

# Analysis of the Impact of Foreign Direct Investment on the Integration of the Automotive Industry of Iran into Global Production Networks

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## ABSTRACT

Foreign Direct Investment (FDI) has long been recognized as a crucial driver of economic growth and development in less-developed countries and their integration into Global Production Networks (GPNs). FDI not only brings capital from the core countries but also technology, innovation, and know-how knowledge that can upgrade the capabilities of host automotive industries. On the other hand, FDI can also have negative impacts on host countries if it leads to significant import dependency. In the case of the Iranian automotive sector, the industry greatly benefited from FDI, with Western carmakers dominating the market. Over time, various types of know-how knowledge, including joint ventures (JVs), trade licenses, and technical assistance, have been provided, helping Iran upgrade its automotive industry. While after the severe geopolitical obstacles imposed by both the EU and the U.S., the industry became over-reliant on the car and spare parts imports, and the lack of emphasis on knowledge transfer further affected the growth and development of the Iranian automotive sector. To address these challenges, current research has adopted a descriptive-analytical methodology to illustrate the gradual changes occurred with foreign suppliers through FDI. The research finding shows that after the two-phase imposed sanctions, the detrimental linkages created by overreliance on the car and spare parts imports without any industrial upgrading negatively affected the growth and development of the national and assembled products of the Iranian automotive sector.

**Keywords:** economic growth, foreign linkages, geopolitical obstacles, import, know-how knowledge

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## 1. Introduction

Less-developed countries have been always seeking foreign capitals to some extent. First, to transfer the ever-growing knowledge and know-how to the host regions which are mainly controlled by the main core carmakers. In fact, the only way to create some beneficial foreign linkages between the host and core car manufacturers is through various types of FDI such as JVs and technology-oriented agreements. Second, by transferring the knowledge and creating such developmental linkages, the industry could experience upgrading through FDI spillovers and consequently in a long run, economic development (Pavlínek et al., 2017; Pavlínek, 2022).

In the case of Iran, where it has substantial oil and gas resources and is an important oil-exporting country, the history of FDI relations goes back to the 1979 Islamic revolution (Setayesh & Mackey 2016). It was followed by considerable foreign relations in the mid-2000s with Western carmakers such as France and Germany. While shortly after, due to nuclear programs, the most intensive two-phase sanctions imposed by the U.S. and EU started in 2008

by targeting crucial industries such as oil and gas as well as the auto industry sectors caused a turning point in the automotive industry and the forms of FDI and transnational corporations.

As a result, this paper aims to firstly investigate the evolution of FDI and various types of the foreign relations in the auto industry of Iran as well as the possible impacts of economic sanctions on the forms of the foreign linkages.

The paper employs the descriptive analysis method (Kalaian et al. 2019) by utilizing text-based news articles published on national and international press, library study, other specialized automotive industry websites to illustrate the various forms of the foreign collaborations formed between Iran and other carmakers.

The article argues that the geopolitical obstacles in the form of the imposed sanctions have effectively caused changes in foreign relations in terms of knowledge transfer. This claim is based on the fact that after the two-phase restrictions, the over-reliance of the industry on the Semi-knock down (SKD) and completely-knock down (CKD) parts increased significantly. In fact, the industry at the best condition has established some assembly parts to assemble the foreign-oriented spare parts in Iran without any knowledge domestication process especially after the 2<sup>nd</sup> phase of the economic and political restrictions.

The paper begins with the theoretical background of less-developed countries and their gradual integration into the GPNs. This section also examines studies which have been carried out in terms of the potential developmental impacts of FDI on the host regions. It is followed by a historical review of auto industry growth in Iran divided into six different evolutionary phases and shifts in transnational corporations. It is important to bear in mind that, following the initial wave of sanctions, statistical data regarding the foreign trade of the automotive industry ceased to be published on the official statistics centers of Iran. Therefore, the sources utilized in this paper are limited to national and international press, as well as auto-oriented webpages. Despite the challenges posed by the lack of comprehensive statistical data, there is still valuable information available for analysis. For instance, news articles from reputable news outlets have provided insights into the state of the Iranian automotive industry, including the challenges it has faced due to the sanctions. Auto-oriented web pages have also provided detailed information about the models and features of Iranian-made cars, which can be used to gain a better understanding of the industry's strengths and weaknesses. The study ends with a summary of the arguments.

