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SCHOOL OF
ECONOMICS &
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**MESTRADO EM
DESENVOLVIMENTO E COOPERAÇÃO
INTERNACIONAL**

**TRABALHO FINAL DE MESTRADO
DISSERTAÇÃO**

**THE IMPACT OF CHINESE FOREIGN INVESTMENT
ON INDUSTRIALIZATION OF ANGOLA**

BIN WANG

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Abstract

The Foreign Direct Investment (FDI) is indispensable tool for a country's rapid economic growth. There are many successful instances of industrialization based on FDI across the globe. However, the role of FDI in economic growth is complex and some think that it is beneficial for domestic economic growth, while some hold a more conservative attitude. Angola's FDI has increased quickly in the past years, FDI plays an important role in Angola's industrialization. In addition, China as one of the largest sources of FDI internationally, has a critical role to play in Angola's development. What is the real function of Chinese investment in Angolan industrialization? This paper would trace the main role of Chinese investment in Angola's industrialization from six dimensions: 1.The transfer of new technologies and know-how, 2.The development of human resources, 3.Integration into the global economy, 4.Increased competition in the host country, 5.The development and restructuring of firms, 6.An increase in capital for investment.

Keywords: Foreign Direct Investment, China, Angola, Industrialization

Resumo

O Investimento Estrangeiro Direto (IED) é uma ferramenta indispensável para o rápido crescimento económico de um país. Há muitos casos bem-sucedidos de industrialização baseados em IED em todo o mundo. No entanto, o papel do IED no crescimento económico é complexo e alguns acham que é benéfico para o crescimento económico doméstico, enquanto alguns têm uma atitude mais conservadora. O IED de Angola aumentou rapidamente nos últimos anos, o IED desempenha um papel importante na industrialização de Angola. Além disso, a China, como uma das maiores fontes de IED a nível internacional, tem um papel fundamental a desempenhar no desenvolvimento de Angola. Qual é a função verdadeira do investimento chinês na industrialização angolana? Esta dissertação traçaria o papel principal do investimento chinês na industrialização de Angola a partir de seis dimensões: 1. A transferência de novas tecnologias e know-how, 2. O desenvolvimento de recursos humanos, 3. Integração na economia global, 4. Aumento da concorrência no país de acolhimento, 5. O desenvolvimento e reestruturação de empresas, 6. Um aumento no capital para investimento.

Palavras-chave: Investimento Estrangeiro Direto, China, Angola, Industrialização

1. Introduction

1.1 Research importance

Sub-Saharan countries in Africa are the least developed regions in the world, where, in 2016, per capita income was only 1148 USD (World Bank). Dr Albert Zeufack, the World Bank's chief economist in Africa, pointed out that the most critical issue faced by Sub-Saharan countries was how to achieve industrialization and economic transformation (Zeufack, 2001). According to the definition given by Murphy et al. (1989), industrialization refers to the process during which an economy is transformed from agriculture-centred to manufacturing-centred. One of these Sub-Saharan countries, Angola, is more specific. After the Civil War, Angola has experienced a period of rapid growth. In 2016, the national income per capita in Angola was 1,777 USD, which is superior to the regional average. However, Angola's economic development depends highly on its natural resources, especially oil. As the second largest oil producing country in Sub-Saharan Africa, Angola currently yields about 1.55 million barrels of oil per day; the main source of its economic development (Export.gov, 2018). According to Mohammed (2018), oil production in Angola has been directly connected with the development of this country's economic growth after its Civil War. When the global oil price increases, the value of its oil production increases, and, accordingly, the growth rate increases.

Conversely, when the global oil price decreases, the country's economic growth also decreases (Mohammed, 2018). Due to the fluctuation of the oil price, Angola has been stuck in a "natural resource curse", in which the country's sole dependence on the natural resource has resulted in the loss of economic development potential. Thus, industrialization is both necessary and urgent for improving the economic model in Angola. Further, industrialization is also important to solve some problems existing within the development of Angola's

economy, for example, the unemployment rate. Due to the lack a mature industrial system, Angola cannot provide enough jobs for its labor force, and not all youths intend to take agricultural jobs, increasing income inequality (Muzima & Mazivila, 2014). industrialization can reduce the unemployment rate because it may create more jobs for local labor. As follows, income inequality will be reduced when local industries are developed.

Foreign Direct Investment (FDI) plays an important role in the process of industrialization. Pérez Niño and Le Billon (2014) point out that FDI is the primary stimulus motivating domestic industrial development. According to the World Bank's statistics, Angola maintained a high unemployment rate before 2006, which was over 23%. However, due to China's economic assistance, its unemployment rate has declined in recent years, steady at about 8% (The Global Economy, 2018). In Angola, the investment from China ranks at the top of the country's FDI, which has covered nearly all areas of Angola's industrial development (Ovadia, 2013). Chinese investment in Angola exceeded 1.64 billion USD in 2016 and China is expected to increase its investment in Angola over the following five years (Song, 2018). Some researchers have investigated Chinese investment in Angola's industrialization in recent years. On the one hand, increasing Chinese investment in Angola has increased the demand for manufacturing materials, encouraging Angola to develop its manufacturing industry, instead of solely depending on the exportation of oil (Wolf, 2017). Furthermore, Chinese firms have opened factories in Angola, hiring local labor to provide more job opportunities for local workers (Wolf, 2016). On the other hand, Chinese investment helps Angola transform its agricultural industry, enabling domestic agricultural firms to export their agricultural products to foreign markets (Parker, & Fourie, 2018). Overall, although there are several studies that reveal that Chinese investment plays an important role in Angola's industrialization, there is no systematic research on how Chinese

investment develops Angola's industrialization and improves Angola's industrialization processes.

1.2 Research Questions

This research investigates two main questions about Chinese investment related to Angola's industrialization, including "What is the real function of Chinese investment in Angolan industrialization?" and "How can Chinese investment better contribute to Angola's industrialization?" Through this investigation, we can form a deeper understanding of Chinese investment in Angola, and come to know the primary role of Chinese investment in Angola's industrialization. Furthermore, we can better identify the position of China in Angola's industrialization. In addition, through this investigation, I attempt to establish the potential development model of Angola's industrialization and predict future trends in Angola's economic development.

2. Literature Review

2.1 FDI and economic growth

The role of FDI in economic growth is complex and some think that it is beneficial for domestic economic growth, while some hold a more conservative attitude. Bermejo, Carbonell, and Werner find that most scholars hold a positive attitude to the functions of FDI in domestic economic. However, they only researched the influence of FDI in a single country, Spain, finding that there is no clear evidence to show that FDI motivates domestic economic growth. So, they conclude that further research should be done to identify the relationship between FDI and economic growth (Bermejo, Carbonell, & Werner, 2018). There are many other scholars who also propose some interesting ideas on the effects of FDI in economic growth. Borensztein, De Gregorio, and Lee (1998) find that FDI is useful for stimulating domestic investment, but point out that FDI cannot directly stimulate the growth

of a domestic economy before the host country has the minimum human capital. They point out that FDI functions only when the host country is able to absorb the technologies transferred from the investing country (Borensztein, De Gregorio, & Lee, 1998). Alfaro, Chanda, Kalemli-Ozcan, and Sayek (2006) found that the effects of FDI on domestic economic growth are related to the structure and openness of the domestic market, claiming that a mature and more open market will benefit more from FDI than a poorly developed market. In addition to structure and openness, they argue that the local educational level also affects the outcomes of FDI in economic growth (Alfaro, et al., 2006). Finding similar results to those of Bermejo, Carbonell, and Werner (2018), Ayanwale (2007) found that FDI did not have direct effects on the economic growth in Nigeria, but points out that FDI did have a positive influence on domestic economic growth, which increased the potential of the domestic economy. Mahembe and Odhiambo (2014) argue that FDI is an important factor to promote the development of a host country's economy, working through technological spillovers and knowledge transfers.

2.1.1 FDI-led industrial take-off theory

FDI-led industrial take-off theory is based on take-off theory. Proposed by Rostow (1959), take-off theory describes a special stage of economic growth. Considering it from an economic perspective, a take-off stage suggests that the society has the ability to “sustain an annual rate of net investment of the order of, at least, ten percent” (Rostow, 1959). Considering it from the non-economic perspective, a take-off refers to the modernization of culture, politics, and the transformation of traditional society (Rostow, 1959). Holistically, the take-off of a country describes a stage where there are substantial changes when compared with its previous condition. According to Rostow (1959), take-off includes three radical changes in the non-industrial sectors, including “a build-up of social overhead capital,

notably in transport”, “a technological revolution in agriculture”, and “an expansion in imports”. Technical development is believed to take place prior to the changes in these dimensions, and the political dimension also plays an important role in a country’s industrialization because it determines the social contexts (Rostow, 1959).

