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Railways of Galicia before the First World War

Streszczenie: Sieć kolejowa Galicji na terenie Austrii i Austro-Węgier powstała przed wybuchem I wojny światowej. Pierwsze projekty budowy kolei powstały w latach trzydziestych XIX w. Budowa pierwszych torów kolejowych rozpoczęła się pod koniec lat czterdziestych XIX w., a pierwsza linia kolejowa łącząca Galicję Zachodnią i Wschodnią została oddana do użytku w 1861 r. Przed wybuchem I wojny światowej sieć kolejowa Galicji liczyła ponad 4000 km. Budowę lokalnych szerokich i wąskich linii kolejowych rozpoczęto w tym samym czasie. Celem artykułu jest kompleksowe studium sieci kolei strategicznych i lokalnych od czasu ich budowy do wybuchu I wojny światowej, przedstawienie całościowego obrazu budowy kolei, ich wielkości transportowej i infrastruktury w Galicji w oparciu o nowe dane.

Słowa kluczowe: kolej, długość linii, gęstość sieci kolejowej, ruch towarowy, ruch pasażerski

Formulation of the problem. Galicia's rail network within Austria and Austria-Hungary was formed before the outbreak of the First World War. First railway construction projects were developed in 1830s. Construction of first rail tracks began in the late 1840s. The first railway connecting Western and Eastern Galicia was put into operation in 1861. Before the outbreak of the First World War, Galicia's rail network was over ,000 km long. At the same time, construction of local wide and narrow railways began. Providing a holistic picture of the construction of railways, their transportation volumes and infrastructure in Galicia on the basis of new data is still considered as an unsolved problem. Therefore, the **purpose** of the article is a comprehensive study of the network of strategic

and local railways from the time of railway construction projects to the outbreak of the First World War.

A comprehensive study of the establishment and development of railway networks in Galicia contains new, previously unpublished data, as well as elements of **scientific novelty**, especially in terms of economic interpretation of the materials received.

Historiography and source base. The basis of the study are statistical handbooks and yearbooks "Podręcznik Geografii Galicyi" (1904), "Podręcznik Statystyki Galicyi" (1901, 1904, 1908, 1913), "Rocznik Statystyki Galicyi" (1887, 1893, 1898), special editions directly related to development of railways ("Polskie Koleje Państwowe" 1918––1928, 1929; "Historia Polski w liczbach", 2006), scientific works by S. Kornman (1898), L. Wierzbicki (1907), J. Skwarczyński (1926) and the authors of the given article (2012, 2016).

Strategic railways of Galicia. The first railway construction project to connect Galicia with Vienna was created in 1830. It was preceded by the commissioning of the Liverpool-Manchester railway. The Rothschild Bank of Vienna seconded two experts to England to study technical and material features of railway construction. Their conclusions were so impressive for Austrian bankers that they decided to build railways in the monarchy.

Thus, the idea of building a railway from the eastern border of Austria (from Brody to Triest) was raised. Professor of mineralogy at the Vienna University of Technology, František Xaver Riepl (one of the specialists seconded to England), expressed the opinion that the section from Bochnia from Vienna should be the first section of the railway.

In 1836, prof. Riepl told about these plans. He also noted the benefits of the following innovations to the state and people: "It is impossible to assume that the government ignores the idea of the Rothschild Bank and does not begin the construction of a network of rail tracks in Austria in a few years, which would increase the welfare of the whole monarchy. The railway construction project should launch the building of the rail track from Stryi through Sambir to Lviv, and then through Przemyśl, Jarosław, Podgórze, Lipnik, Przyrów, Lundenburg, Vienna, Bruk, Ljubljana, Gorizia, Montfalcon to Triest"[1].

However, it took several years before the project partially worked. The reasons for this were, on the one hand, lack of confidence in the profitability of the venture, on the other hand, an uncertain political situation that provoked misunderstandings in financial issues[2].

The first railway in Galicia was built on the territory of the Grand Duchy of Kraków. The Kraków Senate concluded an agreement with the private company

[1] L. Wierzbicki, *Rozwój sieci kolei żelaznych w Galicyi od roku 1847 włącznie do roku 1890*, Lwów: Pierwsza Związkowa Drukarnia we Lwowie, 1907, s. 1–2.

[2] Ibidem, s. 2.

"Kraków-Górnośląska Railway" on building a railway from Kraków to *Mysłowice* (on the border with Prussia) with a branch to Szczakowa (on the border with Russia) to connect it with the Warsaw-Vienna Railway. The line was launched in 1847 and came under state control and ownership.

The following rail tracks on the territory of Galicia were laid in the interests of the monarchy. In 1852, the joint stock company "C. K. Privileged North Railway of the Emperor Ferdinand" began construction of rail tracks from Vienna to Trzebinia (to Bochnia salt mines) and from Kraków to Dębica with a branch to Wieliczka and Niepołomice, which were commissioned in 1856.

In 1857, the "C. K. Privileged North Railway of the Emperor Ferdinand" took the state-owned Oświęcim – Krakow railway with branches to *Mysłowice* and Szczakowa, and the Krakow – Dębica line with branches to Wieliczka and Niepołomice came under control of the newly established "Galician Railway of Archduke Charles Louis", that was given a concession for completing the railway section from Dębica to Rzeszów started by the "C. K. Privileged North Railway of the Emperor Ferdinand", as well as the sections from Rzeszów through Lviv to Brody (to the Russian border) and from Lviv to Chernivtsi. The Rzeszów – Lviv line was opened in several stages from 1855 to 1861. The financial crisis of 1857 delayed completing of the railway construction project from Lviv to Chernivtsi, which was given to another company that commissioned it in 1866. The lines from Lviv to Zolochiv and from Krasne to Brody were put into operation in 1869, and the line from Krasne to Volochysk – in 1871[3].

At the end of 1870, 885 km of rail tracks were built and put into operation in Galicia. 100,006.554 Zł were spent on this venture.

In 1870, the following results were achieved: 1,295,652 km of passenger transportations and 1,622,175 km of freight transportations were carried out, 694,708 tons-km of gross weight were transported. There were 843 thousand tons-km of gross weight per 100 km of rail tracks. In the same year, 1,146,788 passengers (1,393 people / km) were transported by railways. 1.128 km of rail tracks per 100 km^2 were laid on the territory of Galicia. The population of the region was 5,444,689 inhabitants, there were 1.627 km of rail tracks per 10 thousand people.

In 1870, the transportation of passengers and freight was carried out by 161 locomotives, 168 service cars, 299 passenger cars and 3,798 freight cars[4]. To maintain and re-equip them locomotive and carriage repair plants were built.

The main locomotive and carriage repair plant in Lviv with an area of 82,940 m^2 and 29,610 m^2 of production premises was built in 1861. The locomotive and carriage repair

[3] *Polskie Koleje Państwowe 1918–1928*, Ministerstwo Komunikacji, Warszawa 1929, s. 4–5.
[4] L. Wierzbicki, op. cit., s. 12–13.

plant in Nowy Sącz with an area of 105,350 m^2 and 31,600 m^2 of production premises was built in 1884. The main carriage repair plant in Tarnów with an area of 169,700 m^2 and 26,800 m^2 of production premises was built in 1914. The main locomotive and carriage repair plant in Stanisław with an area of 45,525 m^2 and 20,845 m^2 of production premises was built in 1866. The main plant in Przemyśl with an area of 32,870 m^2 and 7,750 m^2 of production premises was built in 1860, expanded in 1874 and 1910. The main plant in Stryi with an area of 38,765 m^2 and 12,225 m^2 of production premises was built in 1874, partially expanded in 1886[5].

