

**NATIONAL KNOWLEDGE AND TECHNOLOGICAL  
ADVANCEMENT INITIATIVES IN LATE OTTOMAN  
AND REPUBLICAN TÜRKİYE (1860-1960)**

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### **Abstract**

The aim of this study is to discuss the domestic production and technological development efforts made during the transition from the Ottoman Empire to the Republic of Türkiye between 1860 and 1960, a time period in which political, economic, and military conditions were prohibitive. Despite all of the adverse circumstances of the time, the Ottoman Empire quickly reacted and attempted to make significant initiatives in the fields of domestic production and infrastructure in the age of the Industrial Revolution which challenged almost all of the existing socio-economic structure. These initiatives were attempted in the period preceding the First World War, when there was no capital, the burdens of capitulation increased, state revenues were transferred to the General Directorate of Public Debt, and a year without a war did not pass. Although these critical initiatives, which began as a result of military and administrative requirements, were disrupted and destroyed between 1912 and 1922 due to the war conditions, they were much further advanced with the early Republican industrialization. Despite obstacles similar to those experienced during the Ottoman period, the 1929 Great Depression, and the impossibilities encountered during the Second World War, Türkiye's claim to domestic production and technological development has not declined.

### **Keywords**

*Ottoman Industry, Turkish Republican Industry, Military Industry, Defense Industry, Industrialization*

## **Introduction**

The Industrial Revolution, dated to the last quarter of the eighteenth century, caused a great transformation in almost every aspect of material life in Europe, centered on England. Engineering-based new techno-science laying the groundwork for this new era in a wide variety of sectors such as commodity manufacturing, weapons and military equipment manufacturing, transportation, communication, agriculture and health, and mechanization based on the use of fossil fuel-based energy brought with it mass production, standardization, acceleration of communication and transportation, and a great increase in firepower in wars.

The Ottoman Empire did not remain indifferent to this transformation, which it first felt in textile production, shipbuilding and military industry. The transformation process, which started with the renewal in the military organization at the end of the 18<sup>th</sup> century, began to take shape in the first half of the 19<sup>th</sup> century, first in the army, and then in the state administration, communication, transportation and industrial production with the projects and Türkiyes led by the sultans of the period. This quest to “keep up with the times”, which was strengthened by infrastructure projects during the 33-year long reign of Sultan Abdulhamid II, had two main goals. First is to have a strong army and navy that will ensure national survival against the imperialist Western powers that threaten the Ottoman political existence and social order and the strategic rival Tsarist Russia in the north. Then, to focus on domestic commodity production and national technology development as much as possible in order to increase the political and military power of the state in a way that will not be interrupted by embargoes and not cause an increase in foreign debt/current deficit (Tetik, 2018).

There were obstacles in front of the empire, which had an agricultural economy, a very large and difficult geography, and a multicultural heterogeneous population, to make this transformation, which continued until the recent history of Türkiye. At the beginning of these were the scarcity of educational institutions and qualified personnel in applied sciences, the lack of sufficient capital in the hands of the industrial production state and private individuals, the inadequacy or inability to extract the energy resources and raw materials in the occupied lands of the country. In addition, the lack of will in the administrative elite or the tendency to prefer imports to domestic production as a habit due to urgent needs turned into a big obstacle beyond what is believed from time to time. The efforts of the imperialist great powers to make the economic life of the rest of the world, including Türkiye, dependent on them with various methods and threats in order to ensure their own industrial development, had played an undeniable role in this regard.

Despite all the impossibilities at hand and various obstacles from inside and outside, the Ottoman Empire left a certain legacy of trained personnel and institutions to the Republic of Türkiye in terms of domestic industrial infrastructure and technology production. Domestic production and national technology Türkiyes were initiated in different sectors several times, both during the establishment period and at the beginning of the multi-party life in Türkiye of the Republican era (Evsile, 1992). Although they encountered obstacles very similar to the Ottoman period, they contributed partially, but not in all areas, to the country’s science and technology level and domestic and national production capacity.