FDI-led industrial take-off theory is being accepted by more and more people in the context of globalization. As for underdeveloped and developing countries, FDI is regarded as one of the most important sources motivating the development of industries and achieve goals of industry maturation (Davies, 2011). The FDI-led industrial take-off theory holds that FDI is an important source promoting the development of domestic industries, thereby motivating the country’s process of industrialization (Felker, 2003; Ohno, 2009; Yang & Zhang, 2018). According to Ozawa (2012), FDI plays a crucial role in motivating the development of start-up businesses in emerging countries, enabling them to reach the level of industrialization in developed countries precisely because FDI provides new industries in emerging countries access to necessary resources to gain opportunities for development. In particular, the FDI-led industrial take-off theory promotes the idea that FDI increases the chances of success for infant businesses in domestic industries, enabling them to reduce the gaps within the industries of developing countries (Ozawa, 2014). The FDI-led industrial take-off theory considers that FDI enables developing countries to begin industrialization at a high level, based on foreign investors’ experience of industrialization, instead of starting from zero (Dentinho & Silva, 2017). As such, the FDI-led industrial take-off theory contends that FDI plays a valuable role in mobilizing the development of industrialization in developing countries.

The FDI-led industrial take-off theory also posits that FDI is one of the most important factors to encourage a country’s industrial revolution. According to Ozawa (2011), FDI

motivates a country to open its industrial market. Ozawa has analyzed the development model of Chinese industrialization, arguing that actively attracting foreign capital is one of the primary means to develop industrialization in China. Due to policies promoting the opening up of the market, China has taken only about thirty years to catch up with western countries' industrialization levels, quickly becoming the second largest economic entity in the world (Ozawa, 2011). Besides the attraction of foreign capital, the FDI-led industrial take-off theory claims that FDI incites developing countries to improve their industrial structures (Hansen, 2010). In the process of attracting FDI, domestic industries also import foreign advanced industrial structures. Domestic companies and government can, thus, develop their own industrial structures by adopting, adapting, and integrating foreign industrial structures into the domestic context, developing proper structures suitable to domestic industries (Chou, Chang, & Li, 2014). Furthermore, FDI can improve the development of local technologies, motivating them to develop their own innovation systems to maintain their strengths in the global market and compete with foreign businesses (Felker, 2013). Therefore, the FDI-led industrial take-off theory contends that FDI is an important factor to help a country develop its own industrial system, providing increased and better opportunities.

2.1.2 Successful examples depend on FDI

There are many successful instances of industrialization based on FDI across the globe. For example, Malaysia's industrialization has been stimulated by FDI and continues to play a vital role in its industrial development. In particular, FDI has been crucial to Malaysia's manufacturing sector (Masron, Zulkafli, & Ibrahim, 2012). To attract FDI, the Malaysian government has established several laws to protect the security of foreign investments, such as the 'Investment Incentives Act' (1968) and the 'Free Trade Zone Act' (1971) in order to

provide assurance for those wanting to invest foreign capital (Jomo, 2013). Due to the government's efforts, FDI does not face any impediments in Malaysia. With these investments, Malaysia has quickly developed from a primarily agricultural country to an industrial one. Industrial production in Malaysia contributed about 38.83% to its GDP in 2017 and companies enjoy great success in industrial development (Statista, 2019). In addition to Malaysia, the BRICs countries (Brazil, Russia, India, and China) have all benefited from FDI in promoting their own industrialization (Naudé, 2013). For example, the Chinese government actively encourages FDI, opening the capital market to FDI, and allowing the formation of joint businesses between international and domestic companies, such as companies in the automobile industry (Hertenstein, Sutherland, & Anderson, 2017). With the help of FDI, China has rapidly developed its own industries over the past thirty years, successfully completing a transition from an agricultural country to an industrial one.

FDI provides sufficient resources to these countries, enabling them to build their own industrial systems by drawing on the extensive industrialization of western countries, which has taken place over many years. Not only does FDI promote development within a country's industrial system, but also continuously stimulates the country's domestic enterprises, transforming it into a technological country and increasing the process of transition. For example, Bijsterbosch and Kolasa (2010) found the inflow of FDI directly increased productivity in certain countries in central and eastern Europe, to an extent that is much higher than those countries in the same region that have not experienced substantial FDI. Consequently, it seems that FDI has a direct positive impact on a country's economic development and can be used to help a country achieve a transition into industrialization. In addition, FDI also motivates countries—especially those with emerging markets—to develop their industries in alignment with global value chains. Escaith and Inomata (2013)

have studied how FDI motivates emerging economies to play more important roles in the global economy, instead of simply remaining passive recipients of capital. For instance, with the help of FDI, China has successfully built an industrial system that has allowed the country to direct its own capital and materials to other countries, such as those in Africa, aiding the development of their industries in turn (Sanfilippo, 2010). Therefore, FDI motivates countries to play a more important role in the global economic market. Once a country has successfully developed its own industrial systems through FDI, they are enabled to enhance their activity and importance in the global value chain. Other studies which have shown conflicting perspectives, such as the infant industry theory.

2.1.3 The infant industry theory

The infant industry theory is a seminal theory related to protectionism in global trade, holding that adequate protection must be provided to new industries in a country, thereby ensuring that they can develop without the impediments of a fiercely competitive environment; before competing with foreign brands (Ozawa, 2011). The infant industry theory argues that free trade is not suitable across all stages of the development of an industry and that free trade may not yield benefits but rather generate huge shocks to those industries in their infancy (Lin & Chang, 2009). As such, the theory entails a proposal that the government should intervene to protect these infant industries, protecting the domestic market, and enabling them to develop within a relatively stable environment (Weiss, 2013). In short, the infant industry theory contends that domestic industries should be protected at the early stages of development and that the market should not be opened to foreign investment until they reach stability. While the infant industry theory accepts that FDI may be beneficial for domestic industrialization, it poses that FDI presents more challenges to domestic businesses, affecting the development of domestic industries (Jorgenson, 2009). In

general, this reflects a conservative attitude toward FDI. When FDI does enter a country, prompting its industrialization, it can provide enough funds to domestic industries and provide sufficient resources for them to develop (Zekarias, 2016). However, the strength of those domestic industries in their infancy is weaker than in foreign industries. When FDI flows into domestic industries, FDI will lead and control their development, which may increase their dependence on FDI and thereby affect their development (Chari & Madhav Raghavan, 2012). In particular, the flow of FDI into new domestic industries increases market competition because foreign enterprises penetrate the domestic market in the process of investment. Furthermore, foreign companies investing capital and resources are enabled to be more competitive than domestic companies in the market because their technologies and their production lines are mature. Under this condition, domestic companies will be heavily impacted and may be unable to develop to a higher level (Kosova, 2010). Due to these reasons, the infant industry theory promotes the idea that governments, businesses, and other stakeholders in domestic industrialization should be careful about the inflow of FDI, at the startup stage, to ensure a suitable transition period for the development of domestic businesses. Furthermore, the infant industry theory poses that FDI impedes the sustainable development of these new industries. Narula and Bellak (2009) point out that the main aim of foreign investors is to draw a profit from their investment as quickly as possible, and do not, necessarily, care about the sustainable development of the domestic industry. In this situation, FDI may motivate domestic industries to develop rapidly over a short period of time, increasing returns as quickly as possible but potentially impeding sustainability (Narula & Bellak, 2009). In other words, although infant industries are able to gain a profit through the assistance of the FDI, they do not have the time to develop a systematic framework for sustainable development. Accordingly, infant industries may face substantial

risk when the initial FDI is redirected toward the other industries, presenting challenging dilemmas in future development. Moreover, Tomohara and Takii (2011) note that FDI introduces foreign technology into domestic infant industries but that these technologies continue to be controlled by foreign companies. Under this condition, FDI instrumentalizes domestic companies as tools to access the domestic market, rather than to help them develop themselves (Tomohara & Takii, 2011). For the aforementioned reasons, FDI may not aid in the development and sustainability of domestic industries, bringing about industrialization that is outside the control of local stakeholders. Therefore, the impact of FDI on a host country's economic growth can be either positive or negative. This issue will be further discussed below.

