THESIS

Jawahdou Alaa

2025

BUDAPEST UNIVERSITY OF ECONOMICS AND BUSINESS
FACULTY OF INTERNATIONAL MANAGEMENT AND BUSINESS
MSc International Economy and Business

Mode of study: Full time

The Role of FDI in Accelerating Technology Transfer in Emerging Economies: A Comparative Study of China and Argentina.

Internal supervisor: Dr. Ádám Czelleng

Department of International Economics

Associate professor

By: Jawahdou Alaa

Budapest, 2025

Declaration on the work uploaded to the BUEB Repository of Degree Theses

I, the undersigned Jawahdou Alaa (Neptun code D0RSTS), declare the following in connection with my dissertation (hereinafter work) entitled The Role of FDI in Accelerating Technology Transfer in Emerging Economics : A comparatives study of china and Argentina

I declare that I have not infringed any other author's rights by uploading the work to the BUEB Repository of Degree Theses. I understand that the University does not check the existence of copyrights.

- I declare that the work is *(underline the relevant part)*
  - ☐ confidential
  - ☒ available for the public.
- I acknowledge that
  - ☒ in case of copyright infringement, the University temporarily restricts the availability of the relevant document for the period of clarification of the copyright infringement.
  - ☒ in case of copyright infringement, the relevant work will be immediately removed from the Repository by the Repository administrator.
  - ☒ if I declare my dissertation available to the public, the university will make the dissertation accessible on the Internet. My consent is a non-exclusive, unlimited authorisation in time, provided that my copyright is fully respected.

Place and date: Budapest 2025 April 16

.....

Student

DECLARATION of originality

I, the undersigned **Jawahdou Alaa** aware of my criminal responsibility, I declare that the facts and figures contained in my dissertation correspond to reality and that it describes the results of my own independent work.

The data used in the dissertation were applied taking into account the copyright protection.

No part of this dissertation has previously been used in other training at an educational institution during graduation.

I accept that my dissertation is subject to plagiarism control by the institution.

Budapest, 2025 April 16

student's signature

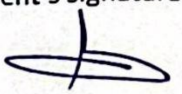

Table of Contents

Table of figures

CHAPTER 1: INTRODUCTION

It is an undeniable fact that in today's global economy, technology transfer and innovation are some of the main pillars behind economic development and growth. When we talk about this transfer, we immediately refer to the technological innovations that are being shared between different nations around the world, industries and even organizations. It is a fascinating process that shows how intertwined and connected the multiple countries' economies are. In fact, the adoption of new technologies can play a pivotal role in the promotion of economic growth through the enhancement of productivity and the emergence of new businesses from the developing of new sectors. Not only that, but we know certainly that through innovations we can help improve a lot of aspects of a country. This means that an economic growth induced from a technological innovation is often followed by a possible increase in the competitiveness due to the developing of new products or the robust enhancement of goods and services that already exist in the country. It is also important to highlight that the goal of every nation is to reduce poverty levels, provide better standards of living for their citizens by providing them with a better healthcare and maintaining a sustainable environment in which a healthy population can prosper. All of this can be potentially gained from the technological transfers coming from all over the world. However, we must keep in mind that the capability of absorption of innovations differs from nation to nation. A developing one will require more time and efforts to be able to implement up-to-date knowledge or use simply new machinery that has never been relied on in the country, than a developed country who is familiar with these kinds of technologies since there is an already established framework accommodating such improvements. Therefore, as much as this tool of technology transfer is powerful to promote economic development, it is not an easy and automatic road for growth in certain cases.

One of the most important sources of diffusion of new technologies in the worldwide economy is certainly Foreign Direct Investment. These investments that are made by foreign entities in the pursuit of economic interest not only bring capital but also give an opening to new technological innovations to enter a new country. It provides the means of bringing advancement from rich nations to developing ones, therefore fostering the economic development of the host nation. One thing for sure is that in this globalized world, FDI flows

have been consistently growing over the recent years, although we have to admit that there have been some obstacles throughout the recent years like the COVID pandemic or the Russian-Ukrainian conflict.

Nevertheless, the prominent power of FDI in connecting companies and industries from different countries cannot be suppressed completely by the conflicts and issues that are facing today's world. As a matter of fact, the flow of technology advances is being more and more promoted by FDI as multinational companies are playing a key role in influencing the host countries, therefore simulating local innovation and boosting a huge industrial development. In fact, between heavily industrialized nations and developing ones, FDI often serves as a technology link between both bringing revolutionary manufacturing techniques and productions methods, newly developed machinery and technical expertise. Even some management and operational ways are brought by these foreign investors to ensure the most up to date mentioned practices are used. Therefore, we see that multinational companies establish subsidiaries, joint ventures and partnerships with local firms as these options enable the direct technology transfer. Indirect technology transfer might also happen via licensing agreements, supplier chains, or cooperative research and development (R&D) ventures. As a result, FDI helps local businesses improve their processes and raise their output, hence strengthening the local technological basis.

Additionally, Foreign Direct Investment flows have been at the center of growth in the world's global economy in the past decades. They are the key to generating capital flow, improving productivity and encouraging industrial expansion. They are also a facilitator of infrastructure development, employment growth and innovative concepts across borders. In comparison to short-term capital flows, it is a more stable and long-term way of providing sustained economic advantages. This cross-border investment integrates host economies into global value chains, which grants them a great opportunity to gain access to more advanced, innovative technologies. Therefore, it is not only a beneficial solution for developed economies, who are equipped with technological leadership and market dominance, but also for emerging economies, as FDI acts as a catalyst for industrialization in their case. According to the World Bank, FDI plays a crucial role in bridging the infrastructure gap in low to middle income nations, creating employment opportunities and enhancing competitiveness. Moreover, the foreign investments often come with spillover effects related to knowledge, business practices that lead to an overall long-term economic growth. Emerging economies have become central points for hosting FDI because of their growing middle-class and rapid development. These economies are generally characterized by dynamic growth rates, which

attract multinational corporations; leading to their increasing integration to global value chains. This way some of them have transformed themselves into crucial players in the global economy, demonstrating the power of FDI in sustainable development. (World Bank, 2024)

One thing for sure is that the emerging economies that are located in different continents like Asia, Latin America and Africa have become the new favorite destination for FDI due to multiple reasons. In fact, their large populations, the abundance of natural resources and their congenial investment climate attract a significant amount of capital inflows which can be the driver for innovations and industrial transformations. A country like China is an outstanding example of the abundant attractivity for cross border investments due to the fact that it is the leader in global manufacturing. Not only that, but India's excellence in the information technology is worldwide being recognized as a magnet for foreign investments equaling to the amount of 107.07 billon USD by 2024. (IBEF, 2025)

Although the role of Foreign Direct Investment in accelerating technology transfer and economic growth is of key importance, the degree to which emerging economies may benefit from them remains a debatable point. Despite the previously discussed positive effects of these flows of investments some may face difficulties in making the best use of capital for a sustainable development. Challenges like the dependance on the investors' innovations, the existing poor infrastructure, the legal frameworks and the environmental considerations make it difficult for some emerging economies to get the best off these technological transfers. On the other hand, those who have domestic firms with a high absorptive capacity and an appropriate framework can leverage FDI for a sustainable development.

This thesis seeks to explore the role of FDI in facilitating and accelerating technology transfer and the contribution of it towards economic growth. Therefore, the following questions are going to be addressed:

- What are the FDI mechanisms that facilitate technology transfer in emerging economies?
- What are the existing challenges that obstruct the maximization of the FDI technological impact?
- What are the factors that foster the success of FDI in driving technological progress and economic growth in emerging economies?
- What are the economic implications of successful technology transfer and innovation in emerging economies?

- What are the policies and strategies that can be implemented in emerging economies to maximize the benefits of FDIs regarding technology transfer?
- What are the different experiences regarding emerging economies' ability to leverage FDI for technological and economic advancement?
- Which industries successfully implemented the new innovations acquired in emerging economies?

The thesis is structured to explore these questions in a comprehensive manner. The literature review tackles the theoretical foundations: technology transfer itself, the mechanisms of FDI that facilitate it and the challenges limiting it. In fact, it will review the existing literature on FDI and technology transfer and give key theories on these fields. Followed by this; an analysis provided will give an explanation on the different abilities of emerging economies in leveraging FDI for technological and economic advancement. A case study will be fundamental to understand the differences between two different emerging economies conducted though comparative research on China which is a successful example of FDI leverage for technological and economic advancement and Argentina, a country that is still struggling to be in the same position as the Asian giant.

CHAPTER 2: FDI, TECHNOLOGY TRANSFER, AND ECONOMIC GROWTH: THEORETICAL FRAMEWORK

2.1. Theories of Technology Transfer

It is an undeniable fact that the process of technology transfer via Foreign Direct Investment is highly examined in various economic literature. In fact, many theoretical models have been presented. Of these, the Dunning's OLI framework and the Vernon's Product Life Cycle (PLC) Theory offer important details on how multinational corporations distribute technology to host countries and the challenges associated with this process.

To start, the OLI model, also known as Electic Paradigm, which was developed by John Dunning, details the reasons behind the choice of firms engaging in FDI instead of going with other alternatives for market entry modes like exporting or licensing. Ownership, Location and Internalization (OLI) advantages are the three key advantages that determine a firm's decision to invest abroad and, consequently, create a potential for technology transfer. Ownership advantages are the assets of a company that give it competitive advantage in a new market. Such assets are properties, brand name or reputation, knowledge and expertise or intellectual property rights including perhaps patented technology. Location advantage relates to the benefit the firm gains if it invests in a particular market. For instance, the investor country may lack resources that are available in other countries and are crucial to its operation. Those can be natural resources; however, human resources have gained significant recognition as well. Labor in emerging economies are generally way cheaper than in developed countries. As a result, some companies outsource mainly their manufacturing processes to those low-priced locations in order to cut costs and increase competitive edge. Other locational benefits, why a firm may choose to invest abroad may be the proximity to other markets, investment incentives and favorable legal frameworks provided by the host country. The last part of Dunning's paradigm, the internalization advantage indicates why it is better for firms to transfer knowledge and technology internally rather than using external methods such as joint ventures or licensing. An internal transfer is not only more cost-effective, but it ensures that the firm is in control of information sharing, making it able to protect its intellectual property (Cantwell, J., Narula, R., 2003).

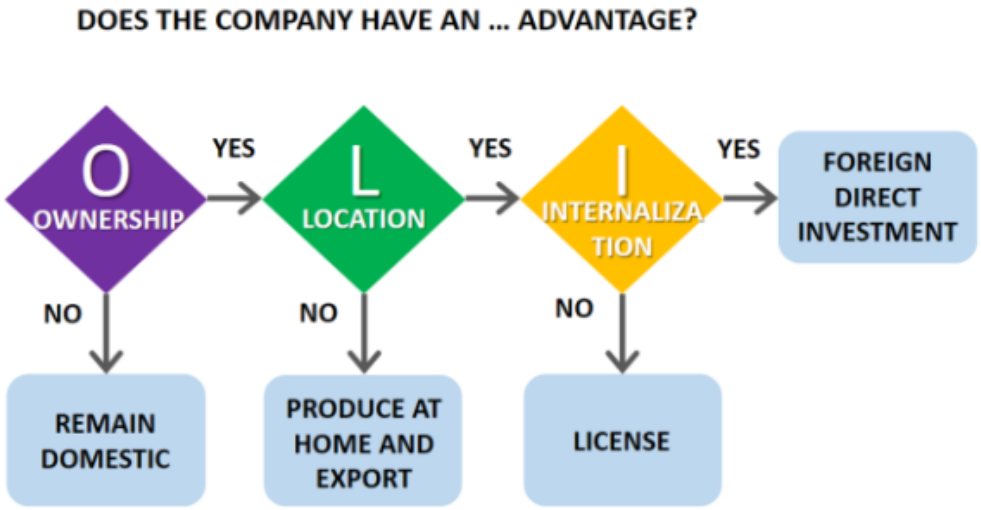

Figure 1: OLI Model

Source: https://www.business-to-you.com/choosing-the-right-entry-mode-strategy/

It is important to acknowledge that the OLI Model facilitates the understanding of how FDI serves as a conduit for technology transfer. In reality, it explains also why firms engage in FDI and why multinational companies invest in foreign economies but lacks explanation on how technological diffusion happens over time. That is the reason Raymond Vernon's Product Life Cycle (PLC) Theory is needed. It offers a dynamic viewpoint on how technology and manufacturing passes from developed economies to emerging ones as products evolves through several phases of their life cycle.

To start with, we have the introduction stage where innovations going from brand new technologies to up to date products are only developed in the home countries of the firms in which there is an already established environment for the appropriate production of these kinds of goods. In fact, factors like strong Research and Development capabilities and high-income consumers are the main reasons behind this. According to Vernon, the next stage which is the growth stage, is characterized by the expansion of the demand internationally for the product. In this phase, the firms establish other production facilities in other advanced economies that are not located in the home countries of the firms. We start seeing here the FDI flows to other countries and as a consequence some of the first glimpses of technology diffusions. In addition, the next step off Vernon's theory is the maturity stage, where we can see that the product becomes standardized, and the production process is well-established. This leads, to relocating production to developing economies as the goal now is to cut cost as much as possible. As a result, flows of FDI now are going from developed economies to the

less developed ones. Furthermore, the technology transfer induced by the foreign investments are happening due to the fact that production now happens far from the home countries and in areas where the local workforce is not trained and is not familiar with the new machinery that they are obliged to work with. Lastly comes the decline stage, where Production is entirely moved to emerging economies where the production is significantly low, and the product is exported worldwide-including back to the home nation of the firms. One thing to consider in this final stage of the product that the emerging economies may over time develop their own capabilities as the technology transfer that happened can eventually enable them to become exporters of new innovations done by their own local firms (Vernon, 1966).

This theory of Vernon clarifies how FDI promotes technology transfer across borders as the product goes through different cycles of maturity. Certainly, this emphasizes how technological diffusion induced from foreign direct investment happens over time.

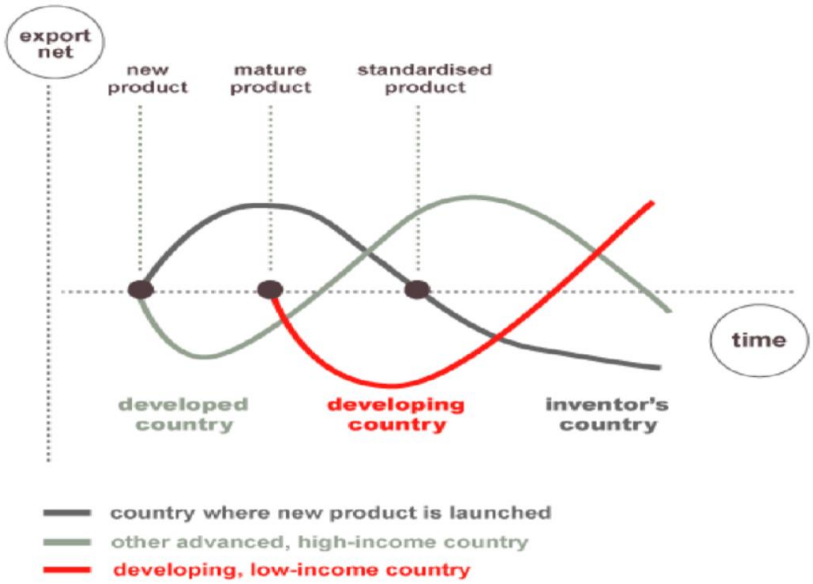

Figure 2: Transfer of production to emerging economies in Product Life Cycle Theory

Source: https://theintactone.com/2019/07/23/im-u3-topic-4-international-product-life-cycle/

2.2. Types of FDI and Their Role in Technology Transfer

Foreign direct investment is without a doubt a crucial part of technology transfer worldwide. Therefore, understanding its different types is an important step to be able to identify specifically the role of each type in the innovation transfer in host economies. FDI mostly falls into these categories: Greenfield Investments, Brownfield Investments, Horizontal FDI, Vertical FDI, Platform FDI, Mergers and acquisitions and Joint ventures.

2.2.1. Greenfield Investments

To begin with, we have the Greenfield Foreign Investment that happens when the parent multinational companies set wholly new manufacturing sites or subsidiaries abroad. Since firms provide improved production techniques, research and development (R&D) skills, and managerial expertise, this kind of investment is very successful in promoting technology transfer. In fact, a noticeable direct knowledge spillover happens from this investment through workforce training and cooperations as new knowledge related to the new machinery is essential to facilitate the initial phase of technology transfer for the host economies workers. It is worth mentioning too that usually connected with major R&D initiatives, these investments help to hasten the spread of technologies and in creating potentially supply chains that can enable local firms to more and more integrate cutting-edge technologies. Nevertheless, we have to take into consideration that the success or the failure of knowledge transfer depends on the absorptive capacity of the emerging economy targeted by the MNC (Javorcik, 2004).

2.2.2. Mergers and acquisitions (M&A)

We talk about a merger when a foreign investor merges with a local company. In this process their resources and capabilities are shared, such as for example on the one hand, the local knowledge of the host company, and on the other hand, the capital of the investor. Acquisition is a type of brownfield investment, where on the contrary to the Greenfield investment, the investor does not build the facility from scratch, instead it purchases an already established local firm in full, taking over its already existing assets and improving them, that is, its technology, market proximity and R&D. Mergers and Acquisitions play a crucial role in technology transfer in today's world. In fact, when such operation happens, local firms gain an immediate access to up-to-date knowledge and technology. The efficiency of technology diffusion in this case depends more on how much information the investor is willing to share and on the capacity of the personnel to make the best of use of these new know-hows (Görg & Greenaway, 2003).

2.2.3. Joint ventures

Another efficient source of technology transfer is joint ventures. Through them partnerships are created between foreign and domestic firms. This strategic investment allows generally both parties to share ownership and governance, providing benefits for both sides as the host company will gain access to the expertise of the foreign entity and the foreign multinational firm will get access to local knowledge. Therefore, it is undeniable fact that joint ventures are

a shining example of how technology and innovation transfer can be shared from a foreign entity to a host company and vice versa. Nevertheless, the success of such partnerships will require a high trust between partners and a secured intellectual property environment where everyone feels comfortable sharing their newest advancement without the risk of them being stolen (Görg & Greenaway, 2003).

2.2.4. Horizontal FDI

The horizontal FDI happens when a multinational cooperation decides to replicate its own production in another foreign country. This of course will have as an effect the facilitation of the production of the own goods as it will not be only focused in the home economy. But one thing to consider is that this type of FDI has a goal of seeking other markets and not to put the production elsewhere just to reduce the cost in a place where the manufacturing cost is significantly less. In order to achieve this, a technology transfer happens as employees need to be trained and new ways of management have to be taught (Jinji, et al., 2022).

