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A HISTORICAL ANALYSIS OF THE RAILWAY TRANSPORTATION ECONOMY IN TURKEY

TÜRKİYE'DE DEMİRYOLU ULAŞTIRMA EKONOMİSİNİN TARİHSEL BİR ANALİZİ

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ÖZET

Bir yerden bir diğerine insanların, eşyaların, yüklerin taşınması insanlık tarihi boyunca önemli bir uğraş olmuştur. Sanayi Devrimi ile birlikte 19. Yüzyıla damgasını vuran en önemli ulaşım sistemi ise demiryoludur. Kapitalist ekonomik sistemin gelişimi demiryollarının gelişim süreciyle paralel bir yol izlemiştir. İngiltere başta olmak üzere Avrupa'da ve dünyada büyük bir hızda demiryolu inşasına geniş ölçekli yatırımlar yapılmıştır. Türkiye'ye de demiryolu yatırımları ilk olarak Osmanlı İmparatorluğu döneminde İngiltere, Fransa ve Almanya başta olmak üzere Avrupalı şirketler aracılığıyla gelmiştir. Bu dönemde imtiyaz tanınan yabancı şirketlerin Türkiye'de inşa ettiği mülkiyeti ve işletmesi kendilerine ait olan demiryolları Cumhuriyet döneminde hızla kamulaştırılmış ve devlet eliyle ulusal sermayeye dayanarak demiryolu inşası sanayileşme ve ekonomik gelişme için önemli görülmüştür. İkinci Dünya Savaşı'nın ardından değişen koşullar doğrultusunda Türkiye'de ulaşım politikaları farklılaşmış, demiryolu ihmal edilerek karayolu yapımına odaklanılmıştır. 2000'li yıllardan itibaren Türkiye'de demiryollarına yatırım yeniden gündeme gelmiştir. Bu çalışmada Cumhuriyet öncesi dönemden başlanarak Türkiye'de demiryolu ulaştırma sisteminin tarihsel gelişimi ve ekonomik boyutu ele alınmakta, Cumhuriyet tarihi boyunca farklı dönemlerde demiryolu ulaştırma ekonomi politikasının durumu ortaya konmaktadır.

Anahtar Kelimeler: Ekonomi Politikası, Ulaştırma Ekonomisi, Demiryolu, Türkiye

ABSTRACT

The transportation of people, goods, and cargo from one place to another has been a significant endeavor throughout human history. The most important transportation system that marked the 19th century with the Industrial Revolution was the railway. The development of the capitalist economic system followed a parallel path with the development of railways. Large-scale investments were made in the construction of railways at great speed in Europe, particularly in England, and around the world. Railway investments in Turkey also first arrived during the Ottoman Empire period, mainly through European companies from England, France, and Germany. During this period, the railways built and operated by foreign companies with privileges granted to them were quickly nationalized during the Republic period, and the construction of railways relying on national capital under state control was deemed crucial for industrialization and economic development. Following World War II, the changing conditions led to different transportation policies in Turkey, with a focus on road construction while neglecting railways. Since the 2000s, investment in railways has once again become a topic of interest in Turkey. In this study, starting from the pre-Republic period, the historical development and economic dimension of the railway transportation system in Turkey are examined, and the state of railway transportation economic policy during various periods throughout the history of the Republic is presented.

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Keywords: Economic Policy, Transportation Economics, Railway, Turkey

1. INTRODUCTION

Looking at human history, the invention of the wheel stands out as one of the most significant turning points. Following this invention, there was a continuous development in transporting goods, materials, and people from one place to another. After the Industrial Revolution, industrialization progressed, and factories played a crucial role in production. This led to an increase in the quantity of goods produced, which, in turn, boosted trade and eventually introduced the concept of transportation as a specialized field. Over time, as needs changed, the necessary infrastructure for transportation evolved, diversifying the types of transportation available. The modernization of social life increased transportation mobility, leading to the development of transportation types suited to the social and economic structures of societies. In modern societies, transportation systems significantly impact both economic and social aspects, making them fundamental elements of development. The primary goals of transportation are to move people and goods as quickly, safely, and affordably as possible. Furthermore, the transportation sector, which is a key factor in the production process, requires substantial investments that are vital for national economies. Effective use of resources, along with the development of domestic and international trade, highlights the importance of transportation not only economically but also militarily, politically, socially, and culturally. It is the responsibility of the state to establish and regulate transportation systems that meet the needs arising from economic and social developments and serve public interests. During the industrialization and modernization process that began after the Industrial Revolution, railways became the most important transportation system.

