

Historical Development of Automotive Industry at India and Turkey and The Formation of Innovative Company*

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ABSTRACT: When we look at the historical development of the automotive industry of India and Turkey, we find many common features and similarities. We can say that most similar ones originated from the economic policies. However, both in the 1920s which started the production of automobile with assembly method two country's automotive industry historical development process from each other different aspects, India's production volume had been provided to pass substantially Turkey's be said.

India and Turkey has a similar historical past and heritage and automotive industries in both countries has started to occur at the end of the year 1920 in similar ways. Turkey economic policies and incentive system was not encourage enough mediated by the development of the automotive industry. The automotive industry in India has continued to develop more rapidly, gaining momentum especially with the changes in the economic policy towards liberalization in the 1990s.

Turkey has begun to practice liberal economic policies with the removal of foreign trade protection, but the removal of foreign trade protection in the automotive industry became possible after with the inauguration of the Custom Union apply with European Union in 1994. However, since a structure for technological development could not be established, in the 1990s, the automotive industry almost embraced a structure that only foreign companies could manufacture and export. Thus, we can say that the automotive industry has turned into the production base of foreign companies.

Turkey entered the 2000s to the automotive industry by increasing the production and export, 2000s gradually amended the trends of economic policy local automobile production in the automotive industry has taken the decision. However in a way that is linked to the new policy, Uzel an innovative company with the potential to produce local products in the automotive industry, has been confused in a sense. Because the company Uzel be completely stopping production in Turkey in the 2010s, it had taken over production and the decision to continue in the Netherlands and about a year after Uzel has succeeded to produce first local tractor.

India, on the other hand, with the application of economic liberalization policy in the 1990s. On the one hand, we can say that while encouraging foreign companies to produce in their country, on the other hand, it enabled the emergence of innovative companies.

Ultimately As of 2018, industrial production of in India fifth in the automotive world, Turkey has taken the place of 14th.

Keywords: *Intervention system, automotive industry, innovative firm, technological development, automotive industry production, innovative company, economic development*

Gel Codes: L52, L62, L98, N15, N75, N95, O12, O31, O57

I. Introduction

Developing countries are advised by developed countries and international organizations to adopt economic policies that have been accepted as correct. (Chang, 2004: 15) 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: 15-28; Yiğidim, 2012: 3) indeed, Turkey adopted introverted, protectionist and import-substitution industrialization policies in accordance with the World Bank's policy proposals in 1963. (Yiğidim, 2012: 3) we can say that the same policy preferences apply to India in the 1950s and 1960s.

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, 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: 17-18)

Technology is machinery, tools and physical tools and equipment that meet the wishes and needs of people. Tools and accessories are made according to the purpose of use of people. So technology is always defined in a human framework. In this direction, it is impossible to understand technology by isolating it from social and cultural conditions. (Geijerstam, 2004: 19) India has been seen as a country with a healthier past experience in technology transfer and entrepreneurship. But we can say that India at one time adopted the principles of a socialist economy to ensure economic development, which had a delaying effect on the process of economic development and led to path dependence.

II. A Brief Look at The History of India

It is possible to study the history of India by dividing it into three periods. These were periods of Hindu rule, Islamic rule and British rule. (Kılıçkap, 2007)

In line with the approach of examining the history of India by dividing it into periods, many historians have studied the history of India by dividing it into periods of Hindu rule, Islamic rule and British rule. However, during periods of Islamic rule and British rule, Hindu culture and traditions were preserved without being lost. How homogeneous social structure of India during the period of the Hindu kingdom, although it is not (Kilickap, 2007: 25) in the period after independence in 1947, Hindu cultural touch date have been transferred (Metcalf and Metcalf, 2012), knowledge can be transferred without interruption to the present day India we can say that the indicator.

