Rapid Rise of China Automotive Industry in the 2000s and History of Turkey Automotive Industry

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We can say that the differences in the development processes of the automotive sector of the two countries are noticeable. We can say that its development stalled due to the obstacles that prevented the further development of the entrepreneurial culture, which began to form from the second half of the century, and that this pause lasted until 1978. But it can be said that the entrepreneurial class that emerged with the 1978 Reform process formed the cornerstone of the rapid economic development of the Chinese economy, which began in the 1980s. In Turkey, entrepreneurship faailets (activities), which started from the ancient periods of the Ottoman Empire, have fallen into a very difficult situation after trade agreements with the United Kingdom and some other European countries. Therefore, the industrial sector and domestic entrepreneurship remained virtually non-existent until the Republic was declared in 1923. After 1923, due to the need for rapid industrialization, foreign capital could also be used. As a matter of fact, the first automotive factory was established in 1929 by Ford Motor Company in Istanbul to produce trucks and automobiles. Thus, in a sense, we can say that the development of domestic entrepreneurship has been cut off culturally. As a matter of fact, Turkey’s first domestic car revolution, after it was manufactured within the state, however, in 1966 by the Koç Group, Turkey’s 2nd technology transfer method from multiple sources. Domestic car Anadol can be produced. But this production has not continued. However, we can say that the two factories established to produce Oyak-Renault cars, which were established by 1971 license agreements, formed the principles of the future development line of Turkey’s automotive industry. In the 1990s, Turkey, together with three automotive products production factories established by foreign companies, began to become a production base of foreign automotive companies in a sense. With the high economic growth rates that began to be achieved in the period between 2002 and 2008, the development process brought with it the excitement that we can produce our own cars. However, despite the intensive efforts shown, the introduction of the prototype of the domestic car based on technology transfer from multiple sources was made in December 2018. This has shown that Turkey does not have sufficient knowledge about gaining the ability to develop technologies. Since the 1980s, China began to industrialize rapidly start to catch up with the high economic growth rate, on the one hand, technology development, earning ability, while on the other hand, as of the 2000s, and nowadays have started giving importance to the development of the automotive industry, the automotive industry has become the leading country in the world in production. Turkey’s lack of technology development capability has led to its lagging behind in the automotive industry, leading China to world leadership.

Keywords: automotive industry, entrepreneur, economic policy, automotive industry production, domestic automobile

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Introduction

Developing countries are advised by developed countries and international organizations to adopt economic policies that have been accepted as correct (Chang, 2004). These can be summarized as the implementation of free trade, economic planning, foreign aid financing and import substitution industrialization policies in the development process (Chang, 2004; Yiğidim, 2012). Indeed, Turkey adopted introverted, protectionist and import-substitution industrialization policies in accordance with the World Bank’s policy proposals in 1963 (Yiğidim, 2012). We can say that the same policy preferences were true for China in the 1950s, 1960s, and 1970s. Because although China adopted the socialist economy and planning and development strategy in 1949, there was a development strategy based on introverted and import substitution.

On the other hand, two views have been put forward to reveal the cause of unequal and sudden economic developments in the world. According to the first view, underdevelopment is explained due to internal factors. These are the elements necessary for industrialization and highlight traditional-cultural habits in society. We can call this a modernizing approach. According to the second view, the main reason for underdevelopment can be attributed to external elements that affect the process of economic development, such as colonialism. According to this approach, underdevelopment is linked to the existence of conditions, such as the lack of resources needed to finance “economic takeoff” (take off) or the absence of necessary value judgments and institutions. This view reflects the approach of the addiction school. According to the modernization approach, countries may be underdeveloped and they have lagged behind. However, economic development can occur if they follow the same path that industrialized countries have followed in the past when they were industrializing. The modernizing approach has been criticized in two respects. First, the approach is that economic development is considered equivalent to an increase in national production. It limits this approach and covers the problem of quality and democracy. However, economic development should be understood as increasing physical and cultural well-being and ensuring that the majority of the population is safe. The second is that the approach is that the world economic system is a system based on interdependence and where there are winners and losers (Geijerstam, 2004).

Looking at Chinese history, from the middle of the century, it is understood that an anti-imperialist movement of thought began to develop against Britain’s colonial approach to trade against China. It is understood that this development may have led to the formation of the Communist system of administration between 1949 and 1978 (Kürlen, 2015; Karaca, 2004: pp. 25-27).

By staying within the theoretical framework of the modernizing school, developing countries before 1980 were asked to do the same as the developed countries of the day did in the past in order to complete their economic development processes. This, on the other hand, has placed an approach, such as dividing the process of technology development into phases and not moving from one phase to another without completing it into the theoretical framework of the modernizing school. But by applying economic policies within this theoretical framework, we can say that no developing country has been able to complete its development.

A Brief Look at Chinese History

China, a powerful country in its region at the beginning of the 19th century, has been a rich country where the resources of all surrounding countries flow towards it. For this reason, the Chinese emperor, also called the “son of Heaven”, saw himself in a superior position compared to other sultans of the country (Kürlen,
Those who wanted to trade with China during this period had to settle for unequal trade in favor of China.

In the 19th century, Western countries began to pressure China to trade in their own way. As a result of the Opium Wars, they made the country agree to make unequal agreements with Western countries. However, while Western countries wanted to buy silk and tea from China, they could only sell India’s opium to China in return. After two centuries, Western countries and the United States again demanded Chinese goods, we can say that they do not have enough products to sell to China (Kırilen, 2015: pp. 7-35; Shenkar, 2007: p. 25).

By 1911, the Qing Dynasty, which ruled the Chinese empire, had collapsed, and the era of small principalities began in China, but at the same time, conflicts began between the milliyeeyetçi and the communists in order to rule the entire country. As a result of these conflicts, the Communists came to power in 1949 and the rule of the Communists continued until the reform process in 1978 (Karaca, 2004: pp. 19-27).

Although the words of Wei Yuan, who became an important Chinese intellectual in the years after the First Opium War, were not initially understood enough, it was a saying that for technical progress, it was necessary to learn first (Kırilen, 2015). At the heart of China’s current economic achievements and rapid development in the automotive industry in the 2000s, this intellectual transformation is thought to have made a great contribution by influencing the scientific field.