2.2.5. Vertical FDI

We talk about this type of FDI, when an MNC divides its manufacturing processes among several countries in order to maximize cost savings. In fact, It is split into forward vertical FDI where companies participate in downstream operations like distribution and backward vertical FDI where foreign companies invest in upstream activities including raw material extraction. In this case the technology transfer happens as local suppliers adopt the new production techniques delegated from the foreign multinational companies that are investing as they have to meet the standards and ensure that the products that they make are meeting the requirements set. Nevertheless, it is an obvious fact that if an emerging economy who is getting vertical FDIs is very much behind the new technological innovations it will result in creating a reliance on low value activities instead of creating an atmosphere where local firms are trying to improve their technological capabilities by themselves. (Markusen, J. R. 2002)

2.2.6. Platform FDI

With platform FDI, MNCs focus on investing abroad not for the purpose of serving the host economy but to gain market presence in the chosen location, from where it further exports to third countries. This form of investment comes with plenty of benefits for the investing firm, such as the optimization of distribution markets, however, it can also positively impact the host economy. Platform FDI is most common in large-scale industries with the newest innovations. It typically involves the establishment of modern facilities equipped with advanced machinery. Passing on know-hows to the local employees is necessary to

successfully operate such facilities, leading to significant knowledge spillovers in some industries, for example, in automotive and electronics ones. By being successfully integrated into global value chains, host economies maximize their potential in expediting their technological progress and achieving sustainable economic growth. At the same time, it is important to note that the benefits may not be evenly distributed among the different sectors or regions in a given country, which may lead to a growth in internal inequality. Additionally, the host countries may become inordinately reliant on the investor, which obstructs their ability to effectively adopt the new technology. (Ekholm, et al., 2007)

In conclusion, the different types of FDIs offer various opportunities for technology transfer, each having their own advantages and constraints. Greenfield investments and joint ventures are effective in fostering innovation and technology diffusion, while M&A and brownfield investments target improving existing resources. Lastly, platform FDI enables emerging economies to participate in global value chains, improving their technological capabilities. The overall influence of FDI on technology transfer is dependent on several factors including the capacity of host countries to assimilate the new information and innovations. To make sure FDI has a positive impact on the recipient of the investment, they must make sure that the appropriate policies, institutional frameworks and infrastructure are in place. Promotion of a business-friendly environment is also essential to strengthen the connection between local firms and multinational enterprises, maximizing the potential benefits collected from them.

2.3.Spillovers from FDI

Foreign Direct Investment spillovers are the benefits a local economy realizes as a result of the presence of multinational corporations. When technology, knowledge or management practices spread from the operations of the MNC to local employees and firms, the host country may benefit from an increase in productivity, innovation and technological advancements.

Spillover effects can happen through vertical and horizontal linkages. Technology and knowledge transfer through vertical linkages are more common, since they are inter-industry spillovers, meaning that they occur through supply chain interactions. The vertical connection can be categorized into two groups, depending on the domestic firm’s position in the interaction. Backward linkage is when the MNC sources products and services from domestic companies. Forward linkage, to the contrary, is when the MNC supplies the domestic firm

with intermediate goods, services or even technologies. On the other hand, horizontal linkages refer to intra-industry connections, where a domestic firm gains benefits from directly or indirectly interacting with foreign industries, competitors, within the same industry. (World Bank Group, 2019)

FDI spillovers can affect the host economy in many ways. As a matter of fact, FDIs entering a new economy can be an efficient way to increase the competition between the firms resulting in a obligation of increase of productivity for the local companies as they are exposed to new technologies and have to adapt to the new ways of manufacturing or management. In addition to this, in case of vertical linkages MNC often require from the local suppliers' tough deadlines pushing them to fit with their requirements and therefore a lot of local firms who are unable to catch up with the latest productivity levels will have to cease to exist. Therefore, we can also say that the FDI spillovers can result in the reduction of employment in the host economies (Crespo & Fontoura, 2007). However, we have to also keep in mind that FDI may often cause a rise in employment opportunities in the country as the demand for local produced goods could rise if the local firms became more successful and the need for more goods from them is needed.

Figure 3 can reflect that the rise of employment rate is in most of the cases positively linked to the increase of FDI inflows as the decline of the global FDI inflows that happened worldwide due to the covid pandemic in 2020, or the 2008 global financial crisis were followed by a decline of the employment rate. Of course, the decrease of the employment is also linked to other factors, and it is far more complex than to just say that the inflows of FDI are the sole responsible elements of the change in the employments rates but they are heavily linked together, since positive investment trends generally come with positive effects on employment and vice-versa.

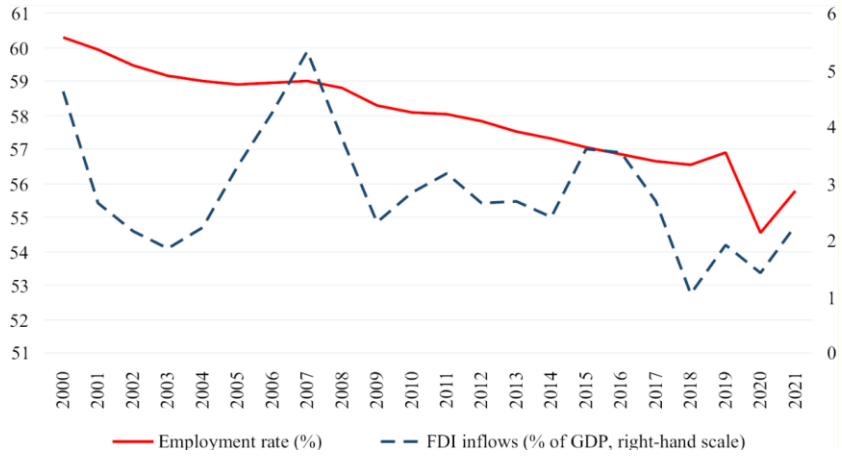

Figure 3: Worldwide FDI inflows and employment rate in percentage

Source: (Hakim, et al., 2023)

To understand more the FDI spillovers, we must look at the positive and negative impacts followed by it. Productivity growth, technological upgrading, skill development, innovation and industrial upgrading can occur as positive spillovers. Moreover, FDI spillovers can also happen through labor mobility. In other terms, employees who were previously trained by newly established MNC on how to use the newest technologies, new ways of management and operational processes can possibly change their work location and integrate other local firms who are not in connection with these foreign entities, bringing them new knowledge and expertise. Not only this, but we can also even have cases of reverse engineering to understand and be able to have an identical product which is a source of technological development as well (Crespo & Fontoura, 2007). On the other hand, the overreliance on FDI can put the host economy in a position where the multinational firms can easily outperform domestic firms with their up-to-date technologies and make them lose a big market share in their proper country. Furthermore, the global economic uncertainties can make host economies extremely vulnerable if they are highly reliant on FDIs and can easily lead them to bad economic performances. Wage differences could also be an issue since foreign companies sometimes have more financial resources to pay more and draw competent workers from local firms, therefore depleting their workforce. Furthermore, technology transfer is not always assured since MNEs could restrict knowledge exchange in order to keep their competitive advantage. Should local businesses lack the absorptive capacity to incorporate new technologies and management strategies, the possible advantages of FDI could stay limited to foreign investors, therefore aggravating economic reliance instead of promoting sustainable growth. On top of that, multiple multinational firms only delegate the low skilled activities to hosting economies

making their potential technological growth hindered as they are more focused on the less innovative parts of the businesses (Lu, Tao, & Zhu, 2017).

An overlooked factor that is worth stating too is that the big influence that foreign multinational companies can have on local governments can be often bad for the host economies as these countries will be sometimes forced to make jurisdictions facilities for the foreign entities as they are always under the risk of losing them to other economies who are more willing to have easier laws that goes in favor for the MNCs. Nevertheless, it is also in the favor of the host economies to have foreign companies operating in the country as they are a source of revenues through the corporate taxes, if rightfully implemented they can be behind the strengthening of infrastructure, healthcare and education which can be long term boost to improve the business environment and for a sustainable economic growth that definitely will have a positive impact on local firms. (Gaspareniene, et AL., 2022)

2.4. Emerging Economies

An impressive industrialization, significant economic growth and more presence within the global market are the characteristics of an emerging economy. However, it is important to keep in mind that although these economies show signs of developed nations they are not there yet as they still lack in many areas, often like medium wages presented in their job markets (IMF, 2023). In fact, they are progressing to achieve the numbers and the success that the developed nations are benefiting. These economies undergo structural changes from agricultural-based output to industrial and service-oriented sectors. Not only that but they also are aiming to gradually change the ways their institutions work by imitating the way rich countries operate theirs. It is important to distinguish that the emerging nations present high economic growth and a high attractivity to FDIs (IMF, 2023). This can be explained to the abundance of natural resources that these countries can have and the low cost high human capital that they possess, all of these factors are very important to attract businesses.

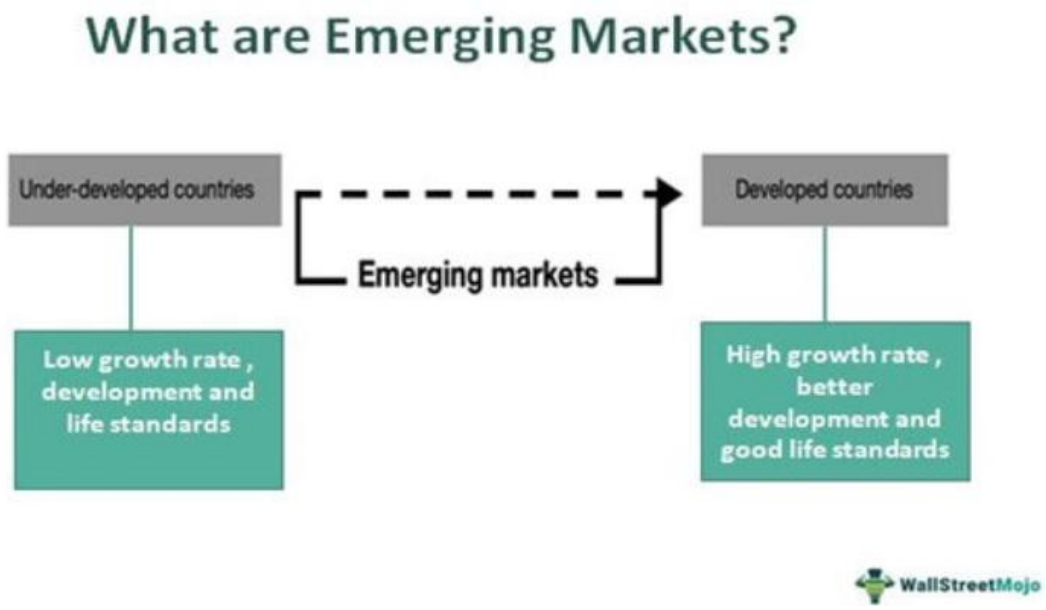

Figure 4: Emerging markets from underdeveloped on the way to achieve a developed countries status

Source: https://www.wallstreetmojo.com/emerging-market/

The BRICS members Brazil, Russia, India, China, and South Africa are of the shining examples of the emerging economies that are present nowadays (UNCTAD, 2022).

2.5. Absorptive Capacity

The extent to which host economies can make the most of the FDI inflows depends on their absorptive capacity (AC). This term refers to the ability of an economy to acknowledge and understand the incoming new information, knowledge and technology and put it to practice in its local setting. The basic assumption according to Cohen and Levinthal is that prior knowledge exists, which increases the chance of the economies to recognize the latest changes and knowledge and benefit from the spillovers. Prior knowledge alone, however, is not enough. Strong effort from the recipient to gain understanding and become competent with the latest technologies is crucial. Those firms seeking to benefit from spillovers must actively cast around for innovation, participate in actions that expose them to modernization. For instance, developing their own Research and Development department can affect their AC positively. The more a firm invests in its own R&D, the more technical knowledge it gains. Additionally, as it possesses more information it becomes more open to take advantage of the R&D of competitors. All these factors positively influence the economy's absorptive capacity of spillovers (Cohen & Levinthal, 1990).

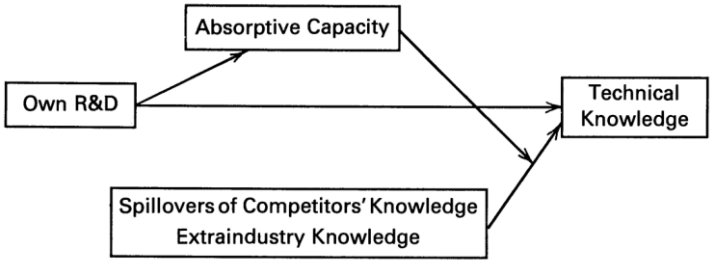

Figure 5: "Model of sources of a firm's technical knowledge"

Source :

https://josephmahoney.web.illinois.edu/BA545_Fall%202022/Cohen%20and%20Levinthal%20(1990).pdf

Moreover, having already a skilled workforce makes the task easier for knowledge transfer as these kinds of workers will have an easier time to understand and deploy the new knowledge that they acquired. For instance, an emerging economy that is already acclimated to a lot of educational programs from foreign investors and to governmental supporting initiatives promoting R&D will be always in a better position than one that is not familiar with these trainings' programs. Therefore, a weak education system, limited R&D investment, and inadequate infrastructure can restrict host economies' absorptive capacities and can be an obstacle toward gaining profit from technology spillovers. Another important factor that is highly influential for the absorptive capacity is the institutional barriers, in fact a weak intellectual property protection from an emerging economy will discourage the technology transfer to happen there from investors and as a result limit the potential upgrade of the absorptive capacity as no crucial innovation will be present in the nation (Cohen & Levinthal, 1990).

2.6.Challenges to technology transfer

2.6.1. Weak intellectual property rights

When it comes to the successful transfer of technology diffusion in either emerging economies or developing ones multiple factors enter into account. To start with, we have one of the biggest barriers which is a weak intellectual property protection environment. As a matter of fact, multinational corporations possess often innovative technologies and outstanding ways of doing business, therefore a host economy that will not provide them legal guarantees and safety that their work will not be stolen will immediately put them in a dangerous position as the risk of intellectual property violation is high in a economy where

weak patent laws is the norm and will make them research another alternative that is accommodating to their needs (Maskus, 2000).

For example, multiple trademarks are being violated in Lebanon. This effect multiple local Lebanese firms and MNCs as they are highly damaged by this. Although it takes a lot of effort for a marketing perspective to build a brand recognition and to be considered an eventual choice from the customers, these firms are losing a lot of capital due to these trademarks' infringements. In reality, the copied products can harm the original owners of the innovations if the products are of a lower quality and even steal their market shares using a poorly reversed engineered product (Hoekman & Zarrouk, 2020).

In short, these intellectual property violations can create an unsafe environment, as operating in these kinds of economies is full of potential risks for the foreign firms, reducing the FDI inflows as the establishment of potential subsidiaries or even the engagement in joint ventures can be reduced or even zeroed. Furthermore, even in the case of an already established multinational company, without legal protections and assurances the diffusion of knowledge will be limited to only low activities tasks in the host economy with local firms which hinder tremendously the host economy technological advancement.

2.6.2. Poor infrastructure

Poor infrastructure is also problematic for the emerging economies, as we know in the presence of a world class infrastructure, technology transfer can flourish faster as it facilitates enormously the task. For example, the lack of connected cities with roads can prevent the distribution of goods in the country and may result in inequalities among regions, slowing down or obstructing the overall development process of a country from technological transfer. However, problems are caused not only by the deficiency of physical infrastructure. In today's digitalized world, keeping up with the current trends and improving the digital infrastructure is inevitable in order not to fall behind. This modern infrastructure enables robust flow of information from one country to another through internet and advanced telecommunications services. It also provides a great advantage to be included in global value chains, where communication with partners is done through the use of such technology. Although for most developed countries the presence of a sophisticated digital infrastructure is regarded as a given basic factor, it is important to note that most emerging economies face a great innovation gap, referred to as digital divide. Digital divide is the inequality in access to up-to-date information technology and internet among different countries or among regions within one country. There are several factors affecting this disparity like rights, infrastructure and

socioeconomic factors, however, the most influential factor is considered to be the education levels. (Lythreatis, et al., 2022.)

2.6.3. Unskilled human Capital

An efficient absorption of new technological advancement depends on the present human capital in the host economy, the more they are educated and skilled the more likely they will have an easier time implementing new technologies. In other terms, if the opposite of this is the norm we can say that this is a significant barrier to proper technological diffusion. Another threat for emerging economies can be the lack of enough qualified workers, this can be due to the brain drain when a big number of workers migrate to the developed nations for better standards of living. In addition to this, the gap between the education systems can be really harmful for the countries who are still trying to aim for the same standards of education as the rich nations (Lythreatis, et al., 2022.).

All in all, challenges in technology transfer present a significant obstacle to making the most efficient use of the investment inflows. These potential barriers should be addressed from many different aspects: investment in proper infrastructure both physical and digital; investment in the education and training of workforce and the establishment of clear frameworks for intellectual property rights. Most of these tasks are in the hands of the governments of emerging economies. Although the foreign MNCs bring new technologies and advancement, governments must create the right conditions for successful absorption of knowledge. Without such conditions, technology transfer will remain inadequate (UNCTAD, 2001).

2.7. Theories about the impact of FDI on economic growth

Multiple types of theories about the effects of FDI on economic development are present in the literature. One of the theories is the dependency theory. Although there are different interpretations of this theory, basic concept is that the developed countries, referred to as “Core”, gain benefits at the expense of the developing ones, the “Periphery”. The lasting underdevelopment of the Periphery is due to its dependency to the Core. (Munro, 2025.)
The supporters of the theory assume that the impacts of FDI on emerging economies is negative, making it even more difficult for them to progress. The exploitative side of FDI for the developing economies for their low-cost workforce and abundant natural resources in exchange for often not the most up to date technologies is problematic.

On the other hand, however, it is beyond a shadow of a doubt that FDI can be the key driver for economic advancement in case of emerging economies, since those may not have the sufficient resources, such as capital or technology, to significantly progress on their own. It is important to note that FDI alone is not enough to achieve economic growth: the previously discussed absorptive capacity of an economy and the institutional setting plays a crucial role. (Bénétrix, et al., 2023.)

Additionally, the neoclassical growth theory by Solow states that the economic advancement is achieved through external factors like technology and capital, both of which can be increased by Foreign Direct Investment. As new technology is brought by FDI, the productivity of the workforce increases and the way capital is used improves. This theory implies a positive relationship between FDI and economic growth. (De Jager, 2004.) Furthermore, according to the endogenous growth theory – the opposite of exogenous or neoclassical growth theory -, economic progress is achieved by internal factors such as human capital and technology improvement. This theory states that technological improvement is achieved internally, therefore FDI serves a key function in indirectly affecting growth through spillover effects and technology diffusion. (Mahembe & Odhiambo, 2014)

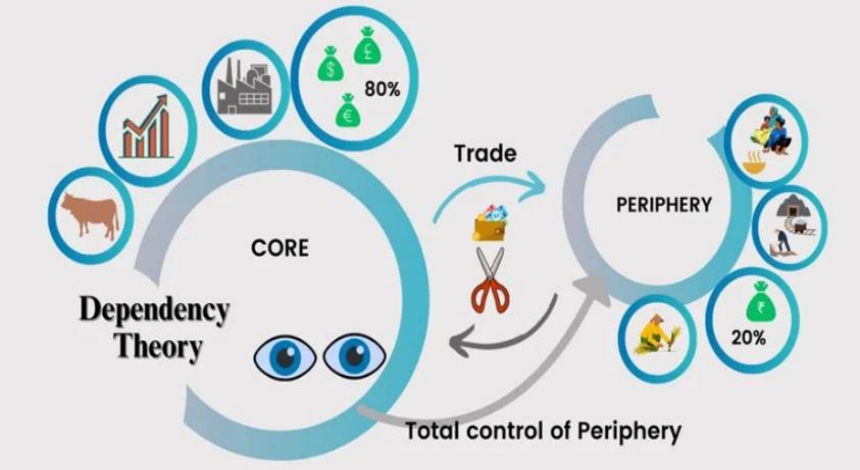

Figure 6: The Dependency theory model

Source: https://medium.com/@thepolicytank/is-development-for-the-global-south-impossible-from-the-perspective-of-dependency-theories-9badcecf4a0b

CHAPTER 3: RESEARCH METHODOLOGY

3.1.Methodological approach and its justification

The objective of this thesis is to understand why China has successfully leveraged technological transfer from FDI, catching up with world trends and becoming a world leader in some of today's most prominent industries, while Argentina has struggled to seize many opportunities to benefit from technology spillovers of foreign investors.