Many empires were established during the period of Hindu rule, as Chakravartin established, The Last of these empires was Gupta. After that, there were many principalities in question until the period of Islamic rule. (Kılıçkap, 2007: 26)

For the first time in the 8th century (712), Moslems entered India with an army under the command of Muhammad bin Qasim, and as a result of the expeditions during the time of Mahmud of Ghaznavid, the Sultan of Ghaznavid, Muhammad Gori Khan conquered the entire India. Mamluks in the period between 1206-1290, Halaci in the period between 1290-1320, Tugluks in the period between 1320-1413 and Ludis in the period between 1413-1526 held the administration of India in their hands. 15. At the beginning of the century, Timur Khan took over the administration of India, and later his descendant, the Mughal Shah, established the Mughal Empire. The Mughal Empire continued to dominate until the British Invasion. Kılıçkap, 2007: 26-27; Metcalf and Metcalf, 2012)

It has been accepted that the Indian civilization was the third largest and oldest civilization in the world, after the ancient Egyptian and Mesopotamian civilizations. Despite all the negativity that Indian culture has experienced, it is believed that it has come to this day intact. Hindu rule, if not all, as well as Islamic rule have ruled these lands in the past. (Ozsoylu, 2009: 113) in the past, Hindus created a great civilization, followed by 13. at the beginning of the century, Islamic rule dominated, and the Mughal Empire established an effective civilization in the region with Islamic methods of administration. (Metcalf and Metcalf, 2012).

After the fact that Europeans reached India in the 15th century by wandering the nose of hope, some European countries began to take an interest in India, which began to enter into relations with Europe, for the purpose of trade. 15. Trade with the Indian continent, which was discovered by Vasco da Gama at the end of the Century 16. by the end of the century, it was under the rule of the Portuguese and then the Dutch. Britain, on the other hand, began to engage in trade with India in the 1600s through the East India Company, which was founded in 1600, and for the first time only India's malarba Pepper could be imported. (Metcalf and Metcalf, 2012: 59-65) 1st Queen of Britain in 1600. Elisabeth gave the British East India Company (British East India Company), which became a London firm, a monopoly on trade relations between Britain and India. (Özsoylu, 2009: 113) in 1617, we can say that trade developed when Baburlu Shah Cihangir granted the British permission to establish factories in some ports, especially in the Port of Surat of the province of Gujarat. 17. the British, who had put aside the spice trade in the century, were able to improve trade by creating a market in Europe for products such as IndiGo and saltpeter. In England, whose prosperity had increased with the year 1660, the people began to demand products such as printing, footpath and muslin, so that trade began to develop further. By 1700, the firm was able to take over the trade of three capitals, Bombay, Madras and Calcutta. In 1717, the British obtained from the Mughal Emperor Ferruhsiyer the privilege of exporting the products they had brought from Bengal free of customs duties, and thus the rich and diverse goods of Bengal began to go comfortably to Europe and the rest of the world. This also allowed the British to prevail over other countries that wanted to trade. (Metcalf & Metcalf, 2012: 59-65)

Britans in Bengal, who have been focused on steadily increasing their profits, have been forced to withdraw from the 18th century. By the middle of the century, they began to abuse the privilege of a free trade permit granted to them by the emperor, sold it to the Indians, and the concessions began to be used illegally in the internal trade of grain and other goods. The newly enthroned Nawwal (provincial governor) of Bengal thought that the British increasing their military power in Bengal against the French attack was a move towards their sovereignty and marched on Calcutta in June 1756. As a result, nevvab's troops defeated the British garrison and took Calcutta. However, nevvab's men imprisoned the British prisoners of war in an airless room, causing their deaths within one night. This incident has been referred to in history as the black hole of Calcutta. After this incident, Robert Clive's troops from Madras defeated nevvab at the Battle of Plassey on 23 June 1757 and recaptured Calcutta. After this war, Mir Jafar nevvab was made to replace the defeated nevvab. (Metcalf and Metcalf, 2012: 66)

After the war with France and other events, the British began to seize the trade of valuable goods such as salt, dates, tobacco, saltpeter in Bengal, while the rule of nawwab began to weaken visibly. In 1760, nawwab was replaced by Mir Jafar and Mir November was replaced. Thus, Mir November, who did not want the British to rule Bengal, at least wanted to prevent the British in Bihar. But the British, whose appetite for earning and

accumulating wealth has grown, have not been willing to accept any restrictions. After all, Mir Kasim's forces, allied with the Mughal emperor and the nawwab of Ayodhya, fought on 23 October 1764 with the forces of the British East India Company. As a result of heavy fighting, the British became the Lords of East India. (Metcalf and Metcalf, 2012: 66-68)