2. DEVELOPMENT OF THE RAILWAY TRANSPORTATION IN THE WORLD

Since ancient times, people have created tracks made first of stone, then wood, iron, and steel, and used vehicles running over these tracks for transportation. During the Roman era, this type of transportation was typically carried out using vehicles pulled by people or animals over grooves similar to wagon wheels, which were either made of wood or carved out of Stones (Karabulut, 1993). In the 6th century BC, in Ancient Greece, horse-drawn carts and wagons moved along roads with specially dug channels to prevent them from veering off course during rainy weather (Wolmar, 2014).

First discovered in 1883 and more extensively explored in 1957 and 1958, the ship track known as Diolkos allowed ships to be transported overland from the Ionian Sea to the Aegean Sea without circumnavigating the Peloponnese Peninsula. This stone-paved road, which was 6 to 8.5 kilometers long and used until the 12th century, had wheel grooves with a track gauge of 1500 millimeters, a value very close to the modern standard rail gauge of 1435 millimeters (Werner, 1997).

In the Middle Ages, people mostly traveled on foot or by horse, and all forms of transportation and vehicles were used primarily for carrying goods (Bonnett, 2005). By the 14th century, Saxony had become an important tin and silver mining region, with mining activities peaking in the 16th century. This was achieved through the use of four-wheeled wagons called Hund, which were initially pulled by people and later by horses, operating on wooden tracks (Wolmar, 2014). Throughout the 17th and 18th centuries, stone or wooden beams on which horse-drawn wagons operated in quarries and mines, primarily coal mines, became insufficient as loading capacities increased. During the Industrial Revolution, to prevent wear caused by heavy loads, the idea of adding cast iron emerged. This idea was

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further developed, eventually leading to the use of iron rails that allowed for the first use of flanged wheels (Bonnett, 2005).

The beginning of the 19th century marked the onset of a new era in railway transportation with the invention of the locomotive. The discovery of the steam-powered locomotive increased the competitiveness of railways compared to roads and waterways. In 1804, the first locomotive, built by the British inventor and mining engineer Richard Trevithick, reached a speed of 8 km/h. The most significant advancement came in 1826 with the development of the locomotive known as Rocket, considered the first modern steam locomotive, by George Stephenson. This locomotive, first operated on the Liverpool-Manchester line in England, achieved an average speed of 48 km/h (Karabulut, 1993). In the 19th century, significant advancements in transportation infrastructure technology paved the way for major changes in the economic and social structures of countries. The importance of railway networks increased both as a means of transportation and as an industry, leading to expanded capital exports from Europe to the rest of the world (Coşar, Demirci, 2009).

Another significant change brought about by the railway was the standardization of national and international time measures to prevent confusion in train schedules. The railway's revolution in the perception of time and space eliminated people's dependence on their immediate surroundings, erasing the last remnants of feudalism. The development of railways paralleled the growth of capitalism, marking a transformative period in history (Wolmar, 2014).

3. DEVELOPMENT OF THE RAILWAY TRANSPORTATION IN TURKEY

Until the Industrial Revolution, transportation and logistics were primarily limited to military applications. However, with the advent of the Industrial Revolution, technological advancements in transportation began to influence other sectors such as industry, trade, and tourism. Transportation continues to be a crucial factor for the social, cultural, military, and economic development of countries, as it has been in the past (Saatçioğlu, 2016). Railways, which represent a significant milestone in modernization, hold special importance not only in terms of transportation but also in the history of civilization (Avcı, 2014).

In Turkey, transportation, which has played a significant role in social and economic development, took its first step with the introduction of railways. After the establishment of the Republic, railway development accelerated, connecting the country's major economic regions to a large extent. The development of railways in Turkey can be evaluated in two main periods: the Ottoman Empire era and the Republican era, each showing distinct characteristics in terms of construction and quality (Karabulut, 1993: 166).

