 to 566.4, a mere 0.4 new firms. On the other hand, consider Algeria where a 1 pct. increase in FDI corresponds to an increase of USD 17.66M and the number of new businesses would increase from 13,707 to 13,808, meaning 100 new businesses from a smaller amount of FDI inflows than Congo. This stresses the point that the amount that FDI increases with does not decide the magnitude of the impact on the number of new businesses. The effect on a single country's NBD will therefore vary as is seen in the single country analysis section below. Despite the small coefficient, the overall regional effect of FDI on entrepreneurship is positive and the first expectation of the paper is therefore confirmed to be true by this model.

## Comparison to IV estimation

The coefficient on FDI inflow in the IV regression in Figure 12 below is insignificant and is therefore non interpretable but it is possible to use it as an indication of whether the FE estimation seems

reliable. If it is reliable, the beta in the IV regression should not be too far from the one in the FE model as this could indicate endogeneity, such as omitted variable bias or bilateral causation.

The beta coefficient is -0.2934, meaning that if this were a significant regression NBD would decrease by 0.2934 pct. for a 1 pct. increase in FDI inflows. Even though -0.2934 pct. seems far from the 0.0736 pct. in the fixed effects model, it is worth noting that the 95 pct. confidence interval actually contains the FE beta value. Furthermore, the coefficients on human capital and corruption, which were significant at the 5 pct. level in the FE model, are significant at the same level here and at the same time only varies by a few decimals. Human capital has a beta of 0.5027 in the FE model compared to the IV regression beta of 0.4732 and corruption has a beta of 0.0345 in the FE model compared to 0.0403 in the IV regression in Figure 12 below. This indicates that the two regression forms are not that far from each other, why this thesis concludes that the fixed effects model is appropriate for this data set. And, again, out of all the articles used in this thesis, only one source uses an IV regression to study FDI inflows and entrepreneurship.

```
Fixed-effects (within) IV regression            Number of obs     =       299
Group variable: countryID                       Number of groups  =        23

R-sq:                                           Obs per group:
     within  = 0.0328                                         min =        13
     between = 0.2560                                         avg =      13.0
     overall = 0.2457                                         max =        13


                                                Wald chi2(9)      =   2681.40
corr(u_i, Xb)  = -0.4604                        Prob > chi2       =    0.0000

                              (Std. Err. adjusted for 23 clusters in countryID)
------------------------------------------------------------------------------
             |               Robust
       lnNBD |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
   lnRealFDI |  -.2934276   .3898876    -0.75   0.452    -1.057593     .470738
humancapital |   .4731783   .2000526     2.37   0.018     .0810824    .8652742
     foreign |   -.012251   .0259433    -0.47   0.637     -.063099     .038597
  innovation |   .0128209   .1768878     0.07   0.942    -.3338729    .3595146
startupcosts |   -.00091   .0007092    -1.28   0.199       -.0023    .0004801
     realGDP |   .2472983   .1452117     1.70   0.089    -.0373114     .531908
unemployment |   2.446802   3.044172     0.80   0.422    -3.519665     8.41327
  corruption |   .0402526   .0162138     2.48   0.013     .0084742     .072031
  finmarkdev |   1.054489   1.563839     0.67   0.500     -2.01058    4.119557
       _cons |   -6.35222   1.926206    -3.30   0.001    -10.12752   -2.576925
-------------+----------------------------------------------------------------
     sigma_u |  1.0167546
     sigma_e |  .48194603
         rho |   .8165398   (fraction of variance due to u_i)
------------------------------------------------------------------------------
Instrumented:   lnRealFDI
Instruments:    humancapital foreign innovation startupcosts realGDP
                unemployment corruption finmarkdev lnRealimport
------------------------------------------------------------------------------
```

**Figure 13 Second stage of IV regression**

### 5.5.2 Single country regressions

As the overall regression for the African region shows a positive effect of FDI on NBD, it is interesting to see what drives this positive effect and how this varies between the countries in the region. First, 23 individual country regressions are run to estimate the same model for each country, as done in the aggregate model above. That is, to be clear, 23 multiple linear time series regressions estimated by OLS, which are run to identify countries with, first of all, significant relationships at the 10 pct. level, and at the same time to see, if some countries show negative or no significant impact of FDI inflows.

The results from the 23 individual regressions are not exactly as expected, as only three of the countries show significant effects of FDI on domestic entrepreneurship, namely Ghana, Mali and Zambia with respective P-values of 0.007, 0.025 and 0.089. Despite the rather disappointing results, it is still possible to analyse these individual countries and assess whether they fit the theoretical positions presented earlier.

The three countries with significant effects of FDI on domestic entrepreneurship are analysed in depth in order to uncover the driving factors behind the impact of FDI. Concluding the quantitative analysis, the regressions are conducted with various other specifications in order to explore the possibility of more accurate specifications than the one initially chosen. As there are clearly circumstances not captured by the quantitative analysis, an in-depth qualitative analysis follows this chapter. This section mainly analyses Ghana, Mali and Zambia and the conditions that enable these countries to gain an effect from FDI inflows but the countries where FDI is insignificant are also grouped according to their averages of the control variables in an attempt to explain the reason for the lack of significant impacts of FDI.

Below, Table 4 shows the regression results for each of the 23 countries, including the coefficient, t-statistic and P-value for FDI inflows. The table reveals that only Ghana, Mali and Zambia have significant effects of FDI on domestic entrepreneurship. The rest of the countries show no such effect, which suggests that the model cannot detect any positive or negative effect of increasing FDI inflows on the domestic entrepreneurship in these countries. Thus, the theory suggesting an effect does not apply to the majority of the countries included in this study, according to the data and model of use. Due to the insignificance of the FDI effects, the specific coefficients of each country are not commented further. Below, the three countries with significant effects are addressed and the results are related to the individual country characteristics.

| COUNTRIES | COEFFICIENT | T-STATISTICS | P-VALUE | COUNTRIES | COEFFICIENT | T-STATISTICS | P-VALUE |
|---|---|---|---|---|---|---|---|
| ALGERIA | -1.474504 | -1.74 | 0.181 | MADAGASCAR | 0.0278295 | 0.06 | 0.955 |
| BURKINA FASO | 0.3318709 | 0.94 | 0.417 | MALI | **0.2610102** | **5.02** | **0.015** |
| BURUNDI | 0.0635161 | 0.59 | 0.599 | MOROCCO | 0.113905 | 0.38 | 0.726 |
| CAMEROON | -0.0293409 | -0.23 | 0.833 | NAMIBIA | 0.0863079 | 0.75 | 0.506 |
| CAPE VERDE | -0.0544531 | -0.35 | 0.751 | NIGERIA | 0.0021497 | 0.01 | 0.995 |
| CONGO | 0.001786 | 0.02 | 0.982 | RWANDA | 0.4446188 | 0.81 | 0.479 |
| EGYPT | 0.0604176 | 0.8 | 0.483 | SENEGAL | 0.3846796 | 1.22 | 0.309 |
| ETHIOPIA | -0.0174233 | -0.08 | 0.944 | SIERRA LEONE | -0.016261 | -0.06 | 0.959 |
| GHANA | **-0.5431874** | **-7.64** | **0.005** | TANZANIA | -3.254323 | -1.59 | 0.211 |
| KENYA | 0.0421072 | 0.24 | 0.824 | UGANDA | 1.963281 | 0.88 | 0.446 |
| LESOTHO | 0.1832261 | 0.86 | 0.452 | ZAMBIA | **0.1940511** | **2.47** | **0.09** |
| LIBERIA | 0.1812087 | 1.02 | 0.384 | OVERALL | 0.0736395 | 1.88 | 0.073 |

**Table 4 Time series regression results of each individual country**

## Significant impact of FDI inflows

The three countries that show significant effects of FDI on entrepreneurship are Ghana (1 pct.), Mali (5 pct.) and Zambia (10 pct.). In Ghana, FDI inflows have a negative effect so that when FDI inflows increase by 1 pct., entrepreneurship decreases by 0.54 pct., whereas Mali and Zambia reveal positive effects of 0.26 pct. and 0.19 pct., respectively. Because of this difference, it is interesting to look at the FDI effects in comparison to various of the influential factors and each country will thus be addressed individually below. The section emphasises the three control variables, human capital, innovative culture and financial market development, and their average level in each country compared to the overall average for the region. These three variables are selected as theory considers them to have the most crucial influence on the relationship between FDI and domestic entrepreneurship, whereas the other control variables are merely influencing domestic entrepreneurship directly. The fact that the variables might impact this relationship suggests that interaction terms would have been appropriate in this model. As the scope of the paper does not allow for this, the matter is instead addressed in the discussion chapter.

As suggested by theory, human capital levels in a country can influence the ability of the population to transform FDI inflows to entrepreneurship as this enables people to adopt knowledge and learn from personal experiences as well as practises of MNEs. Thus, human capital influences

the relationship between FDI and domestic entrepreneurship and the level of human capital should therefore be studied in relation to the impact of FDI. From a theoretical perspective, this paper expects that human capital affects the coefficients of FDI positively, and the average human capital levels should therefore be high in countries where FDI influences domestic entrepreneurship positively, and vice versa.

Innovative culture is also addressed as theory suggests that a positive spillover effect of FDI is that MNEs create increasing demand for new and existing local inputs and intermediate goods, which in turn creates increasing opportunities for domestic entrepreneurship. The innovative culture of a country plays a crucial role in this mechanism as it influences the ability of the population to seize these opportunities through inventing the necessary solutions as well as creating innovative products that are actually viable and fulfils the needs of the MNEs. Thus, it is expected that countries with positive FDI effects have high scores on the innovation index, and vice versa.

Financial market development measures the amount of credit provided for the private sector by financial institutions and therefore relates to the ease of doing business as it shows how easy it is to access credit, which can be used for establishing new businesses. Thus, this factor influences the effect of FDI on domestic entrepreneurship as it influences whether the population can obtain capital to start businesses when they identify opportunities. For this reason, this paper expects that countries with positive effects of FDI exhibit highly developed financial markets, and vice versa.

Each country is analysed individually in regards to these three control variables in order to explain the respective coefficients on FDI inflow. The average values are compared to the overall regional average in order to add some perspective. Table 5 below shows the value of each variable in each country and on the aggregate level.

| COUNTRY | FDI EFFECT (PCT.) | HUMAN CAP (YEARS) | INNOVATION (1-7) | FINMARKDEV (PCT.) |
|---|---|---|---|---|
| GHANA | -0.54 | 6.7 | 2.83 | 16.1 |
| MALI | 0.26 | 1.99 | 3.03 | 16.6 |
| ZAMBIA | 0.19 | 6.61 | 3.15 | 12.4 |
| OVERALL | 0.073 | 4.72 | 3.01 | 21.5 |

**Table 5 Coefficient on FDI and averages of human capital, innovative culture and financial market development for Ghana, Mali, Zambia and the overall region**

*Ghana*

In Ghana, increases in FDI inflows influence domestic entrepreneurship negatively, such that when FDI increases with 1 pct., entrepreneurship decreases with 0.54 pct. This implies that, on average, if FDI inflows increase by 1 pct., amounting to 19.11M USD, there would occur 64 fewer yearly business registrations in Ghana than usual. As increasing FDI inflows have a negative impact on domestic entrepreneurship, it is expected that human capital, innovation and financial market development are low, however, this is not the case.

The average years of schooling in Ghana is 6.70 years, which is the second highest level across the entire sample of countries and almost two years more than the overall average, implying that the population is relatively well educated for an African country. This result is surprising as it contradicts the suggestions by theory, which indicates that it does not apply to Ghana. This result suggests that there must be other factors that drive the negative impact of FDI on domestic entrepreneurship or that human capital might influence the relation between FDI and entrepreneurship differently in Ghana than first anticipated. It could suggest that there is some threshold above which human capital has a negative effect on the relation. Thus, at some point people are so well educated that they are discouraged from starting new businesses as they can get better salaries and working conditions in MNEs. Human capital should be further investigated in combination with the other relevant control variables and through a qualitative analysis, which can uncover underlying structures in Ghana that cannot be captured by the statistical approach. These could be factors such as quality and payment structures for education.

Ghana has an average innovation score of 2.83, which is below the overall average score of 3.01 and is therefore in the lower end of innovation scores across all the countries. It might not seem as far below the overall average but the scores range from 2.35 to 3.89 in the sample and Ghana is therefore relatively closer to the lowest score than the highest, and is therefore considered to be a country that is behind the rest of the region with regards to innovative culture. This result supports the theoretical suggestions, implying that the innovative culture in Ghana is low so that the population is less likely to seize business opportunities, partly explaining why Ghana exhibits a negative effect of FDI on domestic entrepreneurship. This factor should naturally also be addressed in the context of the other control variables in order to conclude the quantitative analysis of Ghana.

Ghana has a level of financial market development of 16.1 pct., which, compared to an overall average of 21.5 pct., is relatively low but 16.1 pct. is the median of the sample and the level

is therefore not considered to be critically low as the mean is driven up by a few very high values. Thus, the effect of the financial market development is not completely clear as it can go both ways.

It is relevant to look at the three variables together in a joint context in order to derive any conclusions. Ghana has a human capital level that is well above average but the fact that the innovation score and financial market development are low shows that despite a high human capital stock, the effect of FDI is negative as other factors drive down the impact. Such a factor could indeed be the innovative culture. Thus, the population might attend school for several more years than e.g. Mali but they are far less innovative, suggesting that they might not be able to identify opportunities to supply MNEs with improved inputs and intermediate goods. If the effect of low innovation is stronger than school attendance, it makes sense that a country such as Ghana lacks the ability to transform FDI inflows to domestic entrepreneurship. Further, a low financial market development can prevent potential entrepreneurs from starting businesses due to lack of financial funds, despite being highly capable. However, this explanation is fairly vague, which gives rise to a qualitative analysis of the conditions in Ghana.

### *Mali*

In Mali, increasing FDI inflows affect domestic entrepreneurship positively, which means that when FDI inflows increase by 1 pct., domestic entrepreneurship increases by 0.26 pct. Thus, on average, if FDI inflows increase by 1 pct., amounting to 2.88M USD, there would be 12 additional yearly business registrations in Mali than usual. The positive effect that FDI inflows evidently have on domestic entrepreneurship in Mali gives rise to the expectation that human capital, innovation and financial market development should all have high average levels as these factors are theoretically supposed to influence the relation between FDI and domestic entrepreneurship positively. According to Table 5 shown above, there are mixed results regarding these variables.

Starting with the human capital level, the population of Mali has on average 1.99 years of schooling, which is far below the average of 4.72 years, making Mali the country with the second lowest level of human capital. This result is in strong contrast to the theoretical expectations that countries with significant positive impact of FDI on entrepreneurship have a well-educated population. Thus, there must be other mechanisms at work in this case. It might be the opposite effect of what is suggested with Ghana above, such that the population might be able to get jobs at MNEs but due to their low level of education they are unable to earn a sufficient wage, incentivising them to start their own businesses and seek opportunities in the market. Further, with such a low level of

education, a low part of the population might be in debt for tuition, which creates a free financial situation, independent of personal obligations to financial institutions. This is, however, speculation and the issue requires a deeper investigation of the school system in Mali.

The average innovation score in Mali is 3.03, which is only slightly above the overall average of 3.01, implying that Mali has a fairly innovative culture. With this innovation score, the population of Mali might be able to create new innovative solutions for the increased demand for new inputs and intermediate goods created by increased presence of MNEs, aligning well with the theoretical positions of this paper. It is not completely clear whether innovation among the population is a key driver of the positive effect of FDI on entrepreneurship as the score is just above the regional average, which means that this factor should be further assessed in combination with the other variables and also investigated qualitatively.

Mali has a financial market development of 16.6 pct., which is slightly below the overall average of 21.5 pct. but just above the median of 16.1 pct., which is more appropriate in this case due to a few countries with very high levels. However, this level of development does not suggest that the population has great access to financial help for their businesses, which implies that it is not a key variable in explaining the positive effect of FDI on entrepreneurship. As with innovation, the effect of financial market development on the relationship between FDI and entrepreneurship is not clear, and it is therefore rather useful to address the effect in a qualitative setting in order to determine the present mechanisms.

Concluding the analysis of the positive effect in Mali, there are rather inconclusive results with regards to the control variables, which suggests that there is a need for addressing the issue differently than with the model at hand. The results of the model do not fit the theories posed in this paper, as the impact of FDI inflows on domestic entrepreneurship is positive but the proposed driving forces conclude otherwise. This means that there must be other factors at work in the case of Mali if the theory is true. Human capital levels are very low, further, neither innovation nor financial market development have considerably high levels, which means that none of these factors should be able to pull the effect upwards. However, the combination of the two latter might be sufficient to create a business environment, which enables the population to transform increasing FDI inflows into new businesses, as they are fairly innovative and have an above-median financial market development. This point is considered qualitatively later.

*Zambia*

In Zambia, the model shows that increasing FDI inflows leads to increasing domestic entrepreneurship. Thus, if FDI increases with 1 pct., domestic entrepreneurship increases with 0.19 pct. In practice, this amounts to 14 additional business registrations than usual, if FDI inflows go up by 1 pct., which is equal to 10.85M USD. With this result, the literature in this paper would expect human capital, innovation and financial market development to be high as these are the main driving factors behind a positive impact of FDI on domestic entrepreneurship. Table 5 above shows the averages of these variables for Zambia and it is clear that theory is somewhat applicable in this case.

Looking at the level of human capital, Zambia has an average of 6.61 years, which is one of the highest in the entire sample and almost two years more than the overall average for the region. Thus, the population in Zambia is more educated than in the average African country, and this supports the theory suggested earlier, implying that one of the reasons why FDI has a positive effect on domestic entrepreneurship in Zambia is that the population is able to both absorb knowledge and experiences from MNEs and use this for starting businesses of their own. Further, they are able to identify business opportunities inspired by MNEs. This evidence from Zambia supports the perception that these mechanisms are key in driving entrepreneurial activities fostered by FDI inflows, as it shows that a country with high levels of human capital indeed has the capacity to transform FDI inflows into entrepreneurship. There are of course several other factors involved in this process, such as innovation and financial market development.