Next stage in construction of railways in Galicia was related to the need for their strategic connection with the railways of Vienna. In 1872, the "First Hungarian-Galician Iron Railway" completed construction of the Przemyśl – Łupków line. In the same year, the "Dniester Railway" consortium launched the Khyriv – Stryi section with a branch to Boryslav without guarantees from the government. In 1876, as a result of the next financial crisis, the consortium transferred the railway to state ownership, which in turn transferred it to the "First Hungarian-Galician Iron Railway" with a condition of deduction of proceeds to the budget.

The line Tarnów – Nowy Sącz – Leluchów (on the Hungarian border) was launched in 1876. Its operation was carried out by the "First Hungarian-Galician Iron Railway" with a condition of deduction of proceeds to the budget. At the same time, the construction of a strategic line from Lviv to Beskid by the company "Railway of Archduke Albrecht's" began. The commissioning of this railway was carried out in several stages: section Lviv – Stryi in 1873; section Stryi – Stanisławów (out of turn, replacing section Stryi – Beskid) in 1875. Due to the difficult financial and economic situation in 1886, the company transferred the above mentioned sections to state ownership[6].

As of 1876, there were 7 railway companies (1,395.8 km) in Galicia[7]: the "C. K. Privileged North Railway of the Emperor Ferdinand", the "Galician Railway of Archduke Charles Louis", the "Railway Lviv-Chernivtsi-Iaşi", the "First Hungarian-Galician Iron Railway", the "Dniester Railway", the "Railway of Archduke Albrecht's", the "Railway Tarnowsko-Leluchowska". In 1878, the line from Bielsk to Żywiec was commissioned by the "C. K. Privileged North Railway of the Emperor Ferdinand".

The railways put into operation at that time did not play any role in economic development of the region, even though they had branches to raw material centers. Therefore, under pressure from the Polish Club at the Vienna Parliament, the government decided to

[5] *Polskie Koleje Państwowe*…, s. 93–95.

[6] Ibidem, s. 4–5.

[7] Podręcznik Geografii Galicyi: wydanie drugie [na nowo przejrzane i uzupełnione] (na podstawie prac monograficznych i urzędowych źródeł ułożył Lucyan Tatomir), Lwów: Nakładem Księgarni Seyfartha i Czajkowskiego, 1876. s. 106–107.

develop a rail network in the southern part of Galicia by creating a second trans-Galician line from the north-west to the south-east along the north-east edge of the Carpathians. The axial part of the railway shoul integrate the already the existing sections of Bielsk – Żywiec, Nowy Sącz – Stróże, Zagórze – Khyriv – Stryi – Stanisławów, under the name of "Galician Transversal Railway". The latter, in turn, sould be connected with the Hungarian Railways (Kosice-Bohumil area), on the one hand, and with the Northern Railway (Kraków – Oświęcim), on the other hand. In general, this railway was built during 1884–1885. The costs of its construction were rather high, because the line ran through different heights and plains of the Carpathian foothills[8].

At the end of 1880, there were 1,552.6 km of public railways in Galicia. The costs of their construction and commissioning were 176.1 million G. In the same year, 2,840,310 km of passenger transportations and 2,703,092 km of freight transportations were carried out; 2,620,289 passengers were transported; freight turnover was 1,532,540.6 thousand tons-km of gross weight; density per area unit was 987 thousand tons-km of gross per 1 km; density per capita was 1,688 people per 1 km; there were 1.977 km of railways per 100 km^2 of Galicia (78,507.89 km^2); there were 2.605 km of railways per 10 thousand inhabitants of the region (5,958,907 persons); the rolling stock serving Galicia's railways consisted of 319 locomotives; 286 conductor cars; 549 passenger cars; 7,806 freight cars[9].

During 1847–1895 the length of the railways increased by more than 2,760 km or 43.5 times (Tab. 1), while the population of the region for the corresponding period increased by only one half. As a result, the density of railways per area unit (km / 1000 km^2) increased by 43.5 times, the density per capita (km / 100 thousand people) – by 30 times and reached more than 17% of all Austrian railways. In the middle of the 19th century, one kilometer of railways was used for the needs of more than 72.6 thousand people, and at the end of the 20th century – for the needs of 2,462 people.

At the time of the first statistical reporting during the Austro-Hungarian period (1885), Galicia's railways maintained 691 locomotives, 1,186 passenger cars, 18,466 freight cars and 78 post cars (Tab. 2). There were 0.3 locomotives, 0.5 passenger cars, 8.2 freight cars, and 0.03 post cars per one kilometer of railways. At the same time, there were 3.27 km of railways per one locomotive, 1.9 km of railways per one passenger car, 0.12 km of railways per one freight car, and 29 km of railways per one post car.

In 1885, 6,413 thousand people were transported by railways, 82.3% were class III passengers and 5.5% were passengers travelling under military tariff. Only 11.2% were passengers travelling in cars of better comfort.

[8] *Polskie Koleje Państwowe*…, s. 4–5.
[9] L. Wierzbicki, op. cit., s. 36–37.

Table 1. Development of railways in 1847–1895[10]

Year	Area of the region, thousand km²	Population, people	Length of railways, km	Density			
				km/1000 km²	1 km per number of inhabitants	km/100 thousand people	% of Austria
1847	78,497	4734,427	65,188	0,83	72629	1,34	?
1850	78,497	4555,477	66,045	0,85	68033	1,47	?
1855	78,497	4597,470	66,045	0,85	68675	1,46	?
1860	78,497	4597,470	457,625	5,83	10046	9,95	?
1865	78,497	4597,470	555,824	7,08	8271	12,09	?
1870	78,497	5444,689	673,122	8,58	8087	12,36	?
1875	78,497	5444,689	1236,327	15,74	4404	22,71	?
1880	78,497	5058,007	1552,522	19,78	3834	26,08	13,76
1885	78,497	5058,007	2262,764	28,83	2633	37,97	17,20
1890	78,497	6607,816	2705,392	34,46	2442	40,95	17,67
1895	78,497	6954,110	2825,002	36,0	2462	40,62	17,14

Table 2. Rolling stock of railways and passenger transportation, 1885[11]

Name of the railway	Locomotives	Cars			Passenger transportation, thousand people				
		Passenger	Conductor	Post	I class	II class	III class	At military tariff	Total
C. K. Privileged North Railway of the Emperor Ferdinand	333	552	11010	27	45,1	420,7	2519,3	126,6	**3112**
Galician Railway of Archduke Charles Louis	170	300	3671	19	19,8	147,6	935,8	150,9	**1254**
Railway Lviv-Chernivtsi-Iaşi	67	95	1715	11	4,6	34,9	423,6	37,5	**501**

[10] Rocznik Statystyki Galicyi / [pod red. Dr T. Rutowskiego]. Lwów: Drukarnia i Litografia Pillera i Spółki, 1887, Rok I, s. 203; Rocznik Statystyki Galicyi (pod red. dr T. Rutowskiego), Lwów: Pierwsza Związkowa Drukarnia, 1893, Rok IV, s. 286; Rocznik Statystyki Galicyi (pod red. dr T. Rutowskiego), Lwów: Pierwsza Związkowa Drukarnia, 1898, Rok V, s. 273.

