Original Article
ISSN (Online): 2454-1907

International Journal of Engineering Technologies and Management Research
July 2025 12(7), 1–19

EVOLUTION IN THE GEOGRAPHICAL STRUCTURE OF THE TRANSNATIONAL CORPORATIONS THROUGH GLOBAL PRODUCTION NETWORKS IN THE CASE OF THE AUTOMOTIVE INDUSTRY OF IRAN

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Received 15 May 2025
Accepted 16 June 2025
Published 31 July 2025

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DOI
10.29121/ijetmr.v12.i7.2025.1558

Funding: This research received no specific grant from any funding agency in the public, commercial, or not-for-profit sectors.

ABSTRACT

Iran's automotive industry, a key economic driver contributing significantly to GDP and employment, has been consistently challenged by geopolitical factors, particularly economic and political sanctions. Despite being one of the top 20 vehicle manufacturers globally, the industry has faced severe impacts from Western sanctions. Nevertheless, Iran has maintained its production levels by strategically shifting its trade policies. Initially, the industry pivoted away from Western partnerships, strengthening ties with China, its primary East Asian trade ally. As sanctions intensified, Iran further diversified its trade network, focusing on Persian Gulf neighbors, Central Eastern Europe, and other sanctioned countries like Russia and Venezuela. These partnerships have been crucial in sustaining vehicle production through completely knocked-down and semi-knocked down imports. Domestically, the industry has faced growing criticism over the low quality and high prices of locally produced vehicles, prompting a potential shift in policy. The government is now considering lifting bans on foreign and second-hand car imports, indicating a move away from strict autarky towards a more open market. This evolution in trade policy and international cooperation underscores the adaptability of Iran's automotive sector and its efforts to maintain its global standing despite persistent geopolitical challenges.

Keywords: Automotive Industry, Geopolitical Obstacles, Less-Developed Country, Gpns, Iran

1. INTRODUCTION

The expansion of car production in the world accelerated significantly with the rapid growth of emerging countries in the 1990s by remarkably car production increase during this period based on the fact that the high proportion of this growth is concentrated in less-developed countries Humphrey and Memedovic (2003). Iran as one of the emerging countries in terms of the rapid growth of car production has been one of the biggest car producers in the Middle East for many years OCIA

(2020). This industry is a huge contributor to the country's GDP and employment rate after the oil and gas sectors UNdata (2021), Middle East and Political Economic Institute. (2021) indicating that Iran's automotive industry has significant capacity and important responsibility in the country's non-petroleum sector Abedini and Péridy (2009) by a remarkable position at the national and international levels Mather et al. (2007).

While Iran's car industry was developing unprecedentedly and surpassing its competitors in the region, the imposition of western economic sanctions due to the dispute about Iran's nuclear power program in two phases Atlantic Council. (2018) led not only to large fluctuations in the volume of production, but it also negatively affected the quality of production and the process of value creating, enhancing and capturing (in the form of transfer of technology and know-how from western firms), as well as cooperation between Iranian and western automakers. The two-phase sanctions forced foreign transnational cooperations to withdraw from Iran and represented a major shock for the industry resulting in sharp declines in production OCIA. (2020), Dudley (2018), Billingsley (2018). On the other hand, despite the fact that Iran's economy and particularly, the automotive industry has been severely affected by the results of international sanctions, the country is still one of the top 20 vehicle manufacturers worldwide in terms of vehicle production volume with roughly 7% growth from 2020 to 2021 followed by 2% growth by 2022 OCIA. 2022).

As a result, this paper aims to firstly investigate the possible impact of economic sanctions on the evolution of car production and due to the reliance of the automotive industry of Iran on spare parts import, along with the statistical trends in the industry, the evolution of the geographical position of the TNCs will be the second pillar.

This article contributes to the literature to some extent. First, the paper examines the geographical trade position of the Iranian automotive industry within the GPNs, unlike current studies which mainly generalized the impact of the sanctions on the production rates or simply believed that the automotive industry of Iran could be successfully isolated from the global economy by reliance on domestic knowledge and self-sufficiency policy. The current research indicates that foreign relations play a key role in the automotive industrial development in Iran, and the state has realized that to fulfill the domestic demands without maintaining the quality of the domestically produced cars is not possible. In addition, the article has considered the evolution of the foreign linkages affected by geopolitical status in different historical stages. In fact, the continuous efforts of the industry to create geopolitical-based TNCs to supply the completely knocked-down and semi-knocked down forms of car imports and recently, the policy of Completely Built-up cars (CBU) imports illustrate the failure of the auto industry to meet the autarky and domestication policy.

The paper employs the descriptive analysis method Kalaian et al. (2019) by utilizing current and historical documented data to illustrate the evolutions and trends in the case of car production units and trade flows in order to deepen the understanding of the automotive industry's changes since the 1960s by drawing on national-level statistics through the Iranian Parliament research center for the period 1967-1998 and the International Organization of Motor Vehicle Manufacturers (Organization des Constructures d'Automobiles[1]) for the period 1990-2021, as well as library study, other specialized automotive industry websites

[1] - OICA

and national press reports. To investigate the geographical TNCs shifts, trade statistics are adopted from the OEC.World website as one of the resources in terms of economic complexity data from 2002-2020.

The article argues that the geopolitical obstacles in form of the imposed sanctions have effectively caused geographical changes in foreign relations in terms of imported cars and spare parts. This claim is based on the fact that each phase of the sanctions led the industry to adopt new linkages towards TNCs specifically after the two-phase sanctions imposed by the U.S. and EU. It is claimed that within the first phase of the imposed sanctions started in 2008, China was the main transnational cooperation while after the second wave of the economic restrictions, a shift occurred from overreliance on Chinese products towards Persian Gulf neighboring countries.