## Agriculture

Classical Ottoman agriculture was based on a system called *tmar*, which was based on the allocation of state property land for administrative and military purposes. The urgent need for cash, which arose due to the increase in both military expenditures, population and agricultural production demand, resulted in the establishment of a new run-and-transfer institution called *iltizam* (tax-farming) in parallel with the expansion of the borders of the state since the 16<sup>th</sup> century. The concept of private property began to develop in the land while there was a transition process from *tmar* to *iltizam* and from *iltizam* to estate system. However, private property was generally concentrated in the hands of the notables, nobles and military influencers, not the peasants. The right to private property in the land was legally recognized and the purchase and sale of the land was allowed with the Land Code of 1858. Thus, it was tried to limit the power of the notables and other local elements and to expand the production. However, in the second half of the 19<sup>th</sup> century, the operability of the local power holders increased with the railroads that came into service one after another, and this led to the increase of large influential farms. The farms working for European markets emerged in the Aegean and Mediterranean regions with the 1867 Regulation allowing the sale of land to foreigners (Kanbir, 2017).

The cash needs of the farmers were tried to be met with the establishment of the Cooperative Homeland Funds with the Tanzimat. However, over time, these lost their functionality and Public Benefit Funds were established instead. Ziraat Bank was officially established as a modern financial institution by removing the Public Benefit Funds on 15 August 1888 with the approval of Sultan Abdulhamid II. While the amount of loans provided to farmers was increased, progress in the agricultural sector was encouraged with the establishment of Halkalı Agricultural School in 1892, the opening of two agricultural primary schools, the establishment of modern farms in some provinces, and the sending of young people to Europe to receive education.

The attempts to increase agricultural production could not be achieved due to capitulations and free trade agreements, despite the developments, while the influence of local elements and landlords increased with the new land order. The state had become an importer of agricultural products. Technological Türkiye to increase agricultural production could not be realized with the confiscation of limited state revenues by the General Public Debt Administration in 1881, which was established by the Great Powers for the collection of foreign debts. The attempts were made to protect and develop local agriculture with the declaration of the General War and the abolition of the capitulations during the Constitutional Monarchy period after 1908. Distributing seeds for free and providing agricultural training to farmers are among these moves. In addition, influence of Ziraat Bank was tried to be increased. The loss of labor increased and a significant part of the working animals, which were the agricultural technology of the period, were lost with the Ten-Year War between 1912-1922. The agriculture has been chosen as the sector that will ensure the development of the new Republic despite this situation. It was decided to abolish the tithe tax, abolish the administration and management of the directorate, and exempt the import of agricultural tools and equipment from customs duty at the Izmir Economy Congress, which will determine the economic policies of the newly established Republic.

Subsequently, the Ministry of Agriculture was established in 1924 and policies were determined to promote land ownership and mechanized agriculture. The title deeds were distributed to those who operated the land continuously for 20 years, as their own property

with the Law no. 639. However, some local power holders took the public lands into their own ownership, and the desired result could not be achieved.

The agricultural production was encouraged with the abolition of the tithe tax in the first years of the Republic. The share of agriculture in gross domestic product approached to 50 percent in 1926 with this regulation. The mechanization was given importance by increasing loans through Ziraat Bank in order to ensure the technological breakthrough of the rural population in the field of agriculture. 221 tractors were imported from Germany in 1924, and the number of tractors increased to 2000 in 1929. In addition, those who occupied more than 500 acres of land, those who had more than 200 sheep and 50 cattle, and their assistants were exempted from military service.

The impact of the Great Depression in 1929 on the agricultural sector was devastating. The mechanization stopped and production decreased while the share of agriculture in exports decreased. Türkiye entered a national industrialization process with the etatist policy that would start in 1930 and continue until 1950 by changing the order of priorities (Metintaş & Kayıran, 2016). Within the framework of the First Five-Year Industry Plan, which came into force in 1934, foreign dependency was tried to be reduced, the agricultural sector came to the fore as the most convenient way of providing resources to the industry, and the cost of industrialization was met from agricultural production. Agricultural production was supported with the establishment of Agricultural Credit and Agricultural Sales Cooperatives in 1935 and the Turkish Grain Board in 1938. Turkish agriculture entered a period of stagnation and a great decrease in production was observed with the effect of the Second World War. Other reasons for this decline are heavy taxes on the sector and the fact that more than 1,000,000 soldiers for the army were kept in arms during the war.