## **2. Literature Review**

### **2.1. Automotive Industry of Less-Developed Countries and Their Integration into GPNs**

In this section, the main focus will be on the various types of integration of less-developed regions into the GPNs. Nag et al. (2007) remarked that less-developed countries have been continuously struggling to expand their automotive industry through various ways with the direct and indirect influence of political organizations like the government. However, despite these challenges, there have been considerable positive developments in recent years that illustrate a growing interest in the potential of the automotive industry in these regions. For example, in the early 1990s, after a long time of dominance of some focal firms located in developed countries, new worldwide players arrived and emerging economies considering the combination of economic reforms and new policies that paved the way for the expansion of the automotive industry became attractive zones for industrialized countries. With these new opportunities, there has been a huge shift in the production from traditional core areas in

developed countries towards less developed regions with growing markets and demands for vehicles with low-cost production sites (Humphrey et al., 2000, Dicken 2015, Pavlínek 2020). As a result, a high proportion of sales and production happened only in a few developing areas, particularly in East Asia and North America such as Mexico, Thailand, Indonesia, and the Philippines (Dicken 2015). In fact, during that period, production and sales constantly experienced remarkable growth in the rest of the world compared to the Triad regions. This can be attributed to the emerging markets mentioned earlier that have shown a lot of potential in the automotive industry. In fact, this rapid growth came from a few fast-growing emerging markets located in less-developed areas that illustrated a very spatial unequal nature of this transformation. This inequality is a challenge that needs to be addressed in order to ensure that the benefits of this growth are distributed more equitably across the globe.

According to the Table 3, it can be observed that the case of the Automotive Industry of Iran could be categorized as a protected autonomous industry by concentration on state-led industrial policies. While other regions such as Southeast Asia and East-central Europe followed other models elaborated below (Figure 1).

Peripheral Integration	Regional Integration	Protected Autonomous Industry
<b>Process</b> Integration into one of the current core areas of the automotive industry	<b>Process</b> Integration to the wider scale of the automotive industry	<b>Process</b> Extreme state-led industrial policies/protectations
<b>Examples</b> Mexico and East-Central Europe	<b>Examples</b> ASEAN in Southeast Asia MERCOSUR in South America	<b>Examples</b> China, India, and Iran

*Figure 1.* Developmental models of the automotive industry in less developed regions and integration into GPNs

Source: Author's own, adapted from Humphrey and Oeter 2000, Pavlínek 2018, 2020, Shimokawa 2004, Freyssenet and Lung 2004, Liu and Dicken 2006, Liu and Yeung 2008.

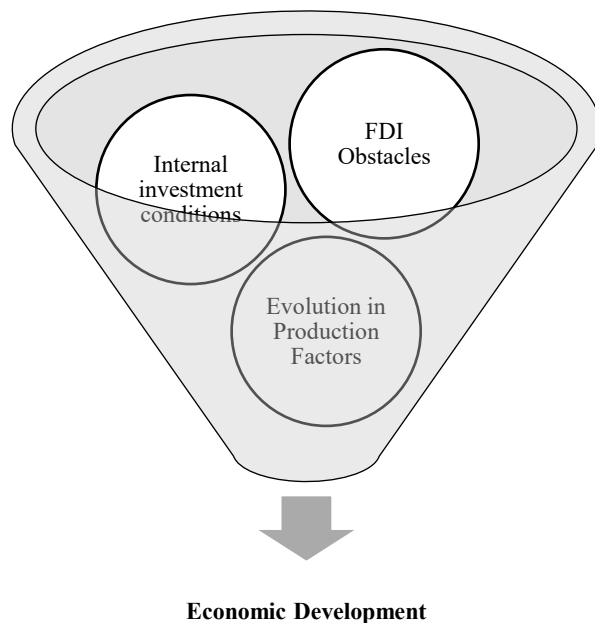
## 2.2. Foreign Direct Investment and Transnational Corporations through GPNs

In the following section, I will explain the function of Foreign Direct Investment (FDI) and Transnational Corporations (TNCs) through GPNs by focusing on their impacts on both less developed and developed host regions.

Foreign direct investment (FDI) has been considered a crucial element in transferring investment, know-how technology and skills from the developed core countries to less developed countries (Dunning & Lundan, 2008) and as a catalyst of integration into global market, which could have both positive and negative impacts on host countries (Adams, 2009, Pavlínek, 2004, 2022).