The paper begins with the theoretical background of less-developed countries and their integration into the GPNs through TNCs in terms of automotive industry development to deepen the importance of emerging countries and less-developed regions in the global automotive industry along with the studies have been done in the case of the automotive industry of Iran. It is followed by an analysis of the documented data on car production and import origins by introducing four phases from the 1990s to 2020s; "Pre-sanction phase", "1st phase of sanctions", "Lifted-sanction phase" and "2nd phase of sanctions onwards" continued by illustrating the main TNCs through the depicted geographical trade flows within each phase. The article ends with summarizing the arguments in the conclusion part.

2. LITERATURE REVIEW

Experience of Iran as a less-developed country and growth of the automotive industry through integration into the global production networks

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 Nag et al. (2007). 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[2] 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 and consequently, this transition led to 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 and Oeter (2000), Dicken (2015), Pavlínek (2020). As a result, a high proportion of sales and production happened only in a few developing areas: in particular, East Asia and North America such as Mexico, Thailand, Indonesia, Philippines etc., Dicken (2015). During that period, production and sales constantly experienced remarkable growth in the rest of the world compared to the Triad regions[3] Humphrey and Oeter (2000), Humphrey and Memedovic (2003) and observable stagnation could be seen in terms of car production in the industrialized countries. 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.

As Humphrey and Oeter (2000), points out, there are three main models of integration into global production networks in emerging markets that in a long run

[2] - It Refers to Middle-Income or Low-Income Countries with Potential Growth.
[3] - The United States of America and Canada, I.E., North America, Japan and Western Europe

might lead to automotive industrial growth: first, integration into one of the current industrialized poles (experienced in Mexico and Eastern Europe), second, regional integration (like ASEAN) and establishment an indigenous auto-industry base that can be seen in China and also in Iran by establishing domestic car makers to produce national vehicles.

In addition, in terms of growth models of automotive industries in developing countries, three paths are likely to be followed: Knockdown (KD) production by indigenous enterprises, KD production by foreign firms, or production of indigenous models by domestic firms Korea Institute for Industrial Economics and Trade (2014) mainly in the forms of geographically distributed actors so-called TNCs to transfer foreign investment, know-how technology and skills in the forms joint ventures (JVs), licensing, education and knowledge from the developed core countries to less developed countries Fransman (1986), Dunning and Lundan (2008).

Adoption of each path and model depends on the county's policy and local content regulations, as governments actively interfere and apply restriction policies to support domestic products in the forms of autarky and self-reliance to reduce imported vehicles and parts Humphrey and Oeter (2000), Dicken (2015). From the 1970s based on import-substitution policies pursued in several less-developed countries such as South Africa, India, Malaysia, Brazil, Thailand, Iran and Mexico, they tried to rebuild their automotive industry through upgrading from assembling fairly complete kits (CKD) to a reduced reliance on imported knocked-down components (KC) and it can be considered as one of the main routes towards significant production in the 1980s and 1990s as well as satisfying high proportion of demands domestically Humphrey and Oeter (2000).

The experience of Iran also shows that the initial industrialization growth started in the 1960s when the country was extremely benefiting from oil-oriented exports and these huge financial resources were allocated to the creation of new industries and the main strategies pursued by the governmental body were based on national car companies and then import-substitution activities Amuzegar (1993), Amuzegar (2014). The commencing experience of automotive industry in Iran is relatively close to Mexico, India, Thailand and Malaysia in the 1990s which mostly depicts the priority of local content requirements and restrictions in the shape of high tariffs on imported complete cars and parts.

3. GEOPOLITICAL OBSTACLES AND THE POSITION OF THE AUTOMOTIVE INDUSTRY OF IRAN IN GPNS

In the case of Iran, where has substantial oil and gas resources and is an important oil-exporting country, the history of geopolitical issues mainly in the forms of political and economic sanctions goes back to the 1979 Islamic revolution Setayesh and Mackey (2016). But the most intensive two-phase sanctions imposed by the U.S. and EU due to the nuclear programs started in 2008 by targeting crucial industries such as oil and gas as well as the auto industry sectors. There are several publications in both Persian and English with a brief focus on sanctions and their impact on car production trends and in some cases, the prediction of car production in the future based on suggested alternatives as well as recommending appropriate strategies to cope with the sanctions-based conflicts elaborated below.

Razavi and Alaedini (2018) and Roudsari et al. (2018) analyzed the evolution of the auto industry from a historical perspective by 2014 including the first phase

of the imposed sanctions and the lifted phase of the international obstacles as well. The authors also referred to the quality and price of domestically produced cars as the two profound challenges the industry faced.

ILIA Group (2015) also conducted relatively similar research by covering a historical overview of the formation of the industry and the impacts of the first waves of western sanctions on car production instability. They also presented a 10-year prediction by adopting five scenarios which the highest predictable ones were mainly based on "new joint venture agreements" with core car producers in both western countries (such as Germany and France) and China as the main Asian coalition by 2025. The study ended by utilizing the SWOT technique to for identifying and analyzing both internal strengths and weaknesses and external opportunities and threats in terms of the auto industry of Iran.

Movahed (2020) also by referring to Mehri's studies (2015a, 2015b) divided the various global imposed sanctions into "unilateral" and "multilateral" types. The first type backs to the early stage of the revolution in Iran due to some political conflicts between the two countries of Iran and the U.S., while the latter "multilateral" kind dated from 2008 was significantly destructive in terms of the position of the vital Iranian industries such as oil, gas and automotive in the global economy. In fact, the main argument is that the crucial industries were extremely affected by the "multilateral" sanctions related to the nuclear programs compared to the "unilateral" type.