2.1.4 FDI impacts on economic growth

There are several channels through which FDI impacts on economic growth, 1. The transfer of new technologies and know-how, 2. The formation of human resources, 3. The integration of the global economy, 4. Increased competition in the host country, 5. The development and restructuring of firms, 6. Increase in capital for investment (Mahembe & Odhiambo, 2014). Through these channels, there could be positive and negative impacts. Firstly, the positive impacts could be as follows:

According to De Mello (1999), FDI has the potential to encourage the “incorporation of new inputs and foreign technologies in the production function of the recipient economy”. Borensztein, et al. (1998) state that FDI is an essential channel for the transfer of technology, and that it contributes more to economic growth than domestic investment. In contrast, Sen (1998) argues that FDI can be the source of negative technological spillovers by MNCs, as they transfer inappropriate know-how— with the intention of holding onto the technological advantages of local firms. Therefore, the positive impact of the transfer of technologies and

know-how can be in the form of a reduction in the R&D costs of local firms, which helps them to become more competitive (Berthélemy and Démurger, 2000). De Mello (1999) argues that FDI enhances the existing pool of knowledge in the host country through training, the import of skilled personnel from abroad, and the introduction of new management techniques and modern business-management skills. This human resource development can occur through formal training (De Mello, 1999) or informal training—by way of observation (Moura & Forte, 2010). Mencinger (2003) maintains that there is a positive relationship between the increase in FDI and the speed of the host country's integration of into the global market. Thirlwall (1999) notes that, typically, the greatest proportion of FDI is invested in the tradable goods sector of the host countries, which improves their export performance, and brings in much-needed foreign exchange. Moura and Forte (2010) state that the entry of FDI into the local economy creates competition. The MNCs bring in new capital and production methods, which tend to lower the cost of capital as well as the general cost of production. Pessoa (2007), the OECD (2002), and Jordaan (2012) argue that local firms might react to this new competition by improving their productivity, improved performance, reducing prices, and moving to a more efficient resource-allocation mechanism. The OECD (2002) points out that the entry of FDI through MNCs affects the enterprise development of direct (targeted) firms and unrelated firms. The targeted firms are those who are acquired by the MNCs. They benefit through improved efficiency, as they become members of a larger entity with tested governance and management practices (OECD, 2002). Other firms in the host country can also benefit from the new MNCs, through demonstration and imitation effects (Jordaan, 2012) and other spillovers similar to those that lead to technological and human-capital spillovers, as discussed above. According to Clark et al. (2011), domestic firms would be forced to adapt, and even those who are reluctant would be compelled if they

see technology being successfully used by MNCs. De Mello (1999) argues that FDI can be regarded as a stimulus for domestic investment. MNCs, because of their wide networks and global market exposure, have greater access to both international and host-country finance. Thirlwall (1999) further argues that this can be a catalyst for domestic investment, especially in the same or a related sector of the economy. MNCs are credited for quickly responding to investment opportunities and incentives in comparison to local firms (Caves, 1996).

At the same time, there are also some negative impacts. These include an increased dependency of the local firms; the introduction of new technology by MNCs can lead to job losses—and consequently an increase in unemployment (OECD, 2002); an increase in net imports (Mencinger, 2003), leading to current account deficits; the increase in competition as a result of the entry of MNCs might lead to the closure of local firms, which could have an unintended consequence of creating monopolies or oligopolies dominated by foreign-owned companies (Ram and Zhang, 2002); the difficulty in the implementation of economic policies. Ram and Zhang (2002) have demonstrated that in the long-run, repatriated profits are greater than the positive impact of the original investment. In summary, FDI is beneficial for a country's industrialization but the government, domestic companies, and other stakeholders have to make good use of FDI, navigating potential negative effects. As such, the process of designing the strategies to import FDI may need to be carefully considered, cautiously implemented, and appropriate laws must be enforced to manage FDI. The latter, in particular, will ensure that FDI is being closely monitored by the government and is truly beneficial to the sustainable development of domestic industries.

2.2 Additional Theories of FDI

Obviously, to discuss the role of FDI and the motives of FDI, above theories are not enough yet, thus, there are some additional theories to help the analysis about FDI.

2.2.1 Economic Growth and Global Value Chains

Another important theory related to FDI is the global value chain theory. This theory posits that economic activities are global-sized, instead of limited within a particular country (Porter, 1985; UNCTAD, 2013; OCDE, 2017). When the global economy grows to an advantageous level, it necessitates cross-regional coordination, and all regions in the world will be connected by a global level supply (Ponte & Gibbon, 2005). Aligning with the development of global value chains, FDI is popular insofar as those from developed regions with capital for investment will seek new opportunities in less developed regions (Staritz & Morris, 2013). Under this condition, many companies will invest in those regions that are less developed, but rich in materials, in order to draw from the region's resources and produce products therein. When products are created in developing countries, they can be sold in developed regions (Ponte & Gibbon, 2005). Subsequently, global value chains stimulate the expansion of FDI in less developed regions, bringing them more opportunities for industrialization and development (Giroud & Mirza, 2015).

The global value chain treats the world as a complete supply chain in which developed, developing, and less developed countries are connected. Developed countries focus on central technologies while developing countries and less developed countries become factories and material suppliers to the global network (Humphrey & Schmitz, 2002). In the process of matching developed countries' technology output and ensuring efficiency in the global supply, developing and less developed countries are also improved (Pietrobelli & Rabellotti, 2011). Therefore, global value chains are regarded as opportunities to developing countries and less developed countries for the cultivation of their special industries.

2.2.2 The Flying Geese Model

The flying geese model is a theory developed by Japanese scholar, Kaname Akamatsu,

which aims to explain industrial expansion or recession due to industrial transfer (Kojima, 2000). This theory is developed in the context of development in the East Asia regions. For example, Japan first develops the industry and then, when the technology is mature, transfers it to Hong Kong, Singapore, South Korea, Taiwan, and so on to other Asian countries (Akamatsu, 1962). As a result, production factors also change in Japan. When Japan chooses to transfer technology or industries, other Asian countries will develop them, raising the industrial structure of Japan above the beneficiaries of the transfer (Ginzburg & Simonazzi, 2005). This condition is repeated in China and other East Asian countries when Hong Kong, Singapore, South Korea, and Taiwan choose to transfer their technologies and industries.

The flying geese model explains the occurrence of FDI from a unique perspective. Petri (2012) argues that FDI is an outcome of the need for a country to implement industrial upgrading by transferring its technologies and excess productivity. As a result, a country may engage in FDI to other countries, even those that are less developed (Petri, 2012). Ozawa and Bellak (2011) argue that Chinese FDI in African regions exemplifies the flying geese model. Once China has chosen to transfer its excess productivity to African regions, it is enabled to upgrade its own industrial activities and technologies, thereby reaching a higher level of industrialization. Simultaneously, Ozawa and Bellak (2010) claim, China aims to repeat this development model in Africa to promote the development of local industry by providing funding and labor. What differentiates the flying geese model is that it emphasizes how FDI is motivated by the requirement to upgrade industry in the transferring country, rather than from the perspectives of the country to which the industry is being transferred.

2.2.3 The FDI Eclectic Theory

The Ownership, Location, and Internalization (OLI) paradigm, which is also known as

the FDI eclectic theory, is based on the broader internalization theory, which was proposed by Dunning (Dunning, 1979; Dunning, 2001). The OLI paradigm attempts to explain why international companies engage in FDI, arguing that their FDI activities are determined by three factors: ownership advantages, location advantages, and internalization advantages (Rugman, 2010). Advantages pertaining to ownership include technological advantages (international companies have control over core technologies of production), enterprise size advantages (larger companies are easier to expand), management advantages (large, international enterprises have managerial strength), and financial advantages (international companies can easily raise capital for investment) (Dunning, 2001). Internalization advantages refer to the use of products and technologies, that large, international companies control, while others, who rely on the power to use these technologies, have no right to engage in the details of these technologies (Dunning, 2001). The location advantages comprise four aspects: low labor cost, market potential, trade barriers, and governmental policies (Dunning, 2001). In short, the OLI paradigm attempts to explain international companies' decisions behind their FDI from internal and external contexts relevant to their businesses.

The three types of advantages entail that international companies take up different activities in the international market. If a company only has ownership advantages, it may choose an activity like technology licensing. If an enterprise has both ownership and internalization advantages, it may elect to export products. If companies have all three advantages, they may choose FDI (Brouthers, Brouthers, & Werner, 1996). Thus, the OLI paradigm has two implications. On the one hand, an international company can only elect to invest directly in foreign industries when it maintains advantages in all three aspects. On the other hand, FDI is the only way for an international company to enjoy the benefits of the

three types of advantages (Rugman, 2010). Similarly to the Flying Geese Model, the OLI model considers FDI from the perspective of the investors, or the international companies, rather than from the targets of investment.

2.3 Research design

Drawing on the findings of the literature review, the following table is intended to summarize the identified dimensions, respective variables, and assumptions. I have distilled the selection criteria from the literature review and consider them as the determinant factors of FDI impacts on local industrialization.