After this military success, it was no longer possible for the British East India Company to claim that they were merely trading. In 1765, the company made an agreement with the Mughal emperor on the one-year *divaniam* (right to collect revenue) of the provinces of Bengal, Bihar and Orissa. The agreement made the firm legally Secretary of the Treasury and aide-de-camp to the Emperor. (Metcalf and Metcalf, 2012: 68)

As of 1803, All India, except the Punjab region, came under British rule. (Özsoylu, 2009: 113) the country is governed by small principalities called Maharaja, Mihrace or Nevvab, which can only have regional power. The British, on the other hand, were mostly engaged in commercial affairs that brought money, such as the operation of mines such as iron, coal, and the production of tea and cotton. The British also built the Indian railway network and regular irrigation canals. (Özsoylu, 2009: 113)

According to Tabatabal, with this strengthening, the British began to despise the entire people of India. The British, who had fully settled in eastern India in 1824, were not content with this, and began to strive to open China to European trade. Their main goal was to be able to sell the products they obtained from the territory of India, especially opium, to China. (Mishra, 2013: 34-37)

During the reign of Shah Alem (1759-1806), there were significant conflicts with the British, and eventually in 1858 India became a British colony (Kılıçkap, 2007: 27-28; Clement, 1996)

In the last years of Islamic rule, at a time when British rule gradually increased and began to cover the entire country, Roorke university was founded in 1847. In those years, the main goal of the university was to be able to train innovative entrepreneurs. (Kılıçkap, 2007; www.wikipedia.org)

III. Developments In The Automotive Industry of India Between 1900 and 1950

In India under British rule, the economy grew extremely slowly. GDP increased by 1.4% between 1900 and 1914 and again by 1.4% between 1914 and 1947. (Singh, 2018: 3)

We can say that the automotive sector has started to form primarily with imported cars from abroad. A manufacturing plant was established in Bombay by General Motors of the United States in 1928 to assemble trucks and cars using the CKD (Completely Knock Down) method, and assembly plants were established in Madras, Bombay and Calcutta by the Canadian Ford Motor Company in 1930-1931. In 1942, Hindustan Motor Company was established and the first vehicle was built in 1950. In 1944 Premier Automobiles Ltd. Inc. The company was founded and the first vehicle was produced in 1947. The government adopted Bajaj Oto's plan to switch from Wheel check to car production in 1947, and a few years later it was switched to assembly with a Piaggio license. (Krishnaveni and Vidya, 2015: 111-112)

IV. Developments in Indian economy and automotive industry between 1950 and 1990

In 1947, India gained independence from Britain and a new era began for the Indian economy. The planned mixed economic Model was adopted as the economic policy to be implemented with the coming to power of the Congress Party led by Nehru. This new era was similar to the economic model of the Soviet Union, but did not exclude the traditional cultural values of India. A slow economic development with an annual economic growth rate of 3-5% continued until the liberalization program in 1991. Despite the closed economic structure, the Indian Institute of Technology was established in 1951. This initiative, on the other hand, benefited greatly when the Indian economy entered a bottleneck in the 1970s. (en.wikipedia.org; Cagliarini & Baker, 2010)

In the 1960s, two-and three-wheeled, foot-driven cars began to appear in the automotive industry. In the early 1960s, Escorts and Ideal Jawa entered the field. In 1960, the Association of Indian Automobile Manufacturers was established. From 1955 to 1960, only API mopeds were produced, while in the 1960s, three other companies, consisting of Mopeds India Ltd (1965), SZUL Gwalior (1964) and Pearl Scooters Ltd, entered the field. In 1965, Standard Motors Products India Ltd began to produce light commercial vehicles. Escorts and Enfield, on the other hand, closed their scooter production units and continued to build motorcycles only. In the Scooter sector, Bajaj Auto Ltd and API continued to operate throughout the 1960s. (Krishnaveni and Vidya, 2015: 112)

Production of small passenger cars for Indian consumers was only possible in the late 1960s when the government allowed Maruti Ltd to establish a manufacturing plant at Gurgaon, near New Delhi. The company entered the market without any experience in the automobile business, but the owner of the firm, Sanjay Gandhi, caused great interest and curiosity in the public opinion, as he came from a family that stood out in politics. There has been hope. But despite high hopes, the company's performance remained quite poor, and production was able to be started in 1977. Another company, Sipani, entered the market in 1976. In the 1980s, Indian car production remained around 30,000 units, and the Sunday was in the hands of four companies consisting of HM, PAL, SMPI and Sipani. Due to poor Sunday performance in the following years, SMPI and Sipani companies closed. (Chattopadhyay, 2013: 113)