3.1. Development of Railways in Turkey During the Ottoman Empire

From the Ottoman Empire period until the proclamation of the Republic in 1923, four main railway lines were constructed (Akgüngör et al., 2011):

- The Aegean Line, funded by British and French capital
- The Anatolian Line, funded by German capital
- The Eastern Line, constructed by Austria with Ottoman capital
- The Hejaz Line, funded by Ottoman capital

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With the signing of the Treaty of Balta Liman with England in 1838, monopoly practices were abolished, granting foreign merchants the right to free trade. The liberalized Ottoman economy became fully open to external debt and direct foreign investments. Following this change, the Ottoman Empire became an important supplier of raw materials for the West and a market where they could sell their manufactured goods. The introduction of railway investments into the Ottoman economy initially resulted from the expanded commercial relations following the trade agreement with England. Shortly thereafter, France and Germany also made railway investments, similar to England, to increase their dominance in the Ottoman economy (Coşar ve Demirci, 2009).

In 1839, with the Tanzimat Edict, the construction of railways was adopted, and the first railway line between Izmir and Aydın began in 1856. Until the Republican period, nearly all railway lines constructed in Turkey were built and operated by foreign concession-holding companies. The section of the Istanbul-Baghdad railway line between Istanbul and Izmit, and a short railway line in Hejaz, were constructed with national capital and by the state during this period (Karabulut, 1993).

Due to the state's poor economic conditions, it was unable to undertake further railway investments. Therefore, all other railway lines were constructed by granting concessions to foreign companies. These companies were provided with interest guarantees and mileage guarantees in return for their investments (Zarakolu, 1950). To incentivize railway construction, the state agreed to subsidize railway lines until the foreign companies investing in them could provide returns to their shareholders and bondholders. However, since many of the railways were built to create new markets or serve military purposes and were located in regions that could not generate economic returns quickly, the guaranteed returns placed a significant burden on the state treasury (Schoenberg, 1977).

The total investment for the Izmir-Aydin railway, which the British began constructing in Turkey in 1856, was $50,000,000. This amount represented approximately one-third of the investments made by England in Turkey during that period. The estimated financial burden of the Baghdad railway project, which was assigned to the Germans by an edict in 1902, was around $200,000,000 (L.D., 1915). The total capital invested in Ottoman railways before World War I is estimated to be 935,130,000 French francs. Of this capital, 90% was provided by foreign investors (41.6% from Germany, 34.3% from France, and 14.1% from England), and 10% was provided by the state. In terms of railway length, the state accounted for 28% (1,533 km), while concessionary companies accounted for 72% (3,920 km). Between 1900 and 1909, the state's guarantee payments to foreign companies were approximately 700,000-800,000 gold Turkish liras annually (Zarakolu, 1950).

3.2. Development of Railways in Turkey During the Period 1923-1950

After the establishment of the Republic of Turkey in 1923, the development of transportation infrastructure, particularly railway transportation, which was crucial for the state's industrialization and development policies, was given significant importance (Akgüngör, Demirel, 2004). The railways inherited from the Ottoman Empire to the Republic were notably inadequate both in terms of technical aspects and capacity. As of 1923, nearly half of the country lacked railways, and most of the railways owned and operated by foreigners were located in Western Anatolia, leaving the Central and Eastern Anatolian regions politically and economically isolated (Gordon, 1931).

Following the War of Independence, railways inherited from the Ottoman era and held by foreign companies were gradually nationalized. Conscious railway policies were pursued