In the 1950s, when the Democratic Party came to power with the transition to the multi-party system, important developments began to be experienced in the agricultural sector and an economic system based on agriculture was adopted. Along with the policies determined at the national level, aid from the West paved the way for technological breakthroughs in the agricultural sector. A significant part of the support provided from the USA in the form of aid or grant was directed to mechanization in agriculture, it was aimed to increase the number of tractors and Ziraat Bank loans. The number of tractors, which was approximately 1,750 in 1948, exceeded 40,000 in 1955. The agricultural production of the employed tractors and the geographical region in which they will be used were determined by the USA. While tractors were not allowed to be used in cotton and tobacco production in order not to compete with the USA, these vehicles were allocated to grain production. The vehicles such as tractor plows, combines, tillers, tires, balers and pickup trucks were also provided with the Marshall Plan. The agricultural loans also increased during this period. While the agricultural area that can be produced with mechanization was 12.7 million hectares in 1945, it reached 23.2 million hectares in 1962.

## **Transportation**

Railway transportation, which began in England at the beginning of the 19<sup>th</sup> century, soon spread throughout Europe and, at around the same time, introduced the Ottoman Empire's agenda. The 211-kilometer-long Iskenderun-Cairo line, built by the British with Sultan Abdulmecid's approval between 1851 and 1856, is the first railway built on Ottoman territory. Following the Crimean War in 1855, the Ottoman Empire announced in the press that the European capital would be able to accommodate the planned Istanbul-Belgrade railway line. It was hoped that the proposed construction of a railroad in Rumeli

would allow soldiers to be dispatched quickly to quell rebellions and establish economic connections with Europe. Rumelia was considered as a homeland to which the state's most precious resources were moved, rather than a region to be lost over time. This road would be 200 kilometers long, and it would require significant resources to build. As a result of these efforts, small-scale railways were built, primarily by the British. The 66-kilometer Constanta-Chernavoda railway, the 224-kilometer Varna-Ruscuk line, the 130-kilometer İzmir-Aydın railway, and the 93-kilometer İzmir-Turgutlu railway all required British funding and were completed between 1856 and 1866. As a result, the hinterland of port cities was formed (Akyıldız, 1992).

The empire attempted to establish a railroad using its own funds during Sultan Abdulaziz's reign (1860-1876). The state proclaimed its intention to build a railroad in Asian areas with the publishing of the deed in 1871. The major goal was to build the Istanbul-Baghdad railway. Germany was called to assist with technological challenges. On September 24, 1872, in the middle of these events, the Railways Administration was founded under the Ministry of Public Works to oversee the construction of railways throughout the country. However, despite the emphasis placed on railways between 1856 and 1875, the expected outcome was not achieved due to a shortage of financing and foreign corporations' unrealistic profit expectations (Beydilli, 1991).

When the Public Debt Administration became functioning under the reign of Abdülhamid II, foreign capital groups revived interest in Ottoman railways and were accorded various concessions. Although Abdülhamid II saw railways as a military necessity, he also perceived them as making invading border countries easier. The Minister for Public Works and Infrastructure Hasan Fehmi Pasha emphasized the necessity of railroads as well in his remarks in 1880. Concurrently, he pushed the idea of providing cooperation to entrepreneurs from many countries in order to prevent reliance on a single country. The 219-kilometer-long Thessaloniki-Manastır railway was finished between 1890 and 1894; the 486-kilometer-long İzmit-Ankara railway was built between 1888 and 1890; and the 446-kilometer-long Eskişehir-Konya line was built between 1893 and 1896. While French-funded railways concentrated on Syrian lines, British-funded railways concentrated on İzmir-Aydın and İzmir-Turgutlu lines (Özyüksel, 2008).

The Baghdad Railway is the most important of the railway projects mentioned. Germany has taken its construction agreement in part because of the impact of its expansionist goal, known as "Weltpolitik." As previously indicated, the railway concession between Haydarpaşa, Ankara, and Konya were taken by Germans. The 200-kilometer-long building project in Konya was completed quickly after the joint venture agreement was signed on March 5, 1903. After a lengthy period of interruption, the Istanbul-Baghdad Road between Pozantı and Taurus, excluding the Amanos Mountains, was finished in 1914. The Hamidiye Hejaz railway network, in addition to the Baghdad Railway line, was an important railway network at the period. It went into service in Medina on the 32nd anniversary of the Sultan's ascent to the throne in 1908.