Before 1980, there was almost no software industry in India. The IT industry was mainly formed with the emergence of hardware products. This sector was protected by the Government of India with high tariffs and licensing agreements. The government of India, seeing the potential of the software field to gain foreign currency, allowed hardware imports, software exports and created a new Software Export Scheme in 1972. Tata Consulting Services was the first company to benefit from this arrangement in 1974. (Singh & Kaur, 2017: 2)

In 1972, the government created a new software export scheme. In 1974, Tata Consulting Services Company made India's first exports in the field of Informatics. In the 1980s, developments in the field of hardware began to occur in India, and at this time, the software sector is almost non-existent in India. (Singh & Kaur, 2017: 2)

The government of India has established a number of incentive measures for the IT/ITES industry. Customs duties on the import of IT products have been reset, Export Oriented Units (EOU), Software Technology Parks (STP) have been established, STP and EOUs have been established to control foreign exchange rates and liberalization of domestic and foreign investments, and Special Economic Zones (SEZ) have been developed to make the IT industry a global industry branch. Over the years, the IT industry has matured and become the main contributor to economic growth. His first foreign business in the IT industry was Tata Consulting Services from Burroughs in the United States. Thus, WIPRO, founded in 1966, and Infoys, founded in 1981, opened the way for growth. But in the process leading up to the liberalization reforms of 1991, it was very difficult to get a job abroad. (ÖZ, 2007: 24-29)

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We can say that the institutes mentioned above have formed the core of the technological workforce trained at world standards. In addition, ITT graduates who have worked abroad and those who have studied abroad have contributed to the growth of the Information Technology Industry of India. These contributions are of two kinds. First, the quality and standards of education of ITT graduates have earned them a reputation in the US, UK and many countries. Second, ITT and other university graduates work abroad back to their countries or by establishing their own businesses and the ones, they have acquired additional skills by working abroad or in multinational companies in India's information technology sector of the service offered. For example, many of the multinational companies located in the Bangalore Software Park were managed by Indians from abroad, and many smaller firms were owned by Indian entrepreneurs living in the United States. (Öz, 2007: 24-25)

Until the 1990s, the focus of Information Technology Policy was on education as well as hardware. Both production and R & D activities focused on import substitution. After 1990, the software sector began to develop with personal computers, which emerged with the development of the hardware sector in the previous decade. Software exports in the 1980s and 1990s were provided by the work of software personnel of Indian companies in the firm's office in the United States. (Self, 2007: 25-26)

India achieved an average annual economic growth of 4% in the 1960s, while this rate was 3% in the 1970s and 5.5% in the 1980s and 1990s. (Cagliarini & Baker, 2010: 1)

In the license raj system, which was created to allow the private sector to make any new and additional investments in the market, step-by-step restrictions were lifted after 1985. In 1985, first 25 sectors were removed from the license raj and then in 1991 an additional six sectors were removed from the license raj. In areas with similar production bands and where production is being carried out using close technologies, private firms have been allowed to change sectors. This latest application has laid the foundation for the renewal of technology and flexible production, so we can say that productivity has increased. The tax system has been simplified and made clear. Although the 1980s were the years of reform and economic transformation, some structural features from the past continued. Five-year development plans were prepared and economic goals were set and these goals were tried to be achieved. (Özsoylu, 2009: 123-124)

Since the Indian government's past protectionist policies went from liberalization in the 1980s, many foreign partnerships have entered the automotive industry. Many Indian companies have also cooperated with the Japanese. Andhra Pradesh Scooters to manufacture Vespa with Piaggio, Hindustan Motors Ltd. With the Japanese Isuzu for the production of Isuzu Trucks, All with Leyland Vehicles Ltd. it has entered into partnership with integral bus manufacturing and with Japan's Hino Motors for W series engine manufacturing. After telco extended its contract with Daimler Benz, it developed and introduced the Benz model to the market. The government has approved the entry of five new companies into the light commercial vehicles market. These have been DCM, Eicher, Swaraj and Allywn. These are Japanese companies named Toyota, Mitsubishi, Mazda and Nissan, respectively. Other firms are, Hindustan Motors Ltd., Premier Automobiles Ltd., Indian Standard engine manufacturing and Sipani cars companies have also introduced new models to the market. Ashok Leyland Ltd in Commercial Vehicle Manufacturing. and the Telco have been the biggest players. From 1983 to 1984 Bajaj Tempo Ltd. It cooperated with Germany's Daimler Benz in the production of light commercial vehicles. In the following years, the licensing policy was regulated and some older products were excluded from the license scope. (Krishnaveni and Vidya, 2015: 112-113)