Because the appeal of China’s domestic market today has given the government the chance to force the transfer of technology for foreign investors to enter the country. In this way, they were able to make deals with foreign investors that could be more in their favor than China, South Korea, and Japan. So, China has been able to take unprecedented compromises (Shenkar, 2007: p. 20). The unequal agreements of the century have been replaced by agreements that have been made and are being made in favor of China.

**Developments in the Chinese Economy Between 1900 and 1949**

By the early 1900s, the imperial period, which lasted for thousands of years, was replaced by the “Republic of China”, because, during this period, the wind of “nationalism” is blowing in the country. After all, due to this wind, the administration also fell into the hands of the nationalist segment. As such, 1911 is considered to be the beginning of the Revolution, the protest by a communist group of the government of the period of the sale of railway construction rights. Initially started by a group, this movement was successful, spreading to millions and taking over the country. As a result of this success, a provisional government was established. But with almost the entire government administration being shaped by Yuan Shikai and the granting of a limited number of ministries to the Chinese alliance, this attempt ended in failure. Ultimately, the 1911 Revolution set the stage for the rise of the Chinese Nationalist Party. As in pre-industrial societies in these years, agriculture is the leading sector in China. Most of the national income is generated from the agricultural sector. Agriculture has been done by old methods, and landowners have been slow to adopt and apply new advanced technologies (Yalin & Cetinbakış, 2019: pp. 128-129).

With the Japanese invasion of China on July 7, 1937, change was inevitable. In this bloody war, the Chinese Nationalist Party (CMP) declared a national mobilization against the invasion of Japan. But in the process, the conflict of the CMP administration with communist forces, on the one hand, and Japan, on the other, has worn them down. For this reason, the transition of the Chinese Communist Party (CCP) to the administration of the country has been easier than expected (Yalin & Cetinbakış, 2019).
Developments in the Chinese Economy and Automotive Industry in the Period 1949-1978

With the coming to power of the Chinese Communist Party and Mao in 1949, attention began to be paid to strengthening infrastructure and industrialization. But with the belief that industrialization began from villages, factories began to be established in villages. In the 1950s, a significant part of the infrastructure was rebuilt; inflation was controlled, and exports to Soviet Bloc countries increased. In this process, the Great forward breakthrough project was put into practice by Mao in 1958. Within the framework of the project, the commune (cooperative) system was established in agriculture and all agricultural lands were sown, mown, and managed through communes. In 1958, the harvest was good and the system was thought to have brought success, while the drought and harvest decline experienced in 1959 led China to famine and hunger. The difficult years lasted until 1962. However, as soon as Deng Xiaoping came to work, he changed the commune system and changed the system to consist of family groups in the 20s-30s. He closed factories established in villages but idle, health centers without doctors, schools without teachers. It allowed special production of families, albeit with small pieces of land. According to the characteristics of sectors and geographical regions in the economy, the understanding of program development has dominated. The main goal was to achieve economic stability and growth (Özsoylu, 2009). However, Mao, who was very much loved by the army, came back to work in 1966 at the age of 72 years. Thus, in 1976, the process of Cultural Revolution began, which would last until Mao died. In this process, which relied on constant revolution until the formation of a socialist society, the Communist Party’s leadership also largely fell into the hands of soldiers. During this period, large public enterprises were implemented, and private ownership and private production (private entrepreneurship) were prohibited (Özsoylu, 2009: p. 64; Yalin&Çetinbakı, 2019: pp. 129-131).

In the period between 1950 and 1957, China rapidly enriched its basic industrial products (steel, metallurgical equipment, power generation facilities and machinery equipment, etc.) within 15 years. converged on the level of Western countries in its production. During the period between 1950 and 1957, steel production doubled and many technical schools were converted into factories (Holweg, Luo, & Oliver, 2009).

A technical delegation from the Soviet Union visited the Rouge Plant of the US Company Ford in 1930 and transferred production with the Rouge model to the Soviet Union; we can say that it resembled the First Automotive Works (FAW) Rouge Model because it received technical assistance from the Soviet Union in China. After 1949, the Soviet Union offered technical partnerships in many projects between 1950 and 1960. One of these projects was the FAW. FAW was founded in 1953 in Jinglin Province Production District (Jinglin Province Production) in Changchun, North City, and Jiefang trucks began to be manufactured in 1956 as 1600 units. This product continued to be produced for 30 years without any changes. In 1958, red flag (Hongqi) limousines began to be produced at FAW (Holweg et al., 2009). However, since the system created with facilities established by technology transfer from the Soviet Union until 1958 could not be advanced by technology development, this system could be maintained until 1978 (Shenkar, 2007). FAW entered into a partnership with the German company Volkswagen in 1991 and first produced Santana. Later, Audi 100, Jetta, and Golf began to be produced (Holweg et al., 2009; Wang, 2017).

China established many heavy and medium-sized truck manufacturing plants in the 1960s. These include the second automotive plant (Dongfeng), Sichuan auto plant and Shanxi auto plant. As China’s relations with the Soviet Union deteriorated, the design, construction, and operation of new automotive facilities were carried out by employees at existing automotive facilities. The Dongfeng facility was established in 1969 in Wuhan,
Hubei region, in mountainous terrain. About 500 machine, tool, and equipment providers, most of them non-Chinese have provided equipment for the second automotive plant (SAW). But although it was provided from foreign companies, the installation of all the equipment was made by the Chinese (Holweg et al., 2009; https://en.wikipedia.org).

In the period between 1949 and 1978, the automotive industry was analyzed within the framework of strict industrial policies aimed at ensuring industrialization. Because in this process, all industrial policies were created and implemented with the understanding of central control and planning (Holweg et al., 2009: p. 9).

The Dongfeng facility was established in 1969 in Wuhan, Hubei region, in mountainous terrain. About 500 machine, tool, and equipment providers, most of them non-Chinese have provided equipment. However, all these foreign equipment providers did not know where their equipment was used until China’s policy of opening its doors to foreigners, which began in 1978. Dongfeng emerged as a rival to FAW in the 1980s, ironically through partnerships it had formed with France’s Peugeot-Citroen, Japan’s Nissan and Honda, and South Korea’s Kia. (Holweg et al., 2009: p. 10; https://en.wikipedia.org).