Adams (2009) Defined various aspects of the FDI flows. Figure 2 shows the different aspects of FDI-based economic growth and possible barriers through absorbing foreign capital such as

“diversification”, “absorptive capacity”, “domestic and foreign firms’ linkages” and “FDI targets”. It also remarked this point that by enhancing efficiency through “technology transfer”, “innovation” and “marketing and managerial skills” the socio-economic effects would be positively considerable by affecting the “growth rate”, “export enhancement”, “employment rate” and social-oriented factors. The Figure summarizes three main aspects of FDI which lead to economic development in the host regions including “internal investment conditions”, “FDI obstacles” and “Production Factors evolution” affected by the foreign investment flows.



*Figure 2. Developmental impacts of FDI*

Source: Author's own, adapted from Adams, 2009: 182.

On the other hand, there are researchers who consider FDI as a double-edged sword and mainly focus on negative impacts of FDI and mention that domestic enterprises cannot survive and might easily lose their market share and be replaced by foreign firms if they could not adopt new innovations to compete with foreign firms (Zemguliene and Zaleskyte, 2006). FDI flows might lead to the creation of “developmental”, “dependent” or “detrimental linkages” between foreign-owned and domestic firms depending on the position of the host economy in the international division of labor and on how the host economy is able to absorb technology and know-how knowledge from foreign subsidiaries (Pavlínek 2018). Coe and Yeung (2015) pointed out the importance of long-run relations between the core and host countries through FDI investment for achieving economic development in less developed countries.

### **2.3. Automotive Industry and its Integration into the GPNs through FDI and TNCs**

As it was mentioned in the “Automotive industry of less-developed countries and integration into GPNs” section, there are different kinds of integration into the GPNs when it comes to the automotive industrial acts. Accordingly, each auto industrial region tends to adopt a different strategy to form new foreign relations in order to transfer the technology led by the core countries. In fact, one common approach to integration involves foreign direct investment (FDI) and transnational corporations (TNCs) to transfer the technology and expertise of core countries to the less-developed regions. This allows less-developed countries to tap into the knowledge and resources of more advanced economies to boost their production capabilities and reduce their reliance on the developed countries as well.

FDI can have a significant impact on the development of local firms. However, studies have shown that a high dependency on FDI can limit the growth of local companies (Pavlínek et al., 2017; Masron & Hassan, 2016; Pavlínek, 2022). Therefore, it is crucial to make a balance between FDI and local firms' development to ensure sustainable economic growth.

Figure 3 demonstrates that the automotive industry in Iran, which is mainly controlled by state-led companies such as SAIPA and IKCO, tend to rely on relatively low to medium levels of FDI. The most common form of FDI in the industry is Joint Ventures (JVs), which allow local firms to partner with foreign companies to expand their reach and capabilities. Other forms of FDI, such as the expansion of assembly lines and collaborations, are also prevalent in the industry.

Peripheral Integration	Regional Integration	Protected Autonomous Industry
<b>FDI/TNCs</b> High level of FDI <ul style="list-style-type: none"> <li>✓ Due to lower production costs</li> <li>✓ To meet core countries demands</li> <li>✓ Lower state control</li> </ul>	<b>FDI/TNCs</b> High level of FDI flows <ul style="list-style-type: none"> <li>✓ To meet regional and domestic market demands</li> <li>✓ Lower state control</li> </ul>	<b>FDI/TNCs</b> Relatively low to medium level of FDI mainly in the form of JVs <ul style="list-style-type: none"> <li>✓ To meet domestic market demands</li> <li>✓ More assembly firms</li> <li>✓ Higher state control via industrial policies</li> </ul>

*Figure 3.* Role of FDI and TNCs based on the developmental models of the automotive industry in less developed regions

Source: Author, adopted from Humphrey and Oeter 2000, Pavlínek 2002, 2018, 2020, Shimokawa 2004, Freyssenet and Lung 2004, Liu and Dicken 2006, Liu and Yeung 2008.

To illustrate the potential impacts of FDI in detail in less developed countries, Pavlínek (2022) pointed out the role of FDI linkages, FDI spillovers and type of foreign investment. Overall, positive effects of FDI for regional economic development are less likely to occur in less-developed regions (LDRs) compared to more developed regions (MDRs) (Figure 4).