The average score on the innovation index in Zambia is 3.15, which is rather high compared to the overall average of 3.01, placing Zambia in the upper 25 pct. of the sample. The high average score shows that the population in Zambia has a fairly innovative culture, where the demand for new and intermediate goods, created by increasing presence of MNEs, is met by creating innovative products and solutions. In this way, there is potential for increasing entrepreneurial activities with startups using new and innovative methods instead of drawing on old routines and mindsets. Also, this innovative culture will most likely lead to more people being able to not only seize opportunities but also identify them by drawing on experience from MNEs. Thus, for Zambia, the highly innovative culture is also a key factor in driving the positive effect of FDI on domestic entrepreneurship.

The last variable to address is the financial market development. In Zambia, this variable has an average of 12.4, which is well below the overall mean of 21.5 and also below the median of 16.1. This means that it is more difficult for businesses in the private sector to obtain financial sup-

port and loans from the financial sector than in the average African country. This result contradicts the theoretical position of this paper, as Zambia would be expected to exhibit better financial opportunities for businesses when FDI has a positive effect on entrepreneurship.

Concluding on the positive impact of FDI inflows on entrepreneurship in Zambia, there seems to be evidence of high levels of human capital and innovation driving the effect upwards, as the absorptive capacity of the population is rather strong, enabling them to identify and seize opportunities. Thus, locals who are working for MNEs are able to pursue business opportunities either through product market creation or through improving processes conducted by these MNEs in inefficient ways. The results on the financial market development in Zambia, however, suggest that there are restraining factors for starting new businesses. The low development shows that it is rather difficult for businesses to obtain financial support, which is a crucial factor when it comes to entrepreneurship, especially in countries where personal wealth is so minimal. This poses a great threat to the entrepreneurial activity in a country though it does not seem to ruin completely the ability of the population to transform increasing FDI inflows into increasing entrepreneurship. This matter is studied further in a qualitative setting later on.

### *Conclusion*

The above analysis shows that the three variables have some explanatory power when it comes to the relationship between FDI and entrepreneurship in the three countries, however, the results are not completely unanimous. In general, some of the results seem unaligned with the theoretical position of the paper, however it underlines the fact that individual country characteristics do indeed influence the ability of African countries to transform FDI into domestic entrepreneurship.

The level of human capital is theoretically supposed to be one of the most important drivers of the absorptive capacity of the population, however, it is only in Zambia that the variable meets the expectations. According to theory, Ghana should have a low level and Mali should have a high level but the exact opposite is true. Thus, there must be other factors influencing this relation, which cannot be measured and included in the model, such as school quality, tuition-based systems or student debts amongst the population.

Innovation shows somewhat more theoretically aligned results, however, not as clearly as hoped. Ghana has a lower score than average whereas Mali and Zambia have higher than average scores, though Mali's score is just 0.02 above the overall mean, raising the question of whether this is sufficiently high to drive up the effect of FDI. Again, Zambia's result aligns very well with the

coefficient on FDI and could therefore be a key factor influencing the absorptive capacity of the Zambian people.

The results of the financial market development are not very satisfactory either. Ghana and Mali have similar averages but different effects of FDI, while Zambia has a very low average. Thus, concluding on this quantitative analysis, it is clear that there are great difficulties when attempting to explain the mechanisms and relations from a purely data based standpoint. There are some results that align very well with the theoretical position and there are some results that contradict it completely. This raises the question of whether the theory does not apply to the African region or whether it would more appropriate to address the issue from a qualitative perspective. Therefore, the three countries with significant effects of FDI are studied further in a qualitative analysis. Also, the issue of why none of the other 20 countries show significant effects of FDI are studied qualitatively.

### *Benchmark*

It is important to note that the benchmark of this analysis is the overall African region and not other countries that are far more developed such as Denmark. It might seem strange to define human capital, innovation or financial market development in the African region as high when Denmark shows far more superior results. However, this paper focuses exclusively on Africa, why the results should not be compared to other countries or regions.

## Insignificant impact of FDI inflows

The results of the individual regressions show that only three of the 23 African countries have a significant impact of FDI inflows on domestic entrepreneurship, which means that in 20 out of the 23 countries, the hypothesis of FDI inflows having a significant effect on domestic entrepreneurship is rejected. Therefore, it is highly relevant to attempt at explaining this relation. However, looking at the control variables in the model that might influence the relation between FDI and entrepreneurship, it is not possible to detect a tendency separating Ghana, Mali and Zambia from the others. Further, none of the other control variables show such relations. There are countries with insignificant impacts of FDI with average values above, below and in between these three countries. This suggests that the model is unable to explain why only three countries have a significant impact of FDI, meaning that it may be better to study the countries from a qualitative perspective in order to

detect potential explanations. The qualitative analysis follows the robustness check in the next section.

## 5.6 Robustness check

This section evaluates the model in the context of different potential issues that can arise when conducting a multiple regression with the specific data at hand. This is relevant to ensure that the model is sufficiently robust and that reliable conclusions can actually be deducted from the results. There are three main issues to be considered in this paper, namely omitted variable bias, HAC standard errors and alternative specifications.

### 5.6.1 Omitted variable bias

The issue of omitted variable bias in regards to the estimation method was considered earlier, and is therefore not addressed further in this section. Thus, the focus is on the excluded variables that according to theory could have been included but are not and whether this creates any potential issues. At first, it should be mentioned that this paper has presented a thorough literature review and considered all potential explanatory variables for the model used by previous scholars and for this reason, there should not be any bias from omitted variables. However, the rather unexplored topic of entrepreneurship in Africa creates data issues. The theoretical framework suggests two additional variables to be included in a model studying entrepreneurship, namely entrepreneurial culture and ease of doing business. However, as stated in the section on data collection it is not possible to find sufficient data for these variables and for this reason they are excluded from the model. This poses a threat to the model as it might create omitted variable bias.

There are two reasons why the regression analysis is carried forward despite the exclusion of these two variables. First of all, there are variables included in the model that should capture most of the effect of the excluded variables. A variable that can capture most of the effect of entrepreneurial culture is the innovative culture. Entrepreneurial culture is often associated with innovation, thinking in new ways and seizing opportunities (GEM, 2018b), which is somewhat covered by the innovation index. Further, ease of doing business can be associated with the variable startup costs as this is highly related to the business environment in a country. Thus, the mechanisms that these two excluded variables create are somewhat covered by these two factors, eliminating the potential omitted variable bias. Secondly, the excluded variables are only mentioned one time in the

literature each rather than being widely used in several studies. Entrepreneurial culture is proposed by Danakol et al. (2017) and ease of doing business is suggested by Munemo (2017), whereas most of the included variables are suggested several times by different scholars. For these two reasons, the potential omitted variable bias from the exclusion of these two variables is not considered to pose a severe threat to the validity of the paper.

### 5.6.2 Heteroskedasticity and autocorrelation

In econometric panel data or time series regressions there are two issues that are often present in economic topics such as this one, namely heteroskedasticity and autocorrelation. They both create problems with the standard errors as these are derived under false assumptions if the regression does not adjust for the issues. It is therefore crucial to test whether the data exhibits heteroskedastic standard errors or autocorrelation. If this is the case, the regression can easily be adjusted so that the standard errors are valid. The details of the tests are not explained further in this paper but it has been tested with the Breusch-Pagan test and the Durbin-Watson test, respectively, and both issues are present in the data. For this reason, the estimation should account for this and the standard errors should therefore be both heteroskedasticity- and autocorrelation-consistent (HAC) (Stock & Watson, 2012). Fortunately, this issue can be solved with the Newey-West variance estimator or the HAC estimator and the regressions can thus be estimated with valid standard errors (Stock & Watson, 2012). As the regressions are run with the consistent estimator, the issues of heteroskedasticity and autocorrelation are no longer posing a threat to the validity of the results.

### 5.6.3 Alternative specifications

In order to fully understand a model and the conclusions that can be drawn from it, it is important to consider whether it could have been specified differently. Alternative specifications can both be in terms of different regressors or in terms of functional form of specific regressors, e.g. nonlinearity. As the choice of variables included in the model has been investigated extensively throughout the paper, this section will not discuss potential additional regressors but merely alternative specifications within the chosen range of control variables. The model has been estimated with several different alterations but only a few will be addressed in this section. The results can be found in Appendix G.

First of all, a regular model was tested where the standard errors were not adjusted for autocorrelation. As this did not change much about the results, the consistent estimator was chosen.

Secondly, the model was tested with some or all of the control variables being logged along with the independent and dependent variable. This specification might have been relevant in case some of the variables had a nonlinear relationship with entrepreneurship, however, as logarithm turns the coefficient into percentage, there were several of the variables that did not make much sense with this specification. This estimation did not lead to more countries having significant impacts from FDI inflows, why it was abandoned as well. Another alternative way of specifying the model is by excluding some of the control variables included in the main model. This was tested in various different ways, both excluding only one or two and several of the variables. Specifying the model with fewer control variables could be beneficial in the case of this paper as there are so few observations, only 13 years, and 9 regressors. However, it is only beneficial if it makes complete sense to remove the variables, as it will otherwise create omitted variable bias. One specification with only five controls, namely human capital, innovation, startup costs, corruption and financial market development, yielded six countries with significant impact of FDI and some might argue that it could be a more appropriate specification for this paper. However, it is quite arbitrary to remove three of the control variables and create a great threat of omitted variable bias. For this reason, this specification is also abandoned in order to pursue the well argued and justified specification initially proposed, even though the results are less satisfying in regards to the first hypothesis of the paper. The conclusion from the test of alternative specifications is clear and none of them are deemed more appropriate than the initial model proposed in this paper, and this section will therefore not alter the analysis above.

## 5.7 Conclusion of quantitative analysis

The quantitative analysis reveals both expected and surprising results when examining the data and regressions more closely. First of all, the summary statistics and correlation matrix conclude that FDI and NBD move together and have a fairly high correlation of 0.41, which confirms the expectation of the two having a positive relationship. Further, there are no variables that exhibit multicollinearity, suggesting that the model estimation can proceed. The summary statistics also show that there are huge variations of NBD in the sample, as some countries have very high average levels, such as Liberia, Cape Verde and Morocco, and others have very low average values, such as Ethiopia, Burkina Faso and Egypt. However, this does not necessarily mean that the same countries have high or low, respectively, average business registrations, as the measure of entrepreneurship, NBD, is highly population dependent. Subsequent to investigating the summary statistics and correlations,

the analysis tested the model in order to determine the proper estimation method for the model. The DWH test concluded that fixed effects estimation is the most appropriate method and an endogeneity test revealed that no particular endogeneity is present and the paper therefore proceeded with estimating the regressions with fixed effects and not IV estimation.

The results of the aggregate regional regression show that there is an overall significant positive effect of FDI on entrepreneurship in the African region. This means that when FDI goes up by 1 pct., entrepreneurship goes up by 0.0736 pct. across the region. This effect may seem small but the very different effects that are expected across the countries suggest that they might partly balance each other out and cause the regional effect to be fairly small. Nevertheless, the effect is positive and the first hypothesis of the paper can therefore be confirmed on an overall level. The results of the single country regressions reveal that only three countries experience significant impact of FDI on domestic entrepreneurship. Ghana has a significant negative effect with a P-value of 0.007, Mali has a significant positive effect with a P-value of 0.025 and Zambia has a significant positive effect with a P-value of 0.089.

Analysing Ghana, with respect to the average values of human capital, innovative culture and financial market development, it becomes clear that the results are not completely in line with the theoretical position of this paper. The human capital level is very high and financial market development is at the median. Despite this, the effect of FDI is negative. The low innovation score might explain this but there must be other factors driving the result downwards. Mali shows even more inconclusive results as the effect of FDI is the highest significant of all countries but the three variables show rather unimpressive results, especially human capital, which is one of the lowest across the sample. Zambia's results are more aligned with theory as human capital and innovation are rather high and these are key driving factors of a positive effect of FDI. The financial market development is, however, very low, which suggests that potential entrepreneurs face challenges in starting businesses.

Addressing the remaining insignificant countries, no trends can be detected in the data that explain the difference between Ghana, Mali and Zambia and the 20 remaining countries. Thus, concluding the quantitative analysis it becomes evident that it is not sufficient to address the research question from a purely data based perspective. As it has not been possible to completely explain the regression results, this paper argues that it is necessary to investigate each country qualitatively in order to uncover mechanisms that cannot be captured statistically. The next chapter will therefore

examine the three countries qualitatively, creating a better understanding of the dynamics in the relationship between FDI and domestic entrepreneurship.

# 6 Qualitative analysis

This chapter builds on the previous quantitative analysis, which finds that only three of the 23 African countries have a significant impact of FDI on domestic entrepreneurship. These three countries, Ghana, Mali and Zambia, and their individual country characteristics are investigated qualitatively in this chapter in order to move beyond the quantitative scope and uncover mechanisms that cannot be captured statistically. Each country is covered in depth in order to better understand the relationship between FDI and entrepreneurship in that specific country setting, and the analysis uses the country profiles and reports posed by the African Development Bank and other institutions as frameworks for studying the countries. In this way, acknowledged institutions and experts guide the analysis.

As the empirical results suggest that FDI has a negative impact on domestic entrepreneurship in Ghana, it is pertinent to study the mechanisms behind this outcome. Theory suggests that there are negative spillover effects from FDI, and these are therefore studied in depth in relation to the countries' specific characteristics. Further, the potential positive spillover effects are investigated in this regard in order to uncover why they are evidently not present in Ghana. In Mali and Zambia, the quantitative analysis finds the opposite result, namely that FDI has a positive effect on domestic entrepreneurship. Thus, for these countries the mechanisms and characteristics investigated are the ones that, theoretically, enable positive spillovers to prevail and create positive impacts of FDI on domestic entrepreneurship. After addressing these three countries, the chapter investigates the remaining 20 countries and attempt at uncovering the reasons why none of these are able to transform increasing FDI inflows into increasing entrepreneurship.

## 6.1 Ghana

As studied in the previous chapter, Ghana is experiencing a decrease in domestic entrepreneurship when FDI inflows increase. There are several different areas of interest within the society of Ghana but the following are perceived to be the most relevant in this context: resources and investment flows, business environment and human development.

### 6.1.1 Resources and investment flows

The first subject to investigate is resources and investment flows in Ghana. According to the IMF, Ghana is defined to be a resource-rich country, which means that more than 25 pct. of the country's total exports consist of non-renewable natural resources (Lundgren, Thomas, & York, 2013). Thus, a large amount of Ghana's GDP comes from natural resources such as gold, petroleum and diamonds, which creates a possible crowding-out effect of investments to other sectors in the economy (Baxter, 2013), suggesting that a country such as Ghana might suffer from a "resource curse", where economic and social development is slow (Lundgren et al., 2013). Looking at the inflows of FDI, it is clear to see that large amounts are linked to the extractive industries in many of the African countries, including Ghana, during 2010 to 2014, which is within the period studied here (AfDB et al., 2017). This has two major implications with regards to entrepreneurship. First of all, a negative spillover effect related to the large amounts of FDI going into the extractive industries is that the incumbent firms become more powerful the more investments they receive, and the entry barriers to an already difficult industry increase. This results in fewer new businesses being able to start up in these sectors, resulting in a negative impact of FDI inflows on domestic entrepreneurship.

Secondly, when FDI mainly flows to extractive industries, this is where most of the local population can be employed by MNEs and these are the industries that they will mainly learn about. However, as these industries require major investments in machinery, property and land as well as expert knowledge, they are rather difficult to enter for new businesses (Monks, 2018). Thus, the potential positive spillovers of knowledge gaining and learning from successes and failures of MNEs become invalid in these industries and as a result, invalid in Ghana. For this reason, evidence suggests that the majority of people employed in MNEs in Ghana, those that could potentially transform FDI into entrepreneurship, are not able to do so because they are employed in industries where there are significant entry barriers and most of the knowledge that they gain is probably not applicable in industries that are easier to access for entrepreneurs.

### 6.1.2 Business environment

The second subject that is relevant to analyse when addressing the negative influence of FDI on domestic entrepreneurship in Ghana is the business environment. The conditions under which businesses operate are partly included in the regression model however there are several mechanisms

and layers of the environment that may not be completely captured by the variables included. There are two different issues within the business environment in Ghana that this section elaborates on: access to financing and institutional setting.

## Access to financing

In 2010, Ghana's government initiated a new system, Ghana's Collateral Registry System, with the purpose of enabling more people to access financial services, especially small entrepreneurs. The system is based on businesses registering their property and other assets in order to use these as collateral for the financial institutions and "as of December 2012, 9,000 SMEs and 30,000 micro businesses had received loans of more than USD 6.0 billion, secured with movable property recorded on the registry", (AfDB et al., 2017). This initiative seems to benefit entrepreneurs greatly and evidently it has succeeded in doing so, however the effect still remains slightly ambiguous in the context of this paper. When focusing on how FDI inflows can increase the number of newly registered businesses, it is relevant to consider whether this new system enables people to start up new firms. As the system requires businesses to post collateral, there are inevitably people being excluded from the services that the system provides. Some people might be able to save up money from their job in MNEs and thus gain access to collateral for their new business and these will most likely also gain access to the credit facilitated through the system, creating a positive mechanism. However, for people working in MNEs who have no savings, the credit is completely unattainable and the system does not create positive effects of FDI. In fact, it might create a negative effect as financial institutions now have access to many borrowers with collateral (potentially businesses that are already registered) and might therefore be less likely to give credit without collateral. Lastly, it should be added that according to the Global Competitiveness Report of 2016/2017, access to financing is still perceived to be the most problematic factor in doing business in Ghana (Schwab, 2016). Thus, the effect of the initiative is ambiguous and might have a positive influence on some new entrepreneurs and a negative effect on others.