**Developments in the Chinese Economy and the Automotive Industry in the Period 1978-2000**

After President Mao died in 1976, Deng Xiaoping was elected president at the Communist Party of China meeting in 1978. Thus, since 1979, change has occurred; China has started to implement an open door policy to the rest of the world (Özsoylu, 2009).

The Chinese-foreign partnership gained legal status with the decision taken in 1978 for the arrival of modern technology in the country and the law on partnership for Chinese and foreign investment in the people’s Republic of China’ issued in 1979. With the quadruple modernization program announced in 1979, the agricultural sector, the industrial sector, the defense industry and the renewal (modernization) of Science and technology are aimed. For the purpose of socialism, a new vision for the restructuring of the country was tried to be put forward by saying “the development of the country is that it is strong and rich”. In accordance with the Program, decentralization was initiated in the decision-making process in the first phase. It has opened the way for state-owned enterprises to make decisions on a local basis. The principle of small businesses being run by the private sector has been adopted. Heavy industrial enterprises have been allowed to make independent decisions about the renewal of their technologies from the center. In the new period, the lack of human capital was tried to be eliminated through investments made for the cultivation of quality elements. (Özsoylu, 2009, pp. 65-67)

According to the law adopted in 1983, foreign companies are allowed to open branches in China, provided that they bring the latest technology and perform export-oriented activities. In 1979, it was decided to establish special economic zones, these regions were allowed to make investments independent of market economy conditions and central planning, and companies here were granted tax breaks and exemptions. After the great success achieved in these regions, it was decided to establish another 14 new economic zones in 1984 and 1985. In these regions, especially innovative technology imports and know-how transfers have been tried to be realized. By 1993, the number of established special economic zones had reached 300 (Özsoylu, 2009).

Deng Xiaoping’s basic philosophy has been “wait and see”. We can say that the most important feature of the reform process in China has been that the reforms have been implemented gradually, that is, slowly. At the Central Committee meeting in 1980, Deng Xiaoping supported private entrepreneurship, saying that with the introduction of the private sector, the welfare of the people will increase, production will increase, unemployment will decrease, and public income will also increase. Although the private sector was first
allowed in rural areas, then in cities, private ownership of small businesses in the fields of production, trade, and services was condoned. Farmers are also allowed to open their own business in agriculture and animal husbandry activities. These businesses (TVE) were only able to achieve legal status in 1983 and were exempt from tax for the next three years (Özsoylu, 2009).

During these transformation years, the “contracted liability system” was introduced in the KIT (state-owned enterprise) in the industrial field. In this system, managers are under the obligation to meet a certain amount of production, to achieve a certain level of quality, and to realize the responsibilities of production and capital accumulation on time against the local authorities who have put themselves in charge. Thus, both production increased and the possibility of supervision were created. In this way, the KITs have been transferred large resources, strengthened their infrastructure, and increased export opportunities. In 1984, KITs was allowed to gain his Joint Stock Company status and his shares were traded on the Shenzhen and Shanghai exchanges. In the circular issued in 1988, those with eight and above employees were defined as private enterprises and allowed to own private property (Özsoylu, 2009).

China Automobile Technology and Research Center, which has been an important institution of the Reform years, was established at the central government level in 1985 (https://clepa.eu). We can say that it was a good example of the formation of a sectoral innovation system.

In the 1980s, Shanghai Automotive Industry Corp (SAIC) was established in partnership with German auto manufacturer Volkswagen and US General Motor, while Dongfeng was re-formed in partnership with Japan’s Toyota and Honda (Qiu, 2013).

In the process of the centrally planned economy, production volumes, and product types were determined by central planning, while more trucks were produced, passenger car production volumes were limited. Lux cars could only be used by senior bureaucrats, and strict regulations were in place on which bureaucrats could be allocated cars. With the introduction of flexibility in the planning process, many customer markets for luxury cars and other Sunday vehicles have emerged and increased rapidly. For example, while no taxis were used in the planned period, Lux cars and small vans could be used as taxis with relaxation. Thus, with the increase in production of these products, we can say that the taxi market was formed. However, neither product quality nor diversity within the current activities has been at a level that can meet the needs of the growing market. The FAW and Donfeng, on the other hand, have been directly controlled by the central bureaucracy and have lacked flexibility, so that they can continue to take advantage of scale size. Many small automotive factories were created in accordance with the directives of the regional and urban governments. Only some machinery factories could be established by the Ministry of Arms Industry and the Aviation Industry, and they began to produce vehicles in the form of light commercial vehicles (vans), mini-vans and large passenger cars. From 1979 to 1985, the number of automobile factories increased from 55 units to 114 units (Holweg et al., 2009).

In 1994, the Chinese administration designated some industries as pillar industries, which are the driving force of the national economy, and the automotive industry became one of these basic industries. A car consisted of about 10,000 parts and was associated with matalurgy, petroleum, chemical, coal, light industry, electronics, and textiles. Therefore, the development of the automotive industry has encouraged entrepreneurs in many sectors to better coordinate and specialize their activities. For this reason, the work on the automotive industry was quickly completed and the automotive industry policy document was published in July 1994. The document focuses on four main topics. The first was the establishment of large-scale luxury car and light truck
manufacturer groups to replace small-scale manufacturers, the second was the development of the parts industry, the third was the development of the ability to develop automotive products, and the fourth was the promotion of domestic car ownership. The four elements included in the policy document aimed at ensuring local contribution rates, allowing foreign investment through consideration of environmental and pollution issues, and developing the industrial branch. In addition, the policy document presented a compressed scheme on the development of the Chinese automotive industry (Holweg et al., 2009). As a matter of fact, by 1996, the part (subsidiary) industry was developed and the local contribution rate reached a value of 60% to 80%, and by 2000, the facilities to produce the targeted vehicles were established to include basic R & D units (Holweg et al., 2009).