Dimension	Variables	Assumptions	References
The transfer of new technologies and know-how	1. Manufacturing value added 2. ICT exports	Chinese FDI makes new inputs and the capacity of the host country to incorporate foreign technology into the local production function	(Wang, Lin, & Li, 2010) (Xing, 2014) (Mellor, Hao, & Zhang, 2014) (Dorsey, et al., 2010) (Borensztein, et al., 1998) (Sen, 1998)
The development of human resources	1. The education expenditure 2. Unemployment rate	Chinese FDI increases local human resources and knowledge base	(Martin, McNally, & Kay, 2013) (OECD, 2002)
Integration into the global economy	1.Import of goods and services 2.Export of goods and services	Chinese FDI increases the integration in the global market	(Nordås, 2010) (Mencinger, 2003) (Thirlwall, 1999)
Increased competition in the host country	The intensity of local enterprise's competition	Chinese FDI creates more competition in local market	(Wu, 2012) (Moura & Forte, 2010) (Ram & Zhang, 2002)
The development and restructuring of firms	1.Export unit value index 2.Export volume index	Chinese FDI transforms the efficiency of their resource-allocation mechanism	(Görg, Halpern, & Murakozy, 2010) (Fan, Li, & Yeaple, 2015) (Pessoa, 2007) (Jordaan, 2012) (Mahembe & Odhiambo, 2014)

An increase in capital for investment	Gross capital formation	Chinese FDI increases the total investment volume	(Adhikary, 2011) (De Mello, 1999) (Thirlwall, 1999) (Ram & Zhang, 2002)
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Table 1: The methodology map

3. Methodology

3.1 Proposals

According to the selection of variables, data will be collected from the World Bank’s data, official documents and statistics, and academic articles (see the data in annex 1). To trace the main role of Chinese investment in Angola’s industrialization, the results would be analyzed by verifying the six proposals established following the assumptions of the methodology table.

P1: Chinese FDI makes new inputs and the capacity of the host country to incorporate foreign technology into the local production function. Mellor, Hao, & Zhang (2014) explained that additive manufacturing reveals the efficiency to use materials in manufacturing, indicating a country's implementation of new technologies in manufacturing. Dorsey (2010) argued that ICT exports reflect a country's level of transforming technologies into commercial products to promote national economic development. I would verify this proposal by calculating the correlation coefficient between Chinese FDI and Angola’s manufacturing value added, together with ICT services exports.

P2: Chinese FDI increases local human resources and knowledge base. The OECD (2002) states that MNCs are credited for enhancing the development of skills through training; highlighting and demonstrating the need to have a qualified and skilled workforce in host countries. It may stimulate local education expenditure. I would verify this proposal

by calculating the correlation coefficient between Chinese FDI and local education expenditure, together with the unemployment rate.

P3: Chinese FDI increases the integration of the host country into the global market. Nordås (2010) argued that goods and services are important indicators for measuring a country's economic situation; a high import and export reveal frequent transactions between the country and other countries. I would verify this proposal by calculating the correlation coefficient between Chinese FDI and Angola's balance of payments.

P4: Chinese FDI creates more competition in local market. According to Wu (2012), the competition level of foreign businesses in a host country reveals the general influence of foreign businesses of foreign countries in the host country. I would verify this proposal by calculating the correlation coefficient between Chinese FDI and the intensity of local enterprise's competition in Angola.

P5: Chinese FDI improves local firms' productivity and performance while reducing their prices by transforming the efficiency of their resource-allocation mechanisms. Based on the argument of Görg, Halpern, & Murakozy (2010) and Fan, Li, & Yeaple (2015), the prices of export products of a country reflect the productive forces of the domestic country. I would verify this proposal by calculating the correlation coefficient between Chinese FDI with Angola's export unit value index and export volume index.

P6: Chinese FDI increases domestic investments and the total investment volume. According to Adhikary (2011), capital formation is an important factor that reveals the effects of FDI on the host country's financial development. I would verify this proposal by calculating the correlation coefficient between Chinese FDI and Angola's cross-capital formation.

3.2 Case study

FDI plays an important role in Angola's industrialization, and the impact of FDI on Angola's industrialization can be understood from different perspectives. Angola's FDI has increased quickly in the past years. Figure 1 shows Angola's net inflow of FDI from 1980–2017 and Figure 2 shows the percentage of Angola's net inflow of FDI in GDP in the same duration. FDI in Angola shows a general increase tendency from 1980 to 2003, but fluctuated from 2004 to 2017 (World Bank, 2019). Nonetheless, the amount of FDI in Angola maintains at a relatively high level, generally supporting about 10% of its GDP (Index Mundi, 2019). Hence, FDI is crucial to Angola's economic development.

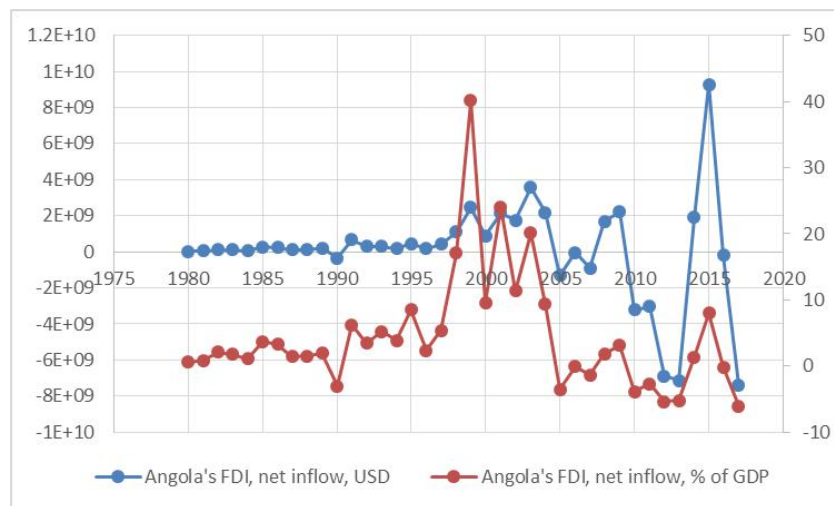


Figure 1: The changes of Angola's FDI (net inflow) from 1980–2016, source: World Bank, 2019

China, as one of the largest sources of FDI internationally, has a critical role to play in Angola's development. As early as 2006, China and Angola began to build a strong “mutually advantageous” partnership (Campos & Vines, 2008). Angola is the second largest partner of China in Africa, after South Africa (Campos & Vines, 2008). Corkin (2011) argues that increasing FDI in African countries, such as Angola, has been one of the most important political strategies for the Chinese government, engendering political support in

the international world (Renard, 2011). China provides substantial economic aid to Angola, helping to improve its economic development. In addition, China provides active policies, co-developed by the two countries, to help Angola to develop its industries, encouraging the country to use oil to settle its loans. Under this policy, more than 50% of Angola’s crude oil is exported to China, as shown in Figure 2, surpassing even the United States in 2014 (Begu, et al., 2018).

In addition to the reason for China’s decision to invest in Angola, Chinese FDI plays a vital role in Angola’s industrialization. Donou-Adonsou and Lim (2018) compared the importance of FDI in Angola from different sources, finding that Chinese FDI has the highest growth effect in African regions, including Angola. In fact, the importance of Chinese FDI has increased in alignment with the Chinese government’s foreign policies. After 2016 the percentage increased to about 50% because the Chinese government saw the mutually beneficial partnership with Angola as a chance to export Chinese capital in order to stimulate domestic economic development as it met a bottleneck in development (Donou-Adonsou & Lim, 2018).

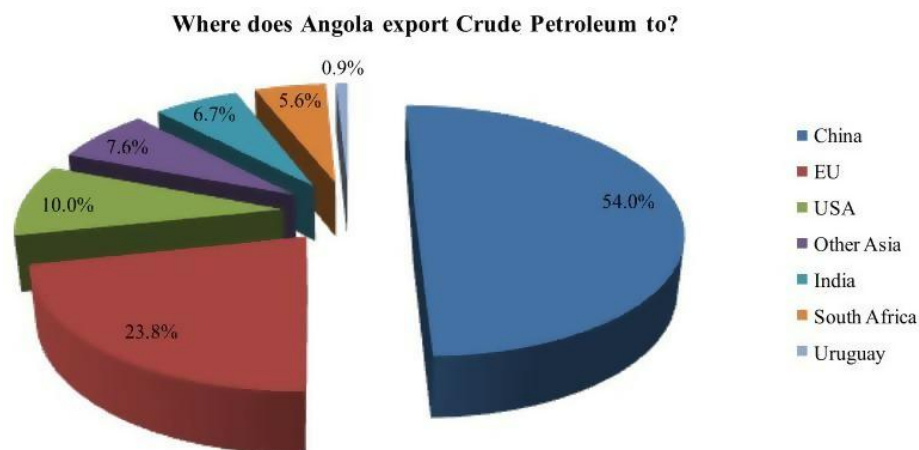


Figure 2: Angola’s crude oil export destinations across the world, source: Begu, et al., 2018

Currently, Chinese FDI ranges across Angola’s primary industries, in the export of

agricultural products, natural resources such as oil and gas, mineral resources such as diamonds, and participating in the food industry, the rubber products industry, the beverage industry, the packaging industry, the chemistry industry, the leather industry, forestry, the pharmaceutical industry, the building materials industry, the textile industry, the pulp and paper industry, and the automobile industry, as well as in the processing of agricultural products, manufacturing industrial electrical equipment, and aluminum metal products (Economic and Commercial Counsellor's Office in the Embassy of Angola, 2016). Furthermore, in 2016, about 62 Chinese companies had already opened subsidiaries in Angola, half of them state-owned (Economic and Commercial Counsellor's Office in the Embassy of Angola, 2016). Bezuidenhout and Kleynhans (2018) predict that Chinese FDI will play an even more crucial role in Angola to promote its development since most Chinese companies have held the dominant position in this region. Therefore, Chinese FDI may become more vital to Angola's future industrialization process.