[11] Rocznik Statystyki Galicyi, 1887, s. 210–211.

First Hungarian-Galician Iron Railway	21	46	515	9	1,4	13,2	167,1	14,0	**196**
State railways	100	193	1555	12	5,4	85,3	1232,5	27,0	**1350**
Galicia	**691**	**1186**	**18466**	**78**	**76,3**	**701,7**	**5278,3**	**356**	**6413**

In 1885, four private and public railways transported most (by weight) grain (0.5 million tons), sugar (253 thousand tons), flour (237.5 thousand tons) and textiles (115.2 thousand tons); the minimum were coffee (8.8 thousand tons) and rice (10 thousand tons). Almost 60% of all crop production (sugar – 88%; vegetables – 83%) were transported by the "C. K. Privileged North Railway of the Emperor Ferdinand"[12].

Concerning livestock products, pigs (90.1 thousand tons) and cattle (85.8 thousand tons) were the most popular (Tab. 4). One half of this production, as well as of crop production, was transported by the "C. K. Privileged North Railway of the Emperor Ferdinand".

In total, nearly 1 million tons of timber and lumber were transported by rail during 1885. 3/4 of this production was roundwood. The situation was slightly different from the transportation of agricultural products – the percentage of "C. K. Privileged North Railway of the Emperor Ferdinand" decreased in terms of timber, while the export of bark and cork remained at the same level (75–90%). Given the geographical location of the "C. K. Privileged North Railway of the Emperor Ferdinand", this suggests that raw timber was used not outside the state, but in the foothills and mountains of the region.

Given the low level of processing industry in the region, no wonder that 60–80% of all industrial production was transported by the "C. K. Privileged North Railway of the Emperor Ferdinand". First of all, it concerned metal rolled products, paper, glass and glass products.

Galicia's minerals have always been №1 target among the exports of the region, no wonder that nearly 4 million tons of raw materials were exported in 1885, of which 70% was coal from the suburbs of Kraków (first of all, from Jaworzno and Szczakowa) and more than 12.5% were building materials. The "C. K. Privileged North Railway of the Emperor Ferdinand" kept occupying a leading position, transporting 87% of raw materials in total. The only exception was salt exported from the Eastern Galicia by the "Galician Railway of Archduke Charles Louis" (47.5%) and the "First Hungarian-Galician Iron Railway" (4.4%), the percentage of the "C. K. Privileged North Railway of the Emperor Ferdinand" in terms of salt transportation was 43.5%.

In total, 8,795 thousand tons of freight were transported through Galicia in 1885 (Fig. 1), 70% of which by the "C. K. Privileged North Railway of the Emperor Ferdi-

[12] Ibidem, s. 212–213.

nand"; 13.8% by the "Galician Railway of Archduke Charles Louis"; 7.3% by public railways; 5.6% by the "Railway Lviv-Chernivtsi-Iaşi". The least amount of freight was transported by the "First Hungarian-Galician Iron Railway" – only 297.5 thousand tons (3.3%).

During the last 15 years of the 19th century the following railway lines were built according to strategic plans of Austria-Hungary: Stryi – Beskid (1887); Rzeszów – Jasło (1890); Stanisław – Voronienka (1894); Ternopil – Pidvolochysk – Halych; Khodoriv – Pidwysokie (1894); Stryi – Khodoriv; Przeworsk – Rozwadów (1899). In the early 20th century (1903–1905), the Lviv – Sambir – Uzhok railway was put into operation, connecting Galicia and Hungary for the second time.

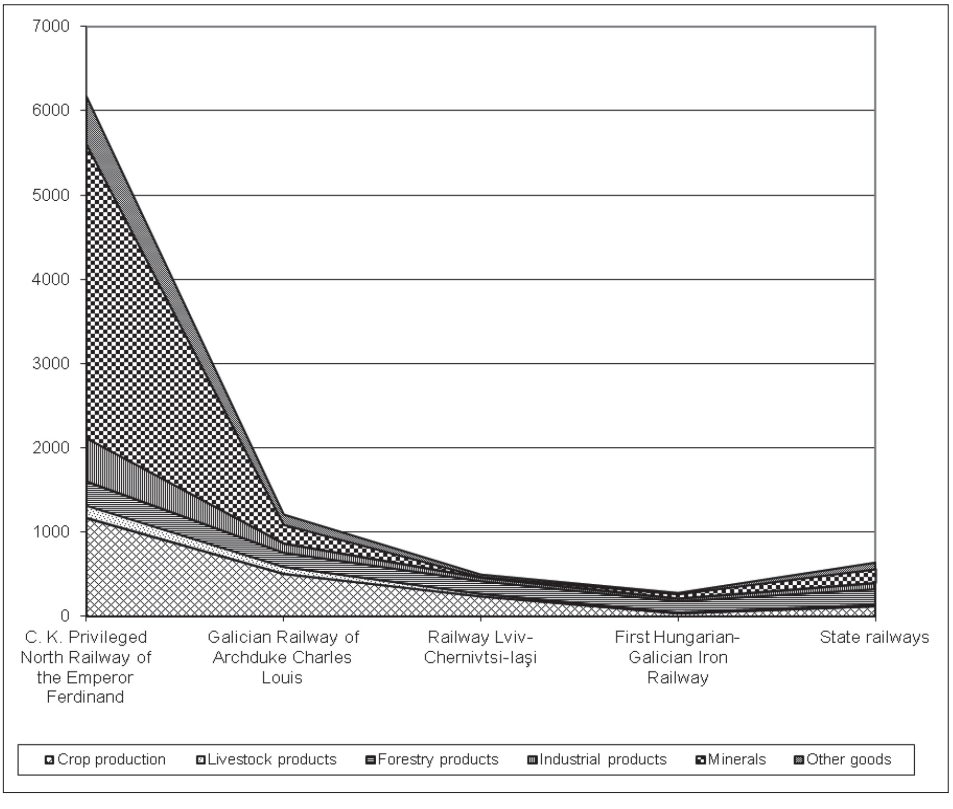

Fig. 1. Freight transportation by railways of Galicia (thousand tons), 1885.

At the end of the 19th – beginning of the 20th century, a number of railways were transferred or sold to state ownership: the Przemyśl – Łupków railway; the Lviv – Chernivtsi railway (1889); the lines of the "Galician Railway of Archduke Charles

Louis" (1892); the lines of the "C. K. Privileged North Railway of the Emperor Ferdinand" (1906)[13].

At the same time, the construction of secondary and local lines began in addition to the construction of strategic railways. First local rail tracks were launched under the participation of the Galicia's oldest railway companies. At the initiative of the "Galician Railway of Archduke Charles Louis", the Jarosław – Sokal and Dębica – Rozwadów lines were built and commissioned in 1884 and 1887, respectively, Kolomyia local railway (1886), as well as the Lviv – Belzec (1887) line were put into operation at the initiative of the "Railway Lviv-Chernivtsi-Iaşi". The "C. K. Privileged North Railway of the Emperor Ferdinand" launched the Bielsk – Kalwaria line in 1888.