We can say that 1983 was a turning point in the reform process that started from 1978. In 1983, with the permission of the National Science Commission, it was decided to establish the China Automobile Technology and Research Center (CATARC). Later, this center was established at the central government level under the general association of the automotive industry of China in 1985. CATARC became a sub-unit of the general association of the automotive industry of China within the framework of the reform of the National Science Research Institute in 1999 (https://clepa.eu). The third element of the 1994 policy document showed that the process of acquiring technology development capability in the Chinese automotive industry was intended to end in 1996. But as technology continues to progress in this world, it does not mean that they can immediately converge to this technology.

**Developments in the Chinese Economy and the Automotive Industry After 2000**

After China became a member of the World Trade Organization (WTO) in December 2001 (Wang, 2017), the Chinese automotive market was gradually opened up to competition from foreign firms with the introduction of a regulation in 2002, including tariff reductions and relaxation of the level of local contribution. This arrangement enabled the rapid growth of the Chinese automotive market. The government, on the other hand, has continued to wait for the automotive industry to accelerate economic growth. Because with the development of the automotive industry, along with the sectors that produce primary goods, such as machinery, tires, petrochemicals, electronics, and textiles, service sectors, such as auto finance, after-sales distribution and repair and maintenance have also developed. With China’s accession to the WTO, total vehicle production increased by 38.8% in 2002 and 36.7% in 2003. China thus became the world’s fourth largest automotive manufacturer and third largest market. This rapid growth in 2002 and 2003 encouraged foreign investors for new investments, including those in China who wanted to increase both capacity and production, and those who had never had any activity in China before. Second, production capacity, which remained above demand, also increased competition. Since the beginning of 2004, the government has implemented a policy of cooling selected sectors. With this policy, borrowing from the bank has been reduced and investment approvals have been reduced. Falling borrowing from banks and falling prices have reduced demand, and many price-sensitive Chinese consumers have delayed buying cars and continued to fall in prices. Even in these conditions, total automotive production increased by 14.1% during the year and reached 5.071 million units (Holweg et al., 2009).

The process that has begun since the end of 1990s in China to sustain rapid economic growth, China by becoming a member of the WTO to overcome the problems that arise in the automotive industry, described the Chinese automotive industry changes that have occurred in the adaptation of the National Development and Reform Commission in 2004 in order to provide “new automotive industrial policy”. According to the new
policy document; first, to support growth in the automotive and related industries, the industrial structure of the
latter, routing and scheduling, third, firms are promoting the development of local brands of their products,
avtomotive companies can compete on a global scale until 2010 and the emergence of the fourth promotion of
500, the fifth large-scale and own research and development (R & D) activities that they can carry out
international activities and the promotion of the local parts supply suppliers manufacturer of light commercial
vehicles and sixth, and aimed to encourage the production of vehicles with high energy efficiency. The 2004
document, like the 1994 document, was more encouraging than regulatory and was a document that drew
strategic direction for companies. In this way, it became clear that the Chinese government had taken on a new
role in economic issues. Government market forces have been used to influence the development of industry.
We can say that this new policy has a deep difference from the government’s framework plotter policies. For
example, new manufacturers and vehicle manufacturers that are being implemented in the policy document part
brought to local flexibility in contribution rates, in this context, the new policy document, through the use of
global platforms and parts be preferred, using these of vehicles produced is not consumed in the Chinese
market only, but we can say that promoting exports abroad (Holweg et al., 2009). In 2006, a medium and
long-term program for national scientific and technological development was prepared. With this program,
since the ability to develop technologies has not yet been acquired, Sunday-oriented production policy with
technology transfer has been left in the automotive industry and a policy has been adopted to ensure local
technology development. In 2015, the government announced the Made in China (2025) plan and, in 2017, the
automobile industry medium and long-term development plan (Feng & Li, 2019).

In the past, local firms were protected by the application of high customs tariffs, but now with the WTO
agreement, the application of import quotas in the past has been abolished. In January 1st, 2005, the customs
duty on completed car imports was reduced to 30% and, on July 1st 2006, to 25%, but now with the WTO
agreement, the application of import quotas in the past has been abolished. Customs duty on the import of
automotive parts has been reduced to 10%. Policy changes that took place in 2004; first, the government lost
control of the industry when it reformed the automotive industrial policy; second, the government supported
and encouraged private car ownership, as a result, the passenger car market grew; and third, the increase in
foreign investment and private capital inflows in the automotive industry has helped both increase production
capacity and rapidly expand the size of the scale. Moreover, private car ownership has increased with the
decline in vehicle prices. Now that private buyers have started to create the main market, the parts industry has
also expanded, such as other services related to the sale of cars (car finance, repair, maintenance, and
insurance). In addition, the state has accelerated the construction of transport infrastructure to support the
increase in car ownership. After a rapid increase between 2002 and 2004, the growth rate of the automotive
industry decreased in 2005. Although demand wanted to be controlled by reducing supply, productive capacity
remained above demand, creating a sense that the Chinese automotive market was far from its potential
economic size. But with doubts about the true value of China’s currency and agglomeration in urban areas, the
problem of pollution has been at stake (Holweg et al., 2009).

In the early 2000s, the automobile was seen as a commodity of luxury consumption in China. The national
income per capita was USD$828.8 in urban areas and USD$285.9 in rural areas. National income per capita
rose rapidly in the 2000s, reaching USD$1,274 in 2003, and GDP per capita rose to USD$6,100 in 2012. Thus,
the Chinese, whose purchasing power has increased, have begun to demand cars that they considered luxury in
the past (Wang, 2017).
China’s automotive industry has grown rapidly in the 2000s. Annual vehicle production increased from 2,000,000 units in 2000 to over 18,000,000 units in 2011. Thus, China has become the world’s largest automotive manufacturer and market. Despite this rapid development, we can say that the inability to use advanced technologies and the lack of innovations obtained from their R & D work has been the biggest danger to the Chinese automotive industry. In the 1980s, when the Chinese government allowed foreign direct investment, it assumed that the most advanced technologies would enter the country as included in the product and that local manufacturers could take these technologies through technology to transfer and develop them through technological learning. Second, it was hoped that the technology could be achieved through mergers with foreign firms or acquisitions of foreign firms (Qiu, 2013).

Despite the Chinese government’s incentives to conduct R & D work locally, local automotive manufacturers are still technologically behind international conventional automotive manufacturers due to the slow development of R & D talent in the country. For this reason, Chinese automotive manufacturers have adopted the strategy of acquiring advanced technology and taking part in foreign markets by purchasing foreign brands (Qiu, 2013), for example, Geely acquired Volvo of Sweden in 2010 (Qiu, 2013).