In order to understand the impact of Chinese FDI in Angola, both positive and negative, I use the variables as identified in the map. Through this analysis, this study attempts to answer the two questions as suggested in the introduction: "What is the actual function of Chinese investment in Angolan industrialization?" and "How can Chinese investment better contribute to Angola's industrialization?" Thereby, I aim to achieve a deeper understanding the primary role of Chinese investment in Angola's industrialization.

The Pearson correlation coefficient would be used. It was proposed by Pearson and Galton in the 1880s and is used to measure the correlation between two variables (linear correlation) with values between -1 and 1. A value greater than 0 and less than or equal to 1 means that there is a positive correlation between the two variables and one variable increases with the other. A value of less than 0 and greater than or equal to -1 means that

there is a negative correlation and one variable decreases, while the other increases. A value of 0 means that there is no linear relationship.

$$\rho_{X,Y} = \frac{\text{cov}(X, Y)}{\sigma_X \sigma_Y} = \frac{E[(X - \mu_X)(Y - \mu_Y)]}{\sigma_X \sigma_Y},$$

Pearson Correlation Coefficient

4. Findings and discussion

This section analyzes the influence of China's FDI in Angola in terms of the development of Angola's industrialization. The aim of this analysis is to prove the propositions put forward in Chapter 3. The methodology map mentioned in the above section is also followed.

4.1 Changes in China's FDI in Angola

Data pertaining to China's FDI in Angola, from 2003 to 2017, were disclosed by the Ministry of Commerce of the People's Republic of China Department of Outward Investment and Economic Cooperation. The data were collected, and the tendencies are shown in Figure 3. Note: China's FDI in Angola prior to 2003 is not distinguished by the Chinese government. Until 2003, the FDI in Angola was included in the total amount of China's FDI in Africa. According to Figure 3, China's FDI in Angola increased continually from 2003 to 2012, with the exception of a decrease in 2008. China's FDI in Angola then decreased from 2012 to 2014, but increased from 2014 to 2017. By 2017, the accumulated FDI (from China) in Angola had reached more than 1.2 billion USD (in 2017 alone). Such changes – particularly the increases – reveal that China's government places significant emphasis on its investment in Angola.

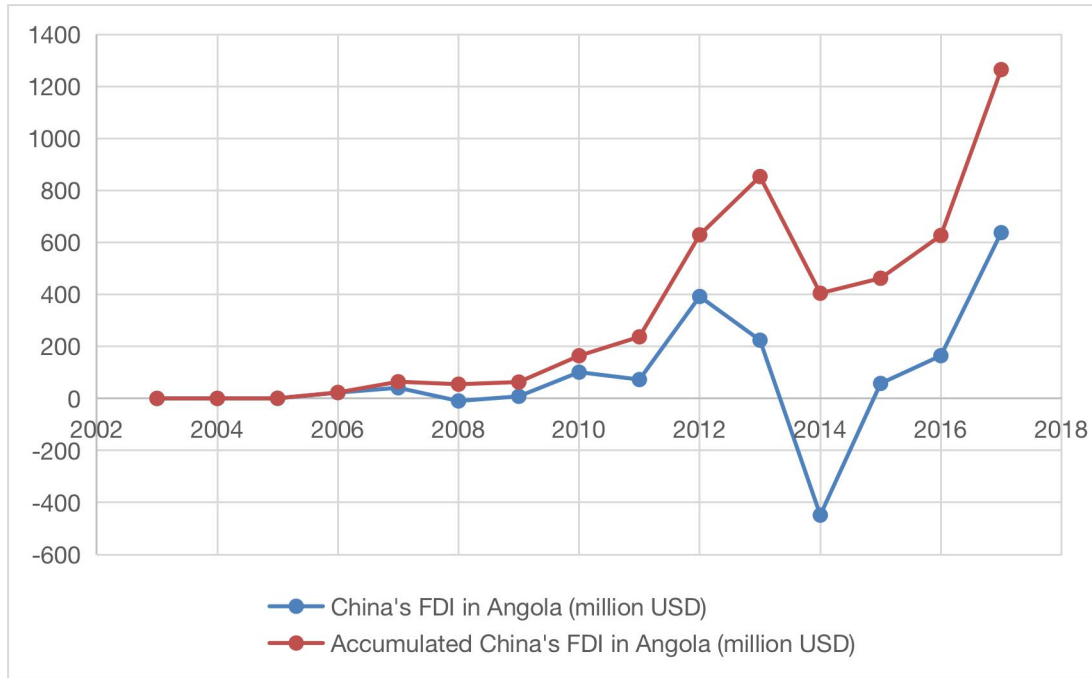


Figure 3: China's FDI in Angola vs Accumulated China's FDI in Angola (*million USD*) from 2003 to 2017
 Source: Ministry of Commerce of the People's Republic of China, Department of Outward Investment and Economic Cooperation, 2019

China's FDI in Angola is not consistent with the overall tendency of Angola's net FDI inflow. Figure 4 compares China's FDI in Angola with Angola's combined net FDI inflow from 2003 to 2017. The findings indicate that the changes in China's FDI in Angola and the overall net FDI are generally opposite to each other. In other words, China tends to increase its FDI in Angola when the net inflow of FDI in Angola decreases, and vice versa. This trend reveals that the main purpose of China's FDI in Angola is not simply to earn money from the Angola market; China's aim is also to assist Angola's local economic development (Tan - Mullins, Mohan, & Power, 2010).

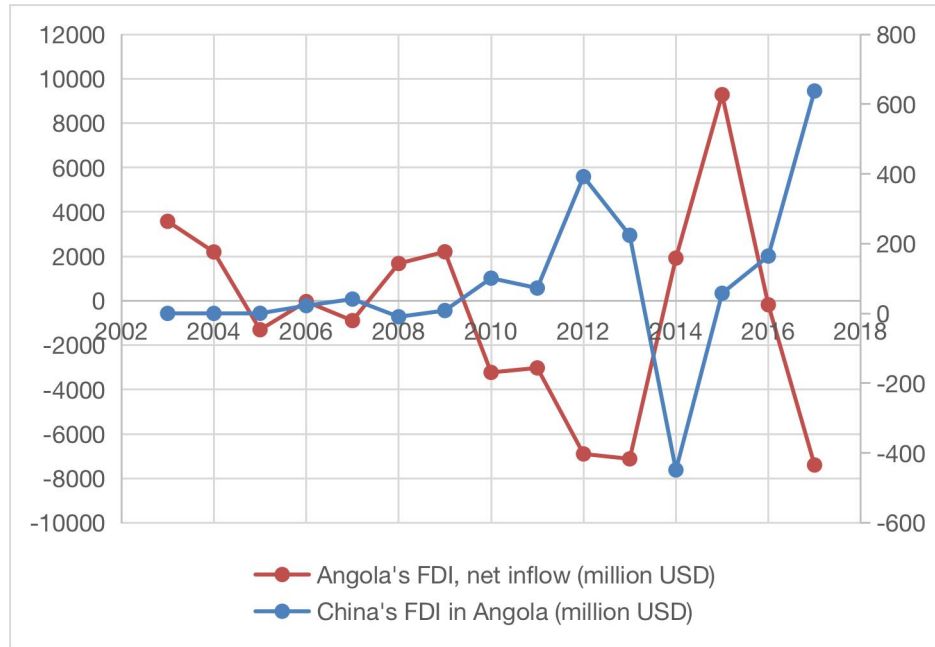


Figure 4: China's FDI in Angola vs Angola's net inflow of FDI (*million USD*) from 2003 to 2017
Source: World Bank, 2019

4.2 Findings of proposals

P1. Influence of China's FDI in Angola on the transfer of new technologies and know-how

The correlation matrix for China's FDI in Angola, Angola's manufacturing value added and the country's ICT service exports are shown in Table 2 (the data come from World Bank's data and Trading Economics website). The results show that China's FDI in Angola is positively related to Angola's manufacturing value added, but negatively related to Angola's ICT service exports. Specifically, the correlation coefficients of China's FDI in Angola to the two variables are 0.45 and -0.13, respectively. This finding indicates that the correlation between China's FDI in Angola and Angola's manufacturing value added is stronger than the correlation between China's FDI in Angola and Angola's ICT service exports.