Wilman and Bax (2015) in a book chapter named "Reintegrating Iran with the West: Challenges and Opportunities" studied the repercussions that the auto industry faced after 2012 due to the western imposed sanctions, following the quality issues of the domestic products and outdated technology used in national assembly plants. In the end, the authors also predicted the future barriers/possibilities of the industry in case of political-based conflicts ease. James (2015) also wrote a similar report in terms of the negative impacts of global economic sanctions on the relations between the auto industry of Iran and European car producers, specifically France, Germany, and Italy.

Rezaeinejad (2021) addressed industrial challenges in the automotive sector of Iran at both national and international scales. The study was followed by a brief statistic-based illustration of the car production and sale trends affected by the western sanctions by 2020 along with the future estimation of the car production trend by 2029 adopted from "Fitch Ratings Inc." website. The paper concluded with some suggestions to overcome the domestic and international obstacles such as more investment in the R&D sector and knowledge-based efforts, tariff reduction to meet quality needs through competitiveness and expanding foreign relations.

Saberi (2017) similarly mentioned the problems which the auto industry faced by focusing on both economic and political factors. He argued that after the lifted sanction period, the state should adopt a moderate strategy to make a balance between the proportion of reliance on foreign corporations (mainly the western core car producers as the key providers in the forms of JVs with the Iranian auto sector) and protection of the domestic producers mainly through R&D investments as well as introducing modernization projects.

On the other hand, although the above-mentioned studies referred to the crippling restrictions and gradual loss of chances for automotive firms to find a market for their products along with the complete halt of the western alliances to cooperate through joint ventures agreements in Iran, there is other research that argues the fact that the government has adopted alternative strategies to maintain the production trend to fulfill the domestic demands within the geopolitical barriers.

These relevant studies could be divided into two categories; the first group of studies is in terms of technology-based upgrading of the domestic industry regardless of the tightening sanctions mentioned by Barazandeh et al. (2016) and Mehri (2015a) and Mehri (2015b) and the second group of research concentrates on the trade shifts to bypass the current economic sanctions elaborated by Popova and Rasoulinezhad (2016), Nasre-Esfahani and Rasoulinezhad (2017) and Dizaji (2018).

Regarding the first group, Barazandeh et al. (2016) remark that economic sanctions led to new long-term governmental policies benefiting the development of the domestic automotive industry through imports of technology, increased investment in R&D and technology localization. Mehri (2015) and Mehri (2015) also claimed that by establishing engineering consulting firms, a state-led developmental approach can be successful in the expansion of the localized and indigenous automotive industry in Iran. He pointed out that know-how technology can be transferred and adopted locally even when the industry is isolated from TNCs and the global economy.

As for the latter trade-led policy research, it has been emphasized that Iran has applied an alteration trade policy so-called "De-Europeanization towards Asianization" under the first phase of sanctions Popova et al. (2016), Nasre-Esfahani and Rasoulinezhad (2017), Dizaji (2018). In fact, the De-Europeanization toward Asianization policy refers to a trade shift from European countries to Asian countries as new alliances.

Batmanghelidj (2020): 10, Batmanghelidj (2022) and Bazoobandi (2015), Bazoobandi (2015): 64, also approved the previous De-Europeanization policy by focusing on the "resistance economy" as a new pattern of trade policy and the state's efforts to find new foreign relations and trade compositions over the last decade (e.g. more trade ratio with China compared to European Countries).

Overall, these studies usually fail to provide three aspects: (a) comprehensive literature reviews that adopt an economic geographical point of view, specifically with regards to the importance of less-developed regions in the position of the automotive industry in GPNs, (b) empirical evidence showing the geographical transitions of TNCs affected by geopolitical obstacles over time, and (c) an integration of the theoretical and empirical aspects.

Therefore, this paper aims to fill these gaps by (a) theoretically focusing on the possible ways of integrating the other automotive industries in less-developed and emerging countries into GPNs, and identifying the adopted policies by the Iranian Automotive Industry, and (b) empirically analyzing the geographical trade changes after the two-phase imposed sanctions, using a historical-oriented approach to illustrate the automotive background within four-stage phases affected by the global economic sanctions against the industry. The paper argues that China is no longer the main TNC in terms of car and spare parts imports after the second phase and that Iran is investing in forming new international linkages, mostly with its neighbors in the Persian Gulf, and recently looking forward to CEE countries to fulfill domestic demands and tackle quality and price issues.

4. PRE-SANCTION PHASE (THE 1960S-2007)

From the historical perspective, in this phase, three more subphases could be considered: the "formation period from the 1970s", "the geopolitical-instability

phase" due to the revolution in 1979and shortly after, the 8-year Iran-Iraq war, and finally the "initial formation of the foreign relations" started from 1994.

Within the "formation phase", In 1962, a state-owned car manufacturer called Iran Khodro Co (IKCO) was established as a national company to produce domestic products which were continuously supported by the government to minimize reliance on foreign products. the government also established a domestic car assembly company in the capital city of Tehran called Société Anonyme Iranienne de Production Automobile (SAIPA)[4] as the Citroëns Production Association, which went into production in 1966. Its initial target was producing a unique model called Peykan as the first 'National Car' in Iran. All parts and kits were shipped from Britain to Iran for the assembly process Mather et al. (2007).

The revolution in 1979 and the war between Iran and Iraq led to a negligible number of car production and ever-increasing domestic demands vis-a-vis an extremely short supply. As a result, by the beginning of the 1990s, the state attempted to import both CKD and SKD vehicles from Asian, European and American carmakers respectively. Consequently, car imports rose sharply in the 1993 to 1994 period, reaching record levels of up to 90,000 vehicles annually Iranian Parliament Research Center (2016) and ILIA Group (2015). Several license agreements were also signed with foreign producers, mainly focused on purchasing parts in the form of CKD or SKD, as it was the fasters and easiest way to meet the large local demands of the growing population through huge productions Alaedini et al. (2018). In fact, only limited assembly was done domestically, and auto components were mostly imported from Western countries Middle East and Political Economic Institute (2021). In addition, in terms of knowledge transfer, there were no efforts made by the government to localize know-how knowledge of manufacturing the parts as well.