## Institutional setting

The second issue to consider when addressing the business environment of Ghana is the institutional setting. Looking at the Global Entrepreneurship Monitor's (GEM) country profile of Ghana (GEM, 2018a), it is evident that the country has both positive and negative institutional structures that can contribute to the negative impact of FDI on domestic entrepreneurship. Their framework

has several different parameters that are relevant for this study such as government policies and programs, commercial, legal and physical infrastructure and regulations and dynamics of the internal market. Government policies and programs are generally a little lower than the regional average, suggesting that the government does not focus on creating the best possible environment for entrepreneurs. When this is the case, there may be presence of certain positive characteristics, such as a credit system or several years of schooling, but without the right policies in place it is rather difficult to become an entrepreneur and most people will therefore maintain their jobs rather than pursue the uncertainty of entrepreneurship.

The infrastructure is generally just above the regional average, which implies that specific processes and physical mobility become easier. However, this parameter might be more relevant to businesses that are actually operating and not people considering becoming entrepreneurs. The last set of parameters in the framework of GEM is regulations and dynamics of the internal market. These factors are very close to the regional average and are therefore not likely to cause any specific positive or negative impacts. Thus, according to GEM, Ghana does not have the worst institutional setting for entrepreneurship but neither does the government attempt at creating prosperous conditions for starting new businesses, which probably adds to the negative effect of FDI. However, as the government receives large tax payments from MNEs, they may be incentivised to favour FDI and MNEs over local entrepreneurship.

Adding to the GEM's rather unimpressive country profile of Ghana, World Bank's Doing Business report on business regulations reveals that the Ghanaian government has initiated two policies in 2012 and 2014 that complicate the process of starting a business even more, which results in even fewer people pursuing entrepreneurship (World Bank, 2018b). Thus, as long as the business environment is complicated and opaque for entrepreneurs and FDI inflows keep increasing, most people that are able to get jobs in MNEs will do so rather than pursue the uncertain career path of entrepreneurship. This drives a curiosity of whether the Ghanaian government has an incentive to create a difficult setting for starting businesses in order to attract FDI by assuring that most well-educated people will take jobs rather than starting own businesses. This issue relates very well to the subject of human capital discussed next.

### 6.1.3 Human capital

Human capital in Ghana is inevitably a crucial part of an analysis of the influence of FDI on domestic entrepreneurship. As was established in the quantitative analysis, the Ghanaian population has

mean years of schooling well above the average in the African region as people go to school for almost 7 years on average. This aligns very well with the fact that public expenditure on education was above 6 pct. of GDP in Ghana in 2012, which is among one of the highest amounts in the African region (AfDB et al., 2017), suggesting that some amount of schooling is provided by the government for the entire population. As FDI inflows have a negative impact on entrepreneurship, this seems contrary to the theory suggesting that higher human capital enables the population to transform increasing FDI into entrepreneurial activities. This relation can either be explained as done in the quantitative analysis above or by diving deeper into the present mechanisms, which is done here. There are two parameters of the education system that are examined further in order to understand why a high mean years of schooling does not result in positive impact of FDI in Ghana, namely quality and costs of education.

## Quality of education system

The quality of the education system is highly relevant to examine as it determines whether those years of schooling actually make a difference for the level of knowledge and insight that provides the absorptive capacity in the population. In a study on quality of the educational system in Ghana (Adu-Agyem & Osei-Poku, 2012), it is found that the Ghanaian system lacks several of the crucial factors necessary for a high quality school system. The system in Ghana is defined by a lack of adequate teaching facilities, low number of trained and motivated teachers, high pupil/teacher ratios and lack of funding for educational institutions. These are just few among many conditions that prevent the school system from adequate quality (Adu-Agyem & Osei-Poku, 2012). The study clearly shows that Ghana may have a high number of average years of schooling but this does not necessarily mean that the broad population is able to transform knowledge from FDI into new businesses. For this reason, the relatively high level of human capital in Ghana does not add to a positive influence of FDI on domestic entrepreneurship.

## Costs of attending school

The second parameter of the educational system in Ghana is whether individuals have to pay for their education themselves or if it is partly or completely provided by the government. This is relevant to investigate as it influences which segments of the population are able to go to school and also whether those with an education have large amounts of study debt to repay afterwards. In 2005, the Ghanaian government committed to providing fee-free basic education for all children regard-

less of their socioeconomic background (Results for Development, 2015). This means that all children can enrol in school from primary to senior high school without paying tuition fees, enabling everyone to get a basic education even though their family has a low income. This initiative should therefore result in a large increase in enrolment of school-aged children but enrolment only increased by a small fraction. This is due to the fact that there are lots of other costs involved in the education system than merely tuition fees, including costs of uniforms, food, textbooks, writing materials and supplies, not to mention the opportunity costs for the family of lost labour and income (Results for Development, 2015). As a consequence, the education system continues to be limited to those able to pay for the additional costs and many of the low-income families are therefore still not able to send their children to school (Akaguri, 2014).

In addition to basic education being financially demanding, university or other advanced educations are tuition-based and inevitable also very costly for the main population, keeping the majority of people from achieving education beyond the basic level. Not only does it leave some socioeconomic groups out of the education system, it also results in many individuals obtaining debt in order to pay for their education (Atuahene, 2008). Thus, people who wish to attend school, obtain debt to pay for tuition fees and all other costs involved in going to school, which is naturally not even a possibility for all people. This means that one part of the low income families are restrained from attending school and one part is indebting themselves in order to pay for all the costs. This will most likely result in many people being forced to take jobs after graduating as they can otherwise not pay back their debts, implying that a high level of human capital will result in a negative impact of FDI on entrepreneurship, as FDI then provides job opportunities for the indebted rather than creating business opportunities. This aligns very well with the findings of the AfDB that graduates in Ghana search for wage employment rather than business ownership (AfDB et al., 2017). Also, the fact that MNEs usually pay higher wages and provide better employment conditions than local businesses makes it harder for entrepreneurs to hire qualified people as they are attracted to MNEs. This combined with well-educated local people having high debts from studying, limits the chances of success of new businesses and therefore constrains people from pursuing entrepreneurial activities.

### 6.1.4 Conclusion

Concluding on the negative effect of FDI on domestic entrepreneurship in Ghana, it seems more credible now that the underlying mechanisms and structures have been investigated further. As

Ghana is a resource-rich country with FDI flowing mainly to extractive industries, the extent to which local workers can use their experiences and knowledge for entrepreneurial purposes is limited. Further, the business environment in Ghana is rather complicated and unwelcoming for entrepreneurs. The government has initiated a credit system that enables more small businesses to gain access to credit but only for businesses with collateral to post. In addition, the institutional setting in Ghana is not accommodating entrepreneurs, neither through policies and programs, infrastructure, or internal market dynamics. Lastly, the human capital level in Ghana should clearly be studied further and more elaborately than measuring it as years of schooling. It is found that the quality of the education system in Ghana is rather poor and further, that it is very costly to attend school, which limits many people from getting an education and indebten those that do. For this reason, most people are either unable to identify business opportunities or are constrained from pursuing them by debt obligations. In general, this analysis concludes that there are prominent reasons for Ghana experiencing a negative effect of FDI on domestic entrepreneurship and that it is highly beneficial to study the issue from a qualitative rather than quantitative perspective.

## 6.2 Mali

The regression finds that increasing FDI inflows influence domestic entrepreneurship positively in Mali, which calls for further investigation of conditions in the country in order to uncover the mechanisms that create this positive effect. The quantitative analysis revealed that Mali does not have the best basis for the positive effect, and it is therefore crucial to consider qualitative data in order to understand the interesting results. This section investigates the country from the perspective of resources and investment flows, business environment and social development.

### 6.2.1 Resources and investment flows

According to the IMF, Mali is a resource-scarce country (AfDB et al., 2017) and economic activities are therefore mainly driven by sectors such as agriculture, construction and services. In fact, the sectors adding most value to Mali's GDP are services with 35.8 pct. and agriculture, including forestry and fishing, with 34.2 pct. (World Bank, 2018a). As discussed in the section on Ghana, having fewer resources may be an advantage in countries such as Mali, as the large companies are then working in industries where entrepreneurship is easier to access due to lower entry barriers. As a result, local workers are able to use the knowledge and experience gained from working in MNEs to

both identify and pursue new business opportunities. In a country with such low human capital as in Mali, this industrial distribution is much more likely to cause a positive impact of FDI on entrepreneurship than if the resources were abundant and most financial flows went to extractive industries (Monks, 2018). Thus, in a country like Mali, where natural resources are scarce, there are many more options for potential entrepreneurs to gain from demonstration effects where they learn from failures and successes of incumbent firms and use this for own business ideas within the same or similar fields. Also, businesses within agriculture, forestry and fishing are using less advanced technologies and machinery than extractive businesses, at least in developing countries, and it is therefore more likely that potential entrepreneurs can succeed in starting a business in this sector with limited funds and resources.

### 6.2.2 Business environment

The business environment in Mali is studied in relation to two factors: access to financing and institutional setting. These are highly relevant to consider when examining the business environment that potential entrepreneurs would start businesses in as it enlightens the different financing possibilities created by the institutional setting in Mali and also the efforts that the Malian government is putting in to improving it.

#### Access to financing

As in Ghana, the Malian government has initiated measures to improve the ability of small businesses to get credit from financial institutions, which suggests that there should be favourable conditions for potential entrepreneurs to gain access to financial resources needed to start their business (AfDB et al., 2017). However, the system creates the same issues as in Ghana. Only people with collateral or savings to buy assets can obtain credit, leaving those without savings, and thus collateral, unable to get credit. Further, the financial institutions gain access to many more customers with collateral and are therefore less likely to approve loans for those without. Thus, the credit system initiated by the government has an ambiguous effect on potential entrepreneurs. Additionally, the Global Competitiveness Report 2016/2017 states that access to financing is still the most challenging factor when doing business in Mali, suggesting that the system has not improved the financing conditions for entrepreneurs substantially (Schwab, 2016).

### Institutional setting

Unfortunately, GEM does not provide a country profile on Mali and it is therefore not possible to evaluate the institutional setting for entrepreneurs on the same parameters as Ghana and Zambia. However, the Doing Business Report 2018 from the World Bank provides an extensive overview of business reforms initiated by the Malian government, dating back to 2011. This gives an indication of the institutional setting for businesses and whether this is favourable for entrepreneurs. First of all, several reforms have been implemented to make it easier to start a business in Mali, suggesting that the government understands the need for entrepreneurial activities in order to create economic growth (World Bank, 2018b). The mere process of starting a business is crucial for both entrepreneurship in itself but also for the effect that FDI can have on entrepreneurship, as difficult processes prevent potential entrepreneurs from pursuing business ideas and a safe job may be more attractive. In addition to reforms on starting businesses, the government has implemented easier processes for construction permits, registering property, paying taxes and trading across borders (World Bank, 2018b). When all these processes have been improved over the years, some potential entrepreneurs with knowledge and experience from MNEs become more willing to take the risk of becoming self-employed and engage in entrepreneurial activities. As most reforms have been implemented in recent years, Mali may not rank the best on business environment in the Global Competitiveness Report (Schwab, 2016) but the government has made a huge effort to improve conditions for businesses and this could definitely be a driving factor for the positive impact of FDI on entrepreneurship. The reason why Mali's rank is still not as good may be that the numerical evaluations are yet to be seen and the effect can therefore mainly be seen qualitatively.

## 6.2.3 Social development

Social development consists of many different elements and involves various layers of the society. This section on social development in Mali focuses on the factors that seem to influence the effect that FDI has on domestic entrepreneurship in the country. The following considers the level of human capital and employment conditions in the country.

### Human capital

As presented in the quantitative analysis, the level of human capital in Mali is one of the lowest in the African region with less than two years of schooling on average. According to theory, this suggests that the absorptive capacity of the population is inadequate for transforming FDI into entre-

preneurship. However, the regression results suggest otherwise why a deep dive into the education system of Mali is relevant to understand the underlying mechanisms and uncover whether human capital is better than it seems when only studied quantitatively. First of all, the public expenditure on education in Mali is a little below the regional average with 3.6 pct. of total GDP (World Bank, 2018a). Thus, the education system is not a top priority in the governmental budget, aligning well with the very low average years of schooling. As in Ghana, the issues of access to education and quality of education are central in the school system of Mali. First of all, the access to education is very low in Mali where both enrolment rates are low and dropout rates are high, leaving a very poorly educated population for the labour market (Global Partnership for Education, 2018a). Secondly, the quality of education is lagging behind on several of the crucial areas, such as teacher capacity, student/teacher ratio, textbooks and other materials as well as teaching facilities (UNICEF, 2018).

In 2015, however, the government committed to a programme with focus on access and quality of education, which was an attempt to provide all children with access to primary school and improve school quality (UNICEF, 2018). This programme's effect is yet to be seen in the quantitative measures used in the model and can therefore only be evaluated qualitatively. The programme indicates that the future of education in Mali is very promising, however, it is clear that human capital cannot be the driving factor in creating a positive impact of FDI on entrepreneurship when both access and quality of education is so poor. Despite the low human capital, the population of Mali has a fairly innovative culture, which suggests that the population has an absorptive capacity created from innovative thinking rather than schooling. The World Economic Forum's Innovation Index shows, especially in recent years, that the Malian population is becoming more and more innovative and investments in innovations have gone up (Schwab, 2016). This suggests that the local workers in MNEs might be able to identify and pursue business opportunities despite their low level of education. Thus, human capital can be driven by innovative thinking rather than educational level, which suggests that a different measurement should be used when it comes to analysing FDI's effect on entrepreneurship.

## Employment conditions

Another important issue when dealing with social development is the employment conditions from the perspective of the individual workers. Employment conditions are important in regards to the impact of FDI on entrepreneurship as they influence the choice of individuals to either pursue jobs

in MNEs or pursue entrepreneurial activities. This section considers the employment conditions in Mali and evaluates whether these influence the positive effect of FDI.

Labour conditions and regulations in Mali are among some of the worst in the African region as employment conditions are both precarious and unprotected (AfDB, 2018). First of all, the regulations of contracts are largely non-existent as almost half of the workers in Mali have no written contract, meaning that a little short of 30 pct. only have a verbal contract and 20 pct. have none at all. Thus, half of the Malian working population are employed without any proper contractual protection. Secondly, only 2 pct. of the Malian workers have any social security coverage in their employment (AfDB, 2018), implying that 98 pct. of employers in Mali contribute to no social security at all, such as pension funds, health insurance or maternity leave. These labour market conditions are an expression of poor conditions for employment and they suggest that taking a job in Mali is not the most attractive thing to do. According to theory, one of the key negative spillovers of FDI on entrepreneurship is that MNEs tend to pay higher wages or offer favourable working conditions, which attracts local quality labour and leaves entrepreneurs with lower quality of labour. Thus, if employment conditions in a country are good, it is very likely that FDI will affect entrepreneurship negatively. In Mali, however, employment conditions are very poor and people are therefore more likely to consider entrepreneurship and small-business ownership to be attractive, in contrast to traditional employment. This could be a key driver of the positive effect of FDI on entrepreneurship as it has the opposite effect of the negative spillover.

These findings suggest that the type of entrepreneurship that FDI primarily causes in Mali is driven by necessity rather than opportunity. As found by the AfDB, more than 90 pct. of employment is a type of nonwage employment in the informal sector (AfDB, 2018). This further suggests that people are drawn into entrepreneurship by necessity as a way to alleviate poverty, due to the alternative being much worse. As the focus of this paper is not on the discrepancy between necessity and opportunity and as the model does not distinguish between the two, the issue will not be commented on further.

### 6.2.4 Conclusion

The conclusions from the qualitative analysis of Mali are quite ambiguous. First of all, the country is defined to be resource-scarce, which means that workers might be able to use their experience from MNEs to start own businesses in industries with lower entry barriers, creating positive spillovers in the product markets for both final, intermediate and completely new products. Secondly, the

institutional setting suggests that access to financing is still a complication for starting businesses in Mali but at the same time, several new positive business reforms have been implemented in recent years. The institutional setting might therefore be positive for most entrepreneurs but still create issues for those without collateral to gain access to credit. Thirdly, the human capital level is low in regards to both access and quality of education. This contradicts theory but taking into account that the population is fairly innovative suggests that there might be other types of human capital that create the absorptive capacity needed for creating a positive effect of FDI inflows. Lastly, the labour conditions in Mali are among the worst in Africa as there are very limited employment protections. This creates a positive effect, as people are more likely to enter into entrepreneurial activities when the labour conditions are so unattractive. Thus, the conclusions are ambiguous and from looking at the social, political and economic conditions in Mali, you might not expect that this country would have the highest positive effect of FDI on entrepreneurship. However, this points to the fact that people most likely engage in necessity-driven rather than opportunity-driven entrepreneurship.

## 6.3 Zambia

The last country with a significant impact of FDI is Zambia, where increasing FDI inflows cause increasing levels of domestic entrepreneurship. The quantitative analysis found human capital and innovation to be key drivers of this result but the following analysis also addresses other issues. The section considers: resources and investment flows, business environment and social development.

### 6.3.1 Resources and investment flows

As stated in the analysis of both Ghana and Mali, the amount of natural resources and the investment flows can have an impact on the business environment and the entrepreneurial activities in a country. As with Ghana, Zambia is defined as a resource-rich country and the main natural resource is copper (AfDB et al., 2017). With extractive industries, such as copper mining, being dominant in the economy, entrepreneurs face difficulties especially regarding the impact of FDI on entrepreneurship. Thus, when the economy is dominated by extractive activities, one of the most important spillover effects, the population's use of knowledge and experience from working in MNEs to start their own businesses, become invalid as the industry exhibit such high and complicated entry barriers. A spillover like the demonstration effect will also suffer in this case. With this industry struc-

ture, it is relevant to examine whether there are conditions in Zambia that enable FDI to influence entrepreneurship positively anyway.