During Abdülhamid II's reign, 5,792 kilometers of railroad were built. This statistic is far higher than the Ottoman Empire's previous railway construction of 8,334 kilometers. 4.138 kilometers of the built railways remained in Türkiye and were handed over to the new administration (Çolak, 1948).

However, the acquired transportation networks were unable to resist the damage and deterioration of the Ten-Year War. The founding staff intended to create new lines by

nationalizing foreign-owned railroads, with the purpose of forming a national state. Transportation is made up of more than just railroads. It was also attempted to build land routes, sea routes, and air routes. Railroads were given preference between 1923 and 1933. Regardless of this condition, highways were built between these roads. The Istanbul-Edirne asphalt road (328 kilometers), the Balya-Canakkale asphalt road (160 kilometers), and the Trabzon-Iran transit road (642 km) are the main highways built by the Nafia Ministry. 1089 kilometers of new highway were built from 1933 to 1938. Despite the priority given to the roadway's construction, it has not been finished to the extent projected due to poor economic conditions. The limitation of resources caused by the National War, the Great Depression, and World War II. One of the main elements to this predicament is the economic bottleneck induced by World War II. Following the war, road construction was reemphasized. The General Directorate of Highways was established in 1950, and the rate of development accelerated (Yakup, 1933).

The Republic of Türkiye, which aspires to "connect the country with iron nets," has made railway building a top priority. Kütahya-Balıkesir Line (252 km), Ankara-Kayseri Line (380 km), Kayseri-Sivas Line (222 km), Ankara-Sivas Line (380 km), Sivas-Erzurum Line (548 km), Fevzipaşa-Diyarbakır Line (508 km) (Yakup, 1933).

Domestic ferry service as a method of sea transit began in the Ottoman Empire around the turn of the 19<sup>th</sup> century, with the Ministry of the Navy launching the Istanbul-Gemlik-İzmit-Tekirdağ line in 1847, utilizing a ferry bought from Europe. This line was later transferred to a French company. The Ottoman Empire possessed 73 ships in 1915, up from 45 at the turn of the century. During World War I, the enemy destroyed commercial ships, severely diminishing the commerce fleet. The Republic of Türkiye inherited from the Ottoman Empire a 35,000-ton fleet that was functional.

A national marine strategy was constituted with the passage of the Cabotage Law following the founding of the Republic of Türkiye. There were 240 Turkish merchant ships in 1930, and ten years later, the tonnage had nearly tripled to 95,000. The foreign-owned ports of Istanbul, İzmir, and Haydarpaşa were nationalized during this period, and the Maltepe, Mudanya, Mersin, and Iskenderun piers were built for military purposes in 1939 (DPT, 1964).

The newest acquisition was the Ottoman Empire's aviation transportation network. By order of the Minister of War, Mahmud Şevket Pasha, the General Inspectorship of Technical Divisions and Fortified Zones established the Aircraft Commission on June 1, 1911. This fundamental structure laid the framework for the Turkish Air Force. Two hangars and one square were built in Safraköy, which is located to the north of the modern Yeşilköy Airport, in January 1912. In February of the same year, airplanes were purchased from France and delivered to Istanbul on March 15, 1912; the first pilots were Fesa and Kenan. On 3 July 1912, the Yeşilköy Air School became Safraköy's first air organization.

The French-Romanian Air Navigation Company arrived in Istanbul in 1922 to build the first commercial air route connecting Türkiye and Europe. In 1924, the firm "Aero Espresso Italiana" was granted a 20-year concession. Despite plans to fly daily flights between Ankara-İstanbul-İzmir and Brindisi (Italy), this company's operations were restricted to the İstanbul-Athens-Brindisi corridor. In 1925, a deal was signed with the German Junkers Aircraft Company to establish a military and commercial aircraft manufacturing facility.