Due to the complexity of the process of technology transfer, and the nature of the topic itself, the research was conducted with qualitative approach, through a comparative analysis. Technology transfer cannot be easily measured using macroeconomic indicators only, because the context and quality of its channels are of great importance in evaluating its success. In this context, the quality of FDI is more significant than its quantity, because the volume only does not reflect the characteristics of the investment and their positioning in local institutional environments. In addition, the intentional or unintended consequences of regulations, policies and institutional frameworks can only be examined using qualitative data, they cannot be expressed in numbers. The qualitative approach also enables the investigation of more compound socio-economic factors that influence the process.

3.2.Methodological Approach

The topic is analyzed through case studies, document overviews and comparative techniques to gain an insight into the strategies, policies and outcomes of technology transfer in the two countries, in different key sectors. The comparative design focused on China, as a case of successful technology absorption from FDIs, and Argentina, the case where FDI was not well utilised for technology diffusion. This method enables the identification of differences and similarities between the two countries. This thesis does not involve quantitative modelling. It relies on secondary data and thematic comparative analysis. The primary method for collecting data was document analysis. This involved systematically reviewing policy texts, legal frameworks and already existing academic studies to outline trends and disparities in technology transfer mechanisms between the two emerging markets. The majority of secondary sources were retrieved form international organisation, such as the World Bank, United Nations Conference on Trade and Development (UNCTAD) and the Organisation for Economic Cooperation and Development (OECD), as well as from the two countries'

government reports on strategies for innovation and technology transfer regulation. Other, academic literature has been carefully reviewed as well. The information gathered from these sources is thematically organised according to recurring matters, that is, government policies on FDI and the regulatory frameworks; sectoral composition of FDI; institutional frameworks to foster technological advancements, and the outcomes related to the technology spillovers. Hence, a structured comparison could be conducted.

3.3. Limitations of the methodology

Although the methodology used provides deep insights into the matter, it also comes with some limitations. As two countries are compared, there are some differences in the data availability, for instance, the sectoral FDI data may be more comprehensive in China than in Argentina, not allowing for an all-inclusive comparison. Additionally, due to the lack of primary data, some internal governmental procedures and decision-making actions cannot be separately corroborated, in the view of the fact that the study relies on published resources.

CHAPTER 4: THE COMPARATIVE ANALYSIS OF EMERGING ECONOMIES: CHINA AND ARGENTINA

The rapid growth of emerging economies in the past century has been driven in part by foreign direct investment, reshaping the trends of global trade and investment flows as well as geopolitical relationships. FDI offers plenty of opportunities for advancement to emerging economies, such as capital, technology transfer and expertise and even integration in global value chains. Countries that did not have much relevance in the world economy before, like China, Brazil, Indonesia, Argentina and India, have become essential parts of the global economy. Despite the fact that some developing countries, such as China, manage to successfully make use of FDI to boost their economy through industrialisation and the assimilation of the new technologies, some, like Argentina, are stuck in the process of development due to political and structural instability, inadequate reforms or the non-efficient use of new knowledge and resources. What is the driving force behind these differences?

The aim of this chapter is to examine the FDI strategies of these two economies, studying how they are able to attract investment flows from abroad and benefit from technology transfer that comes with it. By comparing the two countries, the study will shed light on what makes an emerging economy investor friendly.

4.1. China's economic history

At some point in history, around the Song Dynasty (10^{th}-13^{th} century), China had the most developed technologies in the world. However, as the GDP per capita began stagnating in the 16^{th} century, China lost its leadership. As this stagnation lasted until the 18^{th} century, China's performance in the global economic setting reached its lowest point, when it missed out on the industrial revolution. The reason behind this failure may be the unprofessional political and institutional system that was characterized by the prioritization of interest of the members of the bureaucracy over the interests of the nation as a whole. The People's Republic of China was established in 1949 and under the governance of Mao Zedong of the Communist Party, China intended to strengthen its technological development through investing in hard industries like other social economies. Several programs were launched that, after all, lead to horrible outcomes. One of these programs were the "Great Leap Forward" at the end of 1950's, the aim of which was to expedite the industrialisation process. (Zhu, 2012) The basic concept of this program was the prioritization of human labour rather than relying on

machines. The program included actions that hindered the productivity of people and the agriculture as a whole. Some examples are: working tools were melted in order to create some steel, and natural disasters were created by slaughtering animals as part of the “Four Pests campaign”. These actions led to famine in the country and an economic breakdown. (Britannica, 2025) Regardless of the disaster such programs caused, China managed to increase its GDP per capita until 1978. The main reason according to Zhu is the growth in population and physical capital in this period (1952-1978). (Zhu, 2012)

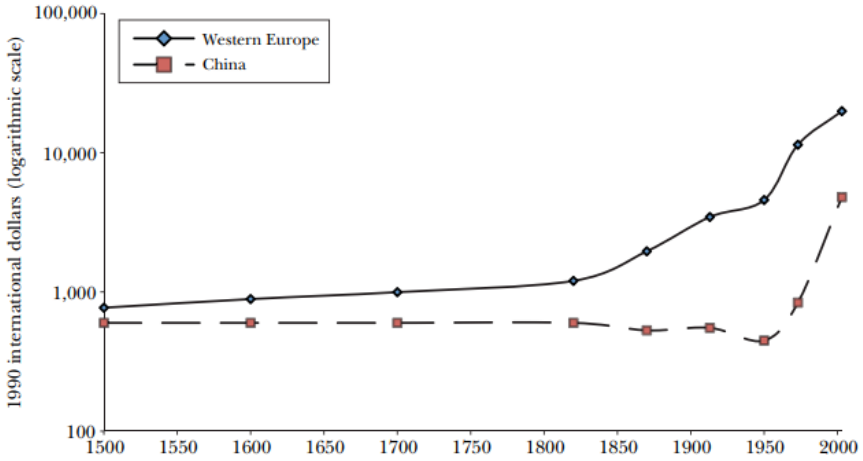

Figure 7: Per capita GDP of China and Western Europe

Source: Zhu (2007).

After the ruling of Mao Zedong, the planned economy collapsed and the new government started the system of reforms, named Reform and Opening up Policy. Since then, the economy of China has been growing significantly. The reforms were implemented gradually, following an experimental approach. This approach enabled the identification of pain points in the policies and the improvement of unsuccessful areas, this way China was able to stay consistent with its reform goals, regardless of the challenges it faced. To slowly move away from the planned economy, the government established a dual price system, that enabled, for instance, farmers to sell their additional products at the market price, after the quota requirements are met. This incentive promoted productivity among farmers. In addition, the government promoted private enterprises by restructuring the state-owned enterprises, and reallocation of resources to motivate competition and lead the economy towards a market-economy. As a result, the private firms contributed to employment and achieved a never-before-seen return on assets, averaging above the state-owned enterprises. (Khor et al., 2019) Economic decentralisation began, giving authority over many firms to local governments, which operated under free market policies; citizens were also incentivised to start their own

businesses. The reforms included also trade liberalisation, meaning that trade barriers were lifted and the tariffs and other restrictions were reduced to promote international trade (Morrison, 2019). An important factor that contributed to China's robust development was also the establishment of special economic zones (SEZs), that offered several opportunities for economic improvement, ranging from innovation hubs to free trade or special tariff zones. SEZs play a pivotal role in China's economic advancement through the acceleration of industrialisation and the creation of 30 million jobs. The economic zones made capital and technology inflow from abroad accessible for the country. (Zeng, 2015) The trade liberalisation coupled with such economic zones successfully attracted FDI, which played a great role in benefiting from technology transfer. According to Zeng, these special economic zones have a dense population of highly qualified people, which drives these zones to be technology hubs, leading areas for innovation. (Zeng, 2015)

FDI inflows have grown rapidly from the 1990's reaching about $350 billion in 2020. As China recognised the importance of technology in driving long-term economic growth, it opened up to foreign investors to foster technological development. (Zeng & Zhou, 2021)

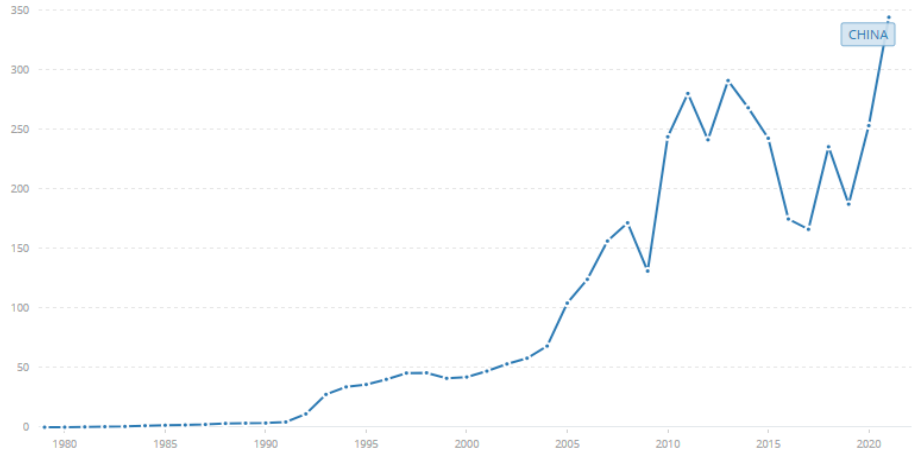

Figure 8: Foreign direct investment, net inflows (BoP, current US$) – China

Source: https://data.worldbank.org

4.2. Legal framework and policies fostering technology transfer

The Chinese government has implemented several incentives and programs to foster technology advancement. One of the projects was the so-called "Four Modernization" program in the late 1980's, the aim of which was to achieve a full-scope modernization in four areas: Industry, Agriculture, Defense, Science and Technology. The modernization of these fields was made possible because of the new sentiment of Deng Xiaopin, who

encouraged opening up the economy and liberalizing foreign trade, therefore allowing the inflow of foreign capital; advanced technology and knowledge. In fact, China adopted institutional and legal changes to make the country more a friendly investment environment for foreign entities. For instance, the Sino-Foreign Equity Joint Venture that started in 1979 was an important turning point as it finally allowed multinational companies to enter joint ventures with Chinese firms. This obviously had a major effect on the country as it ensured technology transfer and knowledge spillovers to the local businesses. As the demand for investment in China grew, the government took a new step to significantly increase FDI inflows and benefits from those by the introduction of the Wholly Foreign-Owned Enterprise (WFOE) Law in 1986, which enabled the creation of independent businesses by foreign investors without the requirement of a Chinese partner. This law allowed the investor to operate fully on their own, keeping all rights, including decision-making, and profits for themselves. The most favored sectors for investment were manufacturing, services and more recently, high-tech industries. (RegistrationChina, 2024.) This shift reduced the reliance on local firms significantly, however it encouraged the biggest multinational companies to enter the Chinese market and invest. Therefore, sectors like electronics, automobiles and even telecommunications saw drastic improvements and were behind the impressive industrial revolution that happened in the country. This modernization resulted a significant technology transfer as China strategically imposed the terms of foreign investment forcing companies to share their knowledge and innovations with them as a condition for entering their market enabling the domestic firms to have a chance to successfully assimilate and absorb the foreign new knowledge and to make sure that they are the next to develop the same technology and copy the know-hows. However, in 2020 a new Foreign Investment Law (FIL) entered into force. The aim of this legislative step is to protect the rights of those who seek to invest in the country and make investment more attractive. One point of this policy is the protection of intellectual property rights of foreign firms by banning the use of administrative measures to force technology transfers. As foreign enterprises may feel less threatened by the violation of the intellectual property rights, new investments that have been pending may now be initiated (EY, 2021). Moreover, China proposes several tax incentives to encourage investment and technology transfer. One such program is the High and New-Technology Enterprise (HINTE) incentive, which offers 10 percent lower corporate income tax than the statutory rate, that is, 15 percent in case of qualified high-tech companies who have obtained the required certification. (Hawksford, 2023) A similar incentive has been created for technology-based small- and medium-sized enterprises (TSME), who engage in R&D activities and are

potential HINTE candidates and advanced technology service enterprises (ATSE), who provide information technology, business process or knowledge process outsourcing. In addition to the tax incentive, the government reduces R&D expenditure from the taxable income in many sectors. (Zhou, 2023)

4.3. FDI Trends and Their Impact on Technology Transfer

Foreign Direct Investment contributed significantly to the economic transformation and development of China, so much so that the country became the number one destination for FDI. The main investors in 2023 were Asian countries, with Hong Kong in the first place, but other developed countries like the United States, United Kingdom, Germany and France are investing in China as well. (Ministry of Commerce of the People's Republic of China, 2025)

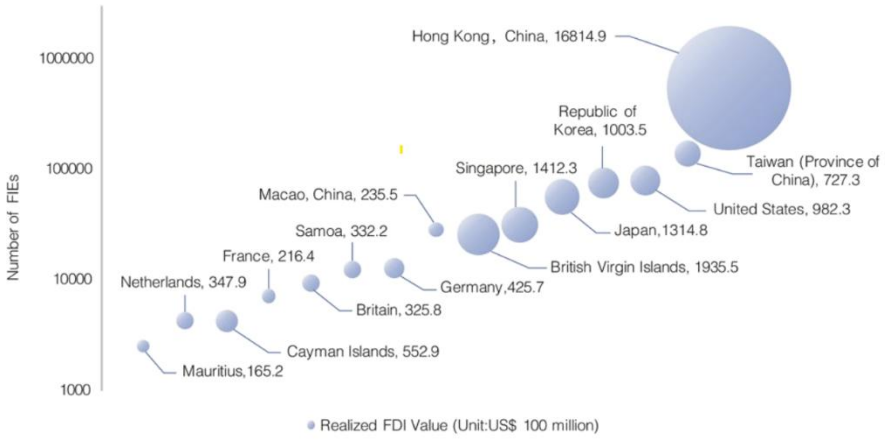

Figure 9: Top 15 FDI Sources of China as of 2023
source: https://fdi.mofcom.gov.cn/EN/come-datatongji-con.html?id=16112

Several factors made this possible, including the previously discussed Special Economic Zones, the legislative reforms and more and more preferential incentives for foreign investors. As China started opening its economy and transitioning, the FDI inflows gradually increased from 1990's, as shown in Figure 8. The first major increase can be seen from 2001 until 2008. 2001 marks the year of China's accession to the World Trade Organization. This was a

significant milestone in China's integration into the global economy and trade. Many requirements needed to be met or agreed to as a prerequisite of the accession, most of which were in favor of increasing FDI inflows. The provision of full trading and distribution rights to foreign investors, the reduction of tariffs and elimination of quotas were all such requirements. These tariff reductions affected products of almost all major industries, that is, agricultural, non-agricultural and industrial products as well. China agreed to increase access to its services sector by lifting up restrictions on industries, increasing the limits of foreign ownership in, for instance, telecommunication services, and eliminating other investment conditions that put foreign firms into a disadvantageous position. (Dorsey, 2003) These criteria had to be met by specific deadlines, most of them by the end of 2025. Although the financial crisis of 2008-2009 had a negative impact on FDI as well worldwide, China seemed to have not suffered as much as other countries and recovered from it quite fast. Compared to the 39 percent global decrease in FDI flows, in China it only fell 2.9%, as FDI stopped declining by the end of 2009. (Bureau of Economic, Energy and Business Affairs, 2010) This resilience could have presented economic stability, making China an even more attractive destination for investors, which could explain the rapid increase of investment inflows between 2009 and 2011. After China became the largest host of FDI in 2014 (UNCTAD, 2015), the country experienced another swift decline in FDI inflows in 2017, as a result of the growing tension due to the starting trade war between China and the Unites States of America. What is also notable, is that during the COVID-19 pandemic, the overall net FDI inflows were strongly increasing, until reaching a peak point of $344.07 billion in 2021. At the breakout of the pandemic originated from Wuhan, due to the strict lockdowns and government measures that had a strong impact on industries, the foreign direct investment flows declined. However, China was able to recover early from the economic effects of the pandemic. By April 2020, the country was able to mostly contain the virus, allowing the economic environment to slowly go back to normal. Fiscal and monetary policies were implemented to foster the recovery of businesses and individuals. Although the economy in terms of GDP growth has been severely affected by COVID-19, Figure 8 shows a great increase in inflows of investment. (Jin, H. et al, 2024)

The speedy and successful recovery from the pandemic made China further more appealing for investment. The recent shift towards a more consumption-oriented market, the growing middle class and urbanization also attracted investment in the consumption goods and technology sectors. Additionally, the development of the Belt and Road initiative, the aim of

which is the development of a global infrastructure, or the “New Silk Road”, positively impacts Chinese FDI to some extent. (Chen & Lin, 2018)

In spite of the positive trends, investors are becoming more careful due factors like the raising geopolitical tensions, such as the trade war between China and US; the increasingly tougher legislative environment, including the National Intelligence Law and other cybersecurity laws that may hinder data privacy or the intellectual property rights of investors. Another factor is the increasing competition in high-tech sectors as domestic firms get access to advanced technologies. To tackle this latter issue, Free Trade Zones (FTZ) were established and are being expanded. Within these zones, the local customs authorities cannot intervene in the operations of investors, such as manufacturing or re-exporting. FTZs offer favorable conditions to companies registered within these areas including lower corporate tax rates, free currency exchange rates, faster value added tax refund and many more. (FDI China, 2023.)