Founded in 1997 as a state-owned company, Chery Automobile aimed to produce China’s local automobile. The company made its first export to Syria in 2001. Having achieved great success in the 2000s by producing cheap imitation cars in accordance with the preferences of the Chinese consumer, the company began to appear as a brand that produces cheap and low-quality cars by 2007. In order to change this view, starting in 2007, Chery entered into a partnership agreement with Quantum and Chrysler to acquire control panel, chip, connectivity, and integration systems. It was agreed with Fiat to take the core technology. It has been agreed with other companies to increase their domestic and international Sunday Share. Chery signed with Jaguar Land Rover in 2012. The partnership firm has also built joint R & D centers. Chery collaborated with the Austrian company AVL and, on March 18, 2005, ACTECO series engines were manufactured. Chery has become China’s largest automotive exporter by the end of 2013 (Wang, 2017).

Local Chinese manufacturers, who have just entered the market for fossil fuel-consuming vehicles, have had a chance to maintain their operations relatively steadily when they enter the market with cars that can provide cost-effectiveness, and have found the opportunity to work to improve their technical level. Thus, technological convergence has come to the agenda. The technological development of electric vehicles has presented the Chinese government with a new alternative to technological development. Due to the need for energy conservation and environmental protection, electric vehicles have started to be more in demand than in the past, providing China with more experience and knowledge about electric vehicles a good alternative to gaining the ability to develop technologies (Feng & Li, 2019; https:/link.springer.com).

Automotive manufacturers that have just started to be established have been determined to transform and innovate the Chinese automotive industry. Many Chinese Connected Company Smart (Intelligent Connected Vehicles [ICV]) vehicles sensor, software, algorithms, communication systems, control panels, charging systems, and components, such as recreation and park services about research activities and manufactures Daimler, Bosch, and Continental are in collaboration with companies, such as BMW. Chinese companies, such as EVCARD have sold so well in their own markets in terms of electric vehicles and have achieved technological change that, in December 2018, Germany’s BMW received a market entry relationship to compete with the luxury Didi. BMW entered into a partnership with Great Wall Motor, Daimler AG entered
into a partnership with BAIC Motor, and Daimler AG entered into a partnership with BYD Motor. (melchers-china.com > new-te...)

As of the end of 2007, 21 partnership groups have started to identify China as a strategic Sunday. At the same time, large Chinese and international automobile manufacturers (IAM), such as Chery, Geely, BYD, which were started to be created by the 2004 regulation, began to rise. The total Sunday share of the three largest international partnership groups, Shanghai Volkswagen, FAW-Volkswagen, and Shanghai General Motor, increased from 22.1% in 2007 to 25.83% in 2012. Dozens of IAM manufacturers, including Chery, BYD, Great Wall Motors, etc., have been able to perform large-scale production. b. it also included many weak firms (Wang, 2017).

Joint venture companies (JVCs) have tried to narrow the Sunday share of IAMs by using many methods. JVCs used the platforms they used to produce their old models when creating their new models, thus trying to gain a competitive advantage by reducing the price of their old models. Another method of providing competitive advantage was price policy. While IAMs have followed a fairly complex pricing method, the pricing systems of partner firms have been clear and easy to understand. The basis of this policy was based on a sufficient price difference between the price of two different models. This prevented internal competition between models of the same manufacturer. As the government began to ask JVCs to create their own original brands in the regulations of the Automobile Industry Regulation and restructuring and Industrial Transformation and Progress Plan (2011-2015), Chinese partners of JVCs began to create their own independent brands from 2010, using entrepreneurial resources. Simultaneously, partner firms entered the market with their own local brands, which they created independently. Independent own brands of partner companies (K) have also created a new group of competitors in the market. The independent local brands of the partnership firms were purchased from the foreign partner of the partnership and based on the technology of the foreign partner. Due to low R & D costs, sales prices of these models also remained low. Partnership firms continue to take place in the markets of cities in a rapidly growing economy with their own brands. Since 2010, partner companies have been applying the latest advanced technology in their own models produced locally, simultaneously with their models abroad, and thus trying not to lose their competitiveness in the Chinese market. Moreover, partner companies have set out to open engineering centers and research institutes in China to design models that meet the preferences and road conditions of Chinese consumers. On the other hand, JVCs have also been able to show their latest models, which have not yet been commercial, at auto shows made in China. The state-of-the-art vehicle models owned by the JVCs not only brought more sales advantages, but also shaped the likes and preferences of Chinese consumers and thus removed the competitive barrier in front of the JVCs. Thus, the 10 most important car manufacturers in the market became JVCs (Wang, 2017).

As of 2003, the total production of the automotive industry was 4,443,686 units, while, in 2005, it was 5,717,609 units and, in 2012, it increased to 19,271,808 units. The production figure was 25,720,665 units in 2019 (https://www.oica.net/).

A Brief Overview of Turkey History

Since the establishment of the Ottoman Empire, great importance has been given to science and sensitive about the transfer of information and technology (İnalçık, 2017; Dolanay &Ögütürk, 2019). As a matter of fact, the first Ottoman Madrasa was founded by Orhan Gazi in Iznik in 1331 (Ozilgen, 2009: p. 219).
From the foundation of the Ottoman State (1299) until 1451, when Fatih Sultan Mehmet ascended the throne, during the 1.5 century period, there were some scientific developments among the Ottoman Turks with the establishment of madrasas and the importance of education. However, after the accession of Fatih Sultan Mehmet to the throne, we can say that the development of positive sciences and scientific thought has accelerated (Aksoy, 2008).