<b>Type of FDI</b>	<ul style="list-style-type: none"> <li>•MDRs: Horizontal (Market-seeking)</li> <li>•LDRs: Vertical (Resource-seeking/exploiting)</li> </ul>
<b>FDI spillovers</b>	<ul style="list-style-type: none"> <li>•MDRs: Higher absorptive capacity and vertical spillovers</li> <li>•LDRs: Lower absorptive capacity and vertical spillovers</li> </ul>
<b>FDI linkages</b>	<ul style="list-style-type: none"> <li>•MDRs: Higher number/intensity of linkages, developmental linkages</li> <li>•LDRs: Lower number/intensity of linkages, dependent linkages</li> </ul>

*Figure 4. Comparing the impact of FDI on less developed and more developed regions*

Source: Author's own, adapted from Pavlínek, 2022: 2

### 3. Historical Overview of Auto Industry in Iran in Terms of Foreign Relations

The following section will mainly focus on the evolution of the Foreign Direct Investment (FDI) and foreign linkages in terms of auto industry development in Iran. Evolution has been considered in 6-phase stages, starting from the initial growth phase, followed by the instability period, and then the growth stage. The geopolitical obstacles that emerged in 2007 can be considered as the first waves of economic barriers faced by the auto industry.

To provide a detailed explanation of these six stages, Figure 5 has been designed based on the considerable changes in the total vehicle production units. Within the 1st phase, the industry witnessed the first local assembly operations of completely-knockdown (CKD) or semi-completely knockdown (SKD) vehicles, including Jeep, Fiat, and Land Rover models (Roudsari et al, 2018). Additionally, the national brand of "Peykan" Hillman Hunter kits imported from Britain was introduced (Mather et al, 2007).

The 2nd phase refers to the instability period due to the Iranian Revolution of 1979 and the Iran-Iraq war, which resulted in a drastic decrease in production units by 1990 (Billingsley, 2018). However, during the 3rd phase, known as the growth stage, the industry experienced rapid growth by establishing new relationships with several popular international automakers such as Peugeot and Citroën (France), Volkswagen (Germany), Nissan and Toyota (Japan), Kia Motors (South Korea), Proton (Malaysia), Chery (China), and many other foreign producers of light and heavy vehicles through various joint ventures (Abedini et al., 2009 James, 2015).

As a result, the automotive industry in Iran experienced rapid growth until Western economic sanctions were imposed in the 4th phase, which led to a significant industrial shock. These sanctions targeted firms that supplied goods and services to the Iranian automotive industry. Additionally, foreign banks were blocked from the U.S. market if they conducted transactions with Iran's automotive sector. This caused transnational corporations to withdraw from joint

ventures made in the previous phase, as reported by rferl.org (2013), James (2015), and Mordor intelligence (2019).

Moreover, the disruption of imports and the declining domestic production resulted in a considerable increase in the price of cars in Iran by about 300%, which in turn, disrupted domestic demand, as reported by Mordor Intelligence (2019). Despite this, there was a break in lifted sanctions within the 5th phase, which lasted roughly four years and led to the renewal of previous cooperation with core Western carmakers, especially the French ones. As a result, the automotive sector boomed in terms of both local production and imports, and total vehicle production, after falling by almost two-thirds between 2012 and 2013, began to rise steadily and was forecasted to reach between 1.7 and 1.8 million units by 2018.

However, this growth was short-lived, as the re-imposed sanctions followed by the Covid-19 pandemic caused another industrial stagnation. In 2019, approximately 800 thousand passenger cars were produced in Iran, representing a decrease from over one million passenger cars produced in 2018, as reported by Mordor Intelligence (2019). Despite the recent setbacks, the Iranian automotive industry has shown resilience and potential for growth in the long term.