Mass building of local railways began with the adoption of the law by the Diet of Galicia and Lodomeria in 1893. It was fundamental to establish compulsory financing for construction, building and maintenance of local rail tracks through the regional budget, taking into account general interests of the region. Alternatively, a proposal for a consolidated construction budget was made. This budget should including both state and local funds, at least 1/3 of the total costs. At the end of the law, the Diet of Galicia and Lodomeria and local authorities were granted the right to control the construction of railways. For this purpose, a special "Regional Railway Bureau" was created at the regional administration.

At the same time, the Diet of Galicia and Lodomeria created a Regional Railway Foundation for construction of railways. The Foundation should get from the regional administration the following sums for 75 years: since 1894 – 600 thousand crowns annually; since 1899 – 750 thousand crowns annually; since 1908 900 – thousand crowns annually. In addition to these grants, the Foundation should accumulate: a cash reserves rate; reimbursement of advances provided under state guarantees; dividends and super-dividends on shares held by the state; capital derived from the amortization of these shares, etc. Having got certain funds and a special bureau, the regional administration started active work on the construction of a number of new directions. During 15 years, 17 railway lines with a total length of 888 km were built.

The Austrian government also facilitated the development of local railways. On December 31, 1894 and September 8, 1910, laws on lower-level railways were adopted. They provided granting of tax benefits to construction and operating companies for 25 years since the commissioning of railways, and those who invested more than 70% of the share capital – prolongation of benefits up to full use of rail tracks. The concession for local railway construction was granted for 90 years, after that rail tracks should be transferred to state ownership along with real estate and rolling stock.

[13] *Polskie Koleje Państwowe*…, s. 4–5.

Galicia provided granting for 10 railways, the Austrian government – for 6 more railways; others were eligible for loans from the State Directorate of Railways[14].

In general, it can be argued that about 950 km of railways were commissioned in Galicia thanks to the regional administration, on the basis of the law of 1893 adopted by the Diet of Galicia and Lodomeria, under the participation of the state and local authorities between 1898 and 1912: Eastern Galician Local Railways; Borki Wielkie – Hrymailiv; Łupków – Cisna (narrow-gauge line); Kraków – Koćmierzów, Siersza – Trzebinia – – Skawce; Deliatyn – Kolomyia – Stefanivka; Saw – Jaworzno; Lviv – Yavoriv; Chabówka – Zakopane (with the branch of Nowy Sącz – Sucha Góra); Przeworsk – Dynów; Ternopil – Zbarazh; Tarnów – Szczucin – Lviv – Pidhaitsi; Lviv – Stoyaniv; Muszyna – Krynica; Drohobych – Truskavets. All these railways were transferred to state ownership[15].

As the network of railways in Galicia was almost completed, continuous construction of the second track began on each section of the railroad, where it was allowed by natural and technical conditions. At the end of 1880, there were 39.1 km of double-track railways in Galicia. They were put into operation in the following order: from Kraków to Zabierżów – on March 1, 1878; from Zabierżów to Trzebinia – on September 21, 1878.

Development of construction of double-track railways in Galicia took place from 1885 to 1891, primarily on the following sections: Dziedzice – Oświęcim, Oświęcim – Podgórze, Nowy Sącz – Stróże, Łupków – Khyriv – Przemyśl, Kraków – Przemyśl – Lviv. At the end of 1891, there were already 642.1 km of double-track railways in the region.

In order to increase the efficiency of the "First Hungarian-Galician Iron Railway", the General Directorate of Austrian State Railways took out a significant loan for the increase of rolling stock, construction and maintenance of railway stations, construction of the second track on the Przemyśl – Łupków line. The implementation of this project was carried out by the General Directorate of Austrian State Railways on the basis of permission of the Ministry of Trade. Only the Khyriv – Zagórze branch, which was shared by the "First Hungarian-Galician Iron Railway" and the "Galician Transversal Railway", was given to the "Galician Transversal Railway" for improvement.

The nationalization of the "First Hungarian-Galician Iron Railway", which had happened for a long time, became a complete fact when the second rail track was put into operation. At the time of nationalization of private railway ownership, the company had to prepare all the documents, so that the government could carry out administrative measures and calculations quickly and flawlessly. On the basis of the agreements concluded on December 20 and 23, 1888, the governments of Hungary and Austria undertook to pay the

[14] Ibidem, s. 22–23.
[15] Ibidem, s. 5–6.

amount of the concession act on Galicia's railways and thus to guarantee repayment of the funds needed to repay the value of the shares and the interest rate. Each government had to carry out the transportation on its own[16].

The Hungarian government took over a railway section located in Hungary and the obligation to pay full amount necessary to repay the value of the shares and dividends according to the timing of payment. He also had to repay his share of the contract for sale of the whole line. If, on January 1, 1889, when transportation on the line located in Galicia and Hungary should be launched, the approval of the authorities would not take place, transportation on these lines would be carried out on the basis of the Sequestration Law at the expense of the "First Hungarian-Galician Iron Railway".

On January 1, 1889, the General Directorate of Austrian State Railways started operating on all lines of the "First Hungarian-Galician Iron Railway" located in Galicia.

On May 20, 1889, the Ministry of Trade informed the "Railway Lviv-Chernivtsi-Iaşi" that, for economic, political and administrative reasons, it had finally decided to independently operate the railway line located within Austria on the basis of the Sequestration Law of December 14, 1877.

Thus, in 1889, the government consolidated control of all the rail tracks in Galicia. The only exceptions were lines belonging to the "Galician Railway of Archduke Charles Louis" within the western part of the region. On the lines of the "First Hungarian-Galician Iron Railway" and the "Railway Lviv-Chernivtsi-Iaşi" transportation was carried out at the expense of the companies that built them, on all other lines – through public spending. At the same time, the state also financed local railways, which until then were operated by the Chernivtsi railway[17].

By the end of the 1880s, Galicia had 2,815.2 km of main railways in total, with 256.3 million G spent from all sources of funding.

More than 5 million km of passenger transportations and over 5 million km of freight transportations were carried out on main railway arteries annually. Their total capacity was 2,572.2 million ton-km of gross weight or 1,137.7 thousand ton-km of gross per 1 km of railways. In 1890, 4.18 million passengers were transported on all lines (1,847 people per 1 km of railways)[18].

At the end of 1890, there were 2,707.7 km of railways, including 2,315.2 km main and 392.5 km local ones. In 1890, taking into account the railways of all forms of ownership and administrative subordination, the following total rates of railway transport activity in Galicia were recorded: the cost of construction was 270.15 million G; 5.4 million km of passenger and 5.66 million km of freight were transported; freight transportation

[16] L. Wierzbicki, op. cit., s. 51.
[17] Ibidem, s. 52–53.
[18] Ibidem, s. 54.

was 2,644 million ton-km of gross (or 966.5 thousand tons-km of gross per 1 km of railways); 4.5 million passengers (1,701 people per 1 km of railways) were transported, there were 474 locomotives, 367 conductor cars, 812 passenger cars and 9,659 freight cars; there were 3.379 km of rail tracks per 100 km^2 of Galicia's territory; there were 4.116 km of railways per 10 thousand people; there were 0.17 locomotives and 4.0 cars of different purposes per 1 km of railways[19].