There are two measures from which it is possible to see that there are other sectors in Zambia that have an increasingly important role in the economy, suggesting that extractive industries might not be the only major employers of local workers and thus that the positive effect might in fact come from other sectors. First of all, FDI inflows are high in the extractive sector but there are other sectors that receive increasingly high amounts of FDI as well. The manufacturing, financial and agricultural industries have experienced increases in FDI inflows during recent years (COMESA, 2018). This suggests that local workers are employed more and more in other industries where they can more easily gain applicable knowledge and experience and better apply the demonstration effect from the experiences of the MNEs. In this way, it is more likely that the population is able to transform the increasing FDI inflows into business ideas and opportunities.

The second measure is the different sectors' share of GDP in Zambia. Over the period from 2009 to 2014, there have been sectorial changes in the shares of GDP and specifically in Zambia, the mining and quarrying sector has experienced a fall of 2.3 pct. points where construction and services have increased 3.4 pct. points and 2.9 pct. points, respectively. Comparing this to Ghana, the industry with the highest increase in share of GDP is mining and quarrying with a total increase of 7.4 pct. points (AfDB, OECD, & UNDP, 2016). These findings reveal a great difference between Zambia and Ghana as two resource-rich countries. It might be the case that countries with abundant natural resources have a disadvantage in universal economic growth, which is also the case in Ghana, but Zambia has succeeded in circumventing this 'curse' and has attracted FDI to other sectors and as a result, the population is able to apply their absorptive capacity to identify and pursue new business ideas.

### 6.3.2 Business environment

As stated before, the business environment plays a crucial role with regards to the effect that FDI can have on domestic entrepreneurship. National conditions can either facilitate numerous opportunities or withhold potential entrepreneurs from starting new businesses. This section on the business environment in Zambia focuses on the two issues of access to financing and institutional setting.

## Access to financing

In the quantitative analysis, Zambia ranked very low in terms of financial market development, implying that entrepreneurs would face difficulties in gaining access to credit and other financing solutions. This aligns well with the fact that access to financing is still perceived to be the most complicating factor of doing business in Zambia (Schwab, 2016). However, the Doing Business Report 2018 by the World Bank ranks Zambia best of all Sub-Saharan African countries with regards to ease of getting credit and further states that the country ranks second best in terms of strength of legal rights for borrowers and lenders. These findings suggest that the access to financing can be problematic for some firms and easier for others. The effect of this factor is therefore highly ambiguous as it also was in Ghana and Mali.

## Institutional setting

As mentioned, the institutional setting influences the ability of local workers to pursue business opportunities greatly. In terms of the parameters, defined by GEM, of an institutional setting that benefits entrepreneurship, which Ghana was also evaluated with, the Zambian country profile is rather average in all the different categories. Governmental policies and programs, infrastructure and dynamics and regulations of the internal market are all close to the regional average. Some are a little bit above, like infrastructure and internal market regulation, while others are a little bit below, like supportive and targeted governmental policies (GEM, 2018a). This suggests that the institutional setting is neither limiting the entrepreneurial activity nor is it enabling it. However, the AfDB has reported that the Zambian government has established a programme and an agency for fostering entrepreneurship in order to create broader economic and social development (AfDB et al., 2017). The programme was implemented in order to lower the economic dependence on mining export and enable small businesses to focus on domestic production and the internal markets. It was already initiated back in 1996 but it has been revised and improved ever since (Zambia Chamber Research, 2018). The programme and agency show that the government is aware of the fragile situation that a resource-rich country as Zambia is in and is willing to take action and attempt at improving the conditions. This is certainly a key driver of the positive effect that FDI has on entrepreneurship as many more people are able to identify and pursue business ideas.

In addition to the entrepreneurship-specific programme, a substantial amount of positive business reforms have been implemented in recent years, which are all contributing to a better business environment for entrepreneurs. First of all, the government has introduced two business re-

forms in 2011 and 2014, which are making the process of starting a business much easier. Secondly, various business reforms in different areas have been imposed over the last years, enabling more people to pursue the business ideas that they get from working at or watching MNEs operate in different sectors. These reforms deal with areas such as paying taxes, import and export and enforcing contracts, and they all create a business environment where more people are able to start businesses regardless of socioeconomic background (World Bank, 2018b). In addition to business reforms, the Global Competitiveness Report argues that Zambia has a rather efficient goods market due to factors such as favourable policies, local competition, incentives to invest and positive rules on FDI (Schwab, 2016). This suggests that the goods market is quite accessible for small businesses and that the institutional setting is generally attractive.

### 6.3.3 Social development

The social development of Zambia inevitably plays a central role in the effect that FDI has on entrepreneurship. This section focuses on human capital and employment conditions in Zambia.

#### Human capital

The mean years of schooling in Zambia is one of the highest in the African region with almost 7 years of schooling on average. This suggests that the population have a high absorptive capacity and are thus able to learn from failures and successes of MNEs as well as use their own experience and knowledge from working in MNEs to pursue business opportunities. However, as seen with Ghana and Mali, it is highly relevant to assess both the access to education and the quality of education, as these are not necessarily good, despite a high average of years of schooling. According to the Global Competitiveness Report 2016/2017, the quality of primary education in Zambia is not very high but neither catastrophic for an African country. The secondary and tertiary education levels rank a little better but they are still not impressive (Schwab, 2016). These ratings may be a little opaque and it is therefore more relevant to investigate the specific system.

Since 2002, where basic education became free for all children, the government in Zambia has committed to an on-going programme for improving the educational level among the population. They have implemented different programmes with various points of focus, the latest being the National Implementation Framework III, running from 2011 to 2015. From 2002, national expenditure on education has increased heavily. Despite this effort to improve human capital through quality education, there are still numerous challenges in the educational system of Zambia such as insuf-

ficient infrastructure and facilities, lack of learning materials, motivation and training of teachers are inadequate and poor school management (Ministry of Education, 2010). Thus, despite the efforts of the government to improve quality and access to basic education, the system still faces challenges that prevent the general population from getting a quality education. In effort to increase access and quality of basic education, the government has also endeavoured to improve the higher levels of education (Global Partnership for Education, 2018b). However, universities are still not available to all, due to the relatively high tuition fees, and the ensuring of quality education is mainly left to the individual institutions, as the main focus of the government is on the basic level of education. This section reveals that the average years of schooling do not necessarily imply that a population has the essential skills for starting businesses and engaging in entrepreneurial activities. However, the Zambian government has implemented several programmes over the past many years, and it seems that the access and quality of education is slightly better in Zambia than Ghana and Mali. Thus, the human capital level might still have a positive effect on the influence of FDI on entrepreneurship. Adding to this, the innovative culture in Zambia is well above the regional average and the combination of these two factors suggests that the population has a very high absorptive capacity.

## Employment conditions

As in Mali, the employment conditions in Zambia are among the worst in Africa. In 2012, more than half of the working population in Zambia was not employed with a written contract, implying that these people do not have any protection of basic rights (AfDB, 2018). Thus, it might be true that the business policies enable firms to enforce contracts but if workers do not even have contracts, they are placed in a very fragile position. Further, 57 pct. of the working population did not have any access to social security coverage, which means that the employers do not provide any form of pension plans or health insurance (AfDB, 2018). These employment conditions do not create an attractive labour market for the local people to participate in, as they have no contractual protection nor personal insurances. In addition, out of the total employed population in 2012, 70 pct. was working in the informal sector (AfDB et al., 2016). These labour market conditions suggest the same effect as in Mali, where people are incentivised to start businesses rather than taking jobs because their employment conditions are so unattractive. This fuels a suspicion that most of the entrepreneurial activities that are caused by FDI inflows are necessity-driven rather than opportunity-driven.

### 6.3.4 Conclusion

Concluding on the qualitative analysis of Zambia, there are several factors that explain the positive effect that FDI has on domestic entrepreneurship, though some conditions propose the opposite effect. First of all, the fact that Zambia is a resource-rich country does not create the same problems as in Ghana because the Zambian government has implemented policies to mitigate the 'curse' and because the country has managed to attract increasing levels of FDI in several other sectors. Secondly, the conditions of access to financing in Zambia are ambiguous as there have been improvements but many small businesses are still challenged. Thirdly, the institutional setting in Zambia is mostly positive towards entrepreneurs due to the many reforms and programmes that the government has implemented over the recent years. This means that potential entrepreneurs are more able and more likely to pursue business ideas gained from working in MNEs. Further, the human capital level in Zambia is a bit ambiguous as the access and quality of education is still not the best, however the government has implemented many initiatives since 2002, and the educational system seems better than in both Ghana and Mali. Lastly, the employment conditions are very poor in Zambia and this suggests that many people are pushed into entrepreneurship due to the alternative being worse. In general, it seems that there are several characteristics of the Zambian economy and society that participate in creating a positive effect of FDI on domestic entrepreneurship.

## 6.4 Insignificant impact of FDI

In the previous section, the three countries with significant effects of FDI have been analysed from different perspectives in order to uncover the underlying mechanisms causing this significant relation. Ideally, this paper would dive deeper into the remaining 20 countries that did not show a significant effect of FDI on domestic entrepreneurship but this is not possible. However, it is still interesting to examine whether some trends, that might suggest explanations for the results, can be detected among the countries. Thus, in search for explanations for the rather surprising results, this paper has clustered the different countries with regards to various characteristics in order to detect potential connections between the countries with significant and those with insignificant effects. Unfortunately, this process is quite disappointing as well. The countries are clustered with respect to the following factors: rich or scarce on resources, geography, political stability, main religion, colonial ties and development stage, and the results can be found in Figure 14 below. As Ghana, Mali and Zambia differ quite substantially in many aspects, it is difficult to detect a trend among the

countries with significant and insignificant effects. Development stage is the only characteristic where the three countries are similar, being factor-driven economies, but this is not very specific to these countries as 17 out of the total 23 are in this category. For this reason, it is rather difficult to conclude anything with regards to the 20 countries being insignificant without digging deeper into each country. As this is beyond the scope of this paper, the analysis is focused on Ghana, Mali and Zambia and the mechanisms behind the respective negative and positive impacts that FDI has on domestic entrepreneurship in these countries.

| Country | Resource-rich | Geography | Political stability | Main religion | Colonial ties | Development stage |
|---|---|---|---|---|---|---|
| Algeria | 1 | North Africa | -1.5;-0.5 | Muslims | France | Transition F-E |
| BurkinaFaso | 0 | West Africa | -0.5;0.5 | Muslims | France | Factor-driven |
| Burundi | 0 | East Africa | -2.5;-1.5 | Christians | Belgium | Factor-driven |
| Cameroon | 1 | Central Africa | -1.5;-0.5 | Christians | France | Factor-driven |
| CapeVerde | 0 | West Africa | 0.5-1.5 | Christians | Portugal | Efficiency-driven |
| Congo | 1 | Central Africa | -1.5;-0.5 | Christians | France | Factor-driven |
| Egypt | 1 | North Africa | -1.5;-0.5 | Muslims | UK | Efficiency-driven |
| Ethiopia | 0 | East Africa | -2.5;-1.5 | Christians | Italy | Factor-driven |
| **Ghana** | **1** | **West Africa** | **-0.5;0.5** | **Christians** | **UK** | **Factor-driven** |
| Kenya | 0 | East Africa | -1.5;-0.5 | Christians | UK | Factor-driven |
| Lesotho | 0 | Southern Africa | -0.5;0.5 | Christians | UK | Factor-driven |
| Liberia | 1 | West Africa | -1.5;-0.5 | Christians | US | Factor-driven |
| Madagascar | 0 | Central Africa | -0.5;0.5 | Christians | France | Factor-driven |
| **Mali** | **0** | **West Africa** | **-1.5;-0.5** | **Muslims** | **France** | **Factor-driven** |
| Morocco | 0 | North Africa | -0.5;0.5 | Muslims | France | Efficiency-driven |
| Namibia | 1 | Southern Africa | 0.5-1.5 | Christians | Germany | Efficiency-driven |
| Nigeria | 1 | West Africa | -2.5;-1.5 | Christians and muslims | UK | Transition F-E |
| Rwanda | 0 | East Africa | -0.5;0.5 | Christians | Belgium | Factor-driven |
| Senegal | 0 | West Africa | -0.5;0.5 | Muslims | France | Factor-driven |
| Sierra Leone | 1 | West Africa | -0.5;0.5 | Muslims | UK | Factor-driven |
| Tanzania | 0 | East Africa | -0.5;0.5 | Christians | UK | Factor-driven |
| Uganda | 0 | East Africa | -1.5;-0.5 | Christians | UK | Factor-driven |
| **Zambia** | **1** | **Southern Africa** | **-0.5;0.5** | **Christians** | **UK** | **Factor-driven** |

**Figure 14 Clustering the 23 countries. Source: AfDB, World Bank, Global Religious Futures, Global Competitiveness Report 2016/2017.**

## 6.5 Conclusion of qualitative analysis

Concluding on the qualitative analysis, it is clear that many more mechanisms are uncovered when addressing the country characteristics from a qualitative perspective. The negative effect of FDI in Ghana can be explained by several factors. The country is resource-rich and FDI mainly flows to the extractive industries with particularly high entry barriers, which means that local workers are unable to use their knowledge and experience gained from working there to identify and pursue entrepreneurial activities. Further, the business environment is highly prohibitive for entrepreneurs as the new credit system requires collateral and GEM argues that policies, programs, infrastructure and internal market dynamics are all unwelcoming towards entrepreneurs. Also, despite the high years of schooling in Ghana, the education system is found to be of low quality and inaccessible for many children, indicating that the knowledge gained from attending school is limited and that a large proportion of the population is excluded from education or obtaining debt to access education. This means that education does not necessarily create absorptive capacities in the population. These results show that it is highly beneficial to study Ghana qualitatively.

Mali has the most positive effect of FDI but the qualitative study shows that the mechanisms in Mali are quite ambiguous. The country is resource-scarce and local workers might therefore be more likely to enter into entrepreneurial activities through the demonstration effect or experience gained from working in MNEs, as the sectors are more accessible. Conversely, the institutional setting is rather complex and opaque, including the access to credit, making it very difficult to start businesses in Mali. However, during recent years, several new business reforms have been implemented that improve the business environment and startup procedures, contributing to a positive effect of FDI. Looking at human capital, the quality and access to education is very low in Mali, suggesting that the absorptive capacity is nearly inexistent. This might, however, be somewhat balanced out by the fairly innovative culture, which enables the population to identify business ideas, supporting a positive effect. Adding to all these factors, the labour market conditions in Mali are among the worst in Africa and people are therefore forced into self-employment and entrepreneurship, creating a positive effect. These ambiguous results suggest that Mali is not the most obvious country to have the highest positive effect of FDI on entrepreneurship, however, there seems to be evidence that the entrepreneurial activities are mainly necessity-driven, which can explain the relation between difficult economic and social conditions and a positive effect of FDI.

Zambia also has a positive effect of FDI on entrepreneurship, which, evidenced by the analysis, seems slightly more natural than in Mali. Despite the country being resource-rich, the govern-

ment has redirected investments towards other sectors and thus balanced out economic growth, which enables local workers to apply experience and the demonstration effect to entrepreneurial purposes. The business environment is still challenging, especially regarding access to finance but many reforms and programmes have been initiated in order to cope with this. The quality and access to education is still not the best in Zambia but there has been a long list of initiatives since 2002 and the system has therefore improved a great deal. This suggests that the Zambian population has better absorptive capacities than Ghana and Mali, enabling them to pursue entrepreneurship. As in Mali, employment conditions are very poor in Zambia and many people are therefore forced into self-employment and entrepreneurship. Thus, there is also reason to believe that entrepreneurial activities in Zambia are partly or mainly driven by necessity. However, in general, it seems that the characteristics of Zambia enable a positive effect of FDI on entrepreneurship and together with Ghana, this is the country that confirms the hypothesis of the paper the most. Thus, the effect of FDI on entrepreneurship can indeed be explained by different country characteristics and the relationship is highly dependent on the economic, social and political conditions in each individual country. Further, the two analyses of this paper clearly show that the topic needs to be examined both quantitatively and qualitatively in order to reach the highest level of insight.

# 7 Discussion

This chapter endeavours to address and discuss various issues that arise in the context of this paper. There are several other perspectives or methods that could have been applied when studying this topic and some of these will be presented and discussed here. The chapter first addresses the topic of FDI and entrepreneurship by discussing the relevance of the topic, the mixed results in the literature and the overall contribution of the paper. Secondly, the methodology, including choices of variables and data, is evaluated and compared to other studies. Thirdly, the results of the study are discussed and compared to the literature, followed by an assessment of the implications of these. Fourthly, alternative perspectives on the topic are discussed in order to suggest other manners in which FDI and entrepreneurship could be studied. Lastly, the future of entrepreneurship in Africa is discussed with a proposed policy focus based on the findings of this paper.

## 7.1 The topic: FDI and entrepreneurship

### 7.1.1 Relevance of topic

The topic of FDI and entrepreneurship in Africa is a highly relevant and timely matter as it is addressed by several international organisations that deal with economic growth, developing countries and international business. As mentioned before, many different organisations and scholars highlight the fact that entrepreneurship is a key driver of economic growth and for that reason in itself it is relevant to study the causes of entrepreneurship in a developing continent such as Africa. At the Global Entrepreneurship Summit in 2016, the role of entrepreneurship was underlined heavily by the former US president Barack Obama: “Entrepreneurship creates new jobs and new businesses, new ways to deliver basic services, new ways of seeing the world—it’s the spark of prosperity”, (World Bank, 2016). The World Bank also focuses on their twin goals of ending extreme poverty and boosting shared prosperity and they argue that to achieve these, the region is required to put a huge effort into unleashing private sector-led growth, enabling the local population to indulge in entrepreneurial activities. In addition, the AfDB has dedicated an entire chapter to a special edition featuring entrepreneurship in their annual African Economic Outlook report of 2017, where they focus on the role that entrepreneurship has in industrialising the continent of Africa (AfDB et al., 2017). These two cases are just to name a few, indicating that many organisations are acknowledg-

ing the central role that entrepreneurship has when it comes to improving conditions in developing countries.