However, after 1495, when Mullah Lutfi, one of the important scholars in the field of mental sciences, was executed, the process of transferring information and technology began to be interrupted with the decrease in the importance given to mental sciences (Dolanay & Öğuztürk, 2019; Zelyut, 2019; Pala, 2019). Due to defeats in wars, the transfer process was tried to be revived by instructors brought from abroad in the military field, hendesehane (geometry school) was opened by Comte de Bonneval in 1734 (Ozilgen, 2009) and this school was supported by the ilmiye class (Cihan, 2014). Because Mehmet Said Efendi, a member of the ilmiye class from the madrasa, was one of the first teachers of the school. Founded in 1773 by the efforts of Baron de Tott, the first teachers of the engineering house were Sayyid Hasan and Sayyid Osman Efendi of Algeria. The first Europeans to teach were Baron de Tott and Kompell of Scotland (Cihan, 2014: p. 140). As part of the renewal movements that began in Selim’s time, a small group was formed around the Sultan who understood the positive sciences and could translate from Western languages. The process of information transfer accelerated with the translation room established in 1833 (Karpat, 2006). The Ottoman Academy of Sciences was established in 1862, and, in 1863, Darülfünun, which would later be considered a university, was founded (Ozilgen, 2009). One of the main reasons why the Republican administration wants to close Darülfünun is that Darülfünun is not interested in the new history thesis and the language reform that was made on the grounds of scientific autonomy (Erdem, 2012; Cihan, 2014). With the university reform in 1933, the Darülfünun institution, which was able to connect with the past knowledge and partially carried the knowledge that came from the madrasa, was completely eliminated and universities that were asked to teach in Western norms were established, and new instructors, most of whom were of foreign origin, were replaced by old darulfun instructors. Darülfünun’s 157 faculty members were excluded by political and ideological criteria and academic criteria were not observed. We can say that there is no scientific autonomy left in the university. In addition, the Faculty of Language, History, and Geography was established in 1935, which is understood to be aimed at completely erasing the knowledge of the Ottoman education system and aims to create a new history thesis (Erdem, 2012). The removal of faculty members from the university during certain periods occurred in the later years of the Republic. Thus, universities have remained institutions that transfer information and knowledge transferred from abroad to their students, that is, transfer information and knowledge.

During the Ottoman classical period, madrasas performed the function of formal education very well, while with the exclusion of mental sciences from madrasas, these institutions began to become institutions that teach only religious knowledge, that is, transfer sciences. But although these well-established institutions have excluded mental sciences, no situation has been discovered that prevents students from buying and reading books written in previous periods about mental sciences that were present in their powerful libraries. Thus, even after the exclusion of mental sciences, there were those who could develop technology, such as Hezerfan Ahmet Çelebi, and Lagari Hasan Çelebi, from the madrasas (Dolanay & Öğuztürk, 2018; 2019; Cihan, 2014). The reason for this is that madrasas are institutions that are compatible with the socio-cultural and socio-economic structure of the society in which they are located.
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AUTOMOTIVE INDUSTRY

In the last period of the madrasas, scholars, such as Mustafa Sabri, who grew up in the madrasas, defended the madrasas, proposed changes and reforms by preserving the educational tradition, and in a sense tried to keep these deep-rooted educational institutions alive, but they did not succeed. Because the madrasas were seen as institutions providing religious education in the last periods of the Ottoman Empire. It was othered and closed during the Republican period (Cihan, 2014). However, madrasas have always supported new Western-style schools. Hendesehane, which was founded in 1734, engineer Berri Himayun, which was founded in 1773, and engineer Berri Himayun, which was founded in 1796, had members of science in the training staff (Cihan, 2014).

On August 16, 1838, an Axe Port Trade Agreement was signed between Grand Vizier Reşit Pasha and British Ambassador Possenby in an order that was implemented before 1838 and was called Yed-i Vahit, the state was able to monopolize the trade and, in particular, the export of goods in any region to a private person. In addition, the state has been able to ban the export of this methane during periods when some goods or foodstuffs have experienced shortages. With the agreement, the opening of raw materials to foreign trade became easier. Before 1838, the Ottoman Empire levied a customs duty of 3% on both exports and imports, and the internal customs duty rate was 8%. Along with the agreement, the customs duty on exports was increased to 12%, and the customs duty on imports was reduced to 5%. While domestic customs duties for foreigners were abolished, they continued to apply to domestic traders. During the financial crisis of the Ottoman State in 1860-1861, the Ottoman State signed a new agreement that reduced the rate of customs duties on exports to 1%. The customs duty on imports was increased to 8% in 1861, to 11% in 1905, and to 15% in 1908. Thus, we can say that the Ottoman State agreed to set its own customs duties together with the European states. But this is the Case 1. It ended with World War I (Pamuk, 1994).

Thus, the Ottoman State began to cut off its own industrialists and entrepreneurs, which led to entrepreneurs focusing only on trade. The decline in industrial entrepreneurship, combined with the decline of mental sciences in the field of science, has begun to have a state structure that imports only industrial products and exports raw materials without profit. For this reason, the domestic automotive industry could not be formed, and after the Republic, foreigners were asked to establish the automotive industry in the country.

Development of Turkish Automotive Industry Between 1923 and 1960

At the Izmir Economic Congress, which was convened in 1923 after the war of independence, it was decided to ensure rapid industrialization by the private sector and to put the state into action when the private sector’s capital was not sufficient. In this context, an assembly plant was established in Istanbul Tophane by Ford Motor Company in 1929 to produce trucks and automobiles. However, due to the world economic crisis and hostility to foreign capital, this facility was closed in a short time (Cotton, 1994; Keyder, 1993; Dolanay & Oğuztürk, 2018) in the 1950s, we can say that the automotive industry has started to produce again with a military jeep assembly plant under license.

Although the process of establishing national industry became important after 1923, the number of companies with foreign partners increased rapidly with the announcement of the Tanzimat edict, and we can say that the industry incentive law 1913 also worked for companies with foreign partners (Erdas, 2015) Franko and Şurekasi A. P. it is understood that he was one of them.

Bernar Nahum, who took on important tasks in the establishment of the automotive industry in Turkey, was born in 1928 to Franko and Şurekasi A. P. He started working in the company and his supervisor was Joseph Kohen (Nahum, 1988).
Development of Turkish Automotive Industry Between 1960 and 1980

By the 1960s, it was possible to manufacture different motor vehicles in the automotive industry by means of assembly. However, in 1961, for the first time in Turkey, the first domestic car prototype, the revolution car, was manufactured at the state-owned locomotive factory in Eskisehir in as little as four months. But this short-term domestic success ended when mass production could not be started. In 1967, the production of Anadol cars was started by the Automotive Group under the direction of Bernar Nahum of Koç with the multiple licensing method. This initiative of the Koç Group has not turned into a permanent success story. In 1971, Tofaş with Italian Fiat license and Oyak-Renault with French Renault license were established (Dolanay & Oğuztürk, 2018).