During five years (1885–1890), the rolling stock of Galicia's railways (Tab. 3) increased by one third: locomotives – by 32.7% (from 691 to 917 units); passenger cars – by 30% (from 1,186 to 1,545 units); freight cars – by 26.9% (from 18,466 to 23,426 units); post cars – by 76.9% (from 78 to 138 units). At the same time, the number of passengers transported by railways increased from 6,413 to 10,824.5 thousand people (by 68.8%), 84.7% were class III passengers.

Table 3. Rolling stock of railways and passenger transportation, 1890[20]

Name of the railway	Locomotives	Cars			Passenger transportation, thousand people				
		Passenger	Conductor	Post	I class	II class	III class	At military tariff	Total
C. K. Privileged North Railway of the Emperor Ferdinand	436	719	13824	69	66,6	764,4	4777,5	161,3	**5769,8**
Galician Railway of Archduke Charles Louis	174	345	3579	19	21,9	141,9	1119,9	152,2	**1435,9**
State railways	307	481	6023	50	18,5	272,8	3274,5	153,0	**3618,8**
Galicia	**917**	**1545**	**23426**	**138**	**107**	**1179,1**	**9171,9**	**466,5**	**10824,5**

During the corresponding period, the volume of grain and vegetables transportation remained almost constant, and the volume of cotton and knitwear transportation decreased. The volume of transportation of other goods increased by 15–30%. The largest increase was recorded for transportation of coffee (by three times), sugar and rice (by one half)[21].

[19] Ibidem, s. 54–55.

[20] Ibidem, s. 292.

[21] Rocznik Statystyki Galicyi (pod red. dr. T. Rutowskiego), Lwów: Pierwsza Związkowa Drukarnia, 1893, Rok IV, s. 296–297.

In 1890, the volume of transportation of livestock products increased significantly in contrast to crop production. First of all, transportation of cattle, sheep and goats increased twice and transportation of pigs – by 11 times. On the other hand, there was a decrease of horse transportation (from 7.8 to 5.1 thousand tons or by 53%), as well as of butter, cheese and lard transportation (by 34%).

Since 1885, the volume of transportation of forestry goods – round timber and firewood – has doubled. State railways, which sustained control over all rail tracks except for those that belonged to the "C. K. Privileged North Railway of the Emperor Ferdinand" and the "Galician Railway of Archduke Charles Louis", maintained leading positions in the transportation of these goods. The total volume of timber exported increased from 926.2 to 1,660.4 thousand tons or by 79%.

During 1885–1890, the volume of transportation of crude oil and petroleum products decreased by 2.5 times, while the volume of transportation of forged products decreased by 10%. Transportation of other types of industrial products grew by 10–30%.

Raw materials kept having most percentage of Galicia's rail transportation. During 1885–1890, the total weight of the minerals transported by railway increased from 3,942 to 5,953 thousand tons (except for salt) or by one half. First of all, it concerned coal and building materials.

As a result, the volume of goods transported by rail increased 1.6 times – from 8,918 to 14,336.2 thousand tons in five years. The "C. K. Privileged North Railway of the Emperor Ferdinand" still had the highest percentage in terms of goods transportation (66.4%). 41.5% of the goods were minerals (oil, coal, building materials), crop production – 16.1, livestock products – 9.5, forestry products – 11.6, industrial products – 6.5%, other goods – 14.8% (Fig. 2).

By the end of 1890, since all the rail lines in Galicia came to state ownership or were under control of the government, the first conclusions could be drawn. This period began with the construction of the line from Kraków to *Mysłowice*, launched on October 13, 1847, and completed with the nationalization of the "Galician Railway of Archduke Charles Louis" on January 1, 1892.

During the last decade of the 19th century, the Diet of Galicia and Lodomeria made a number of positive decisions to expand the medium-length rail network, which was extremely important for economic and social development of the peripheral part of the region. At that time, the government started construction of the first and second class single-track railways: Stanisław – Deliatyn – Körösmező; Lviv – Sambir – Sanok – Uzhok; Stryi – Khodoriv – Pidwysokie – Ternopil; Halych – Pidwysokie et al.[22]

[22] L. Wierzbicki, op. cit., s. 66–71.

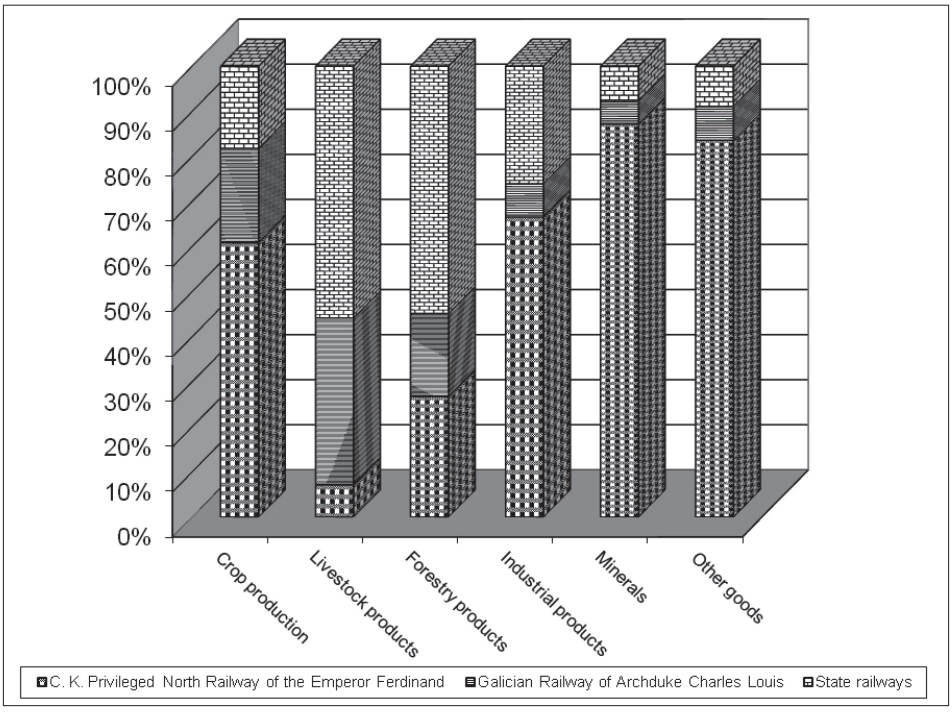

Fig. 2. Freight transportation by railways of Galicia (%), 1890.

On the basis of the law of November 25, 1891, all Galicia's railways became state-owned and since January 1, 1892 subordinated to the State Enterprise "Galician Railway". At the same time, the government, represented by the General Directorate of Austrian State Railways, took possession of all railways, except for the "Galician Railway of Archduke Charles Louis". There were two regional directorates of railways in Galicia – in Lviv and Kraków. As mentioned above, the main railway lines in Galicia were both state-owned (Fig. 3) and private with a total length of 2,723.27 km. The "C. K. Privileged North Railway of the Emperor Ferdinand" was a private railway company, with a total railway lines length of more than 201 km. State railways were managed by the state through the Lviv and Kraków Directorates of State Railways that controlled railway lines of a length of 1,439.363 km and 1,082.862 km, respectively.