However, the approval of 'The Automotive Law of Iran', in 1995 led to an influential governmental protectionist policy in the automotive industry. Accordingly, imposing high import tariffs on Completely Built Up (CBU) cars compared to Completely Knocked Down (CKD) or Semi Knocked Down (SKD) cars in the forms of introducing monetary incentives was considered to inspire local production and increase the level of autarky Manteghi and Jafari (2011), Billingsley (2018). To support this law, the 'Self-Sufficiency Unit' was established by IKCO with the aim of manufacturing all components themselves and increasing the degree of self-relevancy vis-à-vis foreign partners. This was centralized in SAPCO[5] in 1993 to produce relatively all parts needed for the Paykan as a national car in Iran at that time (IKCO 2021).

Despite this rapid growth in domestic production, the national industry was unable to satisfy the increased domestic demand, and the government was forced to ease restrictions on auto imports by lowering tariffs on auto imports, which led to the importation of a large number of cars including passenger vehicles (PVs) and also mining and construction heavy vehicles at the end of 1990s Iranian Parliament Research Center (2016) and the total value of the import of cars and spare parts reached more than 1000% in 2007 compared to 1995 Figure 1. By increasing the level of imported spare parts, the production trend also experienced rapid growth from 30 thousand units in 1995 to roughly one million units by the end of 2007 Figure 2

[4] - With The 75% of Iranian Ownership.
[5] - Supplying Automotive Parts Company Which is Affiliated to IKCO as a Part Supplier

Figure 1

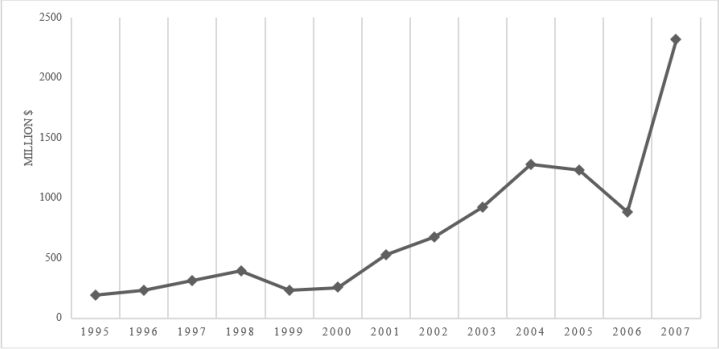

Figure 1 Total Imports Value of Cars and Spare Parts to Iran, Within the Pre-Sanction Phase (1995-2007)

Source: Author's Based on the Statistics from OECworld, 2020

Figure 2

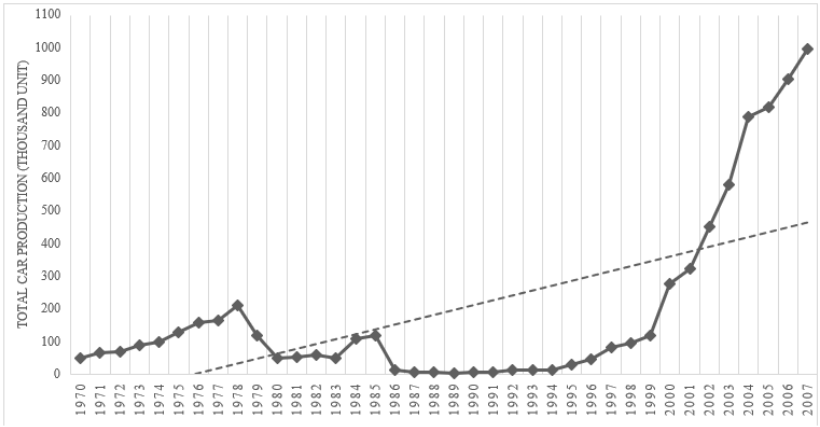

Figure 2 Car Production Trend in the Pre-Sanctions Phase

Source: Author's Based on the Statistics from OICA, 2022

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). 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. It should be considered that the obsolete technology and the resulting poor quality in terms of used parts, the low level of safety and services have led to huge negative side effects such as dissatisfied customers (formation of protest campaigns as in the previous years), air pollution etc. rferl.org (2013), Ellis (2006). For example, the most famous brand to export – the Samand Model- due to reliance on the old stock and lack of up-to-date research and foreign relations to transfer the how-know knowledge has lost the quality standards for both domestic and international markets Intellinews (2022). As well as a huge proportion of road accidents illustrates a serious lack of safety conditions in locally produced vehicles which again highlights the technological independency

problematic issues and could probably lose competitiveness in the future foreign markets Automotive Logistics (2022). For instance, in 2006, several people were killed due to fuel-based defeat in one of the French-based cars[6] assembled in the domestic plant Hamshahrionline (2006). 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 3

Figure 3

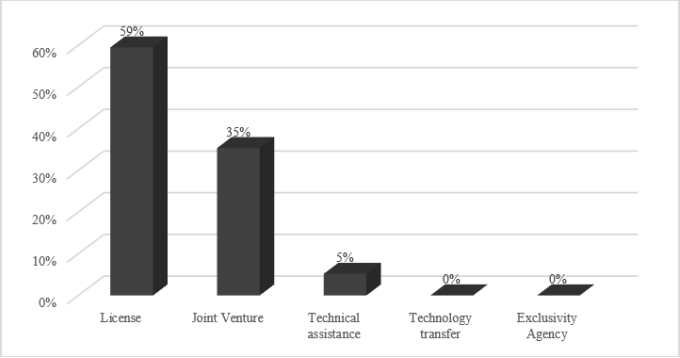

Figure 3 Forms of Tncs in Terms of Spare Parts Production, 2005
Source: Pakparvar 2016.