The relationship between FDI and entrepreneurship has so far not been studied very heavily but as mentioned in the literature review, more and more scholars have discovered the theoretical relation and in recent years, several studies on the matter have appeared. The growing interest in the topic suggests that it is highly relevant for the present international, economic situation and as FDI is an increasing phenomenon it is only becoming more interesting to study the impact that it has on an economic driver such as entrepreneurship.

The topic is not only relevant in regards to Africa, as it has also drawn attention in other regions such as Asia. Several organisations have addressed the issue and the Asian Development Bank Institute states that Asian countries have benefited from FDI that has created better opportunities for entrepreneurs, among other things. The institute underlines that FDI can also have negative effects on entrepreneurship, which aligns very well with the findings of this paper (Goel, 2018). There are different effects from FDI both in general and with regards to entrepreneurship and this is evident in other regions than just Africa. This reveals that the topic is highly relevant on a global scale and from different perspectives, suggesting that the scope of the topic reaches far beyond the focus of this paper.

### 7.1.2 Mixed results in the literature

As mentioned several times through this thesis, the relationship between FDI and domestic entrepreneurship has been examined by multiple scholars focusing on a single country, just a few, or whole regions with methods ranging from multiple linear regressions with fixed and random effects to GLS models and a single study utilising IV regression. What is interesting in regards to this topic is that the results differ tremendously with some finding a clear positive effect of FDI on local entrepreneurship, others finding no relationship at all, and some finding a negative impact of FDI inflows in the host country.

In this thesis each of these three findings are represented. The overall regression showed a significant and positive relationship between FDI and entrepreneurship in the African region, based on 23 African countries but when we dive into each of the countries included in this aggregate regression, it becomes clear that only three of the 23 single country regressions are significant and of these three countries, one of them shows a negative relationship between FDI and entrepreneurship. Plenty of scholars try to draw naive conclusions about whether FDI is “good or bad” for local en-

trepreneurship with data based on a few countries without thinking about the reasons for this effect and to our knowledge no studies have done estimations on both aggregate and country level. But with such different results how can anyone really draw real conclusions about the effect of FDI on entrepreneurship without finding out *why* the results are so different?

Several explanations for the mixed results in the literature are put forward. Mencinger (2003) suggests that FDI effects depend on the type of FDI while Wang and Wong (2009) argue that the use of a total measure for FDI can be misleading as opposed to FDI by sector. Finally, Asheghian (2004) indicates that the lack of analysis of host country domestic conditions is the source behind the mixed results, which is what this thesis agrees with, referring back to the analysis. Adding to above reasons, this thesis argues that the inability to distinguish between opportunity and necessity entrepreneurship, especially in the African region, plus the definition of the numerical measure entrepreneurship in itself, are factors that influence the results of the relationship between FDI and entrepreneurship. All of the suggested explanations might be true and each of them is therefore addressed in the following.

The type of FDI is presumably one explanation for different results between country regressions. It is argued that a larger ratio between acquisitions and Greenfield investments may cause an increasingly negative impact on economic growth and entrepreneurship in the host country as foreign firms acquiring local firms can attract more local employees and thus limit domestic entrepreneurship.

Furthermore, the effect of FDI can depend on what sectors are investigated. As seen in the qualitative analysis of this paper, the results in Ghana, Mali and Zambia is highly affected by the domestic industrial composition and the direction of the investment flows. This is explained by the fact that extractive industries, prominently present in resource-rich countries, are very capital-intensive, which makes it difficult for entrepreneurs to enter the market with limited capital, which is one of the main characteristics of startups. Thus, the effect of the FDI inflows on entrepreneurship may be non-existent, simply due to the fact, that the knowledge spillovers from this sector does not contribute to the local entrepreneurial environment, as it is simply impossible for locals to enter this sector even though they have gained knowledge of it. For this reason it seems important to distinguish between the sectorial directions of FDI.

Breaking down FDI inflows into type or sector can also clarify the mechanisms on a micro level and it makes sense to examine if it is a specific sector or a specific type of FDI one is interested in. However, when wanting to investigate the overall effect of FDI on a country level, this thesis

argues that the only sensible thing is to take the total FDI including all various types of FDI for all sectors. Logically, this causes each country to have different effects of FDI due to different ratios of acquisitions and Greenfield investments and different amounts to various sectors within the host country. However, this allows scholars to also focus on the influence of other societal and economic conditions in each country, as well as study the difference between resource-rich and resource-scarce countries.

Another possible explanation for mixed results proposed by the literature is the inability to separate opportunity from necessity entrepreneurship, which is highly important in a region such as Africa, being the poorest continent and thus having the highest level of necessity entrepreneurship. The type of entrepreneurship varies with the underlying conditions in each country, such as the development state and educational level, which in turn has a say in the direction and magnitude of the effect of FDI (Albulescu & Tămăşilă, 2014). In countries with lower income distributions, GDP levels and innovation, entrepreneurship is expected to be primarily necessity-driven why FDI may have a negative relationship with entrepreneurship. In countries with higher income distribution, GDP levels and innovation, entrepreneurship is expected to be primarily opportunity driven why FDI is expected to have a positive impact on the relationship with entrepreneurship. This matter could have been very interesting to investigate further but as there is no data that distinguishes between the two types of entrepreneurship for the African continent, this is not possible. The Global Entrepreneurship Monitor has this relative measure for other countries and regions where the above assumptions hold (Acs, 2006; Albulescu & Tămăşilă, 2014), why it definitely could be an explanation for different FDI effects across the African countries.

Furthermore, the measurement of entrepreneurship itself can have an explanation for different results among scholars. There is a proliferation of theories, definitions and taxonomies of entrepreneurship, which often conflict and overlap causing confusion and disagreement among researchers about what entrepreneurship is. Labour economists often equal the self-employed with entrepreneurship but this definition may be too broad for some, who define entrepreneurship as business owners who coordinate production factors and thus employ workers, while the latter is too narrow as it excludes entrepreneurship in spheres such as the financial and social. Others identify entrepreneurship as the introduction of new paradigm-shifting innovations and some use the number of small firms, which is obviously not a good measure as not all small firms are run by entrepreneurs and not all entrepreneurs run small firms (Brock & Evans, 1989; Holtz-Eakin, 2000). Plenty of other definitions exist in the literature that this thesis has dealt with, such as the TEA measure from

GEM mentioned in the collection of data section, why it is important to focus the definition used. The measure chosen in this paper, NBD, defined as the yearly number of new local firms per 1,000 people has also been criticised, as some argue that entrepreneurship does not require the creation of new organisations (Amit, Glosten, & Muller, 1990) since it can also occur inside existing organisations. This may very well be true but that is not very easy to measure and there may be huge measurement errors related to this definition, which may create mixed results as also pointed out by Nair-Reichert and Weinhold (2001). However, as stressed in the section on data collection, this definition is found to be the most useful in the context of this paper's research question and the focus on the African continent.

### 7.1.3 Contribution of this paper

Taking all the above points into account, the thesis argues that it contributes to the existing literature by performing both aggregate and single country analysis, which stresses that the effect of FDI on entrepreneurship is not simple to predict, especially in the context of the African continent. The effect may depend on measurement errors, definitions of FDI and entrepreneurship, but most importantly, and proven by this paper is, the relationship depends on country specific factors such as human capital, innovation, financial market development, business environment, educational systems and investment flows, which sum up to the country's absorptive capacity.

## 7.2 Methodology

This section focuses on the methodology of the thesis. Even though the chosen methods and methodology are perceived to be the best alternatives in regards to the research question, there may be certain limitations to the research design and this section elaborates on these. In regards to the above section the results can be discussed in terms of the methodology. The measurement choices of the dependent and explanatory variables may create certain bias while the model itself may also impose some threat to the validity, especially in regards to the single country models. Furthermore, the time period may not be long enough to create a reliable picture of the actual effect of FDI.

### 7.2.1 Dependent variable

NBD may be an unusual measure of entrepreneurship but at the same time it may very well be one of the more reasonable ones as concluded earlier. However, it is crucial to keep in mind that, espe-

cially for the African region, it can be an uncertain measure as data quality in the region is not strong (World Bank, 2018c) and many new businesses are not necessarily officially registered. It is anyway expected to be a more reliable measure of entrepreneurship than for example; small firms, the TEA measure from GEM or the number of self-employed, as it reflects the actual start up of a new firm. It may not be completely reliable in regards to Africa, as data in the region in general lacks transparency and at times can be questionable but it is this paper's belief that the NBD measure used here is as good as possible when addressing entrepreneurship in Africa. For the 23 countries that qualified for analysis, national statistics of yearly new local businesses have been compared to other data sources, such as World Bank, where possible. However, some of the homepages of these national bureaus do indeed look a bit suspicious even though they may resemble the data of the World Bank. Despite this, the data utilised here, which has been collected over two and a half months, is believed to have the highest quality possible at the moment.

With that said, the lack of significant results on country level may very well be a consequence of the general state of data quality on NBD in the African continent. This aligns with some of the surprising results in the analysis, including the fact that Mali has the highest significant effect of FDI even though it is a country with high political risks and very low development. Another reason for the lacking significance in most of the countries might be that the development state of the countries simply restricts the impact of FDI on entrepreneurship to an extent that makes it impossible to measure any real impact. But seeing that some control variables have an impact on the effect of FDI, it could be useful to conduct single country regressions with interactions terms between FDI and variables such as human capital, innovative culture and financial market development. The scope of the paper does not have room for this but it is a suggestion for further analysis on the topic that would contribute greatly to a paper such as this.

### 7.2.2 Time period and variables

Due to data restrictions, such as missing years for plenty of the countries, only 13 years of data has been used. 13 data points may be a bit limiting even though other studies have used even fewer observations, as found in the literature review. This could also be one of the factors affecting the results as it has not been possible to deep dive on the state of each of the 23 single countries over the 13 years to exclude potential outliers or the like, due to the time limit. Another explanation can be that specific variables affecting entrepreneurship may differ across countries such that the same model cannot be applied to all countries. This was in fact tested and excluding one or two variables

or adding another would make the different single country regressions significant. However, if varying the variables included in the model from country to country, a comparison would not be possible and excluding more variables would open up to omitted variable bias.

### 7.2.3 Panel data

Panel data has been carefully chosen based on other scholars' research and the advantages of panel data over cross-sectional or time series data on macroeconomic issues such as this one. Panel data often contains more degrees of freedom and variability in the sample than time series data, which is a panel with N=1 or cross-sectional data, being a panel with T=1, which thus improves the efficiency of econometric estimates (Hsiao, 2014). It is often argued that estimations show significant effects due to the "overlooking" of other variables in the model specification being correlated with the included explanatory variable, which enhances the explanatory effect of the variable of interest. Further, panel data contains information on both the individuality of entities and intertemporal dynamics between them, which allows controlling for the effects of unobserved or omitted variables. Furthermore, dynamic economic relationships can be uncovered with panel data, which is exactly what this paper endeavours to do. Also, the pooling of data allows for more accurate predictions than individual outcomes when individual behaviour is similar, conditional on certain variables, as this enables the researcher to learn about one individual's behaviour by observing the behaviour of others (Hsiao, 2014). However, the individual countries are not similar in this paper, why this is not a particular reason to choose panel data in this case. Lastly, and as proven by this paper, panel data that contains time series observations of individuals is ideal when one wants to investigate the heterogeneity versus homogeneity issue. Here, it is clear that there is a heterogeneity issue among the single country regressions, which means that the aggregate regression model cannot be used as a "representative agent" (Hsiao, 2014). Ignoring this fact could lead to very misleading conclusions and policy recommendations if one were to base them on the aggregate model alone.

## 7.3 Results and implications

This section will present the results from the analyses and discuss them in the context of implications for policymakers as well as the evident limitations from investigating the issue from a purely quantitative perspective. In addition, the results are evaluated based on the low data quality, applicability and generalisation.

### 7.3.1 Key results and indications

The key results of the econometric and the qualitative analysis clearly suggest that there are considerable differences across the African countries regarding the impact of FDI and which factors influence this relation. As Ghana, Mali and Zambia were studied in further detail, both quantitatively and qualitatively, it is clear that the combination of various factors influence the effect of FDI. Further, the three countries have several similarities and differences, which emphasise the fact that no country is the same and the impact of FDI is constructed by all the individual characteristics that each country consists of. With that said, there are a few factors that seem to have more influence than others. First of all, the sectorial composition in the country and thus the direction of investment flows impact the effect of FDI greatly. Especially the ability of the government to improve certain sectors in order to create balanced economic growth, despite the country being dominated by extractive industries, influences the impact. Secondly, the business environment has a central role in developing entrepreneurship from FDI inflows. In countries with an attractive business environment, more individuals are able to transform FDI and knowledge from MNEs into startup of own businesses. Lastly, the human capital and social development of the country is highly important. The human capital, however, does not solely depend on the years of schooling but is rather highly influenced by both the quality and access to education. The innovative culture of the population is also important in order for the FDI inflows to really create a difference for entrepreneurial activities.

These results suggest that there are specific areas in which policymakers should focus if they aim to create a society where local workers can identify and pursue business opportunities from the knowledge and experience that they gain from MNEs. As it is impossible to change the level of natural resources of a country, it is important that government officials acknowledge the fragile position of resource-rich countries and thereby pursue policies and programmes that enable other sectors to attract investment and high-quality labour. This is what distinguishes Ghana and Zambia with regards to resources, as the Zambian government has managed to improve and attract investments to other sectors, which enables potential entrepreneurs to enter markets with lower entry barriers. Further, it is crucial the policymakers pursue a business environment that is easy to navigate through and that enhances competition among business, creating better conditions for entrepreneurs. The analysis showed that a country such as Mali indeed benefits from the government pursuing policies that enable small businesses to appear. Lastly, it is essential that high quality education is available for all, despite social rank or background, and that innovative mindsets are cele-

brated, in order to improve the ability of individuals to identify and pursue business ideas. The Ghanaian education system and innovative culture is highly criticisable, which poses one of the biggest challenges for the individuals to gain absorptive capacity, and policymakers should therefore focus on this.

### 7.3.2 Limitations to quantitative analysis

One of the big limitations of the econometric analysis is that it relies on numerical data only. This means quantifiable variables, which in this case are collected through national African statistic bureaus, which may not be highly reliable as discussed below. In general, looking at a problem through numerical lenses only is problematic, as many other non-quantifiable factors can impact or shed light on the effect of FDI inflows on entrepreneurship. One factor is the entrepreneurial culture within the country, which is impossible to include due to the difficulty in measuring it. Some proxy it with religion but this is not deemed a good proxy from this papers perspective. Other sources such as expert interviews and reports could help nuance the situation in the countries. Furthermore, the quantitative analysis is built on historical data up until 2016, caused by lack of data, which means that some countries may have developed further since then, such that the present picture is in fact different. This limited number of years also constrains the number of variables possible to include, which may cause omitted variable bias. The limitations of the quantitative analysis are the main reason why this paper has included a qualitative analysis as well.

### 7.3.3 Low data quality

As discussed under the methodology section, African data may not be the most reliable. Corruption in state departments and bureaus is highly present in Africa why data coming from sources made by the government or their affiliates is not necessarily reliable. One of the highlights in a report made by the World Bank (2014) is that there is a huge need for investing in data quality and national statistical systems in developing countries to better inform national policy and to help international partners identify gaps and prioritise actions. Both for the countries to become more transparent to outside investors but also to enable organisations, such as the World Bank, to map and measure changes in their economies. The need for improving data quality and availability is further stressed to be particularly important in Sub-Saharan Africa where plenty of the countries investigated in this thesis are located, including Ghana, Mali and Zambia. The low quality of data in Africa is the reason why the results of this paper should be considered carefully.

### 7.3.4 Applicability and generalisation

The results in this thesis are not deemed applicable to other regions in the world or generalisable across countries. First of all, the aggregate regression may show a significant and positive relationship but when deep diving on each of the countries it is evident that for single countries there are primarily no effects to detect based on this data set. This urges caution when drawing any general conclusions from this paper even though the overall aggregate results are similar to some of the literature. Therefore, the results should be seen isolated for the African continent and for each of the African countries individually.

As discussed under the methodology discussion above, it is clear that different variables determine the effect on NBD, depending on the country, indicating that structural characteristics across countries have different impacts on the effect of FDI on NBD. Thus, estimating each country regression with differing variables instead of applying the same regression to each country could yield other and better results. This stresses the importance of country characteristics in the estimation of FDI's impact on local entrepreneurship, which is something that could be studied further. However, in order to compare countries, the same specification of the model had to be applied, why the results for most countries are inconclusive. This led to only three countries in Africa having significant impacts of FDI while 20 have no detectable effect from FDI on entrepreneurship. Again, this does not mean, that there is no effect at all, as it may be due to data quality, availability, time period and choice of variables for the individual countries.

## 7.4 Alternative perspectives

This section discusses some of the alternative perspectives that this paper could have focused on. There are several different ways that the topic of FDI and entrepreneurship could have been approached and angles that could have been in focus but this section only focuses on three: attraction of FDI, development stages and necessity- vs. opportunity-driven entrepreneurship.

### 7.4.1 Attraction of FDI

This paper has chosen to focus on the impact that FDI has on entrepreneurship but the topic could have been studied from the perspective of attraction of FDI and why some countries receive more FDI than others. This focus can also shed light on different societal characteristics in the African countries and enlighten a discussion of which initiatives and areas that policymakers should focus

on. This would however move away from the focus of entrepreneurship, which is the key motivation of this paper. This is the main reason for delimiting the thesis from attraction of FDI in order to be able to focus the effort on the effect on entrepreneurship. However, this subject is something that both scholars and organisations have studied widely as it increasingly influences developing countries how much FDI they can attract. The World Bank has studied the matter and argues that business opportunities and investment climate are major driving factors in attracting FDI to developing countries (Battat, Hornberger, & Kusek, 2011). Another study by Asiedu (2006) reveals that attraction of FDI is determined by several factors such as natural resources, infrastructure, legal system, investment framework, corruption and political stability. This shows that the general state of the country has a large impact on the ability to attract foreign investments.