The state began conducting airline service for the first time under the Ministry of National Defense in 1933. In the same year, the Airline State Operations Administration commenced operations with 5 planes and 28 workers. The construction of military airports aided civil aviation as well. Airlines State Operations Administration commenced the Istanbul-Ankara flight using a De Havilland plane seating six passengers. These itineraries were later expanded to include Ankara-Adana and İstanbul-İzmir. The number of aircraft had grown from six to twelve by 1944. Ankara, Adana, Afyon, Antalya, Diyarbakir, Elazığ, Erzurum, İzmir, İstanbul, Konya, Sivas, Van, and Gaziantep now have seven lines connecting them (Demir, 1977).

Road transport has grown in importance in the transportation industry since the 1940s. Preparations for plans and programs began on the land route under the guidance of American representatives. The policy of building highways rather than railways was implemented with the Democratic Party's accession to power. Because state funding was insufficient to meet the costs, the country's cities and villages were dispersed, and population mobility was slow, the construction of a railway was unrealistic. Despite this, research on modernizing existing train lines has been carried out. The motorway was 47,080 kilometers long in 1950, and it had topped 61,000 kilometers by 1960. Railway length increased from 7,671 to 7,895 kilometers (Özdemir, 2006).

## **Defense Industry**

The defense industry is a sector consisting of private and public organizations that design, develop and produce the war weapons and vehicles necessary for the army of a state. The Ottoman Empire, following the technological developments that started in Europe since the 19<sup>th</sup> century, had difficulties in fighting with the European States in the field of military industry.

Demirhane, located in Zeytinburnu, which was among the important factories of the military industry in the Ottoman period, was producing the necessary materials for the manufacture of weapons. In addition, Baruthane in Bakırköy was producing local black gunpowder. In addition, sawmills were opened in Hendek in 1878 and in Bayramiç in 1893 to meet the need for timber, and saltpeter smelters were opened in İstanbul, Konya and Kayseri for the production of saltpeter, which is the raw material of gunpowder. During the reign of Abdülhamid II, the Smokeless Gunpowder Factory was added to the heavy industry complex established in Zeytinburnu during the reign of Sultan Abdülmecid, as a Turkish-German joint venture. In the field of naval industry, attempts were made to produce domestic ships, but these did not yield the expected result.

It operated in the army organization of the Ottoman Empire after 1832 and following the re-organization in the Ministry of War on 22 July 1908, the Directorate of Military Production was established. General Directorate of Military Production was indeed a continuation of Tophane Müşirliği, which was established during the reign of Sultan Mahmud II. At that time, it was one of the largest production facilities of the period with nearly 5,000 employees. Manufacturing factories in İstanbul were wanted to be moved to Anatolia due to the Balkan Wars, but the onset of the First World War prevented this. After the First World War, the Ottoman Empire had to make a significant part of its military factories non-functional or closed as per the Armistice of Mudros signed. The Directorate of Military Production was reorganized in Anatolia in order to supply weapons, ammunition and military materials for the struggle that started in Anatolia after the occupation of İstanbul. The organization, called the İmalat-i Harbiye (Military Production)

Group operates in many regions of the Republic of Türkiye such as Tophane, Feshane, Baruthane, Ayazma and Agacli, Beykoz, Tahiniye, Bez and Zeytinburnu Factories, Black Sea, Hadımköy, Çanakkale warehouses, Çobançeşme, Karaağaç, Piri Paşa, Zeytinburnu. The establishment of the first military factories in Anatolia started with the passage of Mustafa Kemal Pasha to Anatolia. These factories and facilities have been connected to the General Directorate of Military Factories since January 1921 (Tetik, 2018).

Military factories became places that produced all kinds of weapons and ammunition before and after the National Struggle. In 1921, İmalat-i Harbiyye studies were mostly gathered around Ankara, while in 1922 different branches were opened in Istanbul and the work gained momentum. During this period, there were many factories working under the Manufacturing Department. Among these, there are Ankara Gun Garage, Ankara Cannon Ammunition Garage, Carpentry Garage, Eskişehir Gun Repair Garage, Sharp Cartridge Garage, Kayseri and Konya Repair Garage. In 1922, with the addition of Science Committee, Administrative Presidency, Inspection Committee, Experience Inspection Committee, Personal Affairs, Accounting, Mubayaa and Sending branches to İmalat-ı Harbiyye, the organization expanded and its work gained momentum. The project of transporting the war industry to Anatolia, which was considered during the Ottoman period, was realized in the 1930s on the Ankara-Kırkkale (Ersoy, 2015).