As a result, several international car models were produced in the Iranian assembly lines under foreign licenses by reaching an agreement with various core non-domestic automakers. The main two TNCs in the auto industry were Asian and Western European carmakers Figure 4. France and Germany as the main Western European countries alongside Japan and South Korea among the Asian countries accounted for the largest share of the SKD/CKD import value.

Figure 4

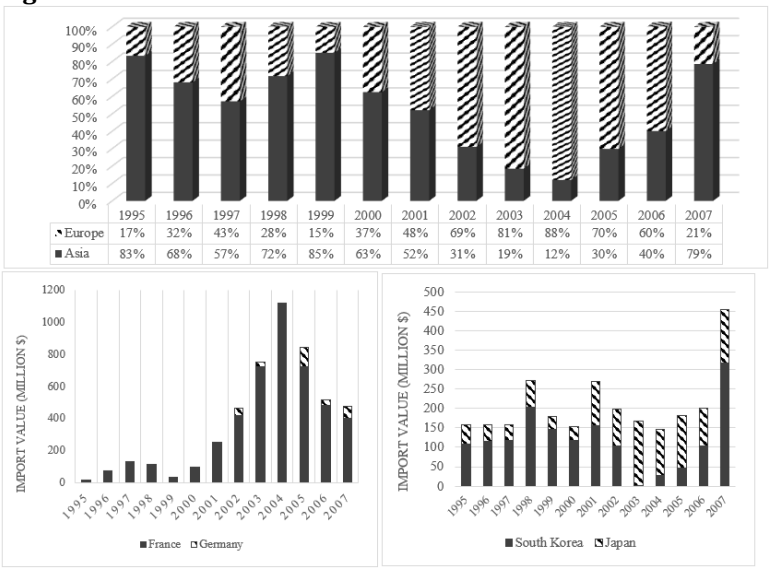

Figure 4 Imports Share Divided by the Two Main Exporters Within the Pre-Sanctions Phase
Source: Author's Based on the Statistics from OECworld 2020.

[6] - There Were Several Reports on Persian Press and News in Terms of the Fire and Technical Defects of the Peugeot 405 as a French-Based Brand Assembled in the Iranian Assembly Plants.

5. 1ST PHASE OF IMPOSED SANCTIONS (2008-2013)

In 2008, The UN Security Council imposed new waves of sanctions against Iran considering the nuclear programs followed by more restrictions imposed by the US in 2010-2011 Atlantic Council (2018). These sanctions directly targeted firms that supplied goods and services to Iran's automotive industry and blocked foreign banks from the U.S. market if they conducted transactions with Iran's automotive sector Shayerah (2010), rferl.org (2013).

As a result, the rapid growth of the automotive industry in Iran was halted by severe economic sanctions specifically, during the 2011-2013 period, and vehicle production dropped by more than 50% between 2011 and 2013, from 1,65 million to approximately 700 thousand vehicles Figure 5. Based on several studies, sanctioned industries, and indirectly also the industries not directly sanctioned, are less likely to attract foreign direct investments because of the increased uncertainty and investment risk for TNCs Nolan (2008), Shotts (2016), Mirkina (2018). Hence, by 2009, most foreign automakers were forced to completely halt their operations in Iran. As Figure 5 illustrates, the imports value decreased significantly by roughly 50% between 2008-2009 mainly due to the complete withdrawal of Western European companies (especially, French firms such as Peugeot and Renault) as the main foreign suppliers. However, the overall imports value again experienced a drastic rise by 2012-2013. In other words, after facing serious economic instability, the state decided to courage the domestic players to cover the demand-supply gap of auto parts through localization and import of Chinese spare parts ILIA Group (2015), James 2015, Shayerah (2010).

Figure 5

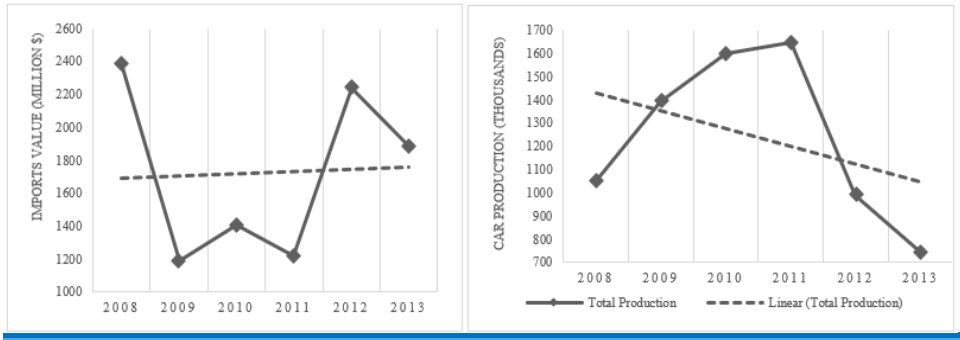

Figure 5 Imports Value and Total Car Productions Within the 1st Phase of Sanctions (2008-2013)
Source: Author's, Based on the Statistics from Statistics Center of Iran 2017.

Regarding the international cooperation types within the first phase of the western sanctions through the available data, the share of technology licensing and technical assistance was reduced by 13% and 5% respectively, while the other forms of cooperation such as JVs and technology transfer illustrate the state efforts to maintain the foreign relations despite the restrictions created by the U.S and E.U. Figure 6.