	China's FDI in Angola (% of GDP)	Angola's manufacturing value added (% of GDP)	Angola's ICT service exports, (% of GDP)
China's FDI in Angola (% of GDP)	1	0.44995	-0.13304
Angola's manufacturing, value added (% of GDP)	0.44995	1	-0.29314
Angola's ICT service exports, (% of GDP)	-0.13304	-0.29314	1

Table 2: Correlation matrix between China's FDI, Angola's manufacturing value added, and Angola's ICT service exports

According to the United Nations Industrial Development Organization (UNIDO) (2019), manufacturing value added (MVA) is the measure of the net outcomes of a country's manufacturing industry. Specifically, MVA is the summation of the gross output and consumption values within the country's manufacturing procedures. This variable reflects the development of the traditional economy under the influence and promotion of advanced technologies. An increase in the value of MVA reflects that the production of the relevant nation's manufacturing industry is increasing (Johnson & Noguera, 2017). Since China's FDI in Angola is positively correlated to Angola's MVA, this indirectly reflects that China's FDI positively promotes the development of Angola's manufacturing industry, thus increasing overall production. Liu (2008) argues that FDI can improve the local technological level by bringing new technologies into the local market, thereby improving and modernizing traditional manufacturing industries. This idea is supported by the above findings. Hence, the correlation between China's FDI in Angola and Angola's MVA reveals that China's FDI in Angola does in fact improve the local economy and especially the traditional industries. Conversely, and unlike the situation with MVA, China's FDI in Angola is negatively correlated to Angola's ICT services exports. This finding indicates that China's FDI does not

enhance the development of high-tech industry in Angola, as ICT service exports generally represent a nation's latest high-tech industry (Nath & Liu, 2017). Based on the above results, Proposition 1 is partially supported in this case. In particular, China's FDI in Angola has increased the new inputs and the capacity of the host country to incorporate foreign technology into the local production functions. However, the current functions are mainly concentrated in traditional manufacturing methods, not high-tech industries. Therefore, China's FDI has increased Angola's capacity to use foreign technologies to improve the performance of traditional industries, rather than high-tech industries.

P2. Influence of China's FDI on the development of human resources in Angola

The correlation matrix between China's FDI in Angola, the local education expenditure and the unemployment rate is listed in Table 3. The results show that China's FDI in Angola is negatively correlated to Angola's unemployment rate and positively related to its education expenditure. Also, the absolute values of their correlation coefficients are close to each other. The results clearly reveal that China's FDI in Angola is useful in terms of reducing Angola's unemployment rate and increasing the country's expenditures in education.

	China's FDI in Angola (% of GDP)	Angola's unemployment rate (% of total)	Education expenditure (% of GNI)
China's FDI in Angola (% of GDP)	1	-0.30569	0.303535
Angola's unemployment rate (% of total)	-0.30569	1	-0.92227
Education expenditure (% of GNI)	0.303535	-0.92227	1

Table 3: Correlation matrix between China's FDI in Angola, local skilled personnel from abroad and the unemployment rate

According to the above results, Proposition 2 is completely proved. On the one hand, the negative relationship between China's FDI in Angola and the local unemployment rate reveals that China's FDI is useful in terms of creating more job opportunities for local labor forces. In other words, the local human resources can be used in better ways. On the other hand, the positive relationship between China's FDI in Angola and local expenditures in education reveals that China's FDI is useful in terms of motivating the Angola government to increase its monetary expenditures on education. Therefore, China's FDI in Angola has a direct role in improving the educational level of Angolan students. Aligned with the increasing education expenditure, the numbers of participants in both primary and secondary education increased from 2008 to 2011 (Note: the data for the number of participants in primary and secondary education in Angola from 2012 to 2017 are not available from any database). In general, the increase in education expenditure reflects the improvement in the status of local education, as well as an improvement in the quality of local human resources (Martin, McNally & Kay, 2013). Combining all the above information, it is apparent that China's FDI in Angola is positively improving the quality of Angola's human resources. Therefore, China's FDI is a motivation factor in terms of increasing the development of Angola's human resources.

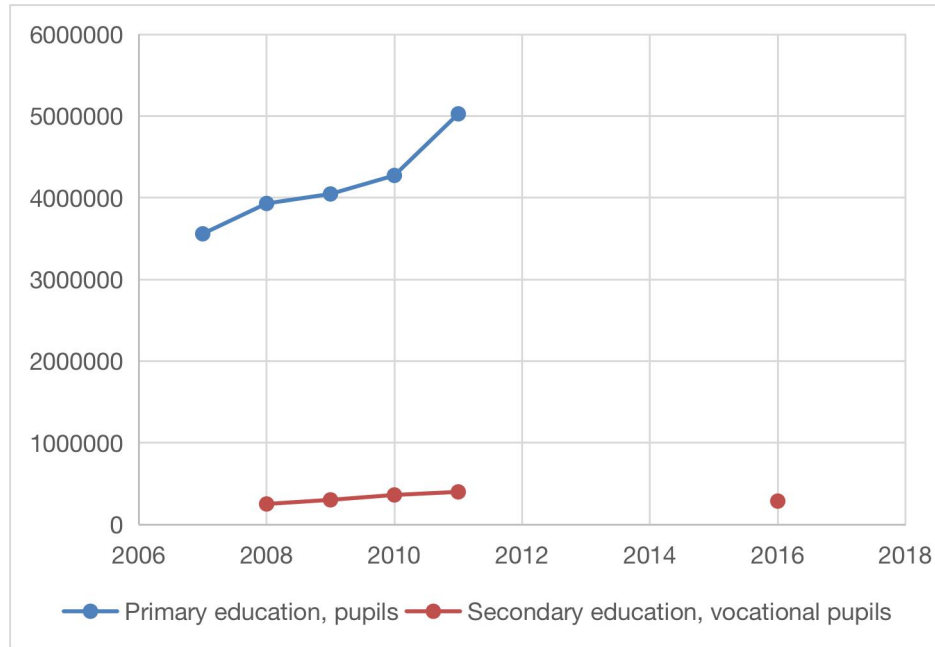


Figure 5: Number of participants in primary and secondary education
Source: World Bank, 2019

P3. The influence of China's FDI in Angola on the integration into the global economy

The correlation matrix between China's FDI in Angola and Angola's imports of goods and services (IGS) and exports of goods and services (EGS) is shown in Table 4. This correlation matrix shows that China's FDI in Angola is negatively related to Angola's IGS but positively related to Angola's EGS. In other words, an increase in China's FDI in Angola can lead to a reduction in Angola's imports of goods and services from other countries, and to an increase in its exports to other countries.

	China's FDI in Angola (USD)	Angola, imports of goods and services (BoP Current USD)	Angola, exports of goods and services (BoP Current USD)
China's FDI in Angola (USD)	1	-0.06361	0.051089
Angola, imports of goods and services (BoP Current USD)	-0.06361	1	0.897297
Angola, exports of goods and services	0.051089	0.897297	1

(BoP Current USD)			
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Table 4: Correlation matrix between China’s FDI in Angola and Angola’s imports of goods and services and exports of goods and services

The above results agree with Proposition 3. The IGS and EGS are two important financial indicators that represent a country’s interaction in trade with other countries. Both IGS and EGS reveal how a country's economy is faring, relative to other countries (Nordås, 2010). When a country's imports of goods and services increase, this means that the country's economy is relying more on its trading partner countries' economies. In contrast, an increase in the exports of goods and services indicates that the country's economy is contributing more to the development of the global economy (Mencinger, 2003; Thirlwall, 1999). Based on the correlation between China’s FDI in Angola and Angola’s IGS and EGS, the increase in China’s FDI in Angola decreases Angola’s IGS but increases its EGS. This finding indicates that China’s FDI in Angola has increased Angola’s contribution to the global economy and reduced Angola’s dependence on the global economy. In this case, China's FDI in Angola is positively related to Angola’s trading operations with other countries. Therefore, Proposition 3 is supported.

P4. The influence of China’s FDI in Angola on increasing the competition in Angola

In order to identify the influence of China’s FDI on Angola’s competition, this study examines the relationship between China’s FDI in Angola and the intensity of local enterprise’s competition. The correlation coefficient between them is 0.5193, which is a positive value. This indicates that China’s FDI in Angola is positively related to local enterprise’s competition on a global level. In other words, when China increases its FDI in Angola, the ability of Angola to compete in the global economy increases. Proposition 4 is

therefore supported by these results.