These trends in FDI have shown strong correlation with technology transfer, impacting both the nature of the transfer and the pace. Technology transfer has always been a crucial element of China’s economic strategy, therefore the Chinese government has actively incentivized the FDI in technology and R&D sectors such as automotive, telecommunications and electronics. Considering that in the beginning, multinational corporations could enter the Chinese market only through joint ventures, it is beyond question that the economy strongly benefited form technology spillovers, as Chinese firms and employees were exposed to modern technologies. Eventually, this transfer of expertise made local companies competitive, entering and slowly moving up the value chain. Hence, China gained relevance from low-cost assembly to higher-value added productions and innovations as well. Other earlier policies, such as the forced technology transfers also increased the potential for domestic industries, although this practice did push several investors away due to potential intellectual property rights violation. The government has also established programs to prioritize self-sufficiency, including the “Made in China 2025”. The aim of this program is to achieve top tier participation in global value chains by upgrading the whole manufacturing industry by 2025. A noteworthy goal of this project is the increase of domestic core components and materials in production chains up to 70 percent. However, this program may hinder the options of multinational enterprises, as the goal of this program is clearly the improvement of local companies. (Kennedy, 2015)

Despite the geopolitical tensions that affect technology transfer as well, China continues to be a major hub for FDI. The technology diffusion from those foreign investments enabled Chinese firms to become exporters of advanced technology themselves. (Hu, et al., 2024)

4.4. The Role of FDI in Technology Transfer in China's key sectors

It is an undeniable fact that the revolutionary economic reforms that were introduced in the late 1970s play a big role in the attraction of foreign direct investment to the Chinese nation in different sectors. These investments were the catalyst for the huge modernization and the technological upgrade that happened in the country. In fact, the reforms led to a big success in making China one of the world most favourite destination for FDI. According to the World Bank the flow of annual FDI jumped from almost a value of zero to a staggering amount of 100 billion USD in 2008 in just 40 years. In addition to this, the influence of multinational companies was so big that half of China's trade and exports were behind their operations (World Bank, 2010). These big numbers that are done by foreign companies are induced by the strategy that the Chinese government decided to pursue from the beginning of the economic reforms, as they were proposing to the MNCs certainly a big market for them to operate but only if they exchange their technological innovation and be involved in the transfer of the advancement with China's domestic firms. Furthermore, multiple policies were implemented to make the best use of the knowledge that is coming from the foreign companies via multiple mechanisms like the training of local employees and the different cooperations between local firms and multinational companies. However, it is important to mention that the productivity growth and the technological upgrades were not the same in all the sectors as the local absorptive capacity is different from sector to sector. As a result, an in-depth examination of the technology transfer that happened in China's key sectors is necessary to understand how FDI facilitated the flow of knowledge and innovation for domestic firms.

4.4.1. China's automative sector:

Before the economic reforms that started in 1978 China's productive capacity for cars was minimal or even non-existent as the manufactured vehicles only reached 5200 cars, this shows how much the gap is big between the giant developing economy and the rest of the developed world at that time. In order to fix this issue and make China become an important manufacturer of cars, the introduction of the Law on Joint Venture by the government helped a lot as the Chinese nation became a potential destination for foreign car producers with their update to date innovations. Furthermore, the foreign multinational companies operating in the automative sector that wanted to engage in joint ventures with domestic Chinese firms faced strict but fair requirements that were necessary for the technology transfer to happen in China. In other terms, a foreign firm had to share 40% of the production to the domestic firms in the

first year of joining a joint venture going up to 80% in the third year. (Xue, Y. S., Wei, W., & Greeven, M. J., 2024)

As a consequence of these reforms' multiple important multinational companies from the US and EU started to join the Chinese economy with investing in joint ventures. In 1983, one of the most significant deals happened as the American motors corporations invested 51 million USD and started manufacturing one of their jeep models in the Chinese capital. Followed by this the giant car manufacturer Volkswagen signed a 25-year Joint venture agreement to start making one of their models which is the Santana sedans in Shanghai. Not only this, but even the French car maker Peugeot participated in the making of some of their vehicles in Guangzhou through joint ventures in 1985. These joint ventures came with revolutionary knowledge that was necessary for China to go to the next step, and they made the biggest local domestic car makers (FAW, Dongfeng, and Faw) produce more than 2 million vehicles annually in the early 2000s.

The benefits of the reforms started to slowly become more visible, and the technological transfer was forced as the foreign companies that brought new ways of doing business, modern technology, outstanding designs were obliged to instruct and train their Chinese partners in order to be able to operate with them and still have access to their market. (Huang, 2006). As a result, the affiliated firms and even the unaffiliated ones started to gain more and more knowledge and became better and better in the car manufacturing sector. However, the strategy that China used to force the technology transfer from the developed nations to their economy can be seen as unfair as they used the fact that these companies can only have the Chinese market access if they engage in joint ventures with local domestic firms. It was still a victory for China as now they are participating in the global manufacturing process and hold know-how that enabled them to launch even their own brands like BYD and NIO who are not producing conventional cars but electric vehicles technology-based ones.

In the case of the automative sector, we can undeniably say that the technology transfer happened through the mechanism of joint ventures. In the beginning, the multinational companies transferred not the most up to date production techniques to their Chinese partners and they often did that sometimes for a licensing fee. A famous example of this is the Volkswagen who licensed its Santana model technology to Shanghai Volkswagen for a fee estimated around 126 million that was paid over 10 years (Jia-Zheng, Y., & Broggi, C. B., 2023). However, as more time passed and more joint ventures were established in the country, we saw that more and more important knowledge started flowing into the economy. In addition to this, other forms of spillovers were visible in the country as the employees of

foreign ventures either decided to move to local Chinese companies or opened their own firms.

A recent study by Bai et al. (2020) demonstrated unequivocal evidence of knowledge spillovers from international joint ventures to Chinese automakers associated with those ventures. Domestic automotive manufacturers collaborating with international joint ventures enhanced the quality of their self-branded models by an estimated 3.8–12.7% (measured by faults per 100 vehicles) and boosted profitability by 1.0–3.5% from 2007 to 2014, attributed to knowledge transfer.

Regardless of the big success that came with the transfer of technology in the automative sector, China failed to transfer innovations related to the internal combustion engine vehicles as foreign companies managed to block the transfer knowledge to not have a new future competitor. This has led to a rise in domestic firms that happened starting from 2010 when it comes to the production of electric vehicles. In fact, to compensate for the lack of the technological capabilities in the internal combustion engine vehicles, China managed to create strong private companies like BYD, Geely and NIO with a strategy that relied in developing strong Research and Development by attracting workers from foreign companies (Huang, 2006). Due to this successful initiative; the Chinese brands cited were able to get 63% of the domestic sales for cars. The liberalization helped more these domestic firms to get better numbers as starting from 2020, when China removed the foreign ownership limit for auto companies. This policy was very also beneficial for the giant electric car manufacturer Tesla that was able to establish a giant factory in Shanghai and not to be bound to enter the Chinese market with the joint venture law. The American company brought the most up to date electric vehicles technologies with their revolutionary batteries, this was a 100 % FDI investment and a significant change from the technology mechanism transfer for the auto manufacturing sector that so far relied only on the joint ventures that were established in the country. In other terms, from highly controlled joint ventures in the early 90s to more open competition in the 2020s is the new strategy for China for the technology transfer (Jia-Zheng, Y., & Broggi, C. B., 2023). The figure 10, shows also the impressive leadership that the Asian giant emerging economy managed to secure as they now posses the top sellers for battery electric vehicles in 2025, this was again a proof of the success that they managed to achieve and a demonstration of how China was able to leverage FDI for technological and economic advancement in the car manufacturing sector.

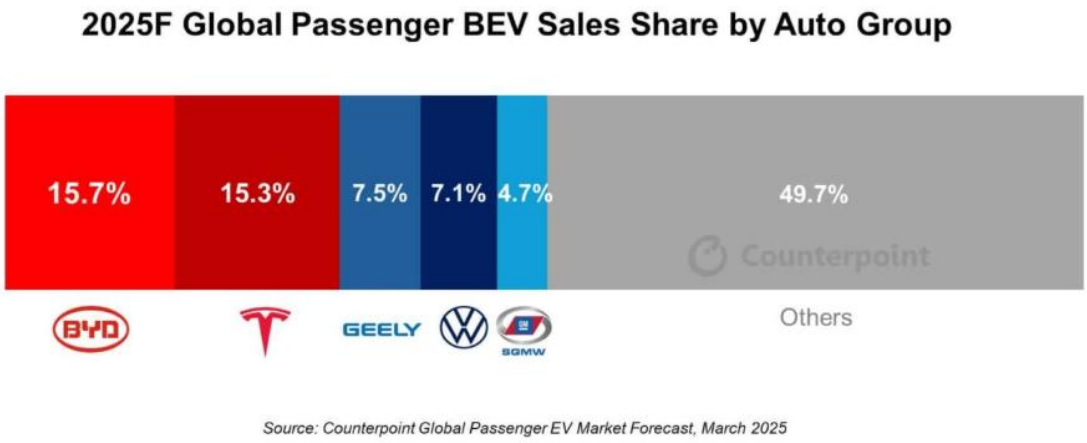

Figure 10: Top Battery electric vehicles seller in 2025
source: https://carnewschina.com/2025/04/03/byd-dethrones-tesla-as-worlds-top-bev-seller-for-two-consecutive-quarters/

4.4.2. Renewable energy sector: a journey from licensing to leadership

The journey of China with renewable energy was facilitated by FDIs and the foreign technology that came with it, in fact the push to this sector was started in the early 2000s and late 1990s when the country saw the potential that technologies like wind turbines and solar photovoltaics can bring in the matter of clean energy innovations and to cover the power needs of the nation at that time, and of course for a better environment. Licensing designs from European companies was the way to start for the domestic firms. in fact, buying the manufacturing license for a 600kW turbine from Jacobs Energie is how the biggest wind turbine producer of China Goldwing started (Global Times, 2010). Not only this but other Chinese firms followed this trend of obtaining foreign turbine knowledge through joint venture and licenses like in the case of Sinovel and Dongfang who managed to pull innovations from Repower and Aerodyne. As a result of these FDI-related acquisitions, technologies were poured into Chinese domestic businesses providing them critical initial boost in the turbine technologies that was the first step for them to localize manufacturing and progressively enable them to innovate the imported concepts.

Companies like GE wind and Vestas who are global leaders in the wind power sector played a key role in the technology transfer in China as they invested significantly by setting facilities for assembling and through also joint ventures. The information's related to building gearboxes and blades were passed to Chinese engineers through their foreign direct investments (Joanna, 2020).

On the other hand, when it comes to solar photovoltaics, the role of FDI was a bit different as the solar panel industry in China was growing significantly by itself through domestic Chinese firms. However, there were instances where foreign companies were needed for some technologies. The establishment of BP Solar a joint venture in Xi'an and the investments made by other firms from Taiwan and Germany in Yangtze Delta Solar cell manufacturing is a prime example of how the foreign multinationals pushed the advancement in the solar panel industry when they were needed. China also gained from the repatriation of Chinese scientists who brought technological expertise in the matter of solar energy, a sort of human capital FDI (Hove, 2024).

Certainly, through these informations we can tell that technology transfer happened and the mechanism of tech transfer in renewables were licensing agreements, joint ventures and foreign funded Research and development projects. In fact, having perfected the principles from the transferred designs, Goldwind's licensed German design served as the basis upon which it developed its own research facilities. This enabled the Chinese firm to develop and build 1.5 Megawatt turbines in 2000. A clear sign of knowledge transfer in the case of renewable energies. Furthermore, China's domestic companies expanded their knowledge and started even manufacturing blade design necessary for the turbines functioning; all of this was induced by the joint ventures previously mentioned. The government and the UN's clean development mechanism program were also behind this as they were launching initiatives for joint Research and development collaborations to make sure that the highest standards of wind technology are met through the diffusion of technological innovations from European companies like Vestas from Denmark and Gamesa from Spain (Hove, 2024).

The impact of FDI in the sector is so impressive that China is currently the world leader in the renewable energy. The magnificent jump from almost a non-existent base of manufacturing to becoming the host of half of the world's wind and solar power capacity is due to the successful leveraging of FDIs. In other terms, China didn't just stop with a simple transfer of basic knowledge but managed to secure core and highly important technologies through the investment of foreign companies and now they are the world leaders in renewables.

According to the Global Energy Monitor, China has 310 GW of wind power and 228 GW of solar photovoltaic capacity in operation, nearly equaling the total of the rest of the globe combined. (Irwin-Hunt, 2023)

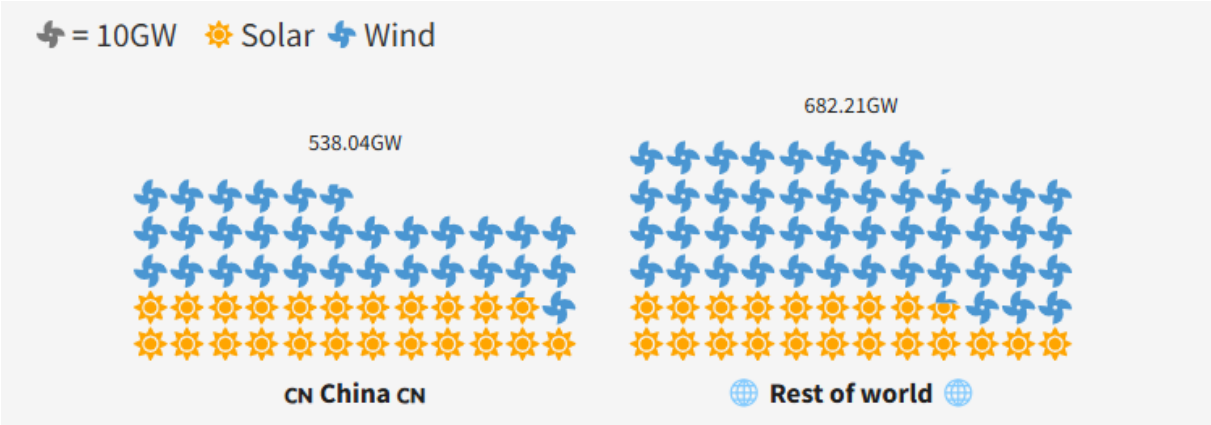

Figure 11: China's renewable energy compared to the rest of the world
source: https://www.fdiintelligence.com/content/5aae86de-2ae5-5329-a4a8-03bc6dd8cdbd#:~:text=China%20has%20almost%20as%20much,ahead%20of%20the%202030%20deadline

In addition, Chinese turbine makers like Goldwind, and Envision managed to rank among the top global market share. Not only that but even domestic solar panel producers like LONGi hold impressive numbers as they supply over 70% of the world's panels. This once again is the proof of the huge success of the Chinese nation in absorbing the necessary knowledge from the FDI and managing to use the technology transfer to improve and push for more domestic innovation. By the 2010s, Chinese firms began submitting their own patents frequently representing minor enhancements of international ideas, and substantially reducing costs, an influence that undoubtedly benefitted the global renewable sectors (Hove, 2024). This is another proof that China managed to go to the next stage as more and more investments are coming from domestic firms and foreign companies currently hold a very small role in the chinese renewable energy sector. However, it is an undeniable fact that the level of advancement reached in this sector was boosted by FDI and by China's ability in ensuring that the necessary technology transfer happens when they lack expertise or knowledge (Irwin-Hunt, 2023).

According to the World Bank and the figure 12 provided by them, the country that holds the world's biggest investments in renewable energy from 2010 till 2019 is China with a huge amount equaling 758 billion US dollars (De Gouvello, Song, 2020)

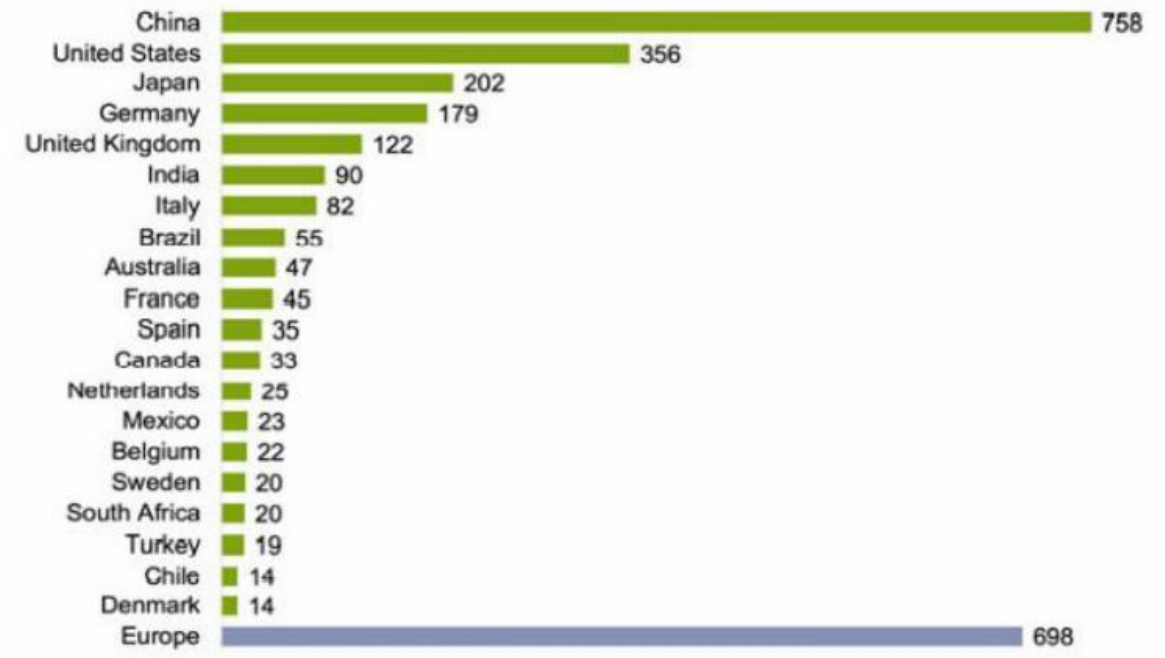

Figure 12 : Renewable energy investments in some countries from 2010 to 2019

source: http://documents.worldbank.org/curated/en/162841638508597254

(De Gouvello, Song, 2020)

4.4.3. Integration into global value chains for Electronics and High-Tech sector

Since the 1980s, the electronics sectors has been the target of multiple foreign direct investments and is one of the biggest sectors that went through technology trasnfer. In fact, the efforts of the chiniese government in facilitating the road for foreign multinational companies to invest in China when it comes to high-tech industries and information communication technology made possible a hugh transfer of knowledge and expertise (Xing, 2012). As a result, the foreign firms were able to record striking numbers. their role in the exports of high tech products was so visible as they accounted for more than half of China's total exports (the total value of exports is estimated to be around 492.4 billion USD). All of these high numbers partially contributed from multinational companies were facilitated by the existense of a government that understood all the necessary needs to operate sucessfully. In fact, the development of infrastructure, the impressive quality of chinese workforce and the high potential of the country made this possible. The figure 13 shows the foreign invested firms contributions to high tech exports and we can see through it that the shares are so significant throught the years. Once again this proves and reflects how deeply global electronics manufactures are integretad in China's supply chain and economy. Companies

from all over the developed economies built factories in the Chinese nation to produce products ranging from mobile phones, digital cameras and even microships.

Figure 13 : The foreign invested firms contributions to high tech exports in percentage source : (Xing, 2012)

For instance, Motorola was among the initial US investors, establishing a semiconductor facility and phone assembly in the city of Tianjin in the early 1990s. likewise the finnish mobile manufactrurer Nokia decided to pursue the same by opening multiple factories in guangdong. This trend of major electronic companies setting their operations in China was more prompted when China decided to join the WTO in 2001. At this point, the giant emerging economy transformed from a country that produces minimal electronic gadgets to a hub of FDI from all the developing economies making itself the ‘’factory of the world’’ with all the new cutting edge technologies and innovations. According to the world economic forum, China's policy change regarding WTO access let 100% foreign-owned high-tech companies enter the country and to heavily spend in introducing new technology via wholly-owned affiliates instead of joint ventures only (Girma, 2015).