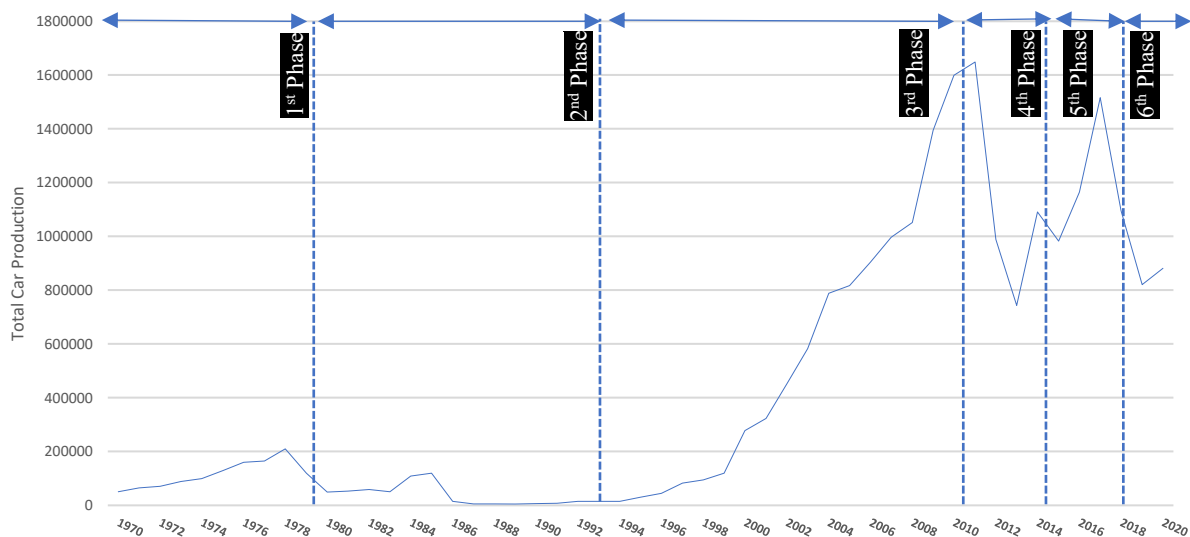


Figure 5. Total Vehicle production trend in Iran from 1970-2020

Source: Autor's own calculation, adapted from Iranian Parliament research center, 2016 (Production data from 1970-1998) and OCIA, 2021 (Production data from 1999-2020).

In Figure 6, we can observe the changes in total car production over time. Specifically, the data shows that the sharpest fluctuations in car production occurred during the 1st phase (2011-2013) and 2nd phase (2017-2019) of the imposed sanctions, with significant drops in production units. However, after the shifting policy in terms of geopolitical relations, the production change experienced an upward trend, with a 7% increase in 2020 and a further 2% increase in 2021. This suggests that the changes in geopolitical relations have had a significant impact on car production, and that fluctuations in production levels can be attributed to changes in economic and political factors.