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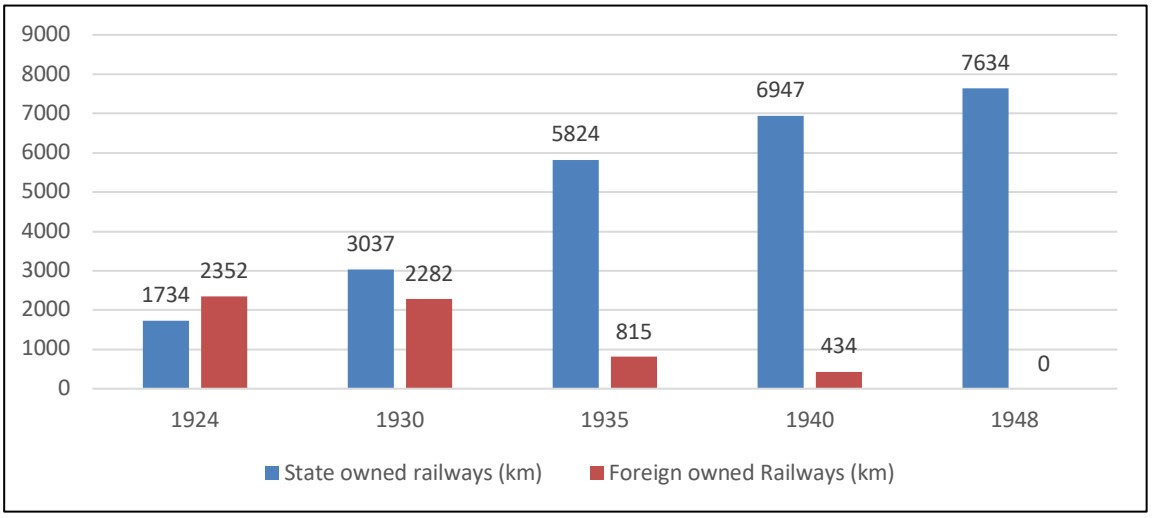
under the First and Second Five-Year Industrialization Plans of 1932 and 1936, aiming not only to ensure passenger transportation but also to transport heavy and bulky loads such as coal, iron-steel, and machinery—the essential inputs for industry—at minimal cost. Due to its demand-generating nature and its crucial role in industrialization, railway transportation experienced rapid development akin to a mobilization effort during the early years of the Republic (TMMOB MMO, 2019).

In 1923, 68% of Turkey's 3,716 kilometers of railway lines were owned by Germans, 11.5% by the British, 15.4% by the French, and 5.1% by other foreign investors or the state. Following the Great Depression of 1929, protective policies enabled less developed countries to establish their own national industries. During this period, Turkey pursued policies aimed at building its foundational national industries, resulting in accelerated railway construction. Alongside the construction of new lines, existing lines owned by foreigners were swiftly nationalized during this period (Coşar, Demirci, 2009). Between 1923 and 1950, approximately 3,600 kilometers of railway lines were constructed in Turkey, with total investments in railways reaching 485 million Turkish liras by 1949 (Zarakolu, 1950: 579).

The changes in the lengths of railway lines under foreign and state control over the years are depicted in Graphic 1, while the shares of transportation subsystems in freight and passenger transportation in 1950 are shown in Table 1.

Graphic 1: Railways Owned By The State And Foreign Corporations (1923-1950)



(Coşar, Demirci, 2009)

As demonstrated in Graphic 1, in 1924, shortly after the founding of the Republic of Turkey, a substantial portion of the railway network was under foreign control, surpassing the state-owned railways. The period between 1924 and 1935 saw an aggressive nationalization policy. By 1930, the state-owned railway length had almost doubled to 3,037 km, while foreign ownership slightly declined to 2,282 km. By 1935, state ownership had surged to 5,824 km, whereas foreign ownership had drastically reduced to 815 km. Between 1935 and 1940, the state continued to expand its control, with state-owned railways increasing to 6,947 km and foreign ownership dropping further to 434 km. By 1948, the Turkish state had achieved complete nationalization of the railway network, with all 7,634 km of railways under state control and zero kilometers under foreign ownership.

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Table 1: Shares of Transportation Subsystems in Freight and Passenger Transportation (1950)

	Freight (%)	Passenger (%)
Rail	55,1	42,2
Road	17,1	49,9
Maritime	27,8	7,5
Air	0	0,6

(TMMOB MMO, 2019)

Table 1 reveals the dominance of rail transport in the year 1950 for freight, with 55.1% of its services dedicated to transporting goods, reflecting the historical role of railways in transporting bulk goods over land. Despite its primary focus on freight, rail also allocated a significant portion to passenger transport, indicating its role in both cargo and passenger mobility.

3.3. Development of Railways in Turkey since 1950

After World War II, a transportation policy in Turkey allocated resources towards road construction rather than railways. One reason for this policy shift was Turkey's accession to the North Atlantic Treaty Organization (NATO), which facilitated access to modern American military equipment and necessitated the development of modern highways compatible with these technologies. The onset of a multi-party system with the election of the Democratic Party in 1950 marked the beginning of new road construction by governments, aligning political gains from infrastructure projects, especially in rural areas and among the peasantry, with military and economic development objectives (Szyliowicz, 2004).