Figure 6

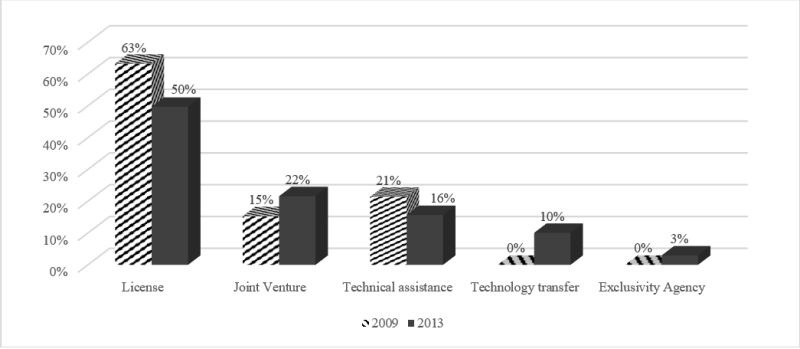

Figure 6 Forms of TNCs in Terms of Spare Parts Production, 2009 and 2013
Source: Pakparvar, 2016.

To better understandin the geographical structure of the TNCs within the current phase, Figure 7 depicts the gradual withdrawal of the European allies with roughly 33% in 2008 to around 1% by the end of the 1st phase of the sanctions. On the other hand, the leading role of Asian linkages is considerable by reaching approximately 99% of the total share car and spare parts exported to Iran in 2013, while their export percentage was 57% in 2009. In other words, the main reason behind the return to a high import share in the current stage is a shift from western to Asian carmakers. When France and Germany were forced to significantly reduce the export of automobile products and parts to Iran, Asian countries, including, China, the United Arab Emirates, South Korea and Japan were respectively competing for the export to Iran. It was the first time that China as an East Asian country as well as Saudi Arabia as one of the Persian Gulf neighbors became the prominent car and spare components exporters to Iran with noticeable shares compared to South Korea and Japan as the former leading East Asian linkages.

Figure 7

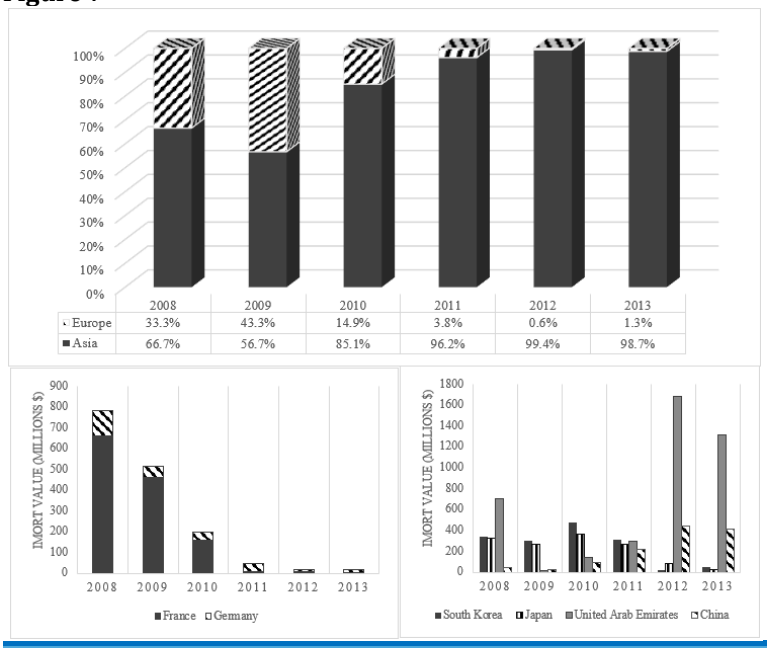

Figure 7 Imports Share Divided by the Two Main Exporters Within the 1st Phase of the Sanctions
Source Author's, Based on the Statistics from OECworld 2020.

6. LIFTED-SANCTION PHASE (2014-2017)

Sanctions waives started in 2014 Atlantic Council (2018) along with the "The Joint Comprehensive Plan of Action (JCPOA) – the "Iran Deal" signed by the P5+1"[7] signed in 2015 – U.S. Department of the Treasury. (2014) was a turning point, promising further sanctions relief for Iran in return for halting Iran's nuclear activities. Hence, with this partial removal in 2015, the sanctions against Iran's vehicle industry were lifted as well, and Iran was allowed to conduct transactions with foreign firms related to automotive manufacturing Shayerah (2010). As a result, from 2015 to 2017, the number of total productions increased from approximately 980,000 to about 1.5 million units and was reaching the pre-sanction peak in 2016 and 2017 Figure 8 News24 (2018). According to the following figures, a causal relationship between the import share and car production units could be observed. In fact, after the lifted sanctions, the import percentage increased by 72% and simultaneously, car production reached a 39% growth rate in a 4-year span.

Figure 8

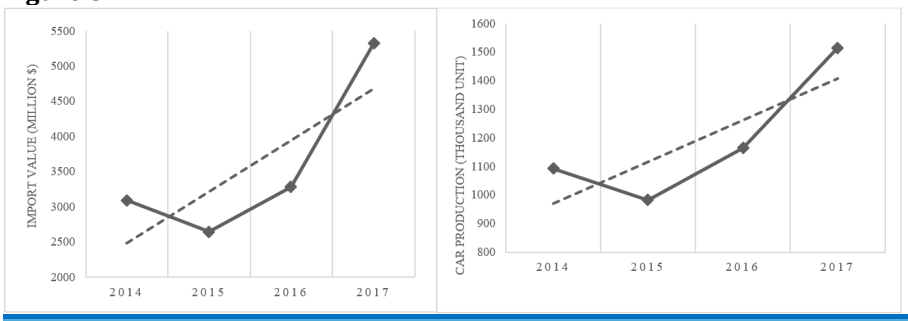

Figure 8 Imports Value and Total Car Production Unit in the Lifted-Sanction Phase (2014-2017)
Source Author's, Based on the Statistics from OECworld 2020, OICA 2022.