In general, one might think that the factors influencing the ability to attract FDI are the same as those influencing the absorptive capacity of FDI. However, this is not necessarily the case as shown by this paper. First of all, having natural resources have shown to have a negative impact on the absorptive capacity if the government is not determined to attract FDI to and develop other sectors as well. This is evidenced by the distinction between Ghana and Zambia that are both resource-rich countries. Secondly, corruption and political stability have a negative impact on the attraction of FDI (Asiedu, 2006) but do not necessarily influence the ability of the population to use their knowledge and experience from MNEs for self-employment purposes. This is clearly shown by the positive effect of FDI in Mali, despite the uncertain political conditions. Lastly, human capital is not shown to be important in either of the studies mentioned above, which stands in stark contrast to the conclusions of this paper. However, the paper shows that investment frameworks, legal systems and business environments have a large influence on the ability of populations to transform FDI into entrepreneurship. The perspective of attraction of FDI would have created different results and focuses than the topic of this paper and the focus on entrepreneurship would have disappeared, why this paper has chosen this specific perspective.

### 7.4.2 Development stages

The paper could also have focused on the development stages of the countries and how this affects entrepreneurship. Acs (2006) adopts this focus where the challenges of the different stages of each country are examined in order to determine how this influences entrepreneurs. This approach offers a broad view of the countries with a more coherent country profile whereas the path chosen in this thesis investigates the country characteristics more sporadically. For this reason, it is interesting to

look further into the different effects of being in a specific development state. This is however more relevant to look at qualitatively, as the nuances of development stages are difficult to capture in an econometric model. The development stage does not say anything specific in itself, it is rather the different characteristics within each stage that define the country. Thus, such an approach may require a more case-based or qualitative analysis than chosen by this paper.

### 7.4.3 Necessity- and opportunity-driven entrepreneurship

A third perspective that could have been taken when studying FDI and entrepreneurship is the division between necessity-driven and opportunity-driven entrepreneurship. This distinction is important as it is found that necessity entrepreneurship is counter-cyclical and opportunity entrepreneurship is pro-cyclical (Fairlie & Fossen, 2018), which suggest that necessity is associated with negative effects of FDI and opportunity is associated with positive effects. First of all, it is an interesting distinction to make as it clarifies why some countries may not have a significant effect of FDI as the two types might balance out each other, if there is around 50/50 division between the two. Thus, in some of the African countries studied in this paper, the insignificant effect might actually not be caused by the fact that FDI does not influence entrepreneurship but rather that the two different types are affected so differently that the econometrically measured impact is eliminated. This position goes against this paper's revelations in Mali and Zambia, as the analysis concludes that necessity entrepreneurship might be a driver of the positive effect of FDI in these countries due to the poor employment conditions. Unfortunately, it is not possible to move the discussion any further than this as it is not possible to distinguish the two types in the African countries. Secondly, the division is highly relevant as it is a huge factor in the ultimate goal of entrepreneurship, namely to create economic growth. Thus, a country might seem highly entrepreneurial while actually being quite underdeveloped, due to the failure of distinguishing between the two types of entrepreneurship. This means that if a country has a lot of entrepreneurial activities and most of them are coming from opportunity-pursuing entrepreneurs that have identified business ideas and are able to pursue them, there is reason to perceive this country as one moving forward and developing in the right direction. However, if a country is increasingly consisting of individuals being forced into self-employment due to the lack of both jobs and unemployment benefits provided by the public sector, there is reason to perceive the country as underdeveloped and moving in a wrong direction. Thus, this paper could have been even more enlightening if it had been possible to make distinctions be-

tween these two types of entrepreneurship. Due to data limitations in the African region, this was unfortunately not a possibility.

## 7.5 Future

The last section in the discussion chapter focuses on what the future might bring and what policy focus the findings of this paper point to.

### 7.5.1 Future of entrepreneurship in Africa

As posed throughout this paper, entrepreneurship has an increasingly important role in creating economic growth in developing countries and several international organisations have shed light on this topic in recent years. The analysis of this paper is based on past developments in FDI and entrepreneurship in order to uncover whether there is a relationship between these two. However, it is equally relevant and important to look ahead and evaluate whether entrepreneurship will develop positively in the coming years and thus, create further economic and social development in the African region. This section focuses on recent events and initiatives in African countries that suggest a direction for entrepreneurship in Africa.

First of all, it is relevant to examine the elections that have taken place in African countries over the last few years in order to assess whether these imply a positive or a negative development of the entrepreneurial landscape in these countries. Most of the African countries have had elections in 2016 and 2017 and the majority of these were conducted in conditions of freedom, peace and transparency, according to the African Union Election Observation Mission (AfDB et al., 2017). Despite this, running fair elections is still a major challenge for many African countries, which suggests that positive development in these countries might be far ahead as none or unfair elections create slow progress towards improving business environments and social conditions (AfDB et al., 2017). However, several countries, including Comoros, Cote d'Ivoire, Gambia, Ghana and Tanzania have experienced a change in government and national assembly as a result of fair and free elections in 2016 and 2017. This indicates a positive development in these countries where new reforms and programmes can be established, hopefully with a focus on entrepreneurship. Especially, the governmental shift in Ghana is interesting in the context of this paper, and AfDB suggests: "changes are to be expected in policy direction, including emphasis on measures to unleash private sector development", (AfDB et al., 2017). This political shift implies that the Ghanaian government will

focus more on implementing reforms and programmes to lift the private sector, including small businesses and entrepreneurs, and the same can be expected of new governments in other countries. In addition to the positive developments, there are also countries in which elections do not play a positive role as such. As an example, Democratic Republic of Congo has postponed planned elections and even though the incumbent government shows willingness to improve conditions for entrepreneurs, it has not been capable of creating economically viable solutions to do so yet, suggesting that a fair and free election would be beneficial (AfDB et al., 2017).

Secondly, business reforms, programmes and other initiatives serve as positive influences on the entrepreneurial landscapes in African countries. As discussed in the qualitative analysis of this paper, there have been several business reforms in Ghana, Mali and Zambia in the recent years that promote and improve conditions for entrepreneurs. Many other African countries have also implemented business reforms in recent years with the purpose of increasing the share of people who pursue entrepreneurial activities. These business reforms include measures such as one-stop shops to register businesses, reducing minimal capital requirements and eliminating business trade license fees. A few countries have also implemented extra fees or processes, which makes it more difficult for common people to start businesses but in general, governments in the African countries attempt to improve domestic business environments (World Bank, 2018b). This suggests that the future of entrepreneurship in Africa is indeed positive and will develop further the more reforms are initiated by national governments. In addition, numerous African countries have strategies and initiatives in place for fostering domestic entrepreneurship, including Ghana and Zambia, and the following years will most likely see a positive trend as a result of these initiatives (AfDB et al., 2017). Taking all these reforms and initiatives into perspective, it is relevant to address whether they have an actual impact on business registrations, job creations and economic development. The AfDB has collected several studies that address the impact of programmes targeting entrepreneurship and they show very different results. Some studies show that they increase business registrations while others find the opposite effect. The same ambiguous effect goes for employment, while factors such as business knowledge, profits, savings and investments are all positively influenced by entrepreneurship programmes (AfDB et al., 2017). This suggests that reforms and programmes should be examined carefully and might not have the impact initially hoped for, however it also shows that some factors can be influenced positively, and governments should therefore continue in implementing strategies and initiatives for improving the entrepreneurial landscape.

### 7.5.2 Policy focus

The findings of this paper reveal that there are certain policy focuses that would benefit entrepreneurship in Africa. The following therefore suggests various topics that policymakers could focus on if attempting to provide better conditions for entrepreneurs. First of all, the analysis uncovered that the mere attendance to school is not enough to create absorptive capacity in the population but quality and access to education is more important. This means that policymakers should focus on making education accessible for all children as well as improving the quality of education with regards to several aspects, such as facilities and teacher abilities. This is rather important for stimulating the level of human capital to such a level that people can use their knowledge to identify and pursue entrepreneurial activities. Secondly, the innovative culture of a population is crucial when seeking to increase local entrepreneurship, as innovative mindsets can identify business opportunities much better than traditional ways of thinking. This implies that entrepreneurship and innovation should be taught in schools and presented as a good career choice. Thirdly, business environments and financial markets have proven to be of great importance when it comes to fostering entrepreneurship from FDI as they influence the ability of people to actually start businesses and manoeuvre through all the official processes related to it. For this reason, policymakers should initiate and implement reforms, strategies and programmes to improve conditions for entrepreneurs and thus foster a positive development in entrepreneurship. Lastly, it is highly important for policymakers to attempt at spreading growth throughout all sectors of the economy. Especially in countries that are resource-abundant, but also in general, it is difficult for potential entrepreneurs to navigate and pursue opportunities in economies that are heavily dominated by extractive activities. Therefore, it is crucial that policymakers focus on balancing investments and dispersing economic growth so that all sectors and industries are moving in the same direction, as for example seen in Zambia. This paper argues that if policymakers focus on these areas and attempt at implementing such proposed reforms, entrepreneurship will develop positively in the coming years and economic growth will spur from this development.

# 8 Conclusion

In recent years, several scholars and organisations have acknowledged entrepreneurship as having an increasingly important role in creating and fostering economic growth, especially in developing countries. Furthermore, foreign direct investments are a crucial part of most countries' economies and continue to be so. In the African continent, FDI and entrepreneurship are key players when it comes to fostering economic growth and prosperity for the population. However, the relationship between FDI and entrepreneurship is barely touched upon in existing literature and this paper therefore seeks to address the topic. In this quest, the thesis answers the following research question:

***How does FDI influence local entrepreneurship in African countries and how do country characteristics affect this relationship?***

In order to form theoretically based expectations for the analysis, the thesis provided a thorough literature review in a funnel formation by first addressing the relationship between domestic entrepreneurship and economic growth, then presenting the relationship between FDI and economic growth and lastly addressing the relationship between domestic entrepreneurship and FDI. The last part focused on the positive and negative spillovers that arise from FDI inflows and influence the entrepreneurial activities in a country. The positive spillovers are mechanisms such as diffusion of technology, human capital and managerial skills, knowledge and experience from working in MNEs used to start businesses within same industries, demonstration effects, increased demand for new final and intermediate inputs and increasing amounts of products driving down the input prices and entry barriers. These effects foster entrepreneurship in countries receiving FDI. There are, however, also negative spillovers from FDI inflows such as the crowding-out effect in the labour and product markets, MNEs offering higher wages and better employment conditions, which leaves entrepreneurs with the least qualified workers and MNEs creating job opportunities for well-educated people, decreasing incentives to start businesses.

Subsequent to presenting the various spillover effects, the literature review uncovered the different country characteristics that influence entrepreneurship in order to justify the inclusion of these variables in the econometric model. Based on this review, the paper formed the following expectations: First, the paper expected to find that FDI inflows influence domestic entrepreneurship significantly and positively on an aggregate level. Secondly, the impact of FDI was expected to differ between the 23 African countries, depending on their absorptive capacities. Lastly, the paper expected to find that various other societal factors influence domestic entrepreneurship and in turn,

the relationship between FDI and entrepreneurship. The following presents the key findings of the thesis.

The methodological position of this paper is a combination of positivism and critical realism, which means that there are two analyses, a quantitative and a qualitative. The quantitative analysis reveals both expected and surprising results. First of all, the aggregate regression shows that FDI influences domestic entrepreneurship positively and significantly on the 10 pct. level in the African region. When FDI increases by 1 pct., domestic entrepreneurship goes up by 0.0736 pct. This confirms the first expectation that FDI has a positive impact on entrepreneurship on an aggregate level in Africa. The rather small magnitude of the effect is seen from the perspective that various different impacts, both negative and positive, are expected to prevail across countries, which may balance each other out, leaving a relatively small overall positive effect. Secondly, the analysis reveals that only three countries experience a significant effect of FDI on entrepreneurship, namely Ghana, Mali and Zambia. The remaining 20 countries have insignificant coefficients, suggesting that these countries are not able to transform positive FDI inflows into positive entrepreneurship. However, this does not necessarily mean that the second expectation cannot be partly confirmed. Entrepreneurship is not affected by FDI in all countries but three countries reveal different effects and the expectation is therefore confirmed partly. Ghana experiences a negative effect of FDI where entrepreneurship goes down by 0.54 pct. when FDI increases with 1 pct. Mali and Zambia, on the other hand, experience positive effects of 0.26 pct. and 0.19 pct., respectively. The third expectation of this paper is also partly confirmed in the quantitative analysis. It is evident that the three countries have very different average values in human capital, innovation and financial market development, and this can somewhat explain the regression results. However, both Ghana and Mali's average values are not particularly aligned with theory and their respective impacts of FDI, whereas Zambia is a bit more aligned. This stresses the strength of the paper's decision to examine the countries on a qualitative level too.

The qualitative analysis reveals that there are various country characteristics that influence the ability of a country to transform increasing FDI inflows into increasing entrepreneurship. Ghana, Mali and Zambia have been evaluated within somewhat similar areas in order to determine, which characteristics drive the respective negative and positive effects. In Ghana, the negative effect is largely driven by three factors: resource-abundance, complex business environment and poor education system. Mali has the most positive effect of the three but the characteristics are by no means the most theoretically promising with regards to this result. The positive drivers in Mali are

the resource-scarcity, the willingness of the government to implement reforms and the poor employment conditions. However, there are also several characteristics that fit better with a negative impact such as poor education system and complicated business environment. Thus, Mali is not the most obvious country to have a positive effect from FDI, which raises the question of whether the entrepreneurial activities are mainly necessity-driven. Zambia also has a positive effect of FDI and the key drivers of this result are investment flows, willingness of government to implement reforms, an improved educational system and poor employment conditions. Thus, despite all three countries having opposing factors, it is evident that different characteristics drive the effects of FDI in each country, which aligns very well with the third expectation. These results suggest that there is indeed truth in the expectations and theoretical positions posed in this paper, however, it is highly important to study the complex matter from both a quantitative and qualitative perspective, as the underlying mechanisms can otherwise not be detected. To sum up and answer the research question, I) FDI has an overall positive effect on domestic entrepreneurship in the African region, represented by 23 African countries in this paper. On an individual country level, FDI has contradictory effects, meaning both negative and positive effects on entrepreneurship and in 20 out of 23 countries, no significant effect at all. II) The reason for these ambiguous results is credited to country characteristics such as investment flows, business environment and human capital. However, there is not a clear picture of exactly what direction different characteristics push the effect of FDI on entrepreneurship. The findings of this paper contribute to the existing literature with the combination of aggregate and single country results, showing a positive relationship between FDI and domestic entrepreneurship on the regional level and no clear picture at the country level. This stresses the arguments presented in the paper regarding the need to understand and study further the individual country characteristics on both a quantitative and qualitative level.

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# APPENDICES

# Table of Contents

# Appendix A: Variables overview

| VARIABLE | DEFINITION | SOURCE | LITERATURE | EXPECTED EFFECT ON NBD |
|---|---|---|---|---|
| NEW BUSINESS DENSITY | Annual number of newly registered local firms per 1,000 people in the population | World Bank and national statistics databases | Munemo (2017) | |
| FDI INFLOWS | M&A, greenfield and joint venture activities by foreign investors in host country defined as FDI inflows as a fraction of real GDP | United Nations Conference on Trade and Development (UNCTAD) World Investment Report (WIR) Series | Ndikumana & Verick (2008)<br>Apostolov (2017)<br>Danakol et al. (2017) | Positive (+) |
| REAL IMPORTS | Total real imports | World Bank | | |
| HUMAN CAPITAL | Average years of schooling | United Nations Development Program (UNDP) Human Development Reports | | Positive (+) |
| STARTUP COSTS | The cost of starting a business (% of income per capita) | Doing Business World Bank | Munemo (2017) | Negative (-) |
| INNOVATIVE CULTURE | Innovation score from 1 to 7 with 7 being the highest score | Global Competitiveness Index | Danakol et al. (2017)<br>Albulesco and Tamasila (2014) | Positive (+) |
| FOREIGN PRESENCE | Annual change in FDI stock level (% of real GDP) | UNCTAD<br>World Bank | De Backer and Sleuwaegen (2003)<br>Aayagari and Kosova (2010)<br>Albulesco and Tamasila (2014) | Positive (+) |
| REAL GDP | Real GDP per capita growth | World Bank | Albulesco and Tamasila (2014)<br>Apostolov (2017)<br>Munemo (2017) | Positive (+) |
| UNEMPLOYMENT | The fraction of the population in the labour force (age 15 and older) currently unemployed | World Bank | | Positive (+) |
| CORRUPTION | Corruption Perceptions Index (CPI) from 0-100 where 100 is least corrupt | Transparency International | Danakol et al. (2017) | Positive (+) |
| FINANCIAL MARKET DEVELOPMENT | Domestic credit provided by financial sector to private sector (% of GDP) | World Bank | Apostolov (2017)<br>Munemo (2017) | Positive (+) |