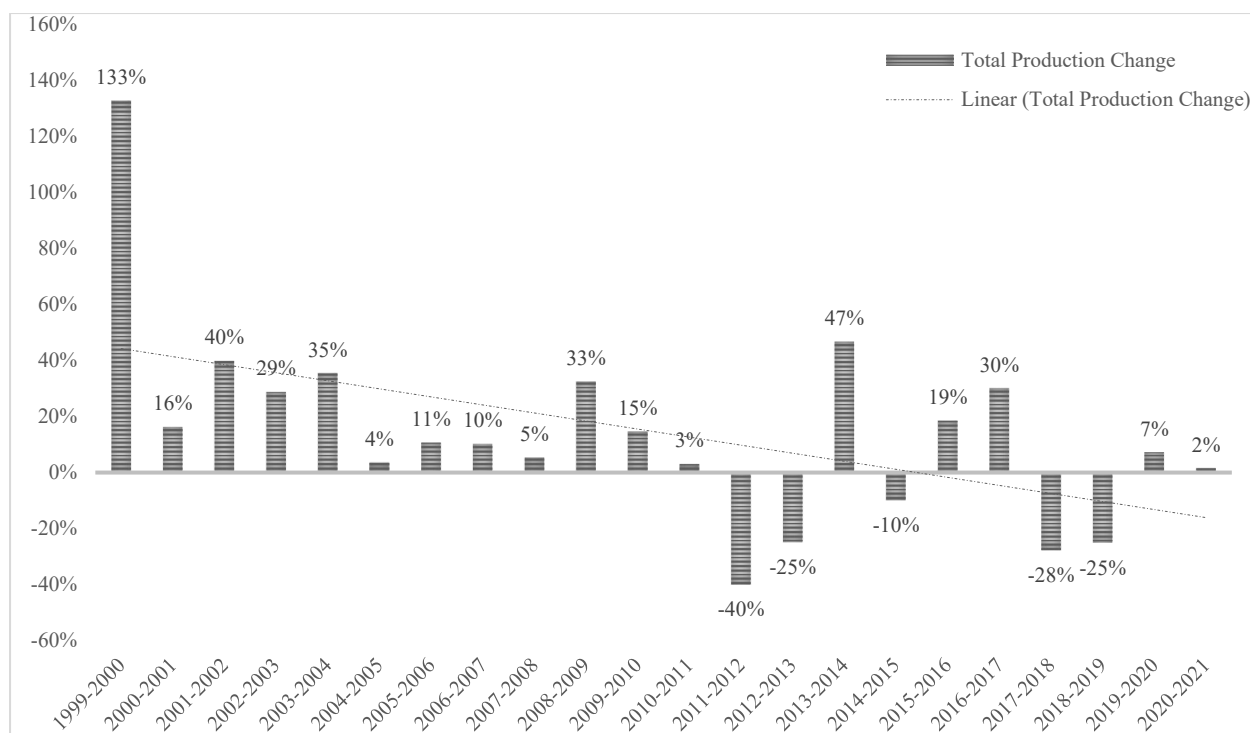
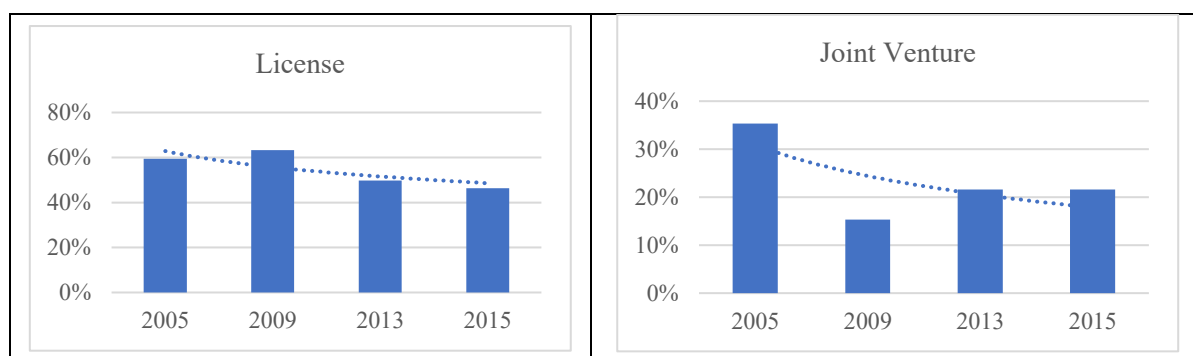


Figure 6. Total car production changes in the auto industry of Iran, 2000-2021

Source: Author's own calculation, adapted from OICA, 2021.

During the above-mentioned phases, based on the autarky policy and reliance on domestic productions, several imported parts were utilized to produce motor vehicles and other semi-final and final spare parts in the local assembly plants. As a result, the value added of the industry shows a significant increase in the share in terms of spare part production with roughly 175% and parts for motor vehicle production with around 200% from 2002 to 2007 (Statistics Center of Iran 2017). As a result, the situation illustrates the relative success of the state-led policies to protect the national products, while the quality of outputs remained a serious issue.

Hence, to increase the local technical capacity in terms of manufacturing higher quality products, the Iranian car producers expanded their relations with foreign companies through technology licensing, joint ventures and technical assistance respectively (Figure 6).