It is a fact that the sector of electronics had such a big technology trasnfer through FDI from foreign electronic firms, they spread knowledge through the means of trainings and the learning by doing in manufacturing when they moved to China. In fact, Advanced manufacturing processes, Six Sigma quality procedures, supply chain management in facilities managed by businesses like Intel, Panasonic, Sony, HP, and Foxconn taught millions of Chinese workers and engineers all of this valuable knowledge. Not only this, the local suppliers were obliged to meet the standars and the strict requirements set by the

multinational companies so they could still operate with them. This is of course a true example of backward linkage spillover. In addition, these foreign entities brought with them a set of positive long run productivity spillovers via both backward and forward linkages. For instance when big companies like Dell and HP provided their PC assembly factories to China, the suppliers in the country managed to learn mostly all the up date innovations and production techniques from the products that were made by Dell and HP. Furthermore ,another long term knowledge transfer happened when foreign companies often transported whole manufacturing lines and technical paperwork to China in order to facilitate knowledge related to their machinery (Xing, 2012).

All told, FDI in electronics and high-tech manufacturing transferred a wide range of technology, from R&D capabilities to assembly techniques. From JVs in important sub-sectors (telecom), to totally-owned production facilities (consumer electronics, semiconductors), to cooperative R&D laboratories, the techniques vary. These foreign investments positioned China at the hub of the global electronics value chain. In other terms, by working with and within foreign firms the chinese workforce was able to elevate itself and gain acess to new knowledge that later on was used to develop original chinese innovations. As we all know, china is today home of not only foreign manufacturer and assembly factories but a place where local high tech products are designed and giant telecom companies ranging from Huawei to ZTE are operating (Girma, 2015).

One thing for sure, is that the electronic sector of China is the perfect example of how a country can sucessful leverage FDI to achieve both technology diffusion, integration in the global value chain and creation of home made innovations. it also shows how if the government plans efficently and has an adoptive approach it can switch its market from just attracting limited foreign cooperations that were in the beginning just joint ventures. to having an open market with less restrictions to let enter more and more foreign companies as they are the enablers to deliever new technologies and knowledge transfer.

4.4.4. AI & Advanced technology : an impressive knowledge spillovers through FDI

Another sector that has strongly benefited from FDI spillovers is the advanced technology sector. As domestic firms attracted knowledge and capital from foreign investors, China could reinvest these assets into its own innovation ecosystem, accelerating the local innovation in the relatively recently developed sector, the Artificial Intelligence (AI). Today, China is the second leading country globally in artificial intelligence, after the United States. In 2022, the

value of China's AI industry hit a US$75 billion and it continues to grow. (Xiao, 2024) . The government has set clear goals for the AI industry, one of which is "to be the world's primary innovation centre by 2030". (Knight, 2021) China seems to be on the right path to achieving this objective.

Several factors enabled this unprecedented growth of such a modern and crucial industry. What significantly fostered the development of this sector was the collaboration of foreign entities with domestic firms. An important example is when Microsoft established a research department in Beijing in 1998, named Microsoft Research Asia, concerned mainly with the topic of AI and its improvement. The reason why Microsoft chose to enter the Chinese market was the large pool of qualified tech-talent available in China. This market entry effected the Chinese technology industry positively, as Microsoft shared knowledge through partnerships with top universities in China, connecting students with American academic institutions. (Microsoft Research Podcast, 2018) A specific example of Microsoft Asia Research Institute's (MRSA) actions that foster the transfer of know-how and enable the human capital development of China is the joint doctoral program launched together with the Zhiyuan College, connecting students with the American Cornell University to share diversified insights and experiences. (Zhiyuan Honors Program, 2015) It is also important to note that MSRA produced highly skilled, up-to-date workforce, who then – in some cases- joined domestic firms or established their own AI firms. This way Microsoft contributed highly to the Chinese AI ecosystem. (Sheehan, 2019.) Such labs served as training foundation for the Chinese AI researchers, enabling the country to benefit from the spillovers of FDI in the form of human capital transfer.

China has succeeded in localising the foreign technology transfer in the AI field. The establishment of research hubs in major cities - Shanghai, Shenzhen and Beijing – played a crucial role in the ballooning of the AI sector. Beijing is known to be the home to the most AI-focused hubs, where most of the advancements are made. Several research centres are located in the capital, the most famous one being the Beijing Academy of Artificial Intelligence, a laboratory specified for the research of AI in collaboration with local municipality, talent, universities and tech companies. This local initiative has led to achievements like the launching of Wu Dao 3.0 by the BAAI, which put China a step ahead at that time in the development of artificial general intelligence – the goal of all companies developing AI. (de la Chica, 2022) The connection of FDI-driven research labs and domestically established institutions like the above mentioned BAAI made Beijing globally recognised as a strategic centre of AI. What also contributes to the attractiveness of Beijing for tech-focused firm is the

approach of the municipality towards AI and innovation. They created an implementation plan for accelerating the establishment of an AI innovation hub, called the “Beijing Municipal Action Plan to Promote “AI+” (2024-2025). The aim of this plan was to make the best use of the favourable resources available to the region for AI innovation to increase the influence of Beijing in the international setting. (CSET, 2024.)

Additionally, China’s government has made favourable policies to leverage FDI for the AI industry. An important program was China’s New Generation Artificial Intelligence Development Plan of 2017. This plan set the goal in three separate steps. The first objective was making AI a pivotal part of economic growth and the application of the technology implemented into the lives of people by 2020. To achieve this, China planned to catch up with the global advancements in the core technologies and theories of AI. The only way this was possible is by attracting investments from, and collaborations with foreign entities in the research sector to increase knowledge spillovers. Therefore, the Chinese government motivated domestic AI firms to cooperate with international research institutions, such as universities, or to establish joint ventures with foreign tech-enterprises. Furthermore, foreign firms were incentivised to establish research institutions in the country (such as the MRSA). After acquiring the most important technical skills from investors, it had to have established an ecosystem for the new technology, becoming the home for main AI organisations. It was also an important factor to establish norms and regulations related to the new technology, to further increase the country’s role in the industry by optimising the environment. The program targeted 2025 to be the year of the great breakthroughs, when China would come up with a new generation of AI technology system and would have expanded the industry on a never-before-seen scale. By 2030, China aims to become the world leader in the AI industry. (Webster, et al., 2017)

China’s Belt and Road Initiative (BRI) opened up the opportunity for the promotion of foreign direct investment and collaboration with partner countries by establishing physical infrastructure to connect overland routes from Asia to Western (European) countries. However, an important element of this initiative goes beyond physical infrastructure. Based on the same foundations of BRI, the Digital Silk Road (DSR) was established with the aim of improving and strengthening the digital infrastructure among the partner countries. China has successfully integrated technology diffusion from the US, shown by the fact that DSR sources many of its innovations from the Silicon Valley, a global hub for major technology and software companies in California. Such diffusion enabled China to become a leader in the

information technology industry globally, and now it is fuelling other BRI countries with know-how. This further accelerates the positive effects of spillovers, as more and more new tech start-ups are established, increasing the economic growth in the region. (Aliyev, 2025) It is clear, that the key objective is to enable vital Chinese tech firms, like Huawei, to take advantage of the market access provided by the initiative, to increase competition in the region.

In conclusion, the overall role of FDI in the flourishing of the AI sector and the advanced technology industry was essential as it sparked the research and enabled domestic workers to bring up the necessary skill and knowledge that ignited the AI's boom in China. The "foreign boost" in AI exemplifies how receptiveness to global talent and ideas may expedite a nation's technological progress.

4.4.5. General Manufacturing and Broader Economic Spillovers

After analyzing the previously mentioned sectors starting from the automative one to finally the AI one, we can say that FDI has also influenced China's broader innovation framework. Foreign invested entities have engaged in substantial research and development in China as by 2016 they represented approximately 25% of the nation's business enterprise R&D expenditures (Xing, 2012).

In addition to this, these foreign investments have been to China a significant conduct for advanced machinery imports as new machines entered the country. These machines were sold after a few years to domestic firms that used these opportunities to investigate the technologies used in them. Furthermore, the competition was elevated a lot that it even forced the local companies, and the government research institutes to reform and elevate their way of working. During the 1980s, Chinese manufactures exhibited considerable inefficiency but via integration into global production with the guidance of international investors, they embraced standards such as ISO quality certifications and just in time inventory (Girma, 2015).

The effects are visible in exports statistics as the country's exports shifted from primarily low-tech goods in the 80s to about 30% high-tech products by 2010 (World Bank, 2020). This is once again a proof that the FDI pushed the firms positively in high tech exportations and made China's one of the leading exporters in the whole world competing with some of the highest performing developed economies.

Another impressive fact is that FDI not only helped to improve exportation and boost up the numbers, but it also helped to enable the development of multiple industrial clusters and

special economic zones. Shenzhen, Dalian and Suzhou are the living proof of this as these cities were transformed into high-tech hubs due to the giant investments made by foreign companies. We talk here about the electronic sector in Shenzhen, and the information technology in Suzhou, etc.. Obviously followed by this was the creation of numerous opportunities for skilled and non-experienced workers to develop and the enlargement of suppliers' networks that helped the local firms (OECD, 2019).

Furthermore, the spillovers of the technology transfer even reached the management practices and business models that were dominating China. In fact, the multinational investors pushed to implement their newly modern corporate governance, revolutionized marketing by bringing the western approach and changed the services approaches. It was a golden opportunity for all the Chinese companies to copy and get inspired from the new ways of doing, this would have not happened in this record time if these foreign investments did not enter the Chinese nation (World Bank, 2020). The intellectual property regime and rules evolved as well because of the increasing presence of foreign investments as multinational were more and more keen on protecting their patents and even domestic firms later on started to protect their innovations that became also as important as the foreign ones. Therefore, FDIs not only improved the country economically but even created a better environment for innovations and advancement.

Another important fact to consider, that China is currently not anymore just a receiver of foreign technological innovation but a competitor to the developed economies that are investing in it and helped it through there FDIs. However, these foreign companies understand that China is today for them a threat but still cannot stop the flows of investment that are going. In fact, according to the numbers manufacturing FDI reached a staggering value of 117.1 billion yuan which represents 28.4% of the total FDI inflows. This shows how China became ingrained in the global value chain and how it became an essential part of the manufacturing processes globally (OECD, 2019).

4.4.6. Conclusion

Overall, the role of FDI was integral in China's technological transformation. This was a deduction made after the examination done in the following sectors: automative, renewable energy, electronics, AI and finally general manufacturing. We can easily say that the foreign investments were the drivers for technological transferring that happened as know-how and new ways of doing were imported from foreign firms.

The Chinese experience highlights several critical aspects regarding the mechanisms of technology transfer through foreign direct investment (FDI):

- **Joint ventures as a policy tool:**

China often employed joint venture requirements in industries such as automotive and early telecommunications to intentionally acquire and assimilate foreign technology. The "market for technology" strategy yielded varied immediate benefits. In fact, the automative companies didn't manage to grasp the engine design through this method (Xue, Y. S., Wei, W., & Greeven, M. J., 2024). However, it facilitated partial access to foreign expertise for local partners and established a basis for a sustained learning. Over time, certain Chinese companies in joint venture-dominated sectors have become more robust (like the case of the electric vehicles that are now an industry slightly dominated by China), proving the long run benefits of having collaborations with multinational foreign companies.

- **Foreign Direct Investment as a tool to enhance China's industrial strategies:**

It is a fact that the strategy implemented by China in directing FDI into special zones and targeted industries was successful. Furthermore, the ability of the Chinese nation to adjust its policies thought the years was also key to maximizing the benefits of foreign direct investments. In fact, in the beginning it adopted a policy of limiting some investments in order to ensure the protection of freshly created local industries; then it realized that its own domestic firms had the ability to compete, so it liberalized more and more (Girma, 2015). In a later stage starting from the 2010s, China was ready to permit even wholly foreign-owned corporations to operate in mostly all of the key sectors because it had the confidence and the certainty that domestic firms can compete and instead of being insecure about this move, they realized the potential of it in bringing more innovation and technological transfer.

- **Intangible benefits:**

The role of FDI didn't stop just in brining the newest technology to the country. In fact, it had a role in changing practices and mindsets. Therefore, a culture of innovation was introduced as more and more domestic companies gained knowledge from foreign customers and partners. In other terms, the Chinese firms were exposed to global standards that lead to the enhancement of the intellectual property protection rights, contract law and other related measures to facilitate foreign investment, thereby fostering local innovation (Bai, Barwick, Cao, & Li, 2020).

Going forward, we can see that China is progressively becoming on the same technological pedestal as the developed world. and this in multiples domains, however foreign direct investment remains to be important and highly significant for China's development. Certainly, the Chinese nation is pursuing FDIs in the latest cutting-edge domains. For instance, in domains like, the chip manufacturing, renewable energy, AI, and even for the electric vehicles. This for a goal that is usually different than the typical goal of a developing economy which is not cash and capital but at the moment it is more than that. The objective of these foreign investments is to stay connected and integrated with global innovation trends and flows (OECD, 2019).

We are definitely witnessing a new era for China as their strategy shifted from attracting foreign direct investments with the ''technology for market'' to ''technology for collaboration'' stratehy

In conclusion, the story of FDI in China from 1970s to current time is a clear demonstration of a successful technological transfer and integration. Despite the existing controversial strategies that were implemented through the past like the compulsory technology transfer in order to access the Chinese market that made some of the multinational companies careful and hesitant, the net outcome is that China overall managed to effectively use foreign direct investment as a key catalyst for technological progress and advancement. as a result, industries that were formerly technologically backward (like the automative, AI, etc.….) became now an example of excellence and are even competing with the best performing companies from the developed world.

In summary, the Chinese model demonstrates that via strategic governance, a developing nation may successful leverage foreign direct investment not only for capital, but also as an engine for an opportunity for the domestic firms to learn and transform into the best operating companies in the world. The above analysis done in some of the key sector of China proofs that the interaction between foreign and domestic innovation can interact to fuel the most significant economic and technological accents in our modern world.

4.5. Argentina's economic history

Argentina's economic history can be described as a case of unfulfilled potential. From being the colony of Spain to becoming the most prosperous Latin American country, to having a prolonged period of instability, the economy of Argentina has experienced severe swings. Although the country is rich in resources, it failed to successfully industrialise and develop

because of economic volatility and inconsistent political setting, switching from democracy to dictatorship and vice versa. After becoming independent from Spain, Argentina's economy experienced fast economic growth. The main driver of the growth was Argentina's resourceful agriculture sector, as Argentinian agrifood products were demanded in Europe. Therefore, the country was a receiver of notable amounts of foreign direct investment from the United Kingdom, for example, investments for the improvement of the infrastructure, specifically the railroads. Although impacted by a depression in the 1870's, due to the outcome of the Franco-Prussian war of 1870-1871, Argentina was able to recover by increasing production for export goods. As European countries recovered from this period as well, Argentina could enjoy more of Britain's capital for the establishment of more railroads and a deep-water port in the capital. (Rock, 1987) At the beginning of the 20th century Argentina was among the wealthiest nations in the world, due to its export of agrifood products, such as meat and corn, to European Countries, made possible by the technology of - at that time advanced - refrigerator ships and a great infrastructure. The turning point to the time of prosperity was at the time of the Great Depression in 1930, that had a dreadful impact on Argentina's economy, as most important trading partners turned away from the country. (Saxton, 2003.) The economic decline of Argentina started from 1930's, because at the time, the demand for Argentina's agrifood products dropped significantly. This revealed that the Argentinian economy was mainly dependent on export. After the second world war, the government implemented economic policies to establish a more inward-focused economy, reduce the international trade and aim for self-sufficiency. With the import substitution industrialisation policy, the Argentinian government closed the economy for foreign imported goods and services, and motivated local production, even in those sectors, where it did not have comparative advantage. Forcing industrialisation, the most powerful economic sector of agriculture was neglected. Implementing the import substitution policy is what caused the economy to start declining and lead the country into an economic crisis from which it struggled to recover. (Rafi, 2023.)

Argentina accumulated a large sum of foreign debt in the period of the last military dictatorship (1976-1983), which were not invested in the development of the country. By the end of 1970's, Argentina almost quadrupled its external debt, most of which was sourced from the United States. (Neyra, 2018) At the same time, the oil crisis in 1973 caused exports to significantly decrease, as demand for Argentinian products in that situation fell globally. The forceful borrowing and the decline in exports made it impossible for Argentina to pay back its loans at this period, leading to a debt crisis. To reduce the effects of the economic slum caused

by the debt crises, the government started printing money, which then led to hyperinflation. The import substitution industrialisation policy was not helpful during the period of debt crisis; therefore, the international setting urged the government to liberalise its international trade. (Pou, 2000) Consequently, the government started optimising the economy through privatisation, trade liberalisation and by implementing investor-friendly policies and reforms. Reduction in import duties and tax eliminations increased exports and incentivised new foreign companies to enter the market. In this period of reforms, Argentina became a main destination for FDI in comparison to other emerging markets, the main source of which was the sale of privatised firms to US and Spain based companies. The arrival of multinational enterprises in Argentina contributed to the country's development. These firms brought technology and techniques with them that the local firms and employees could take advantage of, increasing the overall productivity of the economy. They played a pivotal role in the transfer of knowledge through supplier development programs, inadvertently effecting the economy positively. The government's technology transfer policy enabled foreign firms to contract with local partner companies without their approval. (Chudnovsky & López, 2008) These policies and reforms gained the trust of investors and led to short-term stability.

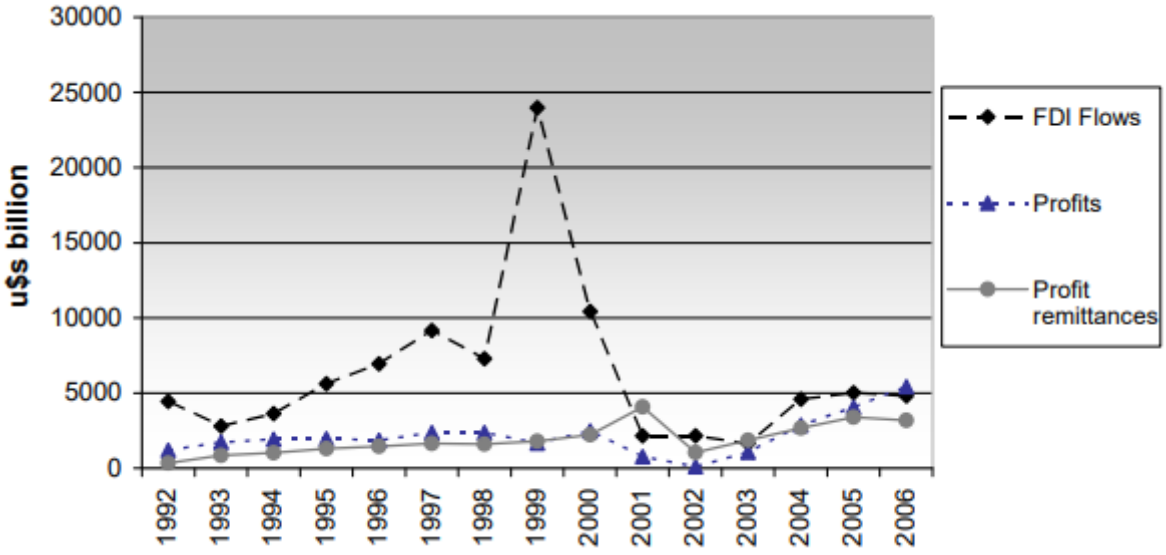

Figure 14. FDI Flows and Profits in Argentina 1992-2006

Source: Chudnovsky & López. (2008).