In 1894–1895, the length of the railways in Galicia was 2,795.089 km or 3.56 km / / 100 km^2 or 42.3 km per 100 thousand people[23]. Thus, in five years, the length of Galicia's railways increased by 71 km (3%).

[23] S. Kornman, Mapy Galicyi i Bukowiny: Dodatek statystyczny, S. Kornman, Lwów: Nakładem księgarni H. Altenberga, 1898, s. 42.

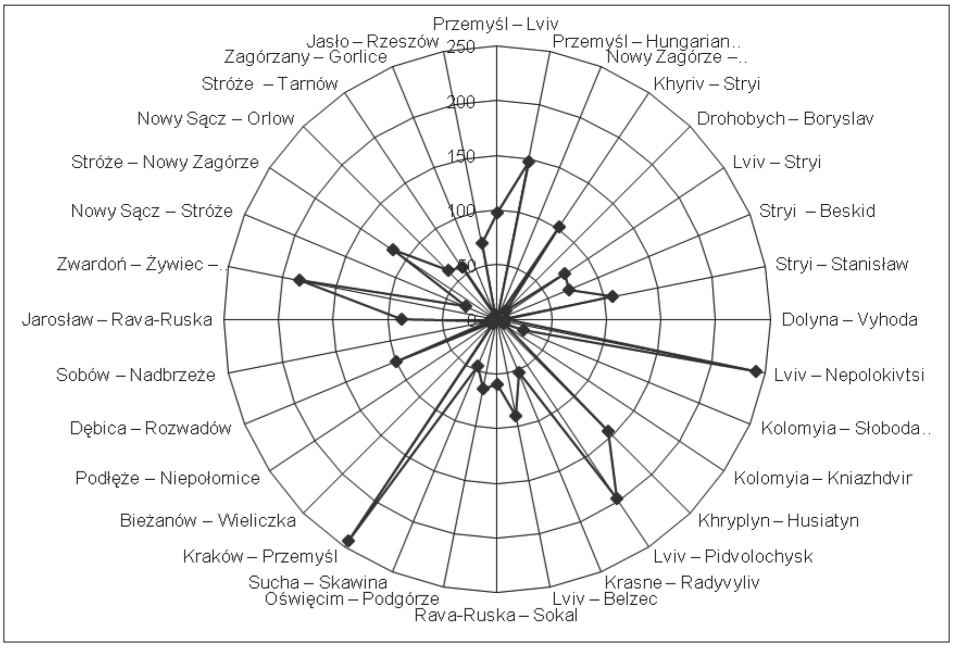

Fig. 3. Length of railways in Galicia, 1892.

By the end of the 19th century, the length Galicia's railways increased to 3,581 km or by 2.3 times compared to 1879. Since the last quarter of the 19th century, there was 1 km of railways per 22.5 km^2 of the total area and 1,897 inhabitants of the region. In 1879, these figures were 50.6 km^2 and 3,506 people, respectively (Tab. 4). The percentage of Galicia within Austria also increased. In 1879, the railways of the region made 13.69% of all railways. In 1899, this rate reached 18.5%. The increase in the length of the railways in Galicia was second only to Bukovina, and in absolute figures to Czechia (Figs. 4–5). At the same time, the density of railways was still rather mediocre – in terms of the number of inhabitants the region occupied the 12th place of 14 Austrian provinces.

Table 4. Density of Austrian railways

Province of Austria	1 km of railways:			
	per 1 km^2		per capita	
	1879	1899	1879	1899
Upper Austria	19,25	13,41	1182	879
Lower Austria	16,00	10,43	1607	1401
Bukovina	89,21	21,51	4382	1330

Galicia	50,56	22,54	3506	1897
Dalmatia	121,99	81,85	4857	4186
Salzburg	34,79	18,77	744	455
Carinthia	24,82	21,65	808	757
Carniola	37,42	22,94	1747	1150
Moravia	23,25	12,07	2110	1237
Silesia	17,25	8,95	1720	1053
Tyrol	50,75	33,94	1533	1076
Vorarlberg	29,20	24,97	2195	2180
Czechia	13,96	9,07	1382	1020
Styria	22,57	16,99	1144	972
Austria	26,45	15,94	1797	1269

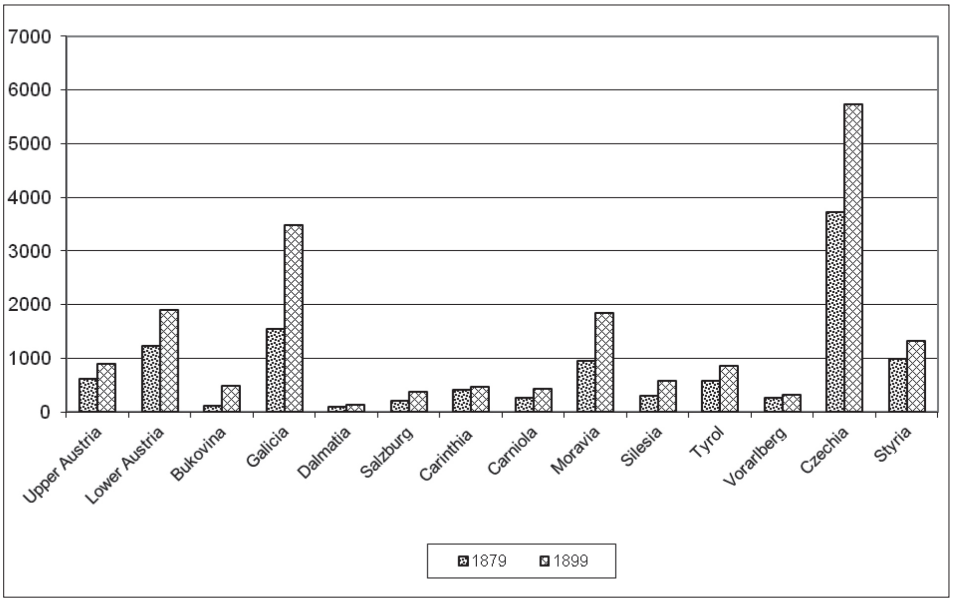

Fig. 4. Dynamics of Austrian railways in 1879–1899.

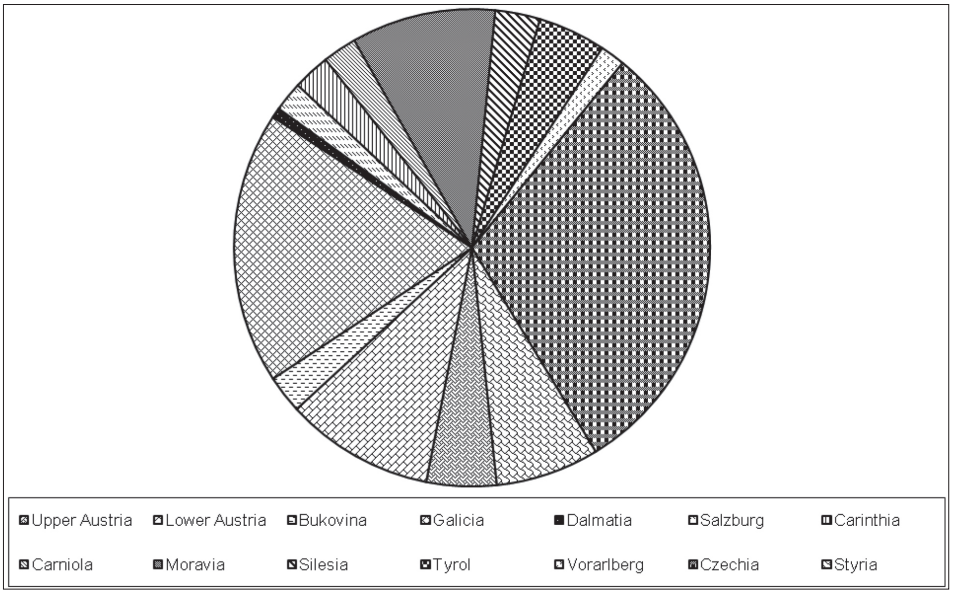

Fig. 5. Structure of Austrian railways by provinces, 1899.