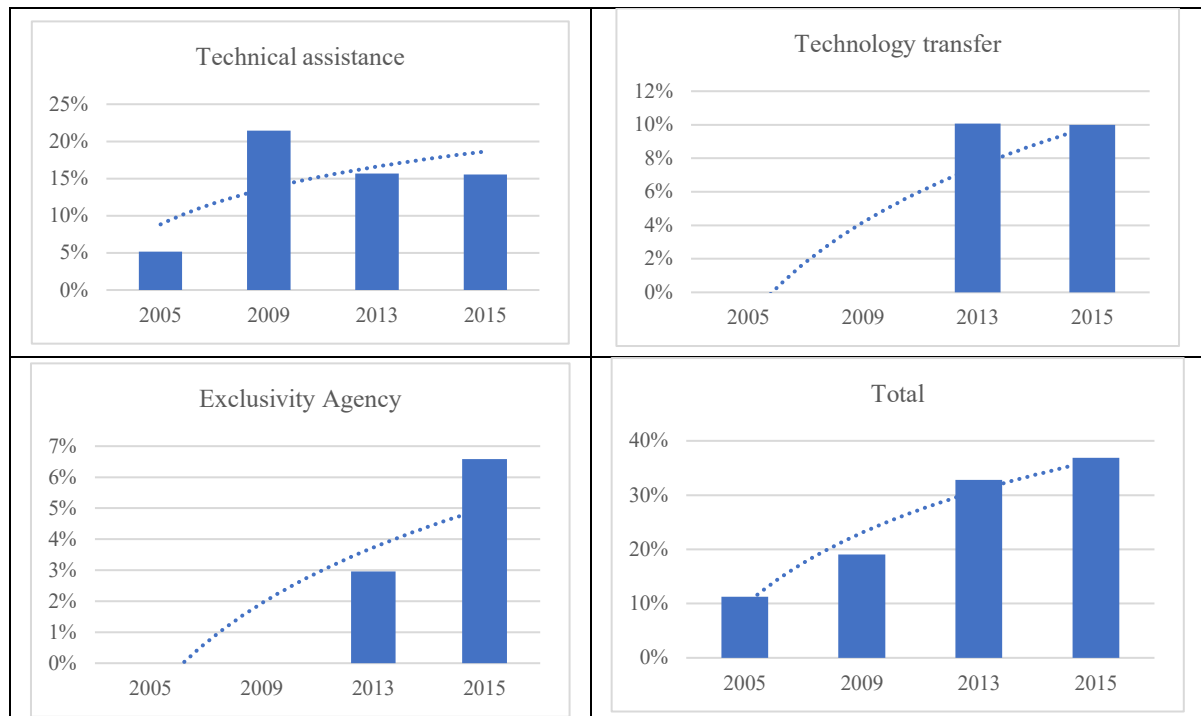


Figure 7. Evolution of Transnational Corporations in the Auto Parts' Industry of Iran

Source: Author's own, adapted from Pakparvar, 2015: 48, Razavi & Alaedini et al., 2018.

The data collected for the study dates back to the end of 2015 when sanctions were imposed on the country. After the geopolitical obstacles, the only source of information has been national and international press and report webpages. It should be noted that the use of obsolete technology and outdated parts has resulted in poor quality, low levels of safety, and inadequate services. These issues have led to numerous negative side effects, including but not limited to dissatisfied customers, formation of protest campaigns, and air pollution (rferl.org 2013).

One example of the negative effects resulting from the use of obsolete technology and low-quality of Chinese imported parts can be seen in the case of the Samand Model, which is the most famous brand exported from the country. Due to reliance on outdated stock and a lack of up-to-date research and foreign relations to transfer knowledge, both domestic and international markets have witnessed a decline in the quality of the Samand Model (intellnews 2022).

Moreover, a significant proportion of road accidents can be attributed to a serious lack of safety conditions in locally produced vehicles. This highlights the problematic issues of technological independence and could potentially reduce competitiveness in future foreign markets (automotive logistics 2022). For example, in 2006, several people were killed due to fuel-based defects in one of the French-based cars assembled in the domestic plant (Hamshahrionline 2006).

In Table 1, all the historical foreign corporations and agreements have been summarized during the 6-phase evolution of the industry. After the 1<sup>st</sup> phase of the imposed political and economic restrictions, it is evident that the majority of spare parts and components in Iran are imported from China, a key foreign source country. China's role in Iran's import market has been prominent for years, and China-Iran trade has continued to grow despite the United States' sanctions against Iran. However, it is worth noting that Iran has also been trying to form international linkages with other countries, especially since it has faced economic isolation due to sanctions. Recently, Iran has been attempting to establish closer trade relations with Russia and Venezuela, both of which are also under sanctions. In fact, Iran has signed a number of

agreements with Russia and Venezuela in recent years (Al-monitor 2022, Dialogo-Americas 2022, Intellinews 2022, Automotive Logistics 2022). Despite these efforts, however, China remains Iran's most important partner in terms of importing spare parts and components. The latest agreement with China, which began in 2023, is based on CKD/SKD part imports to Iran. This agreement allows Iran to assemble the components and produce national products.

Table 1.