Furthermore, in order to research how China’s FDI in Angola improves Angola’s intensity of local competition, the relationship between China’s FDI in Angola and Angola’s 10 pillars of economic factors is investigated. These 10 pillars are 1) the political and regulatory environment, 2) the business and innovation environment, 3) infrastructure, 4) affordability, 5) skills, 6) individual usage, 7) business usage, 8) government usage, 9) economic impacts, and 10) social impacts (World Bank, 2019). The data for the 10 pillars of economic factors are collected from the World Bank database. The coefficient matrix between China’s FDI in Angola and Angola’s 10 indexes that from The Global Information Technology Report 2016 which features the latest iteration of the Networked Readiness Index, which assesses the factors, policies, and institutions that enable a country to fully leverage information and communication technologies (ICTs) for increased competitiveness and well-being. According to Table 5, China’s FDI in Angola is positively related to the political and regulatory environment, infrastructure, skills, individual usage, business usage, and government usage, but negatively related to business innovation environment, affordability, economic impacts, and social impact. The results reveal that China's FDI enhances Angola's performance in the political and regulatory environment, infrastructure, skills, individual usage, business usage, and government usage, thus also enhancing Angola’s global competitiveness through an indirect form.

	China's FDI in Angola (USD)	Angola's intensity of local competition	1st pillar: Political and regulatory environment	2nd pillar: Business and innovation environment	3rd pillar: Infrastructure	4th pillar: Affordability	5th pillar: Skills	6th pillar: Individual usage	7th pillar: Business usage	8th pillar: Government usage	9th pillar: Economic impacts	10th pillar: Social impacts
China's FDI in Angola (USD)	1	0.519279	0.439083	-0.91295	0.666331	-0.99958	0.681384	0.427695	0.006541	0.328307	-0.99648	-0.21931

Angola's intensity of local competition	0.519279	1	0.996609	-0.81764	-0.29987	-0.4865	0.977466	-0.55794	0.862596	0.979577	-0.58176	-0.95053
1st pillar: Political and regulatory environment	0.439083	0.996609	1	-0.76749	-0.37736	-0.41296	0.956781	-0.62433	0.901299	0.992801	-0.51286	-0.97287
2nd pillar: Business and innovation environment	-0.91295	-0.81764	-0.76749	1	-0.30404	0.900784	-0.92075	-0.0216	-0.41404	-0.68518	0.943946	0.598354
3rd pillar: Infrastructure	0.666331	-0.29987	-0.37736	-0.30404	1	-0.68759	-0.09174	0.959002	-0.74128	-0.48556	-0.60147	0.581374
4th pillar: Affordability	-0.99958	-0.4865	-0.41296	0.900784	-0.68759	1	-0.65996	-0.45362	0.022338	-0.30089	0.993643	0.19104
5th pillar: Skills	0.681384	0.977466	0.956781	-0.92075	-0.09174	-0.65996	1	-0.37018	0.736368	0.91506	-0.74035	-0.86354
6th pillar: Individual usage	0.427695	-0.55794	-0.62433	-0.0216	0.959002	-0.45362	-0.37018	1	-0.90111	-0.7134	-0.35041	0.788122
7th pillar: Business usage	0.006541	0.862596	0.901299	-0.41404	-0.74128	0.022338	0.736368	-0.90111	1	0.946699	-0.09035	-0.97707
8th pillar: Government usage	0.328307	0.979577	0.992801	-0.68518	-0.48556	-0.30089	0.91506	-0.7134	0.946699	1	-0.40634	-0.99358
9th pillar: Economic impacts	-0.99648	-0.58176	-0.51286	0.943946	-0.60147	0.993643	-0.74035	-0.35041	-0.09035	-0.40634	1	0.300327
10th pillar: Social impacts	-0.21931	-0.95053	-0.97287	0.598354	0.581374	0.19104	-0.86354	0.788122	-0.97707	-0.99358	0.300327	1

Table 5: Correlation matrix between China's FDI in Angola and the 10 pillars of economic factors of Angola

P5. Influence of China's FDI in Angola on the development and restructuring of firms

The correlation matrix between China's FDI in Angola and the unit value of exports and the overall export volume of Angola is shown in Table 6. The correlation coefficient between China's FDI in Angola and Angola's export unit value is -0.04473, which is negative. However, the coefficient between China's FDI in Angola and Angola's overall export volume is 0.2900, which is positive. These results indicate that China's FDI in Angola positively affects Angola's export volume, but negatively affects its export unit value.

The export unit value is an indicator created by the UNCTAD's trade database. This value is used to measure the value of the goods and services exported by a nation in the

global market; it is calculated by dividing trade value by quantity (Silver, 2009) . This indicator represents the prices of unit goods exported by a nation to other countries in the global market. When the export unit value is high, it suggests that the cost to the local companies in the process of manufacturing the products is also high. Then, the export unit value also indirectly suggests that a nation’s companies’ productivity is low. In contrast, when the export unit value is lower, this means that the local companies’ productivity is increasing (Görg, Halpern, & Murakozy, 2010). By comparing the correlation between China’s FDI in Angola and Angola’s export unit value and export volume, it can be seen that China’s FDI is positively related to Angola’s export volume. This finding suggests that China’s FDI in Angola is increasing the production of Angola’s local companies. Meanwhile, China’s FDI in Angola is negatively related to Angola’s export unit value, meaning that China’s FDI has decreased the local companies’ per unit costs of creating products and services. Therefore, in summary, China's FDI in Angola has increased Angolan firms' productivity and their capacity for resource allocations. Due to this, Proposition 5 should be seen as supported.

	China's FDI in Angola (USD)	Angola, export unit value index (2000 = 100)	Angola, export volume index (2000 = 100)
China's FDI in Angola (USD)	1	-0.04473	0.289958
Angola, export unit value index (2000 = 100)	-0.04473	1	0.56263
Angola, export volume index (2000 = 100)	0.289958	0.56263	1

Table 6: Correlation matrix between China’s FDI in Angola and Angola’s export unit value and export volume

P6. Influence of China’s FDI in Angola on the increase in capital for investment

The correlation between China’s FDI in Angola and Angola’s gross capital formation is 0.09105, which is a positive value. This result suggests that China’s FDI in Angola is

positively related to the formation and growth of capital investment in Angola.

	China's FDI in Angola (USD)	Angola, Gross capital formation (current USD)
China's FDI in Angola (USD)	1	0.091050183
Angola, Gross capital formation (current USD)	0.091050183	1

Table 7: Correlation matrix between China's FDI in Angola and Angola's gross capital formation

Based on this result, Proposition 6 is supported. Gross capital formation is an indicator used in the World Bank database to measure the domestic capital investment in different areas. This could refer to investments in areas such as land improvement, plant, machinery, and equipment purchases or investment in basic construction and infrastructure, such as roads, hospitals, offices, and other buildings (World Bank, 2019). In general, the rate of gross capital formation reveals the nation's investment in domestic facilities that are intended to improve the living environment (Adhikary, 2011). The positive correlation coefficient between China's FDI in Angola and Angola's gross capital formation clearly indicates that China's FDI in this country has made it possible for Angola to increase its levels of capital investment. The result has been an improvement in Angolan citizens' living environment and a better quality of life. Proposition 6 is supported.

4.3 Discussion

According to the above results, China's FDI in Angola positively promotes Angola's industrialization. At the same time, China's FDI in Angola positively impacts on the following six aspects to achieve the goal of promoting Angola's industrialization: 1) enhancing the transformation of technologies in traditional industries; 2) enhancing the

development of local human resources; 3) increasing the integration of Angola's economy into the global economy; 4) increasing the degree of local competition in the global market; 5) increasing local companies' productivity and efficiency in resource allocation, and 6) increasing the country's total capital investment. China's FDI helps Angolan firms to use advanced technologies to improve their manufacturing production processes. However, Angola's ability to function in terms of improving the application of the newest technologies, such as ICT technologies, is limited. For this reason, China's FDI in Angola still focuses on traditional Angolan industries. At the same time, China's FDI in Angola has increased the educational level of the local labor force, thereby enhancing their knowledge base. Therefore, China's FDI in Angola has directly improved the quality of the local labor force. Furthermore, China's FDI has increased the number of job positions available in Angola, providing more opportunities to local workers. The direct consequence has been a reduction in Angola's unemployment rate. Therefore, the quality of the local human resources is correspondingly increased. Meanwhile, China's FDI in Angola has also helped Angola to integrate into the global economy. Its increased interactions with other countries, made possible by China's FDI, has helped Angola become a part of the global economy. Specifically, China's FDI has increased Angola's contributions to the global economy and reduced Angola's dependency on other countries. Because of China's FDI, Angola's ability to compete in the global market has increased. In particular, China's FDI has had a positive impact in the following aspects: enhancing the stability of local politics, infrastructure development, skills, individual usage, business usage, and government usage. At the same time, China's FDI has improved the productivity of local firms, as well as the prices of their products. This has directly increased Angola's competitiveness in the global market, due to their ability to compete with other countries. Also, China's FDI has also stimulated and made

it possible for the Angolan government to increase capital investment in developing basic domestic facilities. Overall, China's FDI in Angola has improved the entire economic environment of Angola.