Şakir Zümre established the first private sector factory in the defense industry after the National Struggle. The factory established has met the Turkish army's need for weapons and ammunition to a large extent. Turkish Air Force's 100-, 300-, 500- and 1,000-kilogram bombs and Turkish submarine water bombs were produced in this factory. Another name who contributed to the Republic of Türkiye in the special military industry sector is Nuri Killigil. With the support of the Ministry of National Defense to Nuri Killigil, a pistol factory was opened and production started.

Along with the military factories, there were also developments in the naval and air warfare industry. Naval Ministry was established in 1924 and naval power was tried to be developed. In 1928, the Ministry of Naval Affairs was transformed into the Undersecretariat of the Sea under the Ministry of National Defense. Starting from the mid-1920s, work on establishing a shipyard was also started. During this period, the Golden Horn, Gölcük, Taşkızak and Camialtı shipyards tried to partially meet the needs of the Turkish Naval Forces. But dependence on imports and foreign technology in shipbuilding continued.

Italy's occupation of Tripoli in 1911 led to steps related to aviation in Turkish history. The limited tasks performed by the aircraft in the said war were handled and evaluated by the rulers of the period. As a result, on 11 June 1911, an aircraft commission was established under the General Inspectorship of Technical Divisions and Fortified Zones. The Turkish Aircraft Society was established in 1925, and with the acceleration of the work, the establishment of an aircraft factory came to the fore. As a matter of fact, in the first years of the Türkiye Republic, upon Atatürk's directives, it was decided to establish an aircraft factory in Kayseri. An agreement was signed with Junkers Aircraft Factory Joint Stock Company, headed by German Professor Junkers. In October 1926, with a great ceremony, the factory in question started its work. The factory established in Kayseri was closed in 1928 due to the company's failure to fulfil its obligations. After American Curtiss airplane and Motor Company, a contract has been made. In addition to the factory in Kayseri, on September 7, 1925, it was decided to establish a factory in Eskişehir to carry out repair and assembly works. Another important step taken for the air warfare industry in Türkiye is the

establishment of the Turkish Aeronautical Association Etimesgut Aircraft Factory. The factory in question manufactured 116 airplanes and 56 gliders until 1947. There is no doubt that the efforts of Nuri Demirağ, a private entrepreneur, in both military and civil aviation are worth mentioning. Although its efforts such as the aircraft factory in Istanbul Beşiktaş and the flight school in Yeşilköy were interrupted by various political and bureaucratic obstacles, it is evidence that the Turkish industry was able to develop a certain capacity in the field of aviation in the pre-jet period (Evsile, 1992).

After the proclamation of the Republic, the war industry development of the Republic of Türkiye was carried out by the General Directorate of Military Factories. The said directorate has performed very important services and has tried to meet the needs of the Republic of Türkiye. Especially in the 1940s, the economic difficulties and war conditions negatively affected the production. Reorganization studies were carried out in order to meet the weapon and ammunition needs of the Turkish Republic, and with the Law No. 5591 of March 15, 1950, Makine ve Kimya Endüstrisi A.Ş. (MKE) was established. All assets of the General Directorate of Military Factories were transferred to MKE.

## **Health**

The Ottoman Empire started to make innovations in the field of health since the 19<sup>th</sup> century. The establishment of large health institutions, medical education, employment of health officials, modernization of the understanding of medicine are among these innovations. However, by establishing an organization across the country, the state started to send physicians to the provinces. Hospitals started to be opened in Izmir in 1851, in Edirne in 1888, and in Bursa in 1879 under the name of "Gureba". During the reign of Abdulhamid II, the hospitals named "Gureba" changed their names and started to be opened as "Hamidiye" hospitals. The most famous of these is the Hamidiye Etfal Hospital, which was opened in 1905. Gülhane Military Hospital, which was opened on December 30, 1898, on the birthday of Abdülhamid II, is the first modern hospital in the Ottoman geography (Çavmak & Çavmak, 2017).