Regarding the geography of trade, after the lifting of sanctions by the United States and the European Union in 2014, European countries started to regain their lost share in the Iranian auto market, but they could only comprise a negligible share of auto parts exports to Iran by roughly 1% in 2014 to relatively 4.5% in 2017. Both IKCO and SAIPA as the two main national carmakers made efforts to reach agreements with TNCs in order to assemble up-to-date models. Several joint ventures were renegotiated and restarted among Citroen and SAIPA group Automotive World News (2016), Peugeot and IKCO Zawya News (2016). As Iran's automobile market is traditionally dominated by French companies, they were the first Western carmaker to invest in Iran after the imposed sanctions with a large share of a joint venture with IKCO Guardian (2016). However, the Asian rivalries still had the largest share in the export of auto parts to Iran during 2014-2017 by occupying more than 90% of the total auto imports value dominated by similar countries with the 1st phase of the imposed sanctions such as Japan, China, South Korea and UAE Figure 9.

[7] - China, France, Germany, Russia, the United Kingdom and the United States

Figure 9

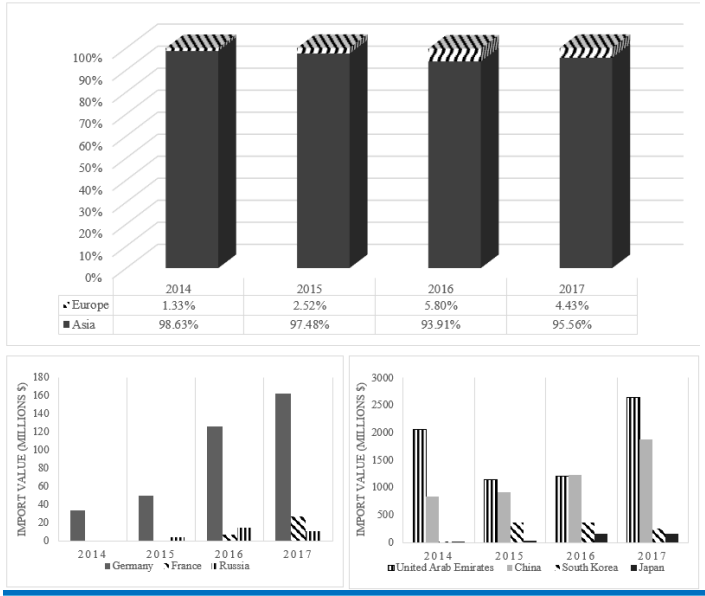

Figure 9 Imports Share Divided by the Two Main Exporters Within the Lifted-Sanction Phase
Source Author's, Based on the Statistics from OECworld 2020.

7. 2ND PHASE OF IMPOSED SANCTIONS (2018- PRESENT)

Once again, the deteriorating relations between Iran and the United States during the presidency of Donald Trump caused another sharp reduction in car production. After the Trump administration withdrew from the JCPOA in May 2018[8] under the "maximum pressure" campaign Federal Register (2018), Mordor Intelligence (2019). The United States reimposed the second sanctions regime, which was mainly directed against activities related to the automotive industry, as it is a major contributor to the economic development of Iran Jonesday (2018). As the US sanctions targeted the automotive industry rather than the energy sector, almost half a million jobs in the Iranian automotive supply industry were at risk Al-Monitor (2018) and immediately after the renewed restrictions, auto production fell by about a quarter compared with the same month a year earlier. As it has been seen in Figure in the 2018-2019 fiscal year, the industry faced a 25% decrease in total car production from approximately one million in 2018 to around 800 thousand units in 2019 followed by a noticeable reduction (96%) in terms of imported parts in a 3-year span Figure 10.

Figure 10

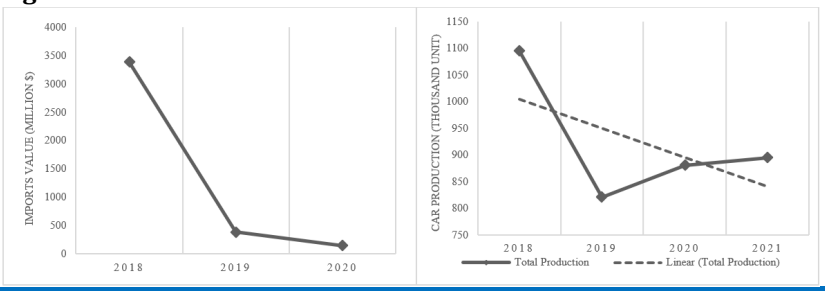

Figure 10 Imports Value and Total Car Productions Within the 2nd Phase of Sanctions
Source: Author's, Based on the Statistics from OICA 2022.

[8] - Executive Order 13645/13846

At the same time, the reimposition of the previous sanctions once again caused foreign partners to face several problems in supplying parts for in-house assembly. The French carmakers as the leading European TNCs such as Renault and Peugeot left the country rferl.org (2018). Accordingly, the import of parts from European countries almost reached zero by 2020 Figure 11. Other Asian TNCs (such as Mazda and Hyundai) were also forced to halt their cooperation by suspending the agreements and contracts Ibid (2018). In contrast, in 2020, despite the enormous impact of sanctions and high economic and political instability, especially in the automotive industry, the total production from 2020 and 2021 increased slightly by 7% and 2% respectively to approximately 900 thousand units Figure 11. In addition, the position of Iran's automotive industry in the world improved from 20th in 2019 to 18th in 2020 which is deeply rooted in the protectionism policy by the government and reconstructing of new import alliances OCIA (2020) . The reason behind this production share maintenance is in the newly adopted strategies towards TNCs to bypass the sanctions, and the fundamental goal has been importing cars and spare parts of non-French products, mainly from Persian Gulf countries such as UAE and others like Oman and Qatar as well as forming import linkages with Russia and Bulgaria.