Located strategically in a significant geography, Turkey played a crucial role in the policies pursued by the United States against the Soviet Union and communism following World War II, which aimed to establish a new capitalist world order. Turkey was supported within the frameworks of both the 1947 Truman Doctrine and the 1948 Marshall Plan (Coşar, Demirci, 2009).

On March 12, 1947, U.S. President Truman presented a declaration to Congress proposing support for free nations facing armed minorities or external pressures, but in essence aimed at creating allies against socialism through military and economic assistance. (Avşaroğlu, 2008). The Senate approved the legislation on April 22, 1947, by a vote of 67 to 23, and the House of Representatives followed suit on May 8, 1947, with a vote of 287 to 107. Signed into law by President Truman on May 22, the legislation provided $100 million in aid to Turkey, with $76 million designated for equipment and $24 million for associated expenses (Satterthwaite, 1972).

During this period, Hilts, Deputy Commissioner for Design at the Public Roads Administration, visited Turkey with a commission. In his report, he emphasized the importance of road transportation for the development of industry and the economy, stating that the necessary technical and financial support for road construction would be provided by the United States. He also opposed the establishment of a locomotive factory that was under consideration. In the 1950s, especially following Marshall Plan aid, the strategic importance of road construction increased, and transportation investments became more focused on

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highways (TMMOB MMO, 2019). Under the Marshall Plan, the United States provided Turkey with a total of $452.8 million in financial support between July 1, 1948, and June 30, 1955. This amount included $195 million in loans and $347.8 million in grants. By the end of 1953, the total support provided by the U.S. for Turkey's highway program had reached $27.6 million, while during the same period, Turkey had invested $293 million of its own resources into its highways (Satterthwaite, 1972).

During this period, due to the policy recommendations and financial support from the United States, the focus on highway transportation increased, and there was no significant development in railway and maritime transportation. Although all post-1960 development plans envisioned investments, reorganizations, and modernization efforts in railways to meet the growing transportation demands of the industry, these plans were not implemented (DPT, 2011). As a result of transportation policies pursued according to the post-World War II conjuncture, railways were completely neglected between 1951 and 2003, with only 945 kilometers of railway constructed. Investment projects planned for implementation in the railways during 2003-2004 led to the construction of a total of 1,983 kilometers of railway between 2004 and 2018. As of 2018, the length of railway still under construction is 4,015 kilometers (T.C. Ulaştırma ve Altyapı Bakanlığı, 2018).

The total and average lengths of railway lines constructed in Turkey during different periods between 1856 and 2017 are shown in Table 2, and total length of railway lines for the years between 2018 and 2023 are shown in Table 3.

Table 2: Total and Average Lengths of Railway Lines in Turkey (1856-2017)

Period/Year	Mainline total (km)	Annual Line Construction Average(km)
Pre-Republic	4.112	62
1923-1950	3.764	139
1951-2003	945	18
2003-2017	1.649	117
Total conventional mainline as of 2017	9.023	(1923-2017) 96
Total high-speed train mainline as of 2017	1.213	(2009-2017) 134
Total mainline	12.608	(1923-2017) 90

(TMMOB MMO, 2019)

Table 3: Total Lengths of Railway Lines in Turkey (2018-2023)

Year	Conventional line (km)	Speed Line (km)	Total Line (km)
2018	11.527	1.213	12.740
2019	11.590	1.213	12.803
2020	11.590	1.213	12.803
2021	11.590	1.432	13.022
2022	11.668	1.460	13.128
2023	11.668	2.251	13.919

(TCDD, 2022; TCDD, 2023)