# Appendix B: Variables in the literature

| AUTHOR | MODEL TYPE | DATASET | ENTREPRENEURSHIP | FDI | VARIABLES | OTHER |
|---|---|---|---|---|---|---|
| **DANAKOL ET AL. (2017)** | 2SLS and OLS | Cross-industry, cross-country panel dataset 2000-2009 | Nascent entrepreneurship rate<br>New business ownership rate<br>Total entrepreneurial activity rate (TEA) | Annual cross-border M&A inflow at the target or host country level | GDP per capita<br>Institutional quality<br>Corruption<br>Entrepreneurial culture<br>FDI distance | All variables are lagged one period |
| **AYYAGARI & KOSOVA (2010)** | Fixed-Effects Regression | Firm-level panel data 1994-2000 | Fraction of new domestic firms in industry I in time T to total number of firms in industry I in time T-1 | Foreign market share: share of industry sales captured by foreign firms in industry I at time T | Industry size<br>Backward and Forward contracting linkages<br>Foreign firms<br>Domestic firms<br>Industry dummy<br>Region dummy<br>Time trend | |
| **GORG & STROBL (2002)** | Fixed-Effects Regression | Micro-panel data 1974-1995 (plant-level) | Rate of indigenous firm entry,<br>Net entry rate,<br>Gross entry rate | Presence of foreign multinational companies | Employment growth rate of industry<br>Average plant size Size of industry<br>Average age of existing plants<br>Time dummy | |
| **NDIKUMANA & VERICK (2008)** | OLS and Fixed-Effects Regression | Country-level panel data 1970-2005 | Domestic investment: Private investment/ GDP | FDI/GDP: Net inflow of FDI over GDP | GDP growth<br>Openness<br>Infrastructure<br>Log of stock of FDI inflows (t-1)<br>Public investment<br>Natural resources<br>Quality of polity | |
| **DE BACKER & SLEUWAEGEN (2003)** | OLS | Industry-level panel data on manufacturing industries 1990-1995 | Domestic entry rate | | Price-cost-margins<br>Domestic growth of sales<br>Import growth<br>Physical capital intensity<br>Scale intensity of industry<br>Domestic entry<br>Domestic exit<br>Foreign entry<br>Foreign exit<br>Foreign presence Year dummy | |
| **MUNEMO (2017)** | Fixed-effects regression | Unbalanced country-level panel data 2004-2012 | Business start-up density (Doing Business definition) | Total net inflows of investment to acquire 10% or more of firm in the host nation | Financial market development<br>Number of start-up procedures<br>Time to start a business<br>Cost start-up<br>Real GDP per capita growth<br>FDI X financial market development | |
| **ALBULESCO & TAMASILA (2014)** | Fixed and random effects models | Country-level panel data 2005-2011 | Total entrepreneurial activity (TEA),<br>Necessity-driven entrepreneurs,<br>Opportunity-driven entrepreneurs | Inwards FDI: stock volume in natural log | Outwards FDI<br>GDP growth rate<br>GDP per capita<br>Fear of failure<br>Entrepreneurial intentions | |
| **APOSTOLOV (2017)** | Tobit model | Firm-level panel data in manufacturing and service industries 2002-2013 | Proportion of firms with legal status of privately held limited liability | FDI/real GDP | Access to finance<br>Business licensing and permits indicator<br>GDP per capita growth<br>Levels of income | |
| **ACS ET AL. (2007)** | Equation reflecting entrepreneurial choice | Comparison of survey panel data from Ireland and Wales 2003-2006 | Probability of becoming an entrepreneur | Inward FDI | Financing constraints<br>Risk aversion<br>Legal restrictions<br>Bureaucratic restrictions<br>Red tape restrictions<br>Labor market rigidities<br>Lack of social acceptance<br>Profits from entrepreneurship<br>Wage earned if other employment<br>R&D levels<br>Industry | |

# Appendix C: NBD sources

| COUNTRY | SOURCE |
|---|---|
| Algeria | National Center of the Commerce Register (CNRC) |
| Burkina Faso | World Bank and Institut National de la Statistique et de la Démographie |
| Burundi | Institut de Statistiques et D'etudes Economiques du Burundi (ISTEEBU) |
| Cameroon | Institut National de la Statistique (INS) |
| Cape Verde | Instituto Nacional de Estatística |
| Congo | Centre National de la Statistique et des Etudes Economiques (CNSEE) |
| Egypt | World Bank and the Egyptian Center for Economic Studies (ECES) |
| Ethiopia | World Bank |
| Ghana | World Bank |
| Kenya | Kenya National Bureau of Statistics (KNBS) |
| Lesotho | World Bank |
| Liberia | Minister of Commerce and Industry (MOCI) |
| Madagascar | Institut National de la Statistique (INSTAT) |
| Mali | Institut Nantional de la Statistique (INSTAT) |
| Morocco | World Bank |
| Namibia | World Bank |
| Nigeria | World Bank |
| Rwanda | World Bank |
| Senegal | World Bank |
| Sierra Leone | World Bank |
| Tanzania | National Bureau of Statistics (NBS) |
| Uganda | Uganda Registration Services Bureau (URSB) |
| Zambia | World Bank |

# Appendix D: Pooled OLS and Random Effects

## Pooled OLS estimation results:

Linear regression

| | | | | | |
|---|---|---|---|---|---|
| Number of obs | = | 299 | | | |
| F(9, 289) | = | 38.30 | | | |
| Prob > F | = | 0.0000 | | | |
| R-squared | = | 0.4910 | | | |
| Root MSE | = | .80095 | | | |

| lnNBD | Coef. | Robust Std. Err. | t | P>\|t\| | [95% Conf. | Interval] |
|---|---|---|---|---|---|---|
| lnRealFDI | .1406422 | .0410209 | 3.43 | 0.001 | .0599047 | .2213798 |
| humancapital | .2774649 | .0332683 | 8.34 | 0.000 | .211986 | .3429438 |
| foreign | .0294043 | .1094842 | 0.27 | 0.788 | -.1860832 | .2448917 |
| innovation | .4219064 | .1051619 | 4.01 | 0.000 | .2149262 | .6288866 |
| startupcosts | -.0011802 | .0002367 | -4.99 | 0.000 | -.0016461 | -.0007143 |
| realGDP | -.248995 | .2587773 | -0.96 | 0.337 | -.7583223 | .2603322 |
| unemployment | 1.228195 | .5524725 | 2.22 | 0.027 | .1408146 | 2.315575 |
| corruption | .0263982 | .0067519 | 3.91 | 0.000 | .0131092 | .0396873 |
| finmarkdev | -.0323264 | .4574032 | -0.07 | 0.944 | -.9325904 | .8679376 |
| _cons | -4.256136 | .5611522 | -7.58 | 0.000 | -5.3606 | -3.151673 |

## Random Effects estimation results:

Random-effects GLS regression — Number of obs = 299
Group variable: countryID — Number of groups = 23

R-sq:
within = 0.4609
between = 0.4300
overall = 0.4298

Obs per group:
min = 13
avg = 13.0
max = 13

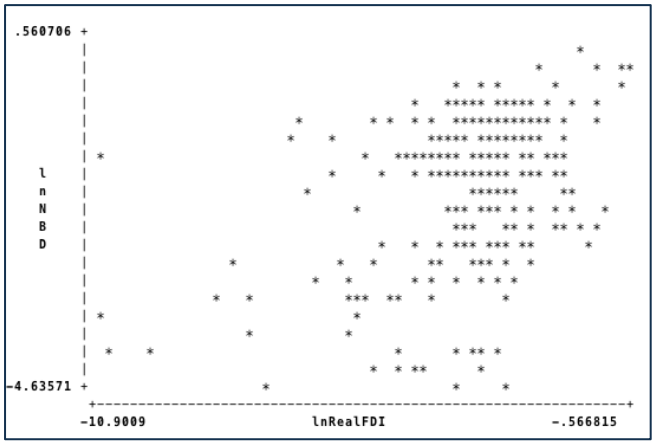
Wald chi2(9) = 55.31
corr(u_i, X) = 0 (assumed) — Prob > chi2 = 0.0000

(Std. Err. adjusted for 23 clusters in countryID)

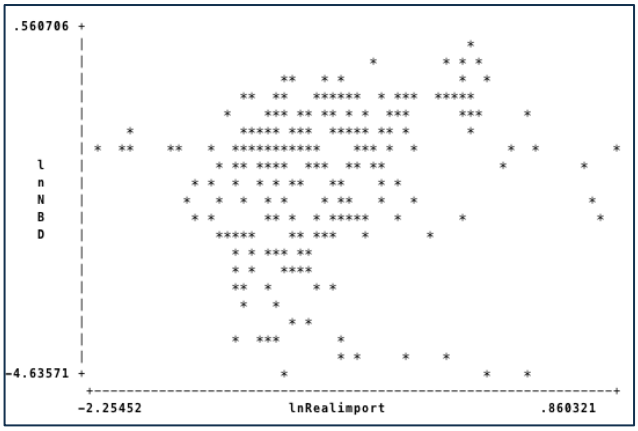
| lnNBD | Coef. | Robust Std. Err. | z | P>\|z\| | [95% Conf. | Interval] |
|---|---|---|---|---|---|---|
| lnRealFDI | .0760306 | .0388292 | 1.96 | 0.050 | -.0000733 | .1521344 |
| humancapital | .4129003 | .1010257 | 4.09 | 0.000 | .2148936 | .610907 |
| foreign | -.0040053 | .0209286 | -0.19 | 0.848 | -.0450246 | .0370139 |
| innovation | -.0866479 | .1850871 | -0.47 | 0.640 | -.4494119 | .2761162 |
| startupcosts | -.0004687 | .0003995 | -1.17 | 0.241 | -.0012516 | .0003143 |
| realGDP | .1722326 | .1235658 | 1.39 | 0.163 | -.0699519 | .4144171 |
| unemployment | 1.438634 | 2.124354 | 0.68 | 0.498 | -2.725023 | 5.602291 |
| corruption | .0361335 | .0155397 | 2.33 | 0.020 | .0056763 | .0665907 |
| finmarkdev | .1372598 | .9356791 | 0.15 | 0.883 | -1.696638 | 1.971157 |
| _cons | -4.055703 | .9285419 | -4.37 | 0.000 | -5.875611 | -2.235794 |
| sigma_u | .77287849 | | | | | |
| sigma_e | .35889022 | | | | | |
| rho | .82262153 | (fraction of variance due to u_i) | | | | |

# Appendix E: Scatterplots

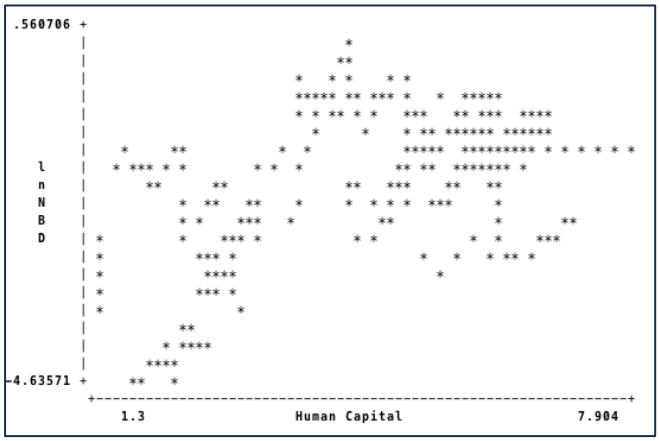
## NBD and Real FDI



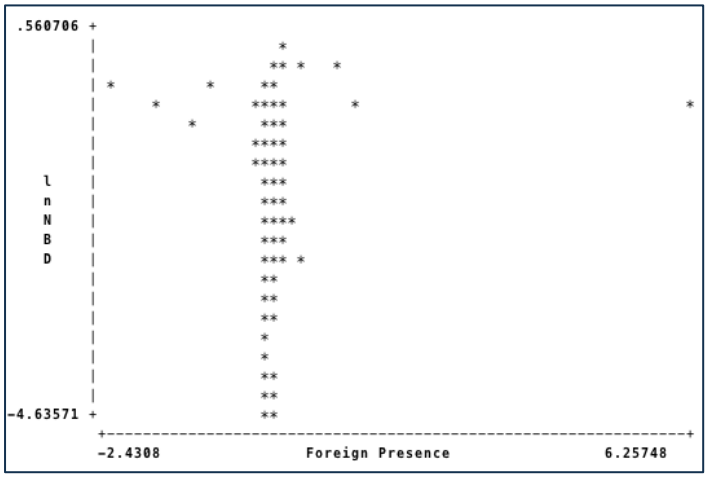

## NBD and Real import



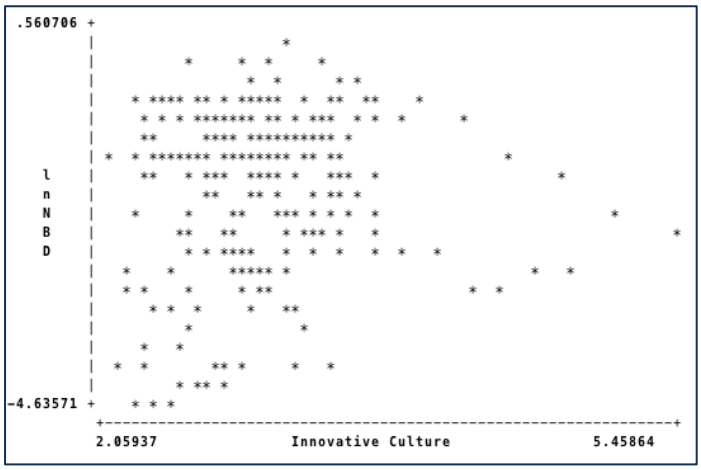

## NBD and human capital



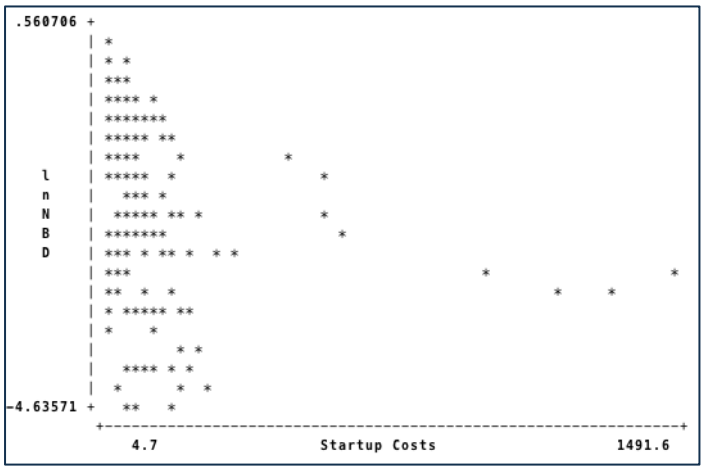
## NBD and foreign presence



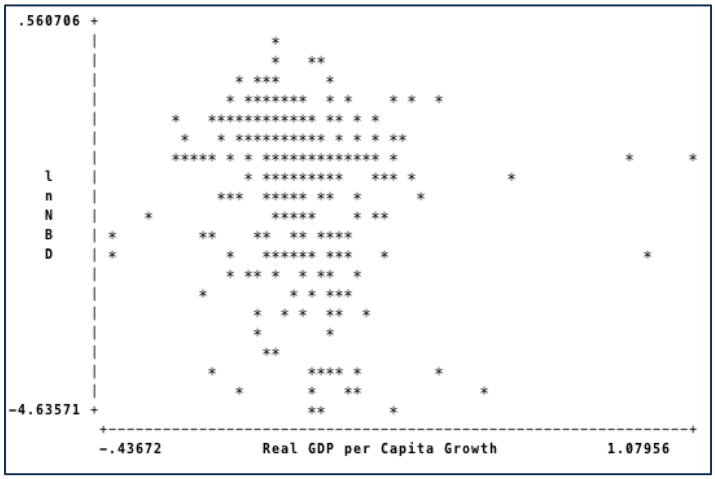

## NBD and innovative culture



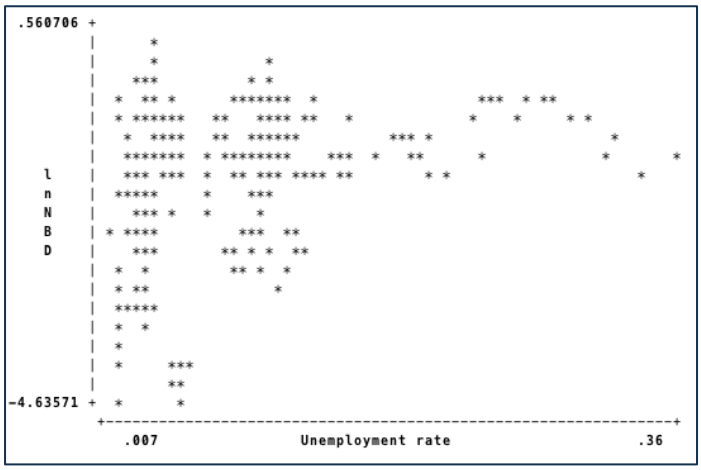

## NBD and startup costs



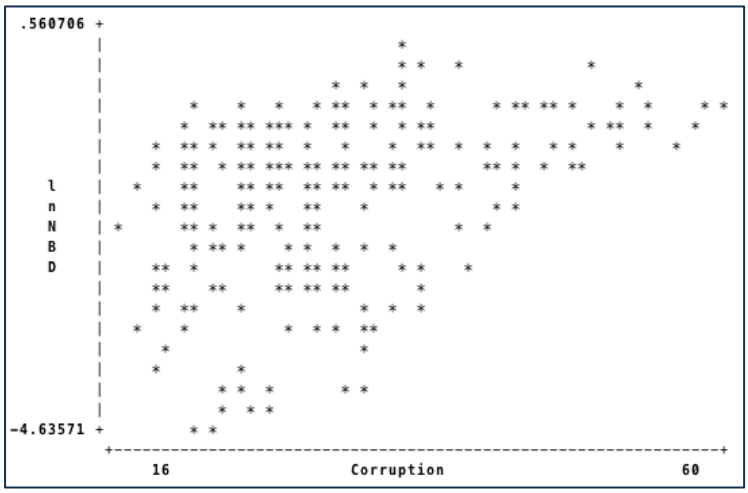
## NBD and Real GDP



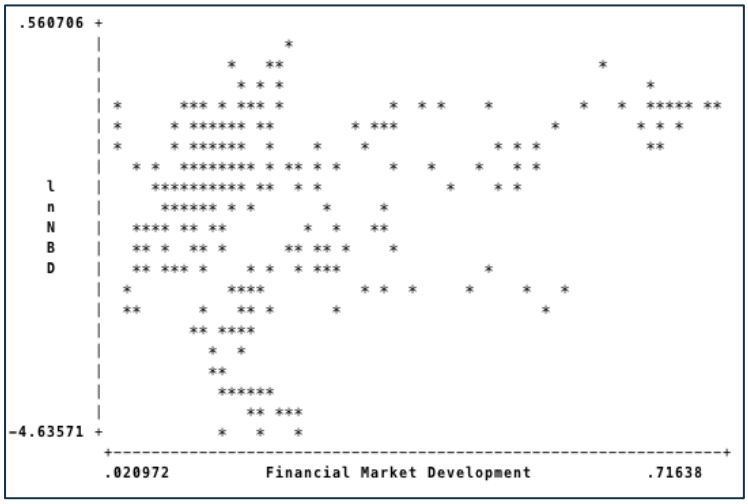

## NBD and unemployment




## NBD and corruption



# NBD and financial market development



# Appendix F: Other IVs

## FDI distance

First-stage within regression

Fixed-effects (within) regression — Number of obs = 273
Group variable: countryID — Number of groups = 21