As the government of India considers car manufacturing to be aimed at the luxury and rich, companies concentrated on bus and truck manufacturing during this period.

V. Developments in Indian Economy and Automotive Industry Between 1990 and 2010

For India, there was a period of economic instability between 1989 and 1991, and only an annual plan could be made for 1991. India faced a serious foreign exchange reserve crisis during a period of economic instability,

its foreign exchange reserves fell to US \$ 1 billion. Under this economic pressure, the risk of reforming the socialist economic structure in the country was taken. (<https://en.wikipedia.org>)

In 1991, the Government of India announced its economic liberalization program to exit the crisis. The aim of the programme has been to gradually remove various government controls over domestic production, Foreign Trade and other economic activities. The New Economic Policy ended the obligation of many industries to obtain licenses from the government. In June 1993, the Government of India announced its new car policy. Accordingly, automatic approval for the rate of foreign capital in Indian companies began to apply up to 51%, the application of separation into phases of the production program ended, and customs taxes and fees were reduced. The new policy document also highlighted the importance of innovation in the automobile industry. The new policy document also supported the entry of large-scale car companies from foreign countries such as the United States, Europe, Japan and South Korea into the Indian market. Maruti Udyog Ltd, established in an Indo-Japanese partnership with HM, PAL, Telco (later renamed TATA Motors) and local manufacturers in the Indian market. and competition among new foreign firms has intensified. HM and PAL have had to fight to retain their Sunday share, while the Telco, which has enjoyed great success in the commercial vehicle market, has faced the challenge of maintaining its success against its new rivals alongside the old. Sunday Sunday, Maruti continued its dominance with a 70% market share, but competitive market pressure forced automakers to use advanced manufacturing technologies that comply with environmental and safety standards. (Chattopadhyay, 2013: 114)

Government of India in the 1990s, trade, foreign investment, exchange rate, industry, financial issues etc. b. he has undergone radical changes in his policies on many issues. In 1991, the new industrial policy was announced. This new regulation brought about the end of the license Raj system and allowed the expansion of the automobile industry. In 1997, the National Highway Policy was established, which had a positive impact on the automobile industry. Many international companies such as Daewo, Peugeot, General Motors, Mercedes-Benz, Honda, Hyundai, Toyota, Mitsubishi, Suzuki, Volvo, Ford and Fiat have entered the Indian market. Many companies are in the market with their own model vehicles, while Telco has added Indica to its passenger car product range. New models of Ford's Ikon and Mitsubishi Lancer, consisting of Maruti's Classic, Alto and Station Wagon, have entered the market. (Krishnaveni and Vidya, 2015: 113)

Along with the new industrial policy adopted in 1991, many restrictions on foreign investment were lifted, the permit mechanism was abolished in all industrial branches except 18 industrial branches, and the automotive industry was abolished in May 1993. Foreign capital investment permits in 34 industries, including the automotive industry, are linked to automation. The liberal policies of the 1990s enabled new competitors to enter the market, feel the scattering effect in the field of technology, increase R & D spending, and encourage companies to create their own innovative products. Thus, the time spent creating a new product has been shortened. (Miglani, 2019: 451)

The second reform decisions taken in 1999 aimed to solve both economic problems and to continue the process of economic liberalization that began in 1991. Improvements in fiscal discipline were observed after the Reform programme. (Özsoylu, 2009: 131-132)

In 2001, the government abolished import quotas in automotive and allowed 100% foreign direct investment. The tariff rate for passenger cars has been reduced to 24%. While high tariff rates have made it difficult for OEMs to establish production facilities in the past, institutional support for growing supply capacity has led to the establishment of flexible subsidiary Industrial Relations, which has helped to create innovation capability. Also described is the Automotive Mission Plan (2006-2016) (AMP 2016). (Miglani, 2019: 451-452)