With the assembly industry instruction published in 1963, in a sense, the import substitution industrialization strategy and the development model’s policies to promote industry were established. With this arrangement, the aim was to produce similar parts of imported automotive products under local conditions (Azcanlı, 1995; Dolanay, 2017; Dolanay & Oğuztürk, 2018).

However, in order to prevent the successful production of the prototype of the Revolution car in 1961, the State Planning Department issued a report containing the result “car production is a luxury for Turkey, it is necessary to focus on truck production” (Azcanlı, 1995: p. 107 and 112) also limited the development in the field of car production (Şimşek, 2020, pp. 191-193, Azcanlı, 1995: pp. 107-115).

In addition, the State Planning Organization (DPT) prepared the first five-year Development Plan, which covered the period between 1963 and 1967, anticipating that the automotive industry will use only truck production as the driving force of the entire industry. (Azcanlı, 1995: p. 114)

As automotive industrial production began to decline from the second half of the 1970s, we can say that the import substitution industrialization strategy prepared the formation of a major economic crisis at the end of the 1970s due to the currency bottleneck (Dolanay, 2017; Dolanay & Oğuztürk, 2018).

Development in Turkish Automotive Industry Between 1980 and 2000

In the 1980s, all car manufacturers went to product diversification and tried not to be affected by the economic crisis that occurred in 1980 (Dolanay & Oğuztürk, 2018).

As an industrial policy preference, after 1983, the export-based growth model continued to be applied, in this direction, changes were made to the incentive system, and export incentives were raised (Dolanay & Oğuztürk, 2018).

The Manufacturing Industry Regulation, adopted in 1984, has brought quality development to the forefront, unlike the assembly industry directive (Azcanlı, 1995). In a sense, it was determined that the automotive industry, which had developed with technology imported from abroad until that moment, should provide technological development, and in addition, the need for technological development was emphasized at the national level with the first science and technology report published in 1983 (Dolanay & Oğuztürk, 2018).

Starting from 1983, the economy began to be liberated with the application of liberalization in foreign trade and automotive industry that protects it from foreign competition protective tariffs have been removed, but the automotive industry is not yet ready to open up to foreign competition, because the fund is introduced (Dolanay & Oğuztürk, 2018).
In the years following 1980, Beet engine’s production efficiency began to decline gradually; capacity did not increase and even began to decline from year to year, and as a result of rising costs and increased competition, Beet engine began to lose power. Beet Motor, which has become a loss-making company since the beginning of the 1990s, has gone on the path of getting rid of bankruptcy by constantly selling its assets. In 1994, he was forced to sell his land to a part shareholder (Şimşek, 2020).

The 1980s and especially the 1990s were the years when reports and books on science and technology were proliferated and institutions for technology development were created. In 1993, the second science and technology report was published, and after the establishment of Tubitak (Scientific and Technical Research Institution of Turkey) in 1963, institutions, such as Turkish Academy of Sciences (TUBA) and Technology Development Foundation of Turkey (TTGV) were established in the 1990s. However, despite these efforts to create a national innovation system, the approach to ensuring development in the automotive industry by buying technology from abroad has continued (Dolanay & Oğuztürk, 2018; Göker, 2013). The goals set out in the documents set out in the science and technology in the 1980s and especially in the 1990s were generally not achieved (Göker, 2013).

Turkey became a member of the World Trade Organization (WTO) in 1994 and the Customs Union Agreement was signed between the European Union (EU) and Turkey in 1996. In this way, direct monetary incentives were eliminated in accordance with the agreements and state aid for export was entered into force in such a way as not to contradict international commitments (http://www.iibfdergisi.ksu.edu.tr: 2-3).

In the 1990s, production facilities were established in Turkey by Honda, Toyota, and Hyundai companies, and car exports from Turkey to EU countries increased with the departure to the customs union with EU countries in 1994 (Dolanay & Oğuztürk, 2018).

Development in Turkish Automotive Industry After 2000

In the 2000s, the trend in the 1990s continued, the National Innovation System received an even more advanced institutional structure, and laws were published that formed the legal framework of the national innovation system (Dolanay & Oğuztürk, 2018).

After the economic crisis that occurred in 2001, serious annual economic growth rates were reached in Turkey from 2002 until 2008. This period was also a period when the results of the customs union and Original Equipment Manufacturer (OEM) investments of foreign companies began to be seen in the automotive industry.

However, Hyundai did not get the incentives that it wanted for the second factory wanted to build in 2006, so it could not agree with Turkey and made this investment in the Czech Republic (http://www.hurriyet.com.tr). Thus, a policy change occurred in the Turkish automotive industry and Turkey decided to produce its own domestic car. This policy change was only announced in December 2018 and the introduction of domestic car prototypes by TOGG. In July 2020, the foundation of the factory was laid (http://www.linkedin.com; http://www.odd.org.tr).

Despite the vitality and development brought by three car manufacturing plants opened in the 1990s in the automotive industry, no new car manufacturing plant was established in the 2000s, and Hyundai’s request to build a second factory in Turkey in 2006 had to be turned down when the desired incentives could not be given (Dolanay & Oğuztürk, 2018; http://www.hurriyet.com.tr).

After this investment opportunity missed in 2006, Tata Motor planned to invest in Turkey in 2009, but this investment did not materialize. In the 2010s, domestic car production was directed, and in 2015, it was
announced that the prototype of the domestic car was manufactured. But after public outcry, the domestic car manufacturing business was tendered. Turkey’s Automobile Initiative Group, which received the tender, announced that the first prototype will be manufactured in 2020 and that mass production can be started in 2022 (https://www.togg.com.tr; https://www.haberturk.com).

But the fact that 2022 has been set for the transition to mass production after the first domestic car prototype appeared in 2015 has shown how hard it is to break the footpath commitment in this area. In addition, this led the government to establish a car factory in Turkey by agreeing with Volkswagen, and the government remained between the dilemma of developing its own technology to produce domestic cars or providing the necessary incentives for foreign car brands to build factories in Turkey.