5. Conclusions

In conclusion, this dissertation studies the influence of China's FDI in Angola on Angola's industrialization. China continually increased its investment in Angola from 2003 until 2012. Then, from 2013 to 2017, China's FDI in Angola fluctuated, decreasing in 2013 and 2014 before increasing again from 2015 to 2017. Particularly noteworthy is that China's FDI in Angola in 2017 exceeded all its accumulated investments prior to that year. At the same time, China's FDI is not consistent with Angola's net flow of FDI during the duration of the study period. During these years, China increased its FDI when Angola's net flow of FDI decreased, and vice versa. Overall, China's FDI in Angola plays an important role in Angola's industrialization, which in turn positively promotes Angola's industrialization. Specifically, this dissertation analyzes the role of China's FDI in Angola in the following six aspects: 1) the transformation of technologies into business; 2) the development of local human resources; 3) Angola's integration into the global economy; 4) Angola's comprehensive ability to compete in the global market; 5) the improvement of Angolan firms' productivity and manufacturing efficiency, and 6) Angola's total capital investment. The results show that China's FDI in Angola plays positive roles in all six of the above mentioned aspects. China's FDI particularly enhances the development of traditional Angolan industries by motivating those manufacturing industries to use advanced technologies and improve their performance. Specifically, China's FDI encourages the use of advanced manufacturing technologies as opposed to information and communication technologies. In addition, China's FDI has motivated Angola to join in the globalization

process by interacting with other countries. Angola's global competitiveness also increases in line with investment from China. Furthermore, China's FDI has also motivated the Angolan government to increase capital investment, in order to improve basic domestic facilities, which in turn improve Angolan citizens' living environment. In summary, China's investment has increased the level of industrialization in Angola and has also helped Angola to modernize its industrialization procedures. Overall, the two questions could be answered ("What is the real function of Chinese investment in Angolan industrialization?" and "How can Chinese investment better contribute to Angola's industrialization?") as following.

The motivations of China's FDI in Angola's industrialization can be explained by the Flying Geese Model and the FDI eclectic theory. China has obtained great success in its own development of traditional industries, but the traditional industries in Chinese market are saturated. Under this condition, exporting both capital and technologies to Angola not only reduce the excess capacity in China, but also promote expand domestic businesses to a new market, achieving a win-win result. However, due to Angola's limitation, China's mature technologies concentrated only in the construction and some other traditional industries.

According to the above analysis, China's FDI is more likely to be of assistance to the development of Angola's industrialization, but the weaknesses of this policy should also be taken into account. First, China's FDI in Angola focuses on traditional industries, rather than the advanced and new industries (such as the information and communications industries). For this reason, the contribution of China's FDI to the development of these latest technologies in Angola is limited. Secondly, the level of China's FDI in Angola is mainly influenced by the Chinese government's policies to aid Africa. In addition, state-owned capital plays a leading role in China's FDI in Angola.

In order to cope with the above limitations, China's FDI in Angola could be adjusted in

the following aspects: first, the Chinese government could encourage Chinese technologies companies (especially the firms in the ICT area) to increase their investment in Angola, so as to improve the development of local ICT industries. Secondly, the Chinese government should encourage private enterprises to invest in Angola, aligning themselves with the state-owned capital investments. In particular, Chinese companies should attempt to reach agreements with the Angolan government and thereby build a better investment environment for private capital in Angola. In addition, Angolan government should integrate into global markets more actively with the proper use of global value chain to complete their own economic transformation.

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Annex 1: Data collected

Year	China's FDI in Angola % of GDP	Angola's manufacturing value added (% of GDP)	Angola's ICT service exports, % of GDP
2003	0.001066654	3.999814427	36.6017171
2004	0.000764265	4.681937285	1.745572331
2005	0.001271269	3.912883548	6.12015341
2006	0.042744501	3.612815774	1.846914828
2007	0.063110524	3.39949164	10.45749064
2008	-0.010808844	3.461736791	1.021897901
2009	0.011819564	5.109421786	4.013123796
2010	0.120657049	4.541773802	3.618735028
2011	0.065050724	4.167804796	3.664464886
2012	0.30618607	4.403289594	2.545275979
2013	0.163887225	4.827342815	1.456441322
2014	-0.307846563	4.763071572	1.193357334
2015	0.049692905	5.685144864	1.19315944
2016	0.162661922	6.75268057	1.74934294
2017	0.522052117	6.580549588	1.450205003

Annexed Table 1: Data collected for P1

Year	China's FDI in Angola % of GDP	Angola's unemployment rate, % of total	Education expenditure, % of GNI
2003	0.001066654	23.92499924	2.765
2004	0.000764265	23.64299965	2.69
2005	0.001271269	20.53199959	2.615
2006	0.042744501	17.67399979	2.54
2007	0.063110524	14.63300037	2.7975
2008	-0.010808844	12.04399967	3.055

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2009	0.011819564	10.60900021	3.3125
2010	0.120657049	9.088999748	3.57
2011	0.065050724	7.361999989	3.57
2012	0.30618607	7.359000206	3.57
2013	0.163887225	7.453999996	3.57
2014	-0.307846563	7.428999901	3.57
2015	0.049692905	7.278999805	3.57
2016	0.162661922	7.281000137	3.57
2017	0.522052117	7.138999939	3.57

Annexed Table 2: Data collected for P2

Year	China's FDI in Angola (USD)	Angola, Imports of goods and services (BoP Current USD)	Angola, Exports of goods and services (BoP Current USD)
2003	190000	8801255130	9709260556
2004	180000	10634512711	13797769756
2005	470000	15144220834	24286236865
2006	22390000	16288817458	33346469288
2007	41190000	26304709815	44706905587
2008	-9570000	43121530792	64243391220
2009	8310000	41829350283	41451146947
2010	101110000	35421222361	51451730499
2011	72720000	43898332405	68042543017
2012	392080000	45848189114	71873279932

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2013	224050000	49393072408	69562221910
2014	-448570000	53537918142	60851231670
2015	57740000	37968764913	34437293544
2016	164490000	25657029920	28299767213
2017	637550000	28256537256	35598035306

Annexed Table 3: Data collected for P3

Angola												
China' 's												
s FDI intensi												
in ty of												
Angol local												
Ye a	compe	1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th	
ar (USD)	tition	pillar	pillar	pillar	pillar	pillar	pillar	pillar	pillar	pillar	pillar	
20	19000											
03	0											
20	18000											
04	0											
20	47000											
05	0											
20	22390											
06	000											
20	41190											
07	000											
	-											
20	95700											
08	00											
20	83100											
09	00											
20	10111											
10	0000											
20	72720											
11	000	2.96										

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20 39208	2.6930	2.5688	1.9777	3.0397	2.4559	1.8095	2.6656	3.2732	2.2606	2.2564
12 0000	3.17	81405	9152	93554	10123	28372	85845	75578	06666	61004 74545
20 22405										
13 0000										
-										
20 44857	2.5186	2.6521	1.5527	4.0722	2.2606	1.7351	2.6359	3.0664	2.4040	2.3576
14 0000	2.82	27815	42583	60061	28192	51918	74002	03329	81333	40333 32
20 57740	2.3712	2.6330	2.2900	3.4240	2.2148	1.9640	2.4441	2.8011	2.3281	2.5557
15 000	2.6	53987	39215	14699	76648	08293	27097	00153	78433	73288 64407
20 16449										
16 0000										
20 63755										
17 0000										

Annexed Table 4: Data collected for P4

Year	China's FDI in Angola (USD)	Angola, Export unit value index (2000 = 100)	Angola, Export volume index (2000 = 100)
2003	190000	102.7905866	116.7765971
2004	180000	129.9273014	130.9327659
2005	470000	180.8588036	168.2904726
2006	22390000	214.8602586	187.2145731
2007	41190000	244.5109743	229.2278757
2008	-9570000	320.7983983	251.5265267
2009	8310000	210.7645477	244.5566453
2010	101110000	263.8772137	242.0610088
2011	72720000	372.0668713	228.3918017
2012	392080000	376.5316738	238.3675571
2013	224050000	364.1061286	236.6314669
2014	-448570000	341.4186757	218.7930632
2015	57740000	182.7511745	229.219196

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2016	164490000	141.666883	245.8589561
2017	637550000	180.1591918	242.5543556

Annexed Table 5: Data collected for P5

Year	China's FDI in Angola (USD)	Angola, Gross capital formation (current USD)
2003	190000	5424166592
2004	180000	7276093051
2005	470000	10187920711
2006	22390000	12205178423
2007	41190000	16793436246
2008	-9570000	27273480877
2009	8310000	30106131295
2010	101110000	23629203640
2011	72720000	29539702140
2012	392080000	34148595723
2013	224050000	35740017533
2014	-448570000	40071528090
2015	57740000	39741120210
2016	164490000	27520561236
2017	637550000	29468850296

Annexed Table 6: Data collected for P6