Figure 11

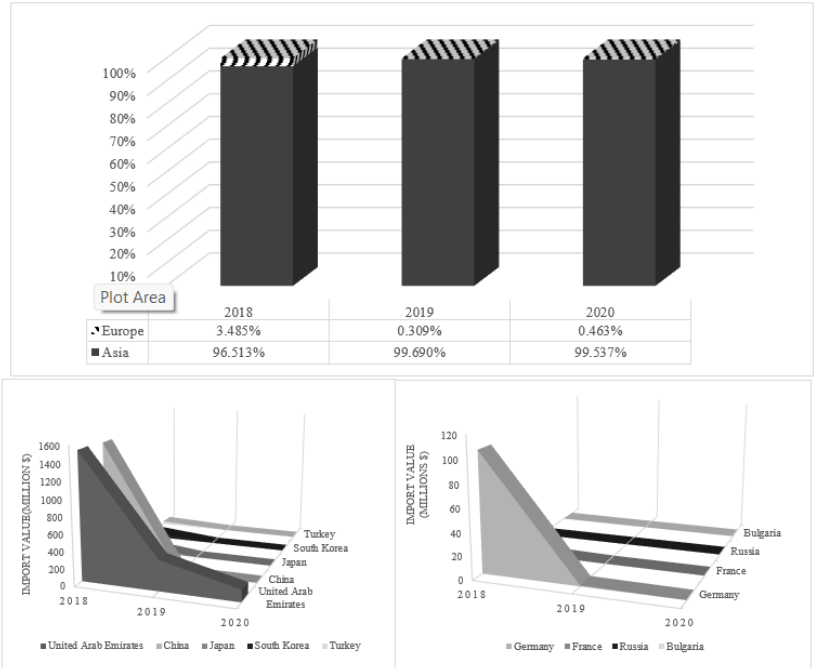

Figure 11 Imports Share Divided by the Two Main Exporters Within the Re-Imposed-Sanction Phase

Source Author's, Based on the Statistics from OECworld 2020.

Based on the newly published news, the government is making efforts to create trade flows with Central Eastern European countries such as Czechia (to import some low-cost Škoda products[9]) Anadolu Agency (2022) counteract the quality issues. Additionally, Iran is forming future trade linkages with other under-sanction countries. According to a recent 20-year agreement in terms of exporting energy,

[9] - The Czech-Based VW Subsidiary.

technology and car between Iran and Venezuela (a heavily sanctioned country by the United States), SAIPA company as the second largest car manufacturer in Iran shipped approximately one thousand cars to this South American country to tie deeper their relations Al-Monitor (2022), Dialogo-Americas (2022). Russia has been also another ally with the same experience in terms of western sanctions from 2014. Iran Khodro and SAIPA, the two big Iranian carmakers have already exported approximately ten thousand Samand Model[10] to the Russian market and based on the recently reached agreement to save each other's car industries[11], and Iran will be exporting some newly launched brands such as Tara[12] to Russia within 2023 Intellinews (2022), Automotive Logistics (2022). In terms of reutilizing the previously closed assembly plant of the French brand (Tondar[13]) due to the 2nd phase of the U.S. Sanctions, Iran is also counting on Russia's assistance to import the related spare parts and assembly kits (Ibid) and bypassing the geopolitical obstacles imposed to both countries by the U.S. and E.U.

8. CONCLUSION

The goal of this article has been to analyze the evolution of the trade TNCs within the GPNs in the case of the automotive industry of Iran as the second most significant driver of the economy which has been under various forms of economic and political sanctions back to the 1970s. To cope with the ongoing sanctions, the main policy adopted by the state has been always relying on self-sufficiency and autarky. Despite the fact that the industry has been severely affected by the long-run geopolitical obstacles, the government has demonstrated resilience and adaptability in pursuing new trade flows and partnerships. Before the 1st phase of the imposed sanctions, the industry developed several linkages with European carmakers through knowledge-transfer priorities, but still, the domestically assembled products failed to meet the quality and price factors. While the 1st-phase of the imposed restrictions exacerbated the situation and caused destructive results in the automotive sector by the withdrawal of the westerns. Consequently, the government was forced to adopt new policies by geographical trade shifting from western suppliers in terms of raw materials and specifically spare parts to China as the leading East Asian trade ally. It was followed by a short period of the relieved sanctions from 2014-2017, while the western carmakers were trying to keep up. However, the 2nd harsher wave of sanctions contributed to a completely halted of the western's presence, and the government made efforts to again reorient its trade flows to bypass the restrictions by reducing the influence of Chinese-dominated cooperations and forming new TNCs by the dominance of the Persian Gulf Countries such as UAE in order to import car components and mitigating the quality-oriented issues caused by the imported Chinese products. Based on the recently reached agreements, Iran is also attempting to expand its geographical trade relations with the other sanctioned countries such as Russia and Venezuela as new triangular under-sanctioned allies in terms of car parts import and export along with lifting the bans on foreign-car imports as well as second-hand ones from the above-mentioned foreign linkages. In fact, the policy of Completely Built-up cars (CBU) imports illustrates the failure of the auto industry to meet the autarky and domestication

[10] - Produced Between 2006-2008.
[11] - Russian Car Industry Has Experienced a Collapse Due to the Imposition of Sanctions that Halted from Essential Parts Imported from Europe.
[12] - Based on the Automotive Logistics News Website (2022): "Tara is a Slightly Redesigned Peugeot 301. Compared With the Basic Version Available on Iran's Market, the Company Will Add a Range of Additional Features for the Russian Market",
[13] - Based on Wardsauto News Website (2007): "French Car Maker Renault Started Selling its No-Frills, Locally Manufactured Tondar-90 in Iran in 2007"

policy, and there is still much work to be done to strengthen the industry's competitiveness and quality standards.

CONFLICT OF INTERESTS

None.

ACKNOWLEDGMENTS

None.

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