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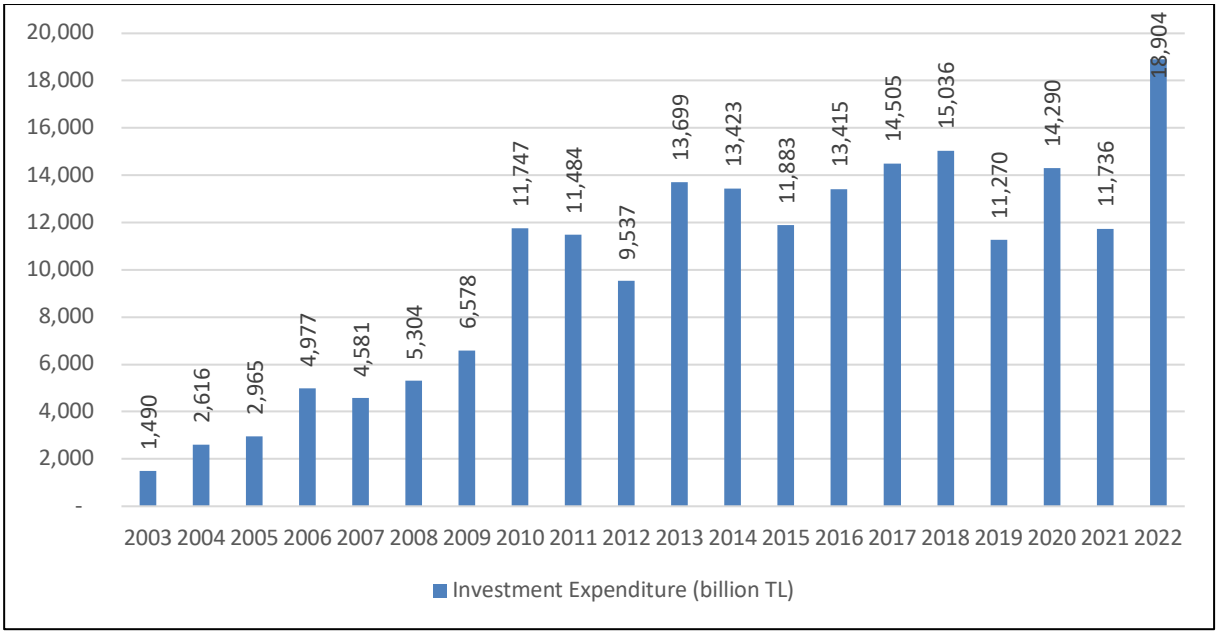
Graphic 2: Investment Expenditures Between 2003-2022 (Deflated to 2022)



(TCDD, 2023)

Graphic 2 demonstrates the annual investment expenditures between the years 2003-2022 deflated to 2022 prices. When Table 2, Table 3 and Graphic 2 are evaluated together, it can be seen that the most significant periods of growth were 1923-1950 and 2003-2017. Years between 2018-2023 constitutes a period, which has a notable focus on expanding speed lines, especially from 2021 onwards, there is a marked increase. The total mainline length has grown consistently over the years, reaching 13,919 km by 2023. This growth includes both conventional and high-speed lines, with a significant emphasis on the latter in recent years. While the conventional lines have seen incremental growth, the high-speed lines have seen more rapid expansion, especially in the last few years. This suggests a strategic shift towards enhancing high-speed rail capabilities. There is a clear upward trend in investment expenditure over the years, with some fluctuations. Despite the overall upward trend, there are periods of decrease or lower growth, such as in 2012, 2015, and 2019. The significant investments in recent years have been directed towards expanding the high-speed rail network. For example, from 2018 to 2023, high-speed rail lines increased notably, correlating with higher investment expenditures.

4. CONCLUSION

The development of railways followed an integrated process with the development of industrial capitalism that began to flourish in the 19th century. From this period onward, industrialized countries pursuing expansionist policies undertook large-scale railway investments in Europe and globally. Railway investments in Turkey were primarily and significantly carried out by countries such as England, France, and Germany. During the Ottoman Empire period, railway lines built with various guarantees and privileges granted to foreign capital did not contribute significantly to the country's economy in the short term but imposed a significant burden on the state treasury. Following the establishment of the Republic in 1923, nationalization of railways began from 1924 onwards. The period between 1923 and 1950 represented the golden age of Turkish railway history. In the post-World War

II era, the United States, under the capitalist framework, assumed leadership in shaping the new world order. In this context, changing international conjunctures led to radical changes in transport policy in Turkey, particularly towards road transport, which disrupted the development process of railways. However, investments in railways resurfaced in 2003. Between 2003 and 2017, an average of 117 kilometers of railways, including high-speed train lines, were constructed annually. Nevertheless, the current development of railways falls far short of the rapid and conscious development observed during the 1923-1950 period. The integrated planning of reliable transportation subsystems with modern technological equipment, capable of meeting increasing demands in a rational manner, holds economic, social, and military significance. Despite the strategic importance of railway transportation for Turkey, it has been neglected for a long time. However, recent policies focusing on railway transportation, especially with the development of high-speed train lines based on national resources, suggest that accelerating the development process of railways in Turkey is achievable with conscious and stable efforts.

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