In the past, the requirement for high local contribution rates was an industrial policy that protected market firms, this policy helped create basic production capacity and establish the automotive parts industry. We can

say that the protective policies of the 1980s and 1990s constituted the basic production capacity. Over 70% local contribution obligations have led OEMs and parts manufacturers to invest capital in facilities that will produce according to global standards.. We can say that the policy of localization has also been the main element of obtaining technological talent. Having to work in collaboration with local manufacturers and parent company engineers has led Indian companies to gain technological talent. In addition to the government's tariff policies, the road network was improved under the plan, special purpose ports were created, the nature of existing R & D centers was increased, and the production of electric and hybrid vehicles was encouraged. (Migllani, 2019: 452)

Since 2000, many fundamental policy changes have been made. The quantity limitation has been lifted, 100% approval of foreign direct investment. The sale and export of cars made in India, manufactured entirely under local conditions, was supported in the local market. In the following years, the government announced the Automotive Mission Plan (2006-2016) for the long-term development of the industry. India ranked 15th in World automobile production in 2002. 6 in 2012. He's up in line. As of 2011, the four major global players controlled 80% of total production. Despite the economic crisis in 2008, India showed positive growth during these strong years, while the automobile industry maintained a healthy growth line for a decade. In the aforementioned decade, only China has performed better than India, surpassing Japan in car production in 2009 and sitting on the world leader. (Chattopadhyay, 2013: 114-115)

VI. Developments in Indian Economy and Automotive Industry After 2010

During the twelfth five-year plan (2012-2017), the average annual economic growth rate was 8%. (<https://www.mospi.nic.in> > default>files: 7)

The draft National Automotive Policy 2018 prepared by the heavy industry unit aims to increase the exports of automotive products to 35-40% of total production. The National Electricity Mobility Mission Plan 2020 was adopted in 2013 and aims to reduce pollution and gas emissions. (Migllani, 2019: 459-460)

The Automotive Mission Plan (2016-2026) (Automotive Mission Plan - AMP 2026) is described. 5 in world automotive production as of 2016. India is ranked 3rd as of 2026. he aimed to get in line. (Migllani, 2019: 445-453; OICA)

VII. A Brief Overview of The History of Turkey

Since the establishment of the Ottoman Empire, great importance has been given to science and sensitive about the transfer of information and technology. (Inalcık, 2017; Dolanay and Oguzturk, 2019) as a matter of fact, the first Ottoman Madrasa was founded by Orhan Gazi in Iznik in 1331. (Ozilgen, 2009: 21)

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. (Edited By, Aksoy, 2008: 31)

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 and Oguzturk, 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: 40) and this school was supported by the ilmiye class (Cihan, 2014: 136). 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: 140) Sultan 3.

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. (Carpathian, 2006: 24 and 27) the Ottoman Academy of Sciences was established in 1862, and in 1863 Darülfünun, which would later be considered a university, was founded. (Özilgen, 2009: 63) 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: 381; Cihan, 2014: 136). With the University reform in 1933, the darulfun 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: 380-386) 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 transferred from abroad to their students, that is, transfer information.

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, those who could develop tenology, such as Hezerfan Ahmet Çelebi and Lagari Hasan Çelebi, emerged from the madrasas. (Dolanay and Oguzturk, 2018; Dolanay and Oguzturk, 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.

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, which 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: 123-126) however, madrasas have always supported new Western-style schools. Hendesehane, which was founded in 1734, engineer-i Bahri Humayun, which was founded in 1773, and engineer Berri Himayun, which was founded in 1796, had members of Science in the training staff. (Cihan, 2014: 135-145)

VIII. Development of Turkish Automotive Industry Between 1923-1960

Like India, the Turkish automotive industry has been formed and started to develop from very early dates, but today the Indian automotive industry has developed from that of Turkey. We can say that Turkey has not been able to create good enough industrial policies to encourage industry and that it has not been able to produce innovative companies that can be effective in gaining the ability to develop technologies

During the Ottoman period, industry suffered greatly after the trade agreement with Britain in 1838. (Pamuk, 1994: 17-22) for this reason, at the Izmir economic Congress, which 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 operation 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. (Pamuk, 1994: 17-22; Keyder, 1993: 80-84; Dolanay and Oguzturk, 2018) in the 1950s, we can say that the automotive industry has started to produce again with a military jeep assembly plant under license. The period between 1923 and

1950 and even until the economic crisis in 1958 were years of rapid economic growth and the industrial sector developed.