However, this economic bloom was temporary. By 2001, the country has reached a complete depression, with the government entering in a debt trap. Several factors lead to this dramatic outcome, both internal and external. On the one hand, several decisions made by the

government impacted the economy negatively. At the end of 1990's and beginning of the 2000's, the government made mistakes after mistakes: it implemented a package of tax increases, made changes to the monetary policy, it pegged the peso to the US dollar to fight hyperinflation, and rapidly led the country into a debt trap. (Saxton, 2003.) Fixing the currency to the dollar weakened the value of Argentina's export as the dollar strengthened in the beginning of the 21st century. To maintain the exchange rate, it borrowed massively, caused the debt to GDP ratio to spike in a never-before-seen pace. The government fell into recession and was not able to recover fast. On the other hand, external factors such as the devaluation of the Brazilian real put Argenina behind as well. As Brazil was going through a financial crisis (Southwest Economy, 1999), its export was relatively cheaper than that of Argentina, putting the latter in a least competitive situation as trading partners now rather chose the more cost-friendly option. The 2008 financial crises further worsened the economy, creating challenges in export, keeping foreign debt on a high level.

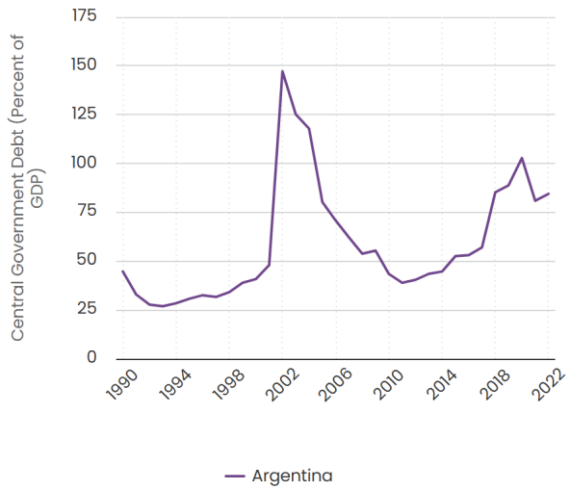

Figure 15: Argentina's Central Government Debt (% of GDP) 1990-2022
source: TGM StatBox. (2024).

These bad decisions had a long-lasting, dreadful impact on the economy. The economic collapse created mistrust with trading partners, as it crashed the confidence of investors. Multinational corporations, who played an active role in the progression of Argentina in the 1990's, paused or cancelled their investment plans after the crises, therefore, inward foreign direct investment plummeted, which previously played a crucial role in Argentina's economic development. (UNCTAD, 2002)

4.6. Underperformance of Argentina in realising FDI and technology transfer

Argentina since then has struggled to retain investments from abroad. In fact, - although being of use temporarily - even the previously attracted investments were insignificant compared to the other countries in the region. The instable political settings after the 2008 financial crises made Argentina yet a more unsafe destination for FDI. Different political views followed one another in the following period. To begin with, de Kirchner sought to increase the government's position in the economy, by imposing import controls and limiting foreign exchange. (Joshua, 2024) This weakened the attractiveness of the country for investment, as the government actions made it difficult for investors to operate. The successor of de Kirchner, Mauricio Marci was, however, on the side of economic liberalisation. He aimed to make the economy favourable again to host FDI by cutting down export taxes, lifting up currency controls and overall fostering a free market economy. Although the new government seemed to have improved the image of Argentina in terms of FDI, the political status remained instable, which did not allow technology transfer to be properly materialised.

Additionally, Argentina did not use FDI to catch up with advanced technologies to gain value, instead, it seeks to serve the domestic market without engaging in FDI for export production, which could increase the country's participation in global value chains. According to researchers of the World Bank, FDI was mainly targeted for sectors with low competition and high governmental interference, such as the metal and automotive industry. Such investments added very little value to productivity for the economy, and do not drive technological improvement at all, as these sectors carry little need for know-how and R&D. Argentina could hardly attract investment in high tech sectors. (Galiani, et al. 2021)

4.7. Government policies on FDI and technology transfer

The Argentinian government has created policies that intentionally or sometimes indirectly affected Foreign Direct Investment. The Foreign Investment Law of 1993 stated that foreign investors shall enjoy the same rights as local ones. The law also allowed foreign firms to repatriate their capital and transfer their earnings out of the country in whole. With this law, the Argentinian government missed the opportunity to force technology transfer, as no requirements were made at all for foreign firms to enter the market, unlike in China, where entry in the beginning was allowed only through joint ventures. Although this is beneficial for

investors, it also means no means of Argentia to realise spillovers from those investments. The automotive industry is a great example of a missed potential: even though the government implemented a local content requirement of 35% in vehicles, it failed to establish any binding requirements on investing firms, such as supplier engagement or involvement of local firms in R&D activities. The local content requirement has limited effectiveness in increasing technological advancement and it is also challenging to effectuate, compared to other policies on domestic firm involvement that could have been implemented. (Artica, et al., 2022) On the contrary, Argentina has a law on the Transfer of Technology to ensure that the economy gains real value that is not only expressed in capital, but knowledge, skills and technological innovation as well. Based on this law, foreign firms have to align with several requirements. The law ensures that the transfer happens between independent entities, who received approval for their agreement of cooperation. Agreement between foreign owned firms and their Argentinian subsidiary as well as fully or partially foreign owned Argentinian companies need to be submitted for approval. The law also emphasises that the approval is denied in case only the trademark is paid for without any technological benefit expressed in the agreement. (Law no. 22.426, 1981) In reality, the function of this law could be debatable, as it does not force foreign companies to transfer technology, it simply regulates the way they do, if they choose to. Within the legal regime, the government also attempted to promote investment in the automotive industry to foster technology transfer in the field, by offering tax benefits for investing firms. Other than increasing spillover effects of the investments, the government aimed to bolster its position in supply chains and global value chains. (UNCTAD, 2022)

Beyond legal framework the government introduced other incentives to promote investment in different sectors. A recent auction program, RenovAR, launched in 2016 in collaboration with the World Bank, aims to motivate investments in renewable energy to reduce the reliance on the limited natural resources. To make the program attractive, the government offers tax and financial incentives to investors, such as import duty exemptions, tax depreciations or VAT refunds. (Clifford Chance, 2016) Other programs financed by the World Bank, as well as government bodies like the Ministry of Science, Technology and Innovation pursued to increase innovation and research. The importance of research and development when it comes to technological advancement is undeniable. As the government recognised this, in 2019 it passed a law to incentivizes firms to invest in knowledge-based activities. Based on this law, firms engaging in artificial intelligence, robotics, IoT, or any research and experimental activities in industries like agriculture were promised a 15% reduction in their income tax

rate. (EY, 2019) However, the government expenditure on R&D reached an all-time low of 0.48% in 2019, and it remained in the range of 0.5-0.6 % in the following years up to 2021. (Trading Economics, 2022)

4.8. The sectoral distribution of Argentina's Foreign Direct Investment

In 2010, most of Argentina's FDI flows originated from Europe, mainly Spain, the Netherlands and the United Kingdom, but significant investment was received from the United States as well. The sectors, that were popular for investors were resource-intennsive ones, such as the petroleum and agriculture sectors. Spain for instance invested a total of USD$23 242 million this year, making up about half of the total European investment. (UNCTAD, 2012) This can be attributed to the relationship between the two countries that go back in history. Argentina was a popular destination for immigration from Spain as the two countries share the same language and have similar cultures, that can explain this trend. Furthermore, a bilateral agreement was concluded in1991 for the "Promotion and Reciprocal Protection of Investments" between them, further strengthening their relationship in investments. (WTI, 1991) According to the data available from UNCTAD, we can conclude that investment in 2010 in Argentina was mainly market- and resource-seeking rather than innovation seeking, limiting the country's ability to take advantage of FDI spillovers and technology diffusion.

Region/economy / Industry	Total	Primary	Agriculture, hunting, forestry and fishing	Mining and quarrying	Petroleum	Secondary	Food, beverages and tobacco	Textiles, clothing and leather	Wood and wood products	Chemicals and chemical products	Non-metallic mineral products	Metal and metal products	Machinery and equipment	Motor vehicles and other transport equipment
Total world	88 249	28 887	5 729	4 938	18 220	30 489	4 847	831	1 059	8 476	952	4 847	2 760	5 692
Developed countries	67 819	22 979	3 995	3 405	15 580	22 470	3 343	605	338	6 933	654	4 169	2 178	3 591
Europe	47 607	14 438	2 641	1 507	10 291	17 025	2 522	480	307	4 576	646	3 987	1 255	2 807
European Union	44 513	13 520	1 867	1 407	10 245	15 349	2 338	306	247	3 674	617	3 973	999	2 784
Austria	109	16	16	-	-	53	22	-	-	9	0	11	2	-
Belgium	1 023	49	47	-	2	726	26	0	0	81	0	13	18	537
France	2 560	535	74	1	459	1 459	191	6	14	389	19	18	141	670
Germany	2 940	435	103	34	298	1 311	25	113	1	461	13	17	232	404
Ireland	303	1	-	-	1	202	0	-	-	183	-	-	17	1
Italy	1 420	209	202	6	1	548	115	22	0	128	3	31	91	110
Luxembourg	2 704	91	70	-	21	2 373	107	19	19	88	1	2 096	30	-
Netherlands	7 328	3 386	573	1 155	1 658	1 877	489	72	112	593	110	11	120	314
Spain	23 242	7 608	756	137	6 714	6 032	1 318	74	72	1 466	465	1 763	127	604
United Kingdom	1 494	575	20	73	483	337	23	0	18	151	1	8	96	33
Other developed Europe	3 094	918	773	99	46	1 676	184	174	60	903	29	13	256	23
Switzerland	2 900	869	741	99	29	1 649	183	174	60	889	29	2	256	23
North America	16 943	6 938	942	865	5 131	4 610	602	108	30	2 203	6	181	825	473
Canada	2 128	1 295	184	715	396	680	43	-	2	617	-	6	4	6
United States	14 814	5 643	758	150	4 735	3 930	559	108	29	1 585	6	175	821	467

Figure 16: FDI stocks in the host economy, by industry and geographical origin, 2010

Source: UNCTAD., (2012).

It is notable that the FDI is fairly balanced across the sectors: the total USD$88,249 million was made up 32.73% of primary, 34.55% from secondary and 32.71% from tertiary sectors in 2010. This stresses out the importance of natural resources and the certain protected domestic sectors in the investment. Protected sectors refer to those industries, in which the government disables international entry to the competition to put domestic firms in a better position by implementing import barriers, such as high tariffs, or setting requirements for minimum local content. This means, that the investors must involve local firms in their production, however these requirements may discourage investment. (Rafi, 2023) Such industries in Argentina are for instance telecommunications and media, as this sector is fully controlled by the government, namely the National Entity of Communications. (DLA Piper, 2022) It appears therefore, that the sectoral distribution of FDI is insufficient to receive valuable technology transfer. The following analysis will give further insight into the specific sectors' capacity to absorb technology transfer from FDI.

4.8.1. Agriculture

Agriculture is an important pillar of the Argentinian economy, as it accounts for most of the export. Due to this reason, Argentina is already well-equipped with know-how in the regular farming, with local institutions being the main investors, therefore FDI does not play a crucial role in introducing technology. However, some areas receive investment from abroad still. First, Argentina received a notable investment in the 1990's in biotechnology. After the invention of genetical modification by China in the 1980's, Argentina was one of the first countries to adopt genetic engineering in the agricultural sector in 1996. The technology was used so widely, that most of the main export products of Argentina, namely corn, soybean and cotton became mostly genetically engineered. (Yankelevich, 2022) Due to the size and state of the agricultural market, there are several foreign firms present in the country. Some agrochemical firms, such as the famous American Monsanto are present and collaborate with local institutes and firms on research and development. The local availability of such firms contributed to the development of local biotech firms, for instance, Bioceres Crop Solutions, founded by local growers. This firm then partnered with a Chinese biotech company to foster technology transfer projects through collaboration, which are beneficial both ways: Argentina gains technology and know-how, while China is able to satisfy the growing demand for soybeans, as it receives the newest innovations of Bioceres, for example, the drought-tolerant soybean. (Bekerman, et al., 2022)

Secondly, the food processing and packaging firms are also largely present in the country, employing local people in their firms. These firms bring expertise in the logistics and processing fields, which local employees can learn. Although the technology of operating such facilities is passed onto local workers, who could increase the effectiveness of the knowledge transfer by moving to local firms, this is not usually the case. It appears that the innovations remain in the hands of the multinational corporations. The case of the producers of machinery is the same: although the technique to use the machinery is passed on to the employees, the farming machinery are still imported to the country. Regardless, locally produced equipment do exist, but the heavy, modern machinery are imported from abroad, because local producers cannot effectively meet the demand for advanced machinery. On the contrary, according to the local statistics, there is a growth of local production of components due to the requirements on local content thanks to the protection of the industry. (International Trade Administration, 2023)

Although Argentina has world-class output in agriculture, and foreign investments contributed to maintaining it, significant spillovers in the farm technologies did not happen, since the country is already a leader in many agricultural-related technologies. Most transfers happened in the more modern biotech industry. Unlike China, which missed the industrial revolution and had to learn modern farming later from foreign firms visa joint ventures and collaborations, Argentina did not have a lot to catch up in this industry, therefore FDI played more of an educative role.

4.8.2. Manufacturing sector

The manufacturing sector in Argentina takes up about 16% of the GDP of the country according to latest data of the World Bank. (Trading Economics, 2023.) Although the overall manufacturing industry has faced challenges recently, it is still the highest contributor to the GDP of Argentina according to Statista in 2023 (figure 17 gives us a detailed glimpse on the actual numbers in million Argentinian pesos). It is also known that this sector was and is still one of the major recipients of FDI in the country since the 90s. However, we cannot say that through it this foreign investment real and actual long term technological benefits were visible. Between 1992 and 2001, the manufacturing sector attracted about 21% of all the FDI inflows of the nation (Chudnovsky & López, 2008).

The foreign capital flowed mainly into the sectors of chemicals, food processing and the automative one. Unfortunately, these multinational companies that came to invest in the above-mentioned sectors were in the form of mergers and acquisitions instead of firms that wanted to invest in ventures that bring innovations and advancement to the Argentinian market. Furthermore, the short-term view that multinational companies had about the country was reinforced by the fact that almost all the foreign affiliates remitted more profits abroad than the earned in Argentina. In addition to this, the foreign investors where always prioritizing getting the financial gains as soon as possible from outside the Argentinian soil instead of reinvesting the profits to upgrade the facilities or improve the already existing processes (Chudnovsky & López, 2008).

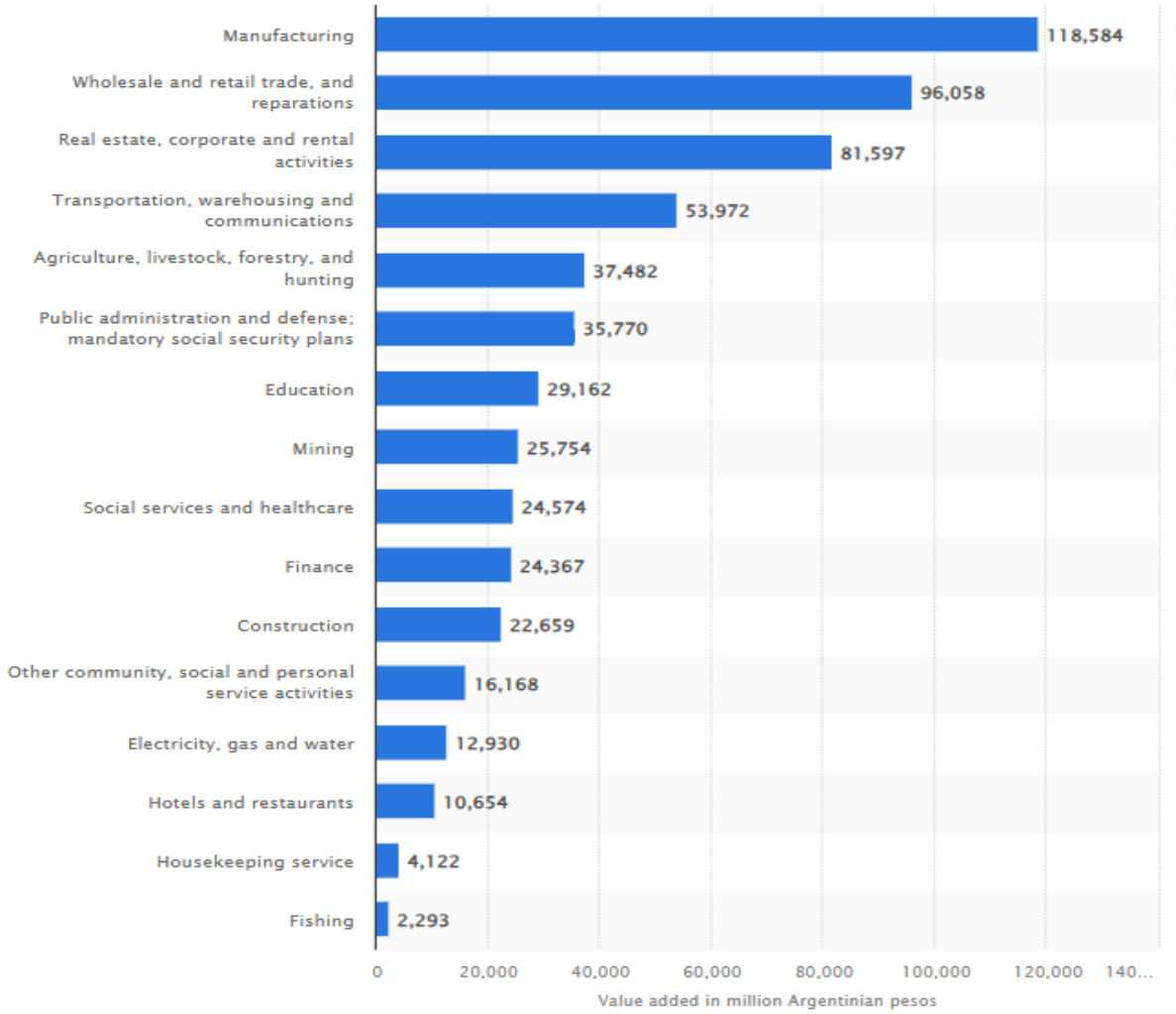

Figure 17: the value added to the Gross Domestic Product (GDP) of Argentina in 2023 from different industries

Source : https://www.statista.com/statistics/1331185/gross-value-added-to-gdp-argentina-by-industry/

Furthermore, what reinforced the issues in the Argentinian manufacturing sector was the weak absorption capacity in the ecosystem which has significantly limited the technological spillovers from the foreign direct investments. In addition to all of this, the foreign manufacturing affiliates often neglected local suppliers and had limited interactions with them which made the task of technological transfer more and more difficult with time. It was a sign that the investors were interested in the fact that Argentina is a entry to the Mercosur markets and not to build a long-term relation with the Latin American country that is built on the basis of mutual benefits for both parties. They just were interest in the south American market access, not the country itself. Therefore, domestic manufacturing firms struggled to meet the requirements to maybe become part of the global supply chains like in the case of China. According to the World Bank, Argentina comes in the 119th position out of 137 countries, a clear proof that this nation was not successful in making the best use of FDI for knowledge diffusion (World Bank, 2018).