At the end of the 19th century, the density of Galicia's railways was 44 km / / 1000 km^2 (9th place of 14 Austrian provinces). There were 52.7 km railway lines (12th place) per 100 thousand people (Tab. 5).

Table 5. Length and density of Galicia's railways compared to Austrian railways, 1900[24]

Province of Austria	Area of the region, km^2	Population, people	Length of railways, km	Density				
				km/km^2	m/km^2	1 km per number of inhabitants	km/100 thousand people	% of Austria
Upper Austria	11985,41	785831	894,244	13,40	75	879	113,796	4,75
Lower Austria	19823,11	2661799	1899,584	10,44	96	1401	71,365	10,09
Bukovina	10451,61	646591	486,342	21,49	47	1329	75,216	2,58
Galicia	78496,99	6607816	3483,256	22,54	44	1897	52,714	18,50
Dalmatia	12882,57	527426	125,982	101,86	10	4187	23,886	0,67
Salzburg	7152,19	173510	381,153	18,76	53	455	219,672	2,03
Carinthia	10327,71	361008	476,761	21,66	46	757	132,064	2,53
Carniola	9955,84	498958	434,044	22,94	44	1150	86,990	2,31

[24] Podręcznik Statystyki Galicyi, 1901, s. 236.

Moravia	22221–90	2276870	1841,167	12,07	83	1237	80,864	9,78
Silesia	5146,85	605649	575,151	9,95	112	1053	94,964	3,06
Tyrol	29288,22	928769	862,878	38,94	29	1076	92,906	4,58
Vorarlberg	7966,04	695384	318,484	25,01	40	2183	45,800	1,69
Czechia	51948,17	5843094	5727,339	9,07	110	1020	98,019	30,42
Styria	22427,77	1282708	1319,612	17,00	59	972	102,877	7,01
Austria	**300024,38**	**23895413**	**18825,997**	**15,94**	**63**	**1269**	**78,785**	**100,0**

In addition, 15 more sections were studied for the construction of the following railway lines: Gorlice – Konieczna (44 km, preliminary cost – 1.9 million Zł). Jasło – Żmigród – Konieczna (56 km, preliminary cost – 2.88 million Zł); Przybówka – Dukla (34 km, preliminary cost – 1.5 million Zł); Przeworsk – Dynów (44 km, preliminary cost – 2 million Zł); Rzeszów – Dynów – Rymanów (99 km, preliminary cost – 2 million Zł); Chortkiv – Zalishchyky (54 km). As of 1898, the length and preliminary cost were not determined for 9 railway lines: Tymbark (Dobra) – Swoszowice – Wieliczka (Kraków); Tarnów – Pilzno – Bżostek – Jasło – Bardów; Lviv – Vynnyky; Boryslav – Stebnyk – Skhidnytsia; Przeworsk – Bachóż; Rozwadów – Leżajsk – Jarosław; Yaniv – Yavoriv; Ustrzyki Dolne – Hungarian border; Stryi – Khodoriv[25].

At the beginning of the 20th century, Galician railways were mostly part of the European rail network, which was a connecting element between west and south-east Europe. Main European railroads passed through Galicia, connecting Kraków with Radyvyliv and Pidvolochysk in the north and with Novoselytsia in the south. International railways connected Berlin with Constanța, St. Petersburg and Odessa with Italy and France. Along with passenger and freight transportation, Galicia's railways played an important role in the geopolitical and strategic military plan, which was clearly reflected in the events of the First World War.

At the beginning of the 20th century, there were 50 different railways in Galicia (Fig. 6) with a total length of over 3,915 km. The longest one was the "Galician Transversal Railway" (almost 750 km), connecting Zwardoń on the western borders of Galicia and Husiatyn on the eastern borders of the region.

[25] Ibidem, s. 52.

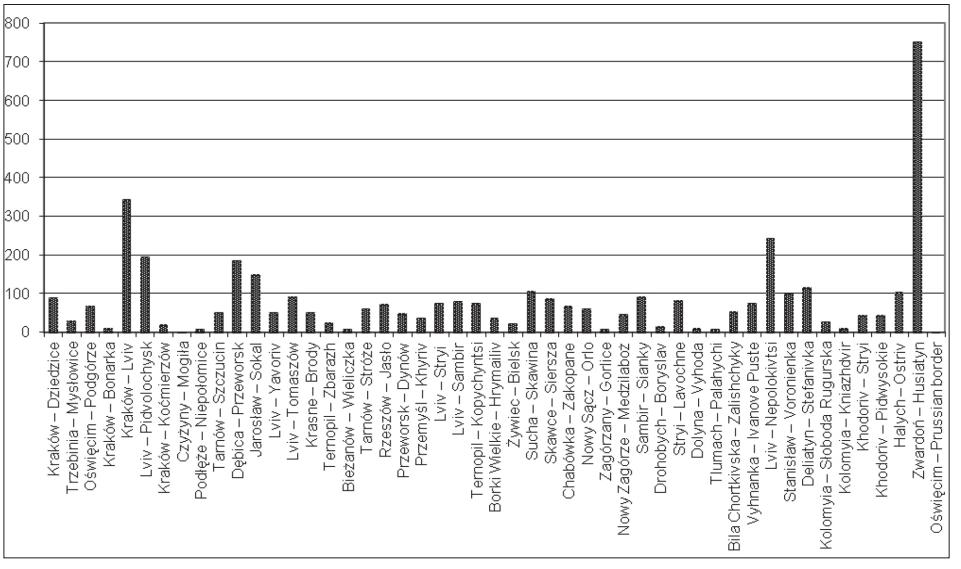

Fig. 6. Railways of Galicia, 1905.

During 1897–1906, the dynamics of railway length growth was 24% in Austria, and more than 26.5% in Galicia[26]. In absolute terms, the largest increase was recorded in Czechia (1,338 km) and Galicia (819 km), the smallest one – in Carniola (50 km) and Silesia (52 km) (Fig. 7). In percentages, the highest growth was recorded in Dalmatia (82.54%) and Bukovina (51.99%), the lowest one – in Silesia (9.45%) and Styria (10.12%). Galicia held the lead in the construction of the railways, even though a large part of the region was located in inaccessible and deserted mountains (Fig. 8).