After the first plant, which was opened in 1929, production facilities were established in different areas of automotive products through a license agreement. (Dolanay, 2017; Dolanay and Oguzturk, 2018: 227-251)

Gümüş Motor (Silver Engine), a pioneer enterprise in 1958, was established in Rami, Istanbul by Necmettikhn Erbakan under the license of Czechoslovak Skoda to manufacture agricultural and water engines. Hasan Polatkan, the Finance Minister of the time, inaugurated the facility in March 1960. (Şimşek, 2020: 67)

IX. Development of Turkish Automotive Industry Between 1960 and 1980

By the 1960s, while the production of different motor vehicles could be carried out in the automotive industry by means of Assembly, the car production facility had not yet been established. However, in 1961, Turkey's first domestic car prototype was manufactured in as little as 4 months. Although the project was successful, mass production could not be started. (Şimşek, 2006; Dolanay, 2017; Dolanay and Oğuztürk, 2018: 251-275)

By the end of 1966, the production of Anadol cars was started by the Koç Group with a multi-license method (the car's body was made of fiberglass under the license of the British Reliant company, and the engine and transmission were taken from Ford Motor of the United States). This initiative of the Koç Group did not turn into a permanent and continuous success story due to the fact that exports were not considered and the bodywork was manufactured from the wrong material. In 1971, TOFAŞ with Italian Fiat license and OYAK Renault with French Renault license were established. (Dolanay and Oguzturk, 2018; Şimşek, 2020: 204)

With the TOFAŞ Bird series, which started production in the 1970s, it was possible to move to the creative imitation stage in a sense, but there was no development that could turn into innovation later. (Küçükerman, 2000; Dolanay and Oğuztürk, 2018)

It was thought that this was due to the lack of sufficient knowledge that could lead to the acquisition of technology development capability.

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. We can say that the way to produce poor quality copies of foreign products has been opened with a non-selective incentive system. (Azcanli, 1995; Dolanay, 2017; Dolanay and Oguzturk 2018: 251-275)

With the newly established factories, the volume of production in the automotive industry has increased. However, we can say that the report containing the result of "car production is luxury for Turkey, truck production should be directed" issued by the DPT (State Planning Organization) in order to prevent the prototype of the Revolution car, which was successfully manufactured in 1961, was not made in accordance with the requirement. (Şimşek, 2006; Şimşek, 2020)

On the one hand, there were easy agents who took the demands of customers in the market and made large profits by importing from abroad according to quotas, and on the other hand, there were people who thought about production and the economic development of the country. Representatives have been in favor of continuing imports of mold as the country's agricultural hometown. In fact, these importing circles bought the company's shares cheaply by spreading the rumor that Silver Motor would close in 1964, and when the number of shares in their hands reached 61%, they changed the name of the company to beet Motor. The beet planters Cooperative has become a voice in the administration. A license agreement was made with the German company Hatz. Gasoline and air-cooled engines were also started to be produced. The product was very popular because it was robust and suitable for user needs, and everything went well until the early 1980s. Before 1980, we can say that agriculture received state support had a share in this success. (Şimşek, 2020: 69-70)

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 and Oguzturk, 2018: 276-283)

Together with the economic stability program announced on January 24, 1980, the value of the Turkish lira was reduced against foreign currencies with a large-scale devaluation to ensure stability in the economy, and we can say that the first foundations of a major economic transformation were laid at the same time. Because the need to export for the first time was emphasized, it was also understood that export-based growth model could be switched. (Azcanli, 1995; Dolanay, 2017; Dolanay and Oguzturk, 2018: 284-301)

X. Development in Turkish Automotive Industry Between 1980-2000

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 and Oguzturk, 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, export incentives were raised. (Dolanay and Oguzturk, 2018: 284-301)

The Manufacturing Industry Regulation, adopted in 1984, has brought quality development to the forefront, unlike the Assembly industry directive. (Azcanli, 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 and Oguzturk, 2018: 284-301)

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 and Oguzturk, 2018: 284-301)

In the years following 1980, Pancar Motor (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: 70)

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 TUBA (Turkish Academy of Sciences) and TTGV (Turkish Technology Development Foundation) 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 and Oguzturk, 2018; Goker, 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 (GB) 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. (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 and Oguzturk, 2018)

XI. Development in Turkish Automotive Industry After 2000

In the 2000s, the trend in the 1990s continued, and the National Innovation System received an even more advanced institutional structure, laws were published that formed the legal framework of the national innovation system. (Dolanay and Oguzturk, 2018: 310-333, 368-385)

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 OEM investments of foreign companies began to be seen in the automotive industry.