This dilemma of the government reminded us of the dilemma of stopping the transfer of information and technology during the Ottoman period and turning to the attempt to start the transfer of information and technology again and develop its own technology with introversion. Because the Ottoman Empire first took advantage of foreign scientific developments, such as Mullah Lutfi, executed a scientist who tried to contribute to the production of local knowledge, and then brought scientists from advanced countries when a scientist with the same abilities did not grow, and tried to establish institutions of advanced countries in their countries (Uludoğan, 2015; http://blog.milliyet.com.tr; Ültanır, 2017; Ihsanoğlu, 1992; Muller-Wiener, 1992).

Starting from 1867, in Rusçuk, to 1870s, Bursa mass production technique with horse car production Uzel Company, in the following years as a parts manufacturer and tractor assembly company continued its production; in 2009, it managed to produce the first domestic tractor. But this innovative and entrepreneurial firm did not survive bankruptcy in the following years (Dolanay & Oğuztürk, 2018; http://www.hurriyet.com.tr; Habertürk, 2015). But the government, which stated that it went to a large-scale policy change by saying that we will produce our domestic cars in 200 years, was unable to ensure that Uzel Company continued its innovative activities. In February 2011, the request to produce domestic cars was reported to the companies by the government. Again, the first domestic electric car, the prototype of which was manufactured in Hacettepe University Technopark in 2015, could not be put into mass production because it could not find sufficient support, and the project was cancelled due to the fate of the Revolution cars project (http://www.youtube.com; Şimşek, 2020).

In early 2010, Beet Motor (Pancar Motor) started to recover slightly, dodged the risks associated with bankruptcy and was able to go for a small capital increase. In this direction, some of the debts were also paid and a lower-cost domestic engine production business was started, which was suitable for the conditions of the day. A previously imported engine is fully adapted to domestic conditions and is produced completely locally by beet engine in a low price and high performance manner in a short period of 10 months. In December 2010, this domestic engine started to be sold in dealers. However, the firm’s weak structure could not withstand land battles and production ceased in December 2011 (Şimşek, 2020: pp. 70-71). Thus, Beet Motor has suffered the fate of Uzel Company, another innovative company has disappeared from the market.

**General Assessment**

Technology transfer in the Chinese automotive industry can be done in different ways. The first is foreign direct investment. Second, it is through partnerships between foreign firms and local firms. Third, it is by production (OEM) way with original equipment. Fourth, it is through acquisition and merger. For example, the Chinese company Geely bought Sweden’s Volvo in order to achieve technology transfer and technological
talent. Volvo, on the other hand, has trained for both knowledge and skills and has tried to raise Geely’s technological level. However, FAW entered into a partnership with Germany’s Volkswagen and only gave Volkswagen technical assistance when a new model was requested to be developed. However, in general, foreigners did not share their core technologies. Currently, Chinese automotive manufacturers are in the imitation stage and have not gained the ability to develop technologies in conventional vehicles (Qiu, 2013). In this sense, there has been a similar aspect of the Turkish automotive industry (Dolanay & Oguztürk, 2017); however, there is a slightly different situation in the field of electric vehicles (Melchers, 2020).

We can say that China’s economic development, which has come with rapid economic growth since the beginning of the 21st century, was not only due to its huge population size and market. We can say that China’s success has been caused by a special cultural heritage, a combination of different traditions, and a positive combination of resources, talent, and marketing power (Shenkar, 2007). China was able to use the advantage of having a large market in the automotive industry, while at the same time, local firms was encouraged exports and multinational companies to sell in the domestic market with routing strategy helped the Chinese automotive industry to grow rapidly, and thus was able to create the path of their economic development, we can say that.

In 2000, China’s total automotive industry production was 2,069,069 units, while Turkey’s was 430,947 units. In 2019, China’s was 25,720,665 units and Turkey’s was 1,461,244 units. In the past 19 years, Turkey’s total vehicle production has increased by about 3.5 times, while China’s total vehicle production has increased by about 12 times (http://www.oica.net).

Conclusion

China after the fall of the Empire in 1911, he fell into economically difficult situations as a result of the unequal trade agreements he made in the 19th century and experienced very difficult days politically and economically. Although it began to recover politically after the Communists seized power in 1949 and achieved national unity, economic difficulties with incorrect economic policy preferences continued until 1978. Despite the economic difficulties experienced, two automobile production plants could be established with foreign technology during this period. With the economic reforms that began after 1978, the private sector began to be allowed in part in the form of small businesses. In order to ensure the entry of advanced technology into the country, foreign companies are allowed to partner with local companies and open branches in China. Seeing that foreign companies began to dominate the Sunday market, the establishment of large-scale local companies began to be supported, especially in the automotive industry, since the 2000s. Along with the general economic policies of the state, the automotive industry policy, 1994, 2004, 2006, 2010, and other policy documents mainly aimed at the development of the automotive industry and, in particular, local car production with its own technology and imitation. Local companies established in the 2000s quickly reached a large scale, innovative entrepreneurs, such as Chery Automobile, Great Wall Motor, Geely, and BYD emerged, and local automobile work began after 2004. But at the heart of the structure, which tries to be innovative, it is believed that the administrative authority granted to local governments, even in imperial times, had a very important impact.

In Turkey, in 1838, passed into the hands of foreigners from the trade agreements economic activities in the next period, adopted the policy of industrialization until after the domestic capital Herne 1923 with his hand, although a domestic car Anadol in 1966 and qualified as second cars started to be produced in Turkey at the beginning of the coach for the team that created the group, Bernard Naum of foreign origin that has taken place,
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with licensing agreements with foreign firms could be subject to production by the only domestic capital. This process continued in the 1990s when foreign companies established car production facilities in Turkey. However, by 2011, the idea of producing domestic cars came into being and in December 2018, a prototype of domestic cars was manufactured by TOGG. But it was understood that this slow change in policy and the delay in prototype production were caused by the habits of the past, that the formation of the TOGG entrepreneur group also took a lot of time, and this process created a serious obstacle to technological and economic development. Therefore, we can say that the effort to converge on the countries leading the way in the automotive industry has become difficult.

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