Even the composition of FDI is targeted toward activities that are in a low level of complexity, once again a clear opposite from the Chinese nation that was seeking high level complexity activities from the foreign companies. The flows of foreign investments were going to sectors that are characterized also by high import protection. In other terms, these investments don't and will not help Argentina to become more competitive and to gain the knowledge necessary to make their workers more productive as well as their firms (OECD, 2019).

As a summary, the foreign investors that came to the country were generally not trying to integrate themselves in the Argentinian's innovation system. Minimal or a few Research and development subsidiaries are the things that first comes into the image when we see the ranking of the World Bank.

What also made the task more difficult for attracting transformative manufacturing FDI was the constant change in policies and their inconsistencies. This was seen from the pro market liberalization of the 1990s in the country to the crisis driven protectionism in the early 2000s. as a result, more and more uncertainty was felt, and the investors weren't as confident about the long-term potential of the country if they start their projects in the Argentinian soil. That's why the presence of stable policies is key in attracting FDIs that can promote technological advancement (Chudnovsky & López, 2008). What this means is that, Argentina managed only to leverage FDI in the manufacturing sector just for the financial benefits and to satisfy the

employment needs of citizens but not to drive innovation or make these foreign investments an inducer of technological innovation.

4.8.3. Renewable Energy

One thing for sure that Argentina is not well renowned for being a big supporter of renewable energies. The country used fossil fuels and other hydro projects that were not reliant on wind or solar energy in the 2000s. However, the trend has changed as the country has taken a different stand on the matter and decided to pursue the RenovAr program after 2015. This program was done to attract as much as possible of foreign investors to come in the country and invest in renewable energy (Laguzzi & Mercure, 2025). In fact, adding 10000 MW of renewable energy capacity by 2025 was the target. Some multinational companies were interested and came to open a dozen of energy generators (wind and solar parks). These FDI projects did produce some immediate benefits as they increased the generating capacity and brought some infrastructure improvements as well as temporary employment for the Argentinians who were participating in the construction process. Despite all of these flows the same issue that the manufacturing sector had was present : the long-term technological transfers were very limited.

To talk more about the RenovAr Program, it was not successful due to multiple reasons: first the economic conditions that were worsening in recent years made it more and more challenging to keep the government backed guarantees going. As a result, the multinational firms' concerns grew stronger and stronger as they don't see the country as a long-term investment but a short-term one. Argentina was not viewed as a reliable partner. This made the technological transfer almost impossible as the foreign firms didn't see themselves reinvesting and putting more money and knowledge into the Argentinian market. (Laguzzi & Mercure, 2025).

Another factor that was an obstacle to the knowledge transfer was the weak absorptive capacity when it comes to renewable technology as Argentina is historically underdeveloped in this sector. In reality, the Latin American country had a very limited domestic manufacturing of wind turbine or solar panels. Therefore, there was no or let's say a very small expertise when it came to this matter from the local Argentinian workers. And this was very visible as the foreign led projects only relied on the imported tools and experts making the Argentinian workers only needed for the low knowledge-based activities (World Bank, 2018).

Coupled to the above-mentioned issues, there was a real problem of policy inconsistencies that made investing in the renewable energies very unpredictable in the Argentinian nation. So, any government guarantees felt like a temporary guarantee and the investor confidence was really down to the lowest. Not only this, but the thought of having abrupt shifts makes it really difficult for multinational companies to plan and look to any long-term program that could potentially bring more and more technological innovations to the Argentinian soil. As a summary, we can say that the FDIs in renewable energy certainly brought more energy capacity with the solar panels and wind generators, but the multiple factors mentioned made that Argentina could only harness that and not improve their own capabilities to produce innovations when it comes to the energy sector. The country only relied on the imported technologies and didn't manage to grasp the way to leverage it for their own technological advancement (World Bank, 2018).

4.8.4. IT and Software services sector

Argentina is well renowned for having a relatively well-educated population and a highly competitive entrepreneurial youth mindset. This might make the country seem on the first impression a good destination for FDI. However, the reality is different; in fact, multinational companies are attracted primarily to the Latin American country because of its rich skilled labor that is available in a low cost.

The Argentinean developers and service professionals participate in projects for international companies under an outsourcing model, but usually in somewhat less-value jobs (maintenance, back-office support, coding to spec) rather than core intellectual property creation. This is due to the fact that in case the salary raises, or the political situation shifts the multinational companies can easily relocate these foreign direct investments to another country that possess the same characteristic (Chudnovsky & López, 2008).

In addition, the foreign investors in the IT sector were cautious with the contracts that they proposed to the Argentinean workforce as almost all of them allowed flexibility meaning that if the service is done the contract will be over limiting the potential knowledge and commitment to development for the domestic Argentinean companies. Furthermore, this weak commitment of foreign multinationals made the R&D in the country very limited or non-existent. (World Bank, 2018).

The brain drain effect is also something that is limiting the potential knowledge transfer that could happen in Argentina. In other words, the qualified citizens that can stay and make the country interesting for investors to utilize prefer to emigrate in the developing economies like

the US or some of the European countries. This makes that as soon as the Latin American country starts to have a solid base of well experienced IT professionals, they lose them easily to other economies who can provide better life standards which make foreign multinational investors only think of Argentina for less value tasks and as a short-term solution.

4.8.5. Conclusion

After analysing the above mentioned four sectors, we can deduct that the Argentinean experience with FDI is like the following: FDI alone is not a guarantee for technological development and knowledge transfer, especially if the policies and the innovative ecosystem is not working toward that. In fact, foreign investments came to the manufacturing, IT, renewable energy and agriculture. However, Argentina failed to leverage it successfully for long term technological upgrading. Driven by profit repatriation, and high-risk sensitivity to Argentina's volatility, and occasionally simply market-seeking motivations, many foreign investors' short-termism meant that their investments didn't have the intentions in upgrading the technological capabilities of the country or neither sharing core knowledge. This issue, coupled with the weak policies and incompetent planning of the multiple Argentinean governments that governed throughout the years did not encourage the reinvestment of the financial gains of the multinational companies in the goal to bring newer technologies and think of Argentina as a long term emerging economy where the foreign firms see themselves in the futures bringing/sharing the last up to date core knowledge like in the case of China. (World Bank, 2018).

CHAPTER 5: POLICY PROPOSAL TO ENHANCE FDI-DRIVEN INNOVATION IN CHINA AND ARGENTINA

If emerging economies leverage the FDI inflow properly, it is a powerful tool for the technology advancement. China's case proves this statement, as due to its strategic use of the investments, rapid industrial upgrading has been achieved. The institutional framework and the governmental support for innovation were the enablers of such positive results. On the other hand, however, Argentina has struggled to make good use of the inflows when it comes to long-term innovation capabilities. This chapter defines recommendations to maximise innovation advancement from FDI, focusing on institutional frameworks and incentive plans to foster technology transfer in a sustainable way.

5.1. Institutional reforms

One of the reasons why Argentina could not achieve significant technology spillovers is that it has a weak institutional framework for hosting foreign investments. A well-established investment agency takes on the responsibility to attract investments, therefore Argentina should reinforce the authority of its institution, "Agencia Argentina de Inversiones y Comercio" (AAICI). Providing legal and operational power and equipping it with clear instructions and goals, the AAICI could be a game changer in encouraging technology transfer agreements. With the cooperation of the government, the AAICI could initiate the simplification of administrative procedures to make it easier for investors to enter the market. To prioritise the technology sector, the investment agency should also advocate for reforms that places R&D and tech firms in a preferential position. However, it is important that it should keep its independence from the political sphere to create and maintain its credibility. For the proper functioning of institutions, inter-agency coordination systems should be put in place to align the objectives and priorities of the ministries of science, technology and economy, as well as the investment agency in order to concentrate the efforts towards the common goal of technology transfer.

In case of China, there exists an efficient infrastructure for leveraging the investments and attracting them. What could further contribute to this success is the alignment of all regions by creating specialised agencies for coordinating local governments' strategies with the national innovation priorities. The establishment of such specialised agencies is not only

beneficial for ensuring the consistent policy implementation across the country but also allows the optimal allocation of available resources and targeted investments in the preferential sectors by identifying the priority sectors in all regions and customising investment incentives. Having clear and coordinated strategies for innovation in a country makes it more appealing for investors. Although the country is already quite attractive for tech companies because of the availability of qualified labour and research and development infrastructure, foreign investors are hesitant in some cases due to transparency and predictability issues. The enhancement of the transparency of policymaking related to investments could reduce the concerns of investors and ensure them that the regulatory setting would not shift in a direction where high-tech investments are deterred. It is also important for China to create and keep policies that ensure the fair operation and competition of foreign firms and that do not risk their intellectual property, making sure it stays a safe place for them in the long run. It is important to note here, that the US-Chinese trade war poses a threat to China, as some US-based tech-leader companies could leave the country. It is crucial therefore for the government to ensure that the policies do not negatively affect firms based on their origins.

5.2. Incentive programs to attract high-quality investments

The low amount of inward FDI into Argentina compared to other emerging markets is on the account of the lack of incentives for foreign investors. Taking strategic steps towards introducing incentives in the technology sector that make it easier and advantageous for investors to enter the market is key to gain significant spillovers. Other than the financial incentives such as tax exemptions and customs duty reliefs, the Argentinian government should provide financial support for co-funding research and development firms or centres in the technology sector, offering rebates for establishing joint ventures or jointly patenting innovations within the country with local firms. However, there are other means than financial support to attract investors. The Argentinian government should establish special zones, like the Chinese innovation centres, where the availability of physical space and networking opportunities between local and foreign companies is ensured. Such locations could also be the scene for universities and other research institutions to collaborate with foreign technology firms in order to effectively gain spillovers. Investment in human capital is also

necessary for Argentina to efficently leverage those spillovers. Providing funds for students participating in tech-related educational programs could incentivise students to choose those specific fields; this skilled workforce could later inspire the foreign companies to invest in their training.

What is important in Argentina's case is to recognise the sectors that should be prioritised for technology spillovers and concentrate incentives on those. The sectors with high potential for technology development are renewable energy, agrotechnology and biotechnology.

On the other hand, China has already created incentives for inward FDI in the technology sector. However, they could establish tech-targeted programs that reward investors in case they create innovations in collaboration with local firms, or they establish long-term partnership with domestic tech leaders or source locally.

5.3. Increasing absorptive capacity

Once the right institutional framework and incentives are in place, the absorptive capacity of the countries must be increased. One way to do so is through investment in skilled human capital, with a focus on technical training. In the Chinese example, domestic universities partnered with foreign universities and firms, enabling technology transfer. Argentina could also implement similar actions to foster the education and training of their local workforce, to enhance the ability of domestic firms to assimilate the new technology. Supporting local small-and medium sized enterprises financially to participate in innovative projects, partnering effectively with multinational companies is also recommended for the Argentinian government.

Both countries should strengthen their intellectual property rights framework to reassure foreign investors that their innovations are secured, while motivating them to engage in activities that lead to technology transfer locally. This includes creating or modernising laws affecting intellectual property rights and harmonising them with globally accepted international treaties. Imposing laws should also come with imposing penalties for those who breach it. Strengthening enforcement, therefore, is key in providing guarantees for investors about their innovation's security. Increasing the awareness through education about the importance of the protection of IP rights can also play a role in the effectiveness of IP rights laws.

Optimising the benefits of FDI and increasing the ability of domestic actors in leveraging the innovations coming from foreign investors requires a comprehensive, strategically aligned framework, that includes regulatory, institutional and educational elements. Policies should be implemented according to the objectives of achieving significant technology transfer: they should prioritize sectors with the highest potential for benefiting form spillovers and they should improve the institutional capacity. Finally, creating a monitoring framework is key in both countries to track the outcomes of FDI-driven technology innovation, including qualitative and quantitative metrics to provide deep insights. The data collected then should be used to identify and continuously improve those areas where the country is underperforming. By implementing the recommendations outlined in this chapter, Argentina and China can improve their innovation outcomes, utilising the full potential of FDI for sustainable technological advancement.

CHAPTER 6: CONCLUSION

Foreign direct investment (FDI) has long been seen as the main driver of economic growth, industrial and technological advancement in emerging economies. By leveraging FDI, a country can gain many benefits, such as long-term capital inflow, and other spillovers like technology transfer, or managerial expertise and knowledge diffusion. Multinational enterprises bring not only financial assets but also advanced technology, know-how and most importantly, access to global supply chains. FDI's effects on fostering growth is prominent and widespread across several areas of a country. As foreign investors bring capital to the host economy, the domestic savings increase which in return enables domestic investments in the infrastructure and services. If those investments are made in the right industries, they can significantly enhance the efficiency of technology transfer – a spillover effect that can stem from the presence of multinational companies operating with advanced technology. Through demonstration effects and labour training, FDI can also develop the local human capital. However, the extent to which FDI contributes to sustainable growth and technological advancement depends on the host-economies regulatory and investment-promoting climate.

This comparative analysis of China and Argentina demonstrated how different policies and decision-making leads to different outcomes when it comes to utilizing technology transfer. China followed a strategic paradigm, focusing on building its domestic capacity for hosting and utilising FDI, implementing policies that motivated - or in some cases forced - foreign investors for technology transfer and increasing its openness towards those investors in the technology and manufacturing sectors. At the same time, the Chinese government invested heavily in the education of their human capital and development of their research and development infrastructure, establishing R&D centers and universities that are open for collaboration with foreign firms. In addition, the formation of Special Economic Zones during the gradual trade liberalisation was a crucial stepping-stone in attracting FDI in the high-tech sector. The SEZ were highly attractive for investors, and the investment was tied to special technology-sharing requirements, making sure that the spillover effect do happen, this way FDI became the main driver for local innovation. This is an outstanding example of how the proper utilisation of FDI for technology transfer can lead an emerging economy to potentially become a developed one, therefore, China could be a leading example for other emerging

economies due to its path from being an imitator of several sectors, such as AI, to becoming a leader in those industries.

Argentina's example, on the other hand, demonstrates a series of unachieved opportunities and the absence of a comprehensive strategy for a successful usage of FDI for knowledge diffusion. Although the country initially had a great potential for industrial development, as the FDI inflows started early, it failed to maximise the benefits of FDI for innovative transformations. The instable political ideologies and the protectionist approach resulted in lack of policies and institutional framework for promoting investments and maximising its spillover effects. Moreover, to not put the blame on the government only, issues such as brain drain, and low confidence from foreign investors hindered Argentina's ability to go from being a country that only attracts investors who only see it as a short-term option rather than a long-term alternative. In other words, this limited Argentina to only attract investment in primary sectors with low quality FDI and no knowledge spillovers. In addition, due to the lack of incentives provided by the government, foreign investors often chose this country to gain access to the Latin-American market. The comparative study illustrated that the success of technology transfer from FDI depends on factors such as the government's ideology and priorities, the host economy's absorptive capacity, the linkage between its education system and R&D infrastructure and the institutional framework.

Several lessons were derived from the comparison of the two countries. Firstly, in order to maximise the positive effects of FDI on technology development, a government should be proactive and have a strategic plan. Secondly, the positive spillovers can only be achieved if proper policies are implemented, and a stable institutional ecosystem is set up. From the Chinese example, we can derive that requirements forcing the foreign firm for the involvement of domestic actors in their operations are necessary, such as local content requirements, or R&D collaboration mandates in order to achieve potential knowledge-sharing. Thirdly, the high-quality development of workforce is inevitable. Therefore, the governments should invest heavily in education to ensure its timeliness. Lastly, to gain trust and long-term investment relationships with foreign players, a country must have stable and predictable economy with favourable investment policies. The most important lesson however is that FDI alone is not enough to drive technological advancement and economic growth. However, when the appropriate environment for investment is established, and proper

measures are taken to make the most of those investments, a country has the potential to become a beacon of innovative advancements.

Bibliography

- ALIYEV, N. (2025). Artificial Intelligence in Digital Silk Road: Driving Innovation and Economic Transformation. EUROASIA JOURNAL OF SOCIAL SCIENCES & HUMANITIES, 12(1), 95–102. Retrieved from https://doi.org/10.5281/zenodo.15107135
- Anders Hove (2024). Clean energy innovation in China: fact and fiction, and implications for the future. Retrieved from: https://www.oxfordenergy.org/wpcms/wp-content/uploads/2024/07/CE14-Clean-energy-innovation-in-China-Final.pdf#:~:text=,administered%20carbon
- Artica, P. R., & Ibáñez, P. J., & Almansi, P. B., (2022). Reconsidering automotive development strategies in Argentina in the light of the ASEAN experience. Retrieved from: https://revistes.ub.edu/index.php/HistoriaIndustrial/article/view/38042/38440
- Bai, J., Barwick, P. J., Cao, S., & Li, S. (2020). Quid Pro Quo, Knowledge Spillover, and Industrial Quality Upgrading: Evidence from the Chinese Auto Industry. National Bureau of Economic Research Working Paper No. 27644 Retrieved from: https://www.nber.org/system/files/working_papers/w27644/w27644.pdf
- Bekerman, M., & Dulcich, F., & Gaite, P. (2022). Argentina's economic relations with China and their impact on a long-term production strategy. Retrieved from: https://repositorio.cepal.org/server/api/core/bitstreams/05ad11c1-d85b-4288-9163-e9b27e261c4e/content#:~:text=Lastly%2C%20in%20the%20case%20of,example%2C%20the%20Argentine%20biotech%20firm
- Bénétrix, A., Pallan, H ., Panizza U., (2023)., The Elusive Link Between FDI and Economic Growth. World Bank Group. Retrieved from: https://documents1.worldbank.org/curated/en/099525104252334422/pdf/IDU0e021b3d30ef6504b780ace90ed590ce1fee5.pdf
- Bernard Hoekman, Jamel Zarrouk. (2000). Catching up with the competition: trade opportunities and challenges for Arab countries. University of Michigan Press. Retrieved from: https://libsearch.bethel.edu/discovery/fulldisplay?vid=01CLIC_BETHEL:BETHEL&tab=CLIC_and_BETHEL_ALL_Slot&docid=alma991005684103603686&lang=en&context=L&adaptor=Local%20Search%20Engine&query=sub,exact,%20Data%20Analytics%20,AND&mode=advanced