However, Hyundai did not get the incentives it wanted for the second factory it wanted to build in 2006, so it could not agree with Turkey and made this investment in the Czech Republic. (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. (www.linkedin.com; 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 and Oguzturk, 2018: 310-333, 368-385; 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. (Uludogan, 2015: 3-5; <http://blog.milliyet.com.tr>; Ültanır, 2017; Ihsanoğlu, 1992; Wiener, 1992)

Starting from 1867 in Rusçuk, 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 and Oguzturk, 2018: 216; www.hurriyet.com.tr; www.haberler.com>economy) 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. (youtube; Şimşek, 2020: 202-205)

In early 2010, beet 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. The company's weak structure failed to withstand the Anzi wars and production ceased in December 2011. (Lightning, 2020: 70-71) thus, beet Motor has suffered the fate of Uzel company, another innovative company has disappeared from the market.

The city of Thiruvananthapuram in the Indian region of Kerela was designed as a Technopolis in 2005 as the fourth phase of the Technopark development process, and the construction of the Technopolis is still under way. It is thought to be the fifth largest Nissan Global Digital Cluster campus in the world. (en.wikipedia.org) of the 64 technoparks available in Turkey as of 2016, only 51 have been operational. Others are in development. (Star, 2016: 48)

XII. Conclusion

Although India remained under British colonial rule for many years, after gaining independence in 1947, it immediately established the Indian Institute of Technology in 1951 and demonstrated its importance to technological development. These institutes have reached 23 today. India, which had moved closer to economically and politically socialist practices with the liberation from British colonial rule, supported the developments in software in the 1970s and received its first foreign job in telco Consulting Services in 1974. In the 1980s and 1990s, development was achieved first in the field of hardware and then Software. Since 1991, after extensive liberalization practices, the automotive industry has started to develop, with the experience of the 1970s, Telco, that is, TATA Motor, has become one of the most innovative companies in the automotive field.

The British colonial periods in India, since they have started to establish foreign trade policy and to protect the automotive industry, despite of the output of the automotive industry by producing for the export industry began to develop, and to attract foreign capital liberalization after 1991 with the formation of an innovative company like Tata poitika, along with the pathway by breaking the commitment to the industry has grown much faster and I mean, the history of your country before yourself by adopting industrialization policies begun to develop the automotive industry by changing the method of development, It has been able to have an automotive industry that has gone much further than Turkey.

The first automobile production facility in Turkey was established by Ford Motor Company in 1929, and assembly production facilities were established in the automotive field in the 1950s. But the first domestic car in Turkey was the Revolution car, the prototype of which was produced in 1961. Anadol, on the other hand, produced technology transfer from multiple sources and its production continued until 1984. With the TOFAŞ Bird series, which started production in the 1970s, it was possible to move to the creative imitation stage in a sense, but there was no development that could turn into innovation later. It was thought that this was due to the lack of sufficient knowledge that could lead to the acquisition of technology development capability. The knowledge of the past with the closure of Madrassa in 1924, and then in 1933 with the university reform efforts of past faculty members who carry the knowledge of the past with the accumulation of knowledge is eliminated. It is understood that the domestic car, whose prototype was introduced in December 2018, will be produced by technology transfer from multiple sources. This showed that the level reached by South Korea in 1975 had just been reached.

Turkey has tried to establish a distinctive automotive industry since the 1960s, but has not been able to create a distinctive path and has consented to a path-related development. The automotive industry has lagged far behind India in production. We can say that Turkey, which has turned to creating its own path again with the policy change in 2006, is suffering from being late and not paying enough attention to technological development. However, with the right decision taken in 2015, work was started for domestic car production and

an effort was started to adapt the incentive system to the situation so that foreign capital could be attracted to the country at a greater rate.

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