*Brief History of the foreign corporations in the automotive industry of Iran*

Phase	Year	Foreign Partners	Model	Details	
Initial growth	1950s-1960s	USA	Jeep and Land Rover	Import of parts and assembly in local plant lines by IKCO	
		UK		Import of parts and assembly in local plant lines by SAIPA	
	1970s	France	Citroen Dyane model	Import of parts and engines to be assembled in local plant lines by IKCO	
Rapid Growth	1990s	France	Peugeot 405	Local part integrations By IKCO	CKD form of import
	1999		Pride/ Kia Motor Xantia	sealed a deal with PSA Peugeot Citroen to produce the Xantia By SAIPA	
	2001	France	Peugeot 206	Local part integrations By IKCO	CKD forms of import
	2002	China	Cherry	Kerman Khodro	Assembly of Chery called MVM 110; more than 150 000 vehicles since 2002
	2003-2004	France Renault	L90	SAIPA	Parts imports: Assembly in the local plants
	2004-2013	Germany	VW Golf	Kerman Khodro	produced approx. 10 600 VW Golf from 2004 to 2010
1 <sup>st</sup> phase of the sanctions		China	Lifan	Kerman Khodro	Spare parts imports: Assembling cheap Chinese cars like Lifan
Lifted-sanctions phase	2014-2018	France	Latest Citroen models	SAIPA	Citroen and SAIPA group : 50%-50% joint venture; transferring technology
			Latest Peugeot models	IKCO	50%-50% joint venture; transferring technology and R&D investment
		China	Brilliance, Changan and Ario	SAIPA and other marginal companies	Parts imports: Assembly in the local plants
2 <sup>nd</sup> phase of the sanctions-present	2021	Russia	SAIPA products	SAIPA	SAIPA products' export agreements (300 Million\$) to Russia and Belarus
	2021	Belarus			Establishment of assembly plant
	2022	Venezuela	SAINA	SAIPA/IKCO	Exporting agreements
	2023	China	Low-cost Chinese brands	SAIPA and other marginal companies	CKD/SKD parts imports agreements; initial technology transfer

Source: Author's own.

#### 4. Conclusion

Less-developed countries have become attractive locations for the automotive industry of industrialized countries, due to economic reforms and new policies. As a result, the production of cars has shifted towards developing regions with growing markets and low-cost production sites. While the sales and production of cars have grown remarkably in Asia, industrialized countries have experienced stagnation in car production. Iran's automotive industry, as a less-developed region, has a long and complicated history of foreign investment, including joint ventures, licenses, and knowledge transfer, especially with European core carmakers. However, the industry faced significant challenges after the first phase of sanctions was imposed due to nuclear activities. The harsh political and economic restrictions forced several international cooperations to halt their agreements and contracts, not only with the oil and gas sectors but also with the automotive industry, which accounts for a considerable share of employment and gross domestic products. This shock caused a different type of foreign investment, mostly in the vertical form, which seeks resources without any local-oriented contributions. Despite these challenges, the industry attempted to reform foreign linkages within a four-year eased sanction period, primarily with French carmakers. The goal was to counteract the negative consequences of the first phase of sanctions imposed by the US and EU. Although the industry was in the process of recovering from the collapse, the implementation of the second harsher phase of sanctions thwarted the industry's continued efforts to create transnational corporations in order to pave the way of knowledge transfers. It is clear that the use of obsolete technology and outdated parts has hindered the growth of the industry, reducing its competitiveness. Currently, the Iranian auto industry is struggling with over-reliance on completely knocked-down and semi-knocked-down forms of car imports. Moreover, the recent policy of importing Completely Built-up cars (CBUs) illustrates the failure of the auto industry to meet the requirements of domesticating knowledge and transferring technology, especially in terms of the quality of products and customer satisfaction. The government should consider the importance of long-run relations between core and host countries through FDI investment for achieving economic development in less developed countries, as one of the major gaps in the country due to geopolitical instabilities which makes the automotive industry a risky and unattractive sector for foreign investments. Despite the challenges, the Iranian auto industry is still one of the most significant employers and contributors to the country's economy. In recent years, the industry has made efforts to recreate geopolitical-based transnational corporations with countries such as Russia, Venezuela, and China to increase domestic production and reduce reliance on imports, although the share of knowledge transfer is vague and should be taken into account.

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