- Bureau of Economic, Energy and Business Affairs., (2010). 2010 Investment Climate Statement – China. Retrieved from: https://2009-2017.state.gov/e/eb/rls/othr/ics/2010/138049.htm
- Cantwell, J., Narula, R. (2003). International Business and the Eclectic Paradigm: Developing the OLI Framework. Routledge Taylor & Francis Group Retrieved from: https://www.routledge.com/International-Business-and-the-Eclectic-Paradigm-Developing-the-OLI-Framework/Cantwell-Narula/p/book/9781138864030?srsltid=AfmBOop_OL566jpAA56P0c1jwnBm4nJ72200seYc7DOrrv5inzdPtg_M
- Center for Security and Emerging Technology. (2024). Beijing Municipal Action Plan to Promote "AI+" (2024-2025). Retrieved from: https://cset.georgetown.edu/publication/beijing-ai-plan-2024-2025/
- Chen, M. X., Lin, C., (2019)., Foreign Investment across the Belt and Road Patterns, Determinants and Effects. Retrieved from: https://openknowledge.worldbank.org/server/api/core/bitstreams/1fd2a1eb-fd06-5051-9277-d661327bfb45/content
- Chudnovsky, D., & López, A. (2008). Foreign Investment and Sustainable Development in Argentina. Retrieved from: https://sustainabledevelopment.un.org/content/documents/857argentina.pdf
- Clifford Chance., (2016). RenovAr, Argentina's Renewable Energy Program. Retrieved from: https://www.cliffordchance.com/content/dam/cliffordchance/briefings/2016/08/renovar-argentinas-renewable-energy-program.pdf
- Cohen, W.M., & Levinthal, D.A., (1990)., Absorptive Capacity: A New Perspective on Learning and Innovation. Cornell University. Retrieved from: https://josephmahoney.web.illinois.edu/BA545_Fall%202022/Cohen%20and%20Levinthal%20(1990).pdf
- Crespo, N., & Fontoura, M. P. (2007). Determinant Factors of FDI Spillovers - What Do We Really Know? World Development 35(3), 410-425. Retrieved from: https://depeco.iseg.ulisboa.pt/wp/wp062005.pdf
- Dani Rahman Hakim, E. A. (2023). The effect of FDI on the host countries' employment: A meta-regression analysis. Russian Journal of Economics . Retrieved from: https://rujec.org/article/98252/list/8/

- De Gouvello,Christophe; Song,Yanqin (2020). Renewable Energy Development in China: A 40-Year China-World Bank Partnership World Bank Group. Retrieved from: http://documents.worldbank.org/curated/en/162841638508597254
- De Jager., (2004). Exogeneous and Endogeneous Growth. Retrieved from: https://repository.up.ac.za/bitstream/handle/2263/23183/00front.pdf;jsessionid=9F498701B22135BF23CB2F5D3AB10EA9?sequence=1
- De la Chica, M. J., (2022). Why WuDao could be more useful even than GPT-3 for the development of a future Artificial General Intelligence?. Retrieved from: https://www.linkedin.com/pulse/why-wudao-could-more-useful-even-than-gpt-3-future-de-la-chica/
- DLA Piper., (2022). Telecommunications Laws of the World: Argentina vs Oman. Retrieved from: https://www.dlapiperintelligence.com/system/modules/za.co.heliosdesign.dla.lotw.telecoms/functions/handbook.pdf?country-1=AR&country-2=OM
- Dorsey, W. T., (2003). 12 The Impact of WTO Accession. Retrieved form: https://www.elibrary.imf.org/display/book/9781589061781/ch012.xml
- Ekholm, K., Forslid, R., & Markusen, J. R. (2007). "Export-platform foreign direct investment." Journal of the European Economic Association Retrieved From: https://spot.colorado.edu/~markusen/efm.pdf
- EY Greater China., (2021). What are the implications of China's Foreign Investment Law?. Retrieved from: https://www.ey.com/en_cn/insights/china-opportunities/what-are-the-implications-of-china-s-foreign-investment-law
- EY. (2019). Argentina enacts promotional tax system for the knowledge-based economy. Retrieved from: https://globaltaxnews.ey.com/news/2019-5756-argentina-enacts-promotional-tax-system-for-the-knowledge-based-economy.
- FDI China., (2023)., The Best 21 China Free Trade Zones Guide 2025. Retrieved from: https://fdichina.com/blog/china-free-trade-zones-guide/
- Galiani, S., & Gomez, D., & Scattolo, G. (2021). Productivity in Argentina Part B: Barriers to Productivity in Argentina. New evidence. Retrieved from: https://documents1.worldbank.org/curated/en/650781609917832358/pdf/Productivity-in-Argentina-Part-B-Barriers-to-Productivity-New-Evidence.pdf
- Gaspareniene, L., Kliestik, T., Sivickiene, R., Remeikiene, R., & Endrijaitis, M. (2022). Impact of Foreign Direct Investment on Tax Revenue: The Case of the

European Union. Journal of Competitiveness,14(1), 43–60. https://doi.org/10.7441/joc.2022.01.03

- Girma, S. (2015). How foreign investment has contributed to China's tech boom. World Economic Forum Retrieved from: https://www.weforum.org/stories/2015/07/how-foreign-investment-has-contributed-to-chinas-tech-boom/#:~:text=To%20further%20accelerate%20the%20pace,form%20of%20FDI%20in%20China
- Global Times (2010). China's largest wind turbine maker Goldwind postpones HK IPO Retrieved from: https://www.globaltimes.cn/content/542230.shtml#:~:text=China%27s%20largest%20wind%20turbine%20maker,part%20of%20global%20turbine
- Görg, H., & Greenaway, D. (2004). Much ado about nothing? Do domestic firms benefit from foreign direct investment? World Bank Research Observer, 19(2), 171-197. Retrieved from: https://docs.iza.org/dp944.pdf
- Group, W. B. (2019). Encouraging FDI Spillovers. Retrieved from: https://thedocs.worldbank.org/en/doc/771651576649384571-0080022019/original/SRBCEMFDIspillovers.pdf
- Hakim D.R., Ahman E., Kusnendi K., (2023). The effect of FDI on the host countries' employment: A meta-regression analysis. Russian Journal of Economics. Retrieved from: https://rujec.org/article/98252/list/8/
- Hawksford., (2023)., Tax incentives for high and new-technology enterprises (HNTEs) in China. Retrieved from: https://www.hawksford.com/insights-and-guides/china-business-guides/tax-incentives-for-high-tech-enterprises-in-china
- Hu, G., Zhang, X., & Zhu, T. (2024). A Catalyst for China's High-Tech Export Competitiveness: Perspective of Technological Innovation. Sustainability, 16(5), 2169. https://doi.org/10.3390/su16052169
- Huang, X. (2006). Technology Transfer: The Case of Automobile, Electronic and Telecommunication Sectors in China. Beijing: International Conference on WTO and China Retrieved from : https://faculty.washington.edu/karyiu/confer/beijing06/papers/huang.pdf#:~:text=Since%20the%201980s%2C%20China%20has,investment%20and%20targets%20on%20attracting

- IBEF. (2024). Foreign Direct Investment (FDI) Retrieved from: https://www.ibef.org/economy/foreign-direct-investment#:~:text=From%20April%202000%2DSeptember%202024,(US%24%2039.4%20billion)%2C
- IMF (2023). World Economic Outlook: Emerging Market and Developing Economies. International Monetary Fund. Retrieved from : https://www.imf.org/en/Publications/WEO/weo-database/2023/April/groups-and-aggregates
- International Trade Administration., (2023). Argentina Country Commercial Guide. Retrieved from: https://www.trade.gov/country-commercial-guides/argentina-agricultural-sectors
- Javorcik, B. S. (2004). Does foreign direct investment increase the productivity of domestic firms? In search of spillovers through backward linkages. American Economic Review, 94(3), 605-627. Retrieved from: https://users.ox.ac.uk/~econ0247/JavorcikAER.pdf
- Jia-Zheng, Y., & Broggi, C. B. (2023). The metamorphosis of China's automotive industry (1953–2001): Inward internationalisation, technological transfers and the making of a post-socialist market. Business History, 67(1), 211–238. https://doi.org/10.1080/00076791.2023.2247366
- Jin, H., Xue, J., Yang, H., Zhu, Z., & Jakovljevic, M. (2024). How long has it taken China's economy to recover from the COVID-19 epidemic? Global Health Econ Sustain, 2(2): 1842. https://doi.org/10.36922/ghes.1842
- Jinji, N., Zhang, X., Haruna, S. (2022). Vertical Versus Horizontal Foreign Direct Investment and Technology Spillovers. In: Deep Integration, Global Firms, and Technology Spillovers. Advances in Japanese Business and Economics, vol 26. Springer, Singapore. Retrieved from: https://link.springer.com/chapter/10.1007/978-981-16-5210-3_6
- Joanna I. Lewis (2020). Technology Transfer in the Wind Power Industry: Experiences from China, India and South Korea. Retrieved: https://www.gispri.or.jp/english/symposiums/images110706/AsstProf_Lewis.pdf#:~:text=,Sinovel%2C%20Dongfang%2C%20CSIC%20and
- Joshua, K. (2024). Argentina: Overview and U.S. Relations. Retrieved from: https://www.congress.gov/crs-product/R48303

- Kennedy, S., (2015). Made in China 2025.Retrieved from: https://www.csis.org/analysis/made-china-2025
- Khor, H.E., et al., (2019), China's Reform and Opening-Up: Experiences, Prospects, and Implications for ASEAN. Retrieved from: https://www.amro-asia.org/wp-content/uploads/2019/11/Chinas-Reform-and-Opening-Up_compressed.pdf
- Knight, W., (2021)., This Chinese Lab is Aiming for Big AI Breakthroughs. Retrieved from: https://www.wired.com/story/chinese-lab-aiming-big-ai-breakthroughs/
- Laguzzi, V. and Mercure, C. (2025) Renewable Energy in Argentina: Are Current Financing Instruments Driving the Energy Transition? An assessment of the implementation status of FODER, FODIS and PERMER. Buenos Aires, Fundación Ambiente y Recursos Naturales (FARN).
- Law no. 22.426., (1981). Transfer of Technology. Retrieved from: https://wipolex-resources-eu-central-1-358922420655.s3.amazonaws.com/edocs/lexdocs/laws/en/ar/ar059en.pdf
- Lu, Y., Tao, Z., & Zhu, L. (2017). Identifying FDI spillovers. Journal of International Economics, 107, 75-90.
- Lythreatis S., Singh S.K., El-Kassar A., (2022)., The digital divide: A review and future research agenda. Retrieved from: https://www.sciencedirect.com/science/article/pii/S0040162521007903
- Markusen, J. R. (2002). Multinational firms and the theory of international trade. MIT Press. Retrieved From : https://mpra.ub.uni-muenchen.de/8380/1/MPRA_paper_8380.pdf
- Maskus, K. E. (2000). INTELLECTUAL PROPERTY RIGHTS IN THE GLOBAL ECONOMY. Institute For International Economics Retrieved from: https://illinoislawreview.org/wp-content/uploads/2000/12/Maskus.pdf
- Microsoft Research Podcast. (2018). Celebrating 20 years of MSR in Asia with Dr. Hsiao-Wuen Hon. Retrieved from: https://www.microsoft.com/en-us/research/podcast/celebrating-20-years-of-msr-in-asia-with-dr-hsiao-wuen-hon/
- Ministry of Commerce of the People's Republic of China. (2024). Statistical Bulletin of FDI In China. Retrieved from: https://fdi.mofcom.gov.cn/EN/come-datatongji-con.html?id=16112
- Morrison, M. W., (2019)., China's Economic Rise: History, Trends, Challenges, and Implications for the United States. Retrieved from:

https://www.everycrsreport.com/files/20190625_RL33534_088c5467dd11365dd4ab5f72133db289fa10030f.pdf

- Munro, A., (2025)., Dependency theory. Retrieved from: https://www.britannica.com/topic/dependency-theory
- Neyra, H. (2018). Bad news for Argentina: The cruel IMF is back. Retrieved from: https://www.brettonwoodsproject.org/2018/07/bad-news-argentina-cruel-imf-back/
- OECD (2019), OECD Economic Surveys: Argentina 2019, OECD Publishing, Paris. Retrieved from: https://doi.org/10.1787/0c7f002c-en
- Organization for Economic Co-operation and Development. (2019). OECD Economic Surveys: China 2019. OECD Publishing. Retrieved from https://www.oecd.org/content/dam/oecd/en/publications/reports/2019/05/oecd-economic-surveys-china-2019_g1g9f49b/eco_surveys-chn-2019-en.pdf
- Pou, P. (2000). Argentina's Structural Reforms of the 1990s. Retrieved from: https://www.imf.org/external/pubs/ft/fandd/2000/03/pou.htm
- Rafi, T. (2023). Import substitution and the economic downfall of Argentina. Retrieved from: https://www.omfif.org/2023/12/import-substitution-and-the-economic-downfall-of-argentina/
- RegistrationChina., (2024). Wholly Foreign-Owned Enterprise in China: A Comprehensive Guide. Retrieved from: https://www.registrationchina.com/articles/wholly-foreign-owned-enterprise-in-china-a-comprehensive-guide/#:~:text=As%20foreign%20investment%20demand%20increased,enterprises%20with%20greater%20control%20and
- Rock, D. (1987). Argentina 1516-1998: From Spanish Colonization to Alfonsín. University of California Press. (pp. 146-153.)
- Saxton, J., (2025). Argentina's Economic Crisis: Causes and Cures. Retrieved from: https://www.jec.senate.gov/public/_cache/files/5fbf2f91-6cdf-4e70-8ff2-620ba901fc4c/argentina-s-economic-crisis---06-13-03.pdf
- Sheehan, M. (2019). Who Benefits From American AI Research in China?. Retrieved from: https://archivemacropolo.org/china-ai-research-resnet/?rp=m
- Southwest Economy., (1999). Brazil: The First Financial Crisis of 1999. Retrieved from: https://www.dallasfed.org/~/media/documents/research/swe/1999/swe9902c.pdf

- The Editors of Encyclopaedia Britannica (2025). Great Leap Forward. Encyclopedia Britannica. https://www.britannica.com/event/Great-Leap-Forward
- Trading Economics. (2022). Argentina - Research And Development Expenditure (% Of GDP). Retrieved from: https://tradingeconomics.com/argentina/research-and-development-expenditure-percent-of-gdp-wb-data.html
- Trading Economics., (2023). Argentina – Manufacturing, Value added (%of GDP). Retrieved from: https://tradingeconomics.com/argentina/manufacturing-value-added-percent-of-gdp-wb-data.html
- UNCTAD. (2015). Global foreign direct investment fell by 16 per cent in 2014, United Nations Report says. Retrieved from: https://unctad.org/press-material/global-foreign-direct-investment-fell-16-cent-2014-united-nations-report-says
- UNCTAD., (2001).; UNCTAD Series on issues in international investment agreements: Transfer of Technology. Retrieved from: https://unctad.org/system/files/official-document/psiteiitd28.en.pdf
- UNCTAD., (2002). FDI Downturn in 2001 Touches Almost All Regions. Retrieved from: https://unctad.org/press-material/fdi-downturn-2001-touches-almost-all-regions
- UNCTAD., (2012). Investment Country Profiles: Argentina. Retrieved from: https://unctad.org/system/files/official-document/webdiaeia2012d5_en.pdf#:~:text=match%20at%20L317%20Developed%20countries,FDI%20to
- UNCTAD., (2022)., Argentina creates new investment incentives regime for the automotive manufacturing sector. Retrieved from: https://investmentpolicy.unctad.org/investment-policy-monitor/measures/4054/argentina-creates-new-investment-incentives-regime-for-the-automotive-manufacturing-sector#:~:text=Creates%20new%20investment%20incentives%20regime%20for%20the%20automotive%20manufacturing%20sector,-19%20Sep%202022&text=On%201%20September%202022%2C%20the,su%20Cadena%20de%20valor%22).
- Vernon, R. (1966). International investment and international trade in the product cycle. Quarterly Journal of Economics, 80(2), 190-207 Retrieved from : https://www.jstor.org/stable/1880689

- Webster G., Creemers R., Kania E., Triolo P. (2017). Full Translation: China's 'New Generation Artificial Intelligence Development Plan' (2017). Retrieved from: https://digichina.stanford.edu/work/full-translation-chinas-new-generation-artificial-intelligence-development-plan-2017/
- Word Trade Institution., (1991). Agreement for the Promotion and Reciprocal Protection of Investments between the Republic of Argentina and the Kingdom of Spain. Retrieved from: https://edit.wti.org/document/show/906eff11-67f0-4fed-afb9-3f6a725b5c76
- World Bank (2010). Foreign Direct Investment – the China story Retrieved from : https://www.worldbank.org/en/news/feature/2010/07/16/foreign-direct-investment-china-story#:~:text=Beijing%2C%20July%2016%2C%202010%20,the%20United%20States%20of%20America
- World Bank Group. (2019). Encouraging FDI Spillovers. Retrieved from: https://thedocs.worldbank.org/en/doc/771651576649384571-0080022019/original/SRBCEMFDIspillovers.pdf
- World Bank. (2018). Argentina - Systematic Country Diagnostic (English). Washington, D.C.: World Bank Group. Retrieved from: http://documents.worldbank.org/curated/en/696121537806645724/Argentina-SystematicCountry-Diagnostic
- World Bank. (2020). China Economic Update – July 2020: Leaning Forward – COVID-19 and China's Reform Agenda. Retrieved from: https://documents1.worldbank.org/curated/en/860161596170690657/pdf/China-Economic-Update-Leaning-Forward-COVID-19-and-China-s-Reform-Agenda.pdf
- World Bank. (2024). Private Sector Pumps $86B into Infrastructure in Low- to Middle-Income Nations Retrieved from: https://www.worldbank.org/en/news/press-release/2024/05/14/private-sector-pumps-86b-into-infrastructure-in-low-to-middle-income-nations
- Xiao T., (2024)., Exploring China's Leading AI Hubs: A Regional Analysis. Retrieved from: https://www.amchamchina.org/wp-content/uploads/2024/09/QY03-2024.pdf.
- Xing, Y. (2012). The People's Republic of China's high-tech exports: Myth and reality (ADBI Working Paper Series No. 357). Asian Development Bank Institute. Retrieved

from : https://www.adb.org/sites/default/files/publication/156212/adbi-wp357.pdf#:~:text=,Invested%20Firms

- Yankelevich, A., (2022). Agricultural Biotechnology Annual. Retrieved from: https://apps.fas.usda.gov/newgainapi/api/Report/DownloadReportByFileName?fileName=Agricultural%20Biotechnology%20Annual_Buenos%20Aires_Argentina_AR2022-0023.pdf
- Yueyuan Selina Xue, Wei Wei, Mark J. Greeven (2024). China’s automotive odyssey: From joint ventures to global EV dominance. Retrieved from: https://www.imd.org/ibyimd/innovation/chinas-automotive-odyssey-from-joint-ventures-to-global-ev-dominance/#:~:text=During%20the%20initial%2030%20years,foreign%20technology%20and%20capital%20from
- Zeng S., Zhou Y., (2021). Foreign Direct Investment's Impact on China's Economic Growth, Technological Innovation and Pollution. International Journal of Environmental Research and Public Health. Retrieved from: https://pmc.ncbi.nlm.nih.gov/articles/PMC7999935/#:~:text=FDI%20has%20played%20a%20significant,competition%20for%20FDI%20throughout%20China
- Zhiyuan Honors Program. (2015). Joint PH.D. Program: SJTU – Cornell – MSRA. Retrieved from: https://en.zhiyuan.sjtu.edu.cn/en/news/1292/detailRelated
- Zhou, Q., (2023). What Are the Tax Incentives in China to Encourage Technology Innovation?. Retrieved from: https://www.china-briefing.com/news/tax-incentives-china-to-encourage-technology-innovation-updated/
- Zhu X., (2012)., Understanding China’s Growth: Past, Present, and Future. Journal of Economic Perspectives. Retrieved from: https://pubs.aeaweb.org/doi/pdfplus/10.1257/jep.26.4.103