R-sq:
within = 0.0604
between = 0.0035
overall = 0.0105

Obs per group:
min = 13
avg = 13.0
max = 13

F(9,20) = 4.22
corr(u_i, Xb) = -0.2722 — Prob > F = 0.0035

(Std. Err. adjusted for 21 clusters in countryID)

| lnRealFDI | Coef. | Robust Std. Err. | t | P>\|t\| | [95% Conf. | Interval] |
|---|---|---|---|---|---|---|
| humancapital | -.1492765 | .2574717 | -0.58 | 0.569 | -.6863529 | .3878 |
| foreign | .0058749 | .0728816 | 0.08 | 0.937 | -.1461535 | .1579032 |
| innovation | .1965717 | .2221594 | 0.88 | 0.387 | -.2668447 | .6599881 |
| startupcosts | -.0012086 | .0005881 | -2.06 | 0.053 | -.0024353 | .0000181 |
| realGDP | .0149715 | .2422153 | 0.06 | 0.951 | -.4902807 | .5202238 |
| unemployment | 1.12777 | 4.144875 | 0.27 | 0.788 | -7.518287 | 9.773828 |
| corruption | .0093999 | .0181875 | 0.52 | 0.611 | -.0285385 | .0473383 |
| finmarkdev | 2.332476 | 1.154825 | 2.02 | 0.057 | -.0764471 | 4.741399 |
| lnFDIdist | .3004429 | .2601028 | 1.16 | 0.262 | -.242122 | .8430077 |
| _cons | -6.903444 | 3.210573 | -2.15 | 0.044 | -13.60058 | -.2063059 |
| sigma_u | 1.3595317 | | | | | |
| sigma_e | .90011988 | | | | | |
| rho | .69524057 | (fraction of variance due to u_i) | | | | |

Fixed-effects (within) IV regression — Number of obs = 273
Group variable: countryID — Number of groups = 21

R-sq:
within = 0.3733
between = 0.3766
overall = 0.3734

Obs per group:
min = 13
avg = 13.0
max = 13

Wald chi2(9) = 6595.93
corr(u_i, Xb) = -0.3936 — Prob > chi2 = 0.0000

(Std. Err. adjusted for 21 clusters in countryID)

| lnNBD | Coef. | Robust Std. Err. | z | P>\|z\| | [95% Conf. | Interval] |
|---|---|---|---|---|---|---|
| lnRealFDI | .142073 | .2363982 | 0.60 | 0.548 | -.3212589 | .6054049 |
| humancapital | .4819902 | .1363607 | 3.53 | 0.000 | .2147282 | .7492522 |
| foreign | .0006864 | .0252258 | 0.03 | 0.978 | -.0487552 | .0501281 |
| innovation | -.3658471 | .1892939 | -1.93 | 0.053 | -.7368563 | .0051621 |
| startupcosts | -.0000163 | .0003997 | -0.04 | 0.967 | -.0007997 | .000767 |
| realGDP | .1207694 | .1071762 | 1.13 | 0.260 | -.089292 | .3308308 |
| unemployment | 2.399659 | 3.639615 | 0.66 | 0.510 | -4.733854 | 9.533173 |
| corruption | .0146084 | .0132023 | 1.11 | 0.269 | -.0112676 | .0404844 |
| finmarkdev | .2242284 | 1.036736 | 0.22 | 0.829 | -1.807736 | 2.256193 |
| _cons | -2.771649 | 1.247415 | -2.22 | 0.026 | -5.216537 | -.3267612 |
| sigma_u | .90934442 | | | | | |
| sigma_e | .33775741 | | | | | |
| rho | .87876557 | (fraction of variance due to u_i) | | | | |

Instrumented: lnRealFDI
Instruments: humancapital foreign innovation startupcosts realGDP unemployment corruption finmarkdev lnFDIdist

# FDI stock

First-stage within regression

Fixed-effects (within) regression — Number of obs = 299
Group variable: countryID — Number of groups = 23

R-sq:
within = 0.1423
between = 0.4499
overall = 0.3428

Obs per group:
min = 13
avg = 13.0
max = 13

F(9,22) = 8.63
corr(u_i, Xb) = 0.1904 — Prob > F = 0.0000

(Std. Err. adjusted for 23 clusters in countryID)

| lnRealFDI | Coef. | Robust Std. Err. | t | P>\|t\| | [95% Conf. | Interval] |
|---|---|---|---|---|---|---|
| humancapital | -.2018454 | .2771907 | -0.73 | 0.474 | -.7767038 | .373013 |
| foreign | -.1082912 | .0381946 | -2.84 | 0.010 | -.187502 | -.0290804 |
| innovation | .1996743 | .1891536 | 1.06 | 0.303 | -.1926062 | .5919549 |
| startupcosts | -.0011104 | .0005339 | -2.08 | 0.049 | -.0022175 | -3.18e-06 |
| realGDP | .2908093 | .1957611 | 1.49 | 0.152 | -.1151744 | .6967931 |
| unemployment | -.9612897 | 3.072138 | -0.31 | 0.757 | -7.332514 | 5.409935 |
| corruption | .0176479 | .0141634 | 1.25 | 0.226 | -.0117252 | .047021 |
| finmarkdev | 1.153231 | 1.197705 | 0.96 | 0.346 | -1.330656 | 3.637119 |
| lnFDIstock | .4828417 | .1399557 | 3.45 | 0.002 | .1925914 | .7730919 |
| _cons | -3.248292 | 1.546549 | -2.10 | 0.047 | -6.455638 | -.0409449 |
| sigma_u | .94396255 | | | | | |
| sigma_e | .8465215 | | | | | |
| rho | .55426092 | (fraction of variance due to u_i) | | | | |

Fixed-effects (within) IV regression — Number of obs = 299
Group variable: countryID — Number of groups = 23

R-sq:
within = 0.4621
between = 0.4255
overall = 0.4214

Obs per group:
min = 13
avg = 13.0
max = 13

Wald chi2(9) = 1973.42
corr(u_i, Xb) = -0.4533 — Prob > chi2 = 0.0000

(Std. Err. adjusted for 23 clusters in countryID)

| lnNBD | Coef. | Robust Std. Err. | z | P>\|z\| | [95% Conf. | Interval] |
|---|---|---|---|---|---|---|
| lnRealFDI | .0961391 | .2086171 | 0.46 | 0.645 | -.3127429 | .5050211 |
| humancapital | .5045389 | .1386105 | 3.64 | 0.000 | .2328673 | .7762106 |
| foreign | -.0033127 | .0223845 | -0.15 | 0.882 | -.0471855 | .04056 |
| innovation | -.1207983 | .1707087 | -0.71 | 0.479 | -.4553812 | .2137846 |
| startupcosts | -.0003626 | .0004142 | -0.88 | 0.381 | -.0011743 | .0004492 |
| realGDP | .207559 | .1314983 | 1.58 | 0.114 | -.0501729 | .465291 |
| unemployment | 2.446345 | 2.857954 | 0.86 | 0.392 | -3.155141 | 8.047832 |
| corruption | .0341846 | .0161776 | 2.11 | 0.035 | .0024771 | .0658921 |
| finmarkdev | .1517028 | 1.050583 | 0.14 | 0.885 | -1.907402 | 2.210808 |
| _cons | -4.349348 | 1.322092 | -3.29 | 0.001 | -6.9406 | -1.758096 |
| sigma_u | .88145471 | | | | | |
| sigma_e | .35943142 | | | | | |
| rho | .85742927 | (fraction of variance due to u_i) | | | | |

Instrumented: lnRealFDI
Instruments: humancapital foreign innovation startupcosts realGDP unemployment corruption finmarkdev lnFDIstock

# Exchange rate volatility

First-stage within regression

Fixed-effects (within) regression — Number of obs = 299
Group variable: countryID — Number of groups = 23

R-sq:
within = 0.0809
between = 0.0139
overall = 0.0255

Obs per group:
min = 13
avg = 13.0
max = 13

F(9,22) = 4.69
corr(u_i, Xb) = -0.2476 — Prob > F = 0.0015

(Std. Err. adjusted for 23 clusters in countryID)

| lnRealFDI | Coef. | Robust Std. Err. | t | P>\|t\| | [95% Conf. | Interval] |
|---|---|---|---|---|---|---|
| humancapital | -.0776259 | .26407 | -0.29 | 0.772 | -.6252735 | .4700217 |
| foreign | -.0236985 | .0567347 | -0.42 | 0.680 | -.1413591 | .0939622 |
| innovation | .3451467 | .2196456 | 1.57 | 0.130 | -.1103703 | .8006638 |
| startupcosts | -.0014071 | .0006421 | -2.19 | 0.039 | -.0027387 | -.0000756 |
| realGDP | .104432 | .2516566 | 0.41 | 0.682 | -.4174718 | .6263358 |
| unemployment | .0237027 | 3.38527 | 0.01 | 0.994 | -6.996918 | 7.044323 |
| corruption | .0155486 | .014045 | 1.11 | 0.280 | -.0135789 | .0446761 |
| finmarkdev | 2.316286 | 1.231883 | 1.88 | 0.073 | -.2384833 | 4.871056 |
| lneVol | .0053241 | .0254045 | 0.21 | 0.836 | -.0473615 | .0580098 |
| _cons | -5.144532 | 1.478582 | -3.48 | 0.002 | -8.210924 | -2.07814 |
| sigma_u | 1.2844786 | | | | | |
| sigma_e | .87628979 | | | | | |
| rho | .68239986 | (fraction of variance due to u_i) | | | | |

Fixed-effects (within) IV regression — Number of obs = 299
Group variable: countryID — Number of groups = 23

R-sq:
within = .
between = 0.1767
overall = 0.1640

Obs per group:
min = 13
avg = 13.0
max = 13

Wald chi2(9) = 1.57e+09
corr(u_i, Xb) = -0.5089 — Prob > chi2 = 0.0000

(Std. Err. adjusted for 23 clusters in countryID)

| lnNBD | Coef. | Robust Std. Err. | z | P>\|z\| | [95% Conf. | Interval] |
|---|---|---|---|---|---|---|
| lnRealFDI | -.4392216 | 2.918452 | -0.15 | 0.880 | -6.159282 | 5.280838 |
| humancapital | .4614417 | .3220565 | 1.43 | 0.152 | -.1697775 | 1.092661 |
| foreign | -.0155961 | .0763775 | -0.20 | 0.838 | -.1652933 | .1341011 |
| innovation | .0628274 | .997292 | 0.06 | 0.950 | -1.891829 | 2.017484 |
| startupcosts | -.0011148 | .004051 | -0.28 | 0.783 | -.0090547 | .0068251 |
| realGDP | .2621706 | .3249321 | 0.81 | 0.420 | -.3746845 | .8990258 |
| unemployment | 2.446973 | 3.254902 | 0.75 | 0.452 | -3.932518 | 8.826465 |
| corruption | .0425236 | .0514696 | 0.83 | 0.409 | -.0583549 | .1434021 |
| finmarkdev | 1.392353 | 6.91763 | 0.20 | 0.840 | -12.16595 | 14.95066 |
| _cons | -7.101788 | 15.17544 | -0.47 | 0.640 | -36.8451 | 22.64152 |
| sigma_u | 1.1221373 | | | | | |
| sigma_e | .57514224 | | | | | |
| rho | .79195433 | (fraction of variance due to u_i) | | | | |

Instrumented: lnRealFDI
Instruments: humancapital foreign innovation startupcosts realGDP unemployment corruption finmarkdev lneVol

# First lag of Real FDI inflows

First-stage within regression

Fixed-effects (within) regression — Number of obs = 299
Group variable: countryID — Number of groups = 23

R-sq:
within = 0.1156
between = 0.2510
overall = 0.2047

Obs per group:
min = 13
avg = 13.0
max = 13

F(9,22) = 8.38
corr(u_i, Xb) = 0.0743 — Prob > F = 0.0000

(Std. Err. adjusted for 23 clusters in countryID)

| lnRealFDI | Coef. | Robust Std. Err. | t | P>\|t\| | [95% Conf. | Interval] |
|---|---|---|---|---|---|---|
| humancapital | -.1228512 | .2362639 | -0.52 | 0.608 | -.6128326 | .3671302 |
| foreign | -.0279068 | .0509927 | -0.55 | 0.590 | -.1336591 | .0778456 |
| innovation | .2413605 | .1949913 | 1.24 | 0.229 | -.1630268 | .6457478 |
| startupcosts | -.0010142 | .0005479 | -1.85 | 0.078 | -.0021504 | .000122 |
| realGDP | .0531689 | .2353904 | 0.23 | 0.823 | -.4350009 | .5413386 |
| unemployment | .3866809 | 2.868722 | 0.13 | 0.894 | -5.562684 | 6.336045 |
| corruption | .0152988 | .0100081 | 1.53 | 0.141 | -.0054568 | .0360545 |
| finmarkdev | 1.954504 | 1.100936 | 1.78 | 0.090 | -.328697 | 4.237705 |
| lnLagRFDI | .1900958 | .1297295 | 1.47 | 0.157 | -.0789468 | .4591384 |
| _cons | -3.919273 | 1.810041 | -2.17 | 0.041 | -7.673069 | -.1654772 |
| sigma_u | 1.0796286 | | | | | |
| sigma_e | .85959825 | | | | | |
| rho | .61202081 | (fraction of variance due to u_i) | | | | |

Fixed-effects (within) IV regression — Number of obs = 299
Group variable: countryID — Number of groups = 23

R-sq:
within = 0.3288
between = 0.4498
overall = 0.4342

Obs per group:
min = 13
avg = 13.0
max = 13

Wald chi2(9) = 6262.63
corr(u_i, Xb) = -0.5235 — Prob > chi2 = 0.0000

(Std. Err. adjusted for 23 clusters in countryID)

| lnNBD | Coef. | Robust Std. Err. | z | P>\|z\| | [95% Conf. | Interval] |
|---|---|---|---|---|---|---|
| lnRealFDI | .2790541 | .1787902 | 1.56 | 0.119 | -.0713683 | .6294765 |
| humancapital | .5192638 | .1258991 | 4.12 | 0.000 | .2725061 | .7660215 |
| foreign | .0008841 | .0279257 | 0.03 | 0.975 | -.0538493 | .0556175 |
| innovation | -.1835371 | .186358 | -0.98 | 0.325 | -.5487921 | .1817179 |
| startupcosts | -.0001056 | .0002768 | -0.38 | 0.703 | -.0006481 | .0004369 |
| realGDP | .1889001 | .1482309 | 1.27 | 0.203 | -.1016271 | .4794273 |
| unemployment | 2.446131 | 2.978934 | 0.82 | 0.412 | -3.392472 | 8.284734 |
| corruption | .0313355 | .0161767 | 1.94 | 0.053 | -.0003703 | .0630413 |
| finmarkdev | -.2721862 | 1.042674 | -0.26 | 0.794 | -2.315789 | 1.771417 |
| _cons | -3.40893 | 1.342531 | -2.54 | 0.011 | -6.040242 | -.7776187 |
| sigma_u | .9109461 | | | | | |
| sigma_e | .40150365 | | | | | |
| rho | .83733539 | (fraction of variance due to u_i) | | | | |

Instrumented: lnRealFDI
Instruments: humancapital foreign innovation startupcosts realGDP unemployment corruption finmarkdev lnLagRFDI

# Appendix G: Alternative specifications

| P-values | | | |
|---|---|---|---|
| Country | Log | Without foreign | 5 controls |
| Algeria | 0.120 | 0.205 | 0.933 |
| Burkina Faso | 0.550 | 0.025 | 0.024 |
| Burundi | 0.572 | 0.319 | 0.336 |
| Cameroon | 0.795 | 0.344 | 0.750 |
| Cape Verde | 0.960 | 0.448 | 0.529 |
| Congo | 0.955 | 0.120 | 0.046 |
| Egypt | 0.292 | 0.467 | 0.389 |
| Ethiopia | 0.964 | 0.974 | 0.606 |
| Ghana | 0.924 | 0.000 | 0.001 |
| Kenya | 0.829 | 0.656 | 0.296 |
| Lesotho | 0.345 | 0.564 | 0.872 |
| Liberia | 0.361 | 0.385 | 0.414 |
| Madagascar | 0.876 | 0.927 | 0.895 |
| Mali | 0.009 | 0.134 | 0.062 |
| Morocco | 0.641 | 0.568 | 0.588 |
| Namibia | 0.793 | 0.524 | 0.818 |
| Nigeria | 0.772 | 0.866 | 0.486 |
| Rwanda | 0.960 | 0.356 | 0.133 |
| Senegal | 0.242 | 0.123 | 0.421 |
| Sierra Leone | 0.870 | 0.710 | 0.656 |
| Tanzania | 0.316 | 0.705 | 0.053 |
| Uganda | 0.598 | 0.811 | 0.844 |
| Zambia | 0.086 | 0.170 | 0.098 |