In 1871, the İdare-i Umûmiye-i Tıbbiye Nizamnamesi/ The Regulation of General Medical Administration was published with the aim of regulating the health services of the people. With this regulation, it was considered to send physicians to different geographies of the state. In addition, "Sanitary Inspectors" and "Motherland Doctors" were established. Although Beyoğlu Zükur Hospital in 1893, Darülaceze Hospital in 1898, Hamidiye Etfal Hospital in 1905, and Cerrahpaşa Hospital in 1909 were established in Istanbul, there were still no hospitals in 32 of the Ottoman provinces and 9 sanjaks in 1905. There were 40 hospitals outside of Istanbul, excluding military hospitals, and the number of doctors employed in the state organization was 405 (Uyaniker, 2014).

Sıhhiye ve Muavenet-i İçtimaiye Vekâleti (Ministry of Health and Social Assistance) was established in May 1920 in Ankara at the beginning of the National Struggle and Dr. Adnan Bey (Adıvar) was elected as the Minister of Health. The policies to be followed in the field of health in this period are listed as follows; to establish and develop the health organization, to fight epidemics, to close the shortage of physicians and other health personnel, to reduce child mortality and to increase the population, to take precautions against threats from abroad. During the National Struggle, diseases such as malaria, syphilis, smallpox and trachoma were epidemic. Typhoid, typhus and rabies cases were also common. During this period, protective drugs against malaria were distributed, and vaccines for cholera, typhus, and rabies were produced, as well as smallpox vaccine, to protect the public from smallpox.

In 1922-1923, women entered the medical faculty for the first time as students. In 1927, female doctors started to graduate from Haydarpaşa Medical Faculty. In 1922, 337 Physicians and 434 medical officers were appointed to combat epidemics. The Hıfzıssıhha organization continued its work on vaccination (Özpekcan, 1999).

In 1923, there were a total of 554 physicians in the country. The number of physicians per 100,000 people was 5. Haydarpaşa and İzmir hospitals were opened in 1924, and 70 percent of these hospitals were allocated for the admission and treatment of tuberculosis patients. In 1925, 449,265 smallpox vaccines were produced and distributed in Sivas and 2,821,328 in Istanbul. The emphasis was placed on the production of tetanus and dysentery serum.

The health policy to be followed between 1923 and 1933 was determined as reducing prenatal and postnatal infant mortality, fighting epidemics, and increasing the number of doctors and health personnel. In Türkiye, vaccination services began to be routinely provided in 1930, and smallpox, pertussis, tetanus and measles vaccines were introduced. In 1930, there were 1,182 physicians in Türkiye and there were 8 physicians per 100,000 people. On the 10th anniversary of the newly established state in 1933, the number of doctors increased to 1,211. This number was 2,387 in 1940 (Ministry of Health, 2000).

The country was divided into 7 main regions with the “First Ten-Year National Health Plan” put into practice in 1947. Rabies case death rates have been greatly reduced, and there has been a decline in typhus cases. In 1947, the first organization on cancer was formed and the Turkish Cancer Research and Control Institution was established. While priority was given to the development of inpatient treatment institutions between 1950 and 1960, preventive health services were pushed into the background. State hospitals under the Ministry of Health and Social Assistance rose from 41 to 94, and health centers from 22 to 283 in a ten-year period (Tekin, 2011).

## **Conclusion**

National production and industrialization efforts, the foundations of which began to be laid in the Ottoman Empire in the middle of the nineteenth century, have turned into a national industrial Türkiye since the first years of the Republic and seem to have influenced even today's developments in the defense industry, at least in terms of belief, perseverance and determination. Because, despite the distance taken in this process, which started with very scarce and almost inaccessible resources, and the grand destruction of documents of 1912-1922, it was restarted in the first years of the Republic and the industrialization process was tried again by trying to continue it until 1960 under various impossibilities.

In fact, the main driving force in both periods was military necessity. In other words, it is the survival of the state and the nation. Again, the biggest problem encountered in both periods is the lack of capital. In terms of similarities, in both periods, first the administrative system, then the land and tax issues were put on the agenda; after these, infrastructure activities in the railway area were started and schools, hospitals and workshops started to be opened in approximately the same order. Of course, these were made by the state, and in terms of the course and results of industrialization, a different historical process unique to Türkiye, unlike the one in Europe, took place.

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