During 1897–1906 (Tab. 6), the length of the railways increased by a quarter, there was 1 km of railways per 1,876 people, which was 14% less. That demonstrates a better provision of the population of the region with rail network. In terms of the length of railways, Galicia ranked second (after Czechia) of 14 Austrian provinces. In terms of the density per area unit, Galicia occupied the 11th place. In terms of the density per capita, Galicia ranked 13th of 14 Austrian provinces. In general, the percentage of Galicia in terms of the length of railways increased from 17.7% to 18.06% during the corresponding period.

[26] Ibidem, s. 51.

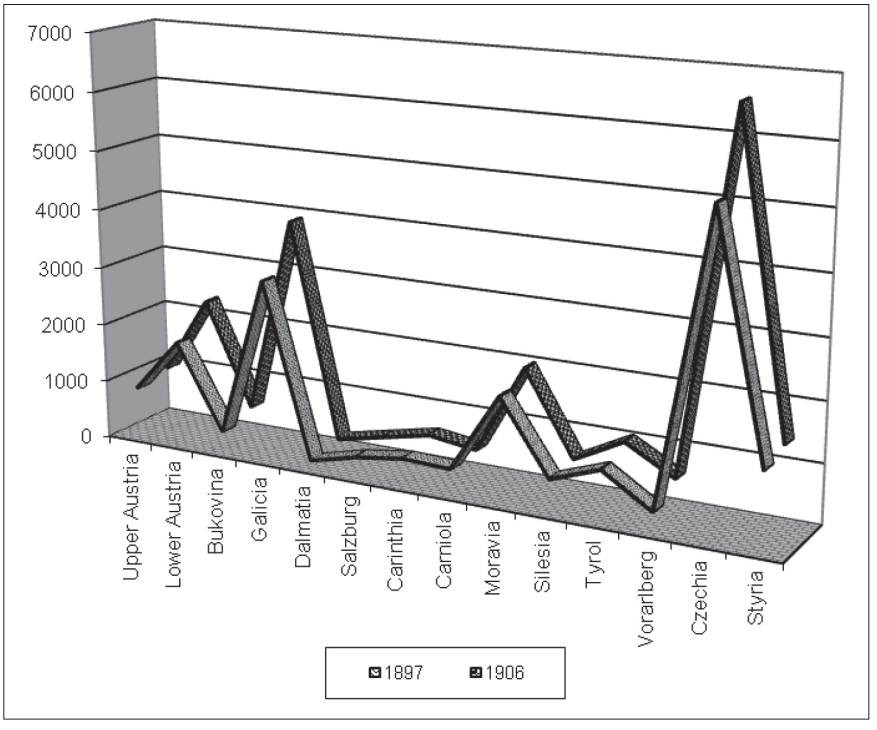

Fig. 7. Dynamics of Austrian railways in 1897–1906.

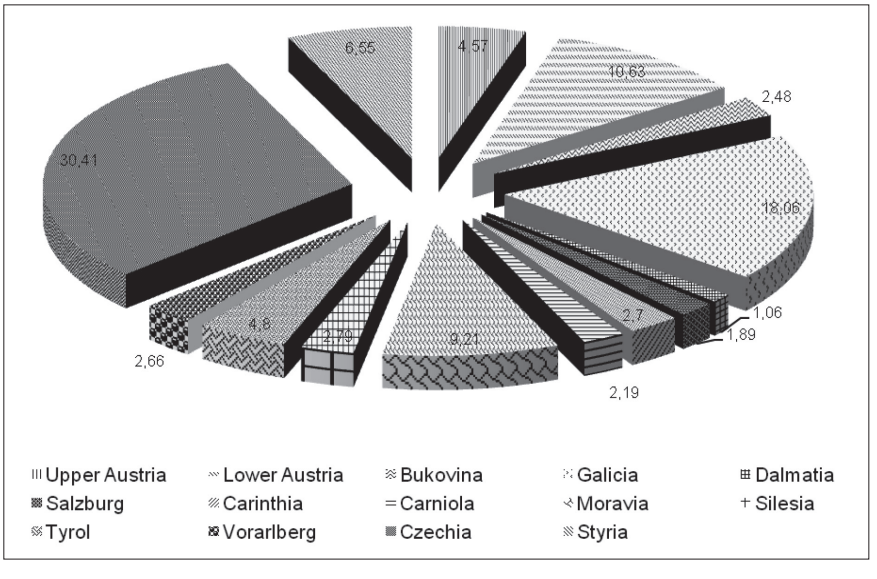

Fig. 8. Structure of Austrian railways by provinces, 1906.

Table 6. Density of Austrian railways, 1897–1906[27]

Province of Austria	There are 1 km of railways:			
	1 km²		On the inhabitants	
	1897	**1906**	**1897**	**1906**
Upper Austria	13,87	12,14	909	821
Lower Austria	11,07	8,64	1487	1351
Bukovina	29,73	19,54	1839	1365
Galicia	25,47	20,12	2144	1876
Dalmatia	101,86	55,72	4187	2578
Salzburg	21,76	17,54	528	473
Carinthia	23,07	17,72	806	630
Carniola	23,57	21,08	1181	1076
Moravia	12,56	11,17	1287	1225
Silesia	9,36	8,55	110	1130
Tyrol	34,37	28,23	1090	947
Vorarlberg	25,01	13,87	2183	1318
Czechia	9,94	7,91	1118	962
Styria	17,47	15,86	999	959
Austria	**17,23**	**13,89**	**1372**	**1211**

By 1910, the length of railways was 3,900 km, it was 1,216.659 km more than in 1895 (2,795 km), the density of railways per area unit increased from 3.56 to 6.86 km / / 100 km² or by 193% and the density per 100 thousand inhabitants – from 42.3 to 95.2 km (by 225%)[28]. The construction of 19 rail tracks during this period contributed to the development of industry and agriculture, exports of forestry products and minerals. In 1906–1914, only three lines were built in Galicia: Lviv – Pidhaitsi (1909), Lviv – – Stoyaniv (1910), and Drohobych – Truskavets (1912)[29].

During 1905–1910, the length of railways in Galicia increased by only 227.3 km. No wonder that two figures are given, as government statistics and railway reports provided different data. The government statistics did not take into account the length of the dead-end lines, moving arrows, turning circles, etc., so they are not true. It concerns the lines Oświęcim – Podgórze (with a difference of +263 m) and Tlumach – Palahychi (with a difference of -304 m). At the same time, Lviv – Stoyaniv (85.15 km), Lviv – Pidhaitsi

[27] Podręcznik Statystyki Galicyi, 1908, s. 238.

[28] Ibidem, s. 47–49.

[29] V.M. Klapchuk, *Railways of Galicia*, „The Bulletin of the Precarpathian University. History", Ivano-Frankivsk 2012. Vol. 22. pp. 10–21.

(131.132 km) and Muszyna – Krynica (11.096 km) railways were built during the corresponding period.

At the beginning of the 20th century, the network of standard railways in Austria remained practically unchanged and was over 21,000 km long (Fig. 9). The longest rail network was in Czechia (6,466 km), which was of exceptional geopolitical importance for Europe. Galicia ranked second (3,830 km). The least amount of railways was in Dalmatia (230 km) and Salzburg (408 km) (Tab. 7). The highest density per area unit was in Czechia and Silesia (12 km / 100 km^2), and the highest density per capita was in Salzburg (212 km / 100 thousand people) and Carinthia. On these indicators, Galicia ranked 9th and 13th of 14 provinces of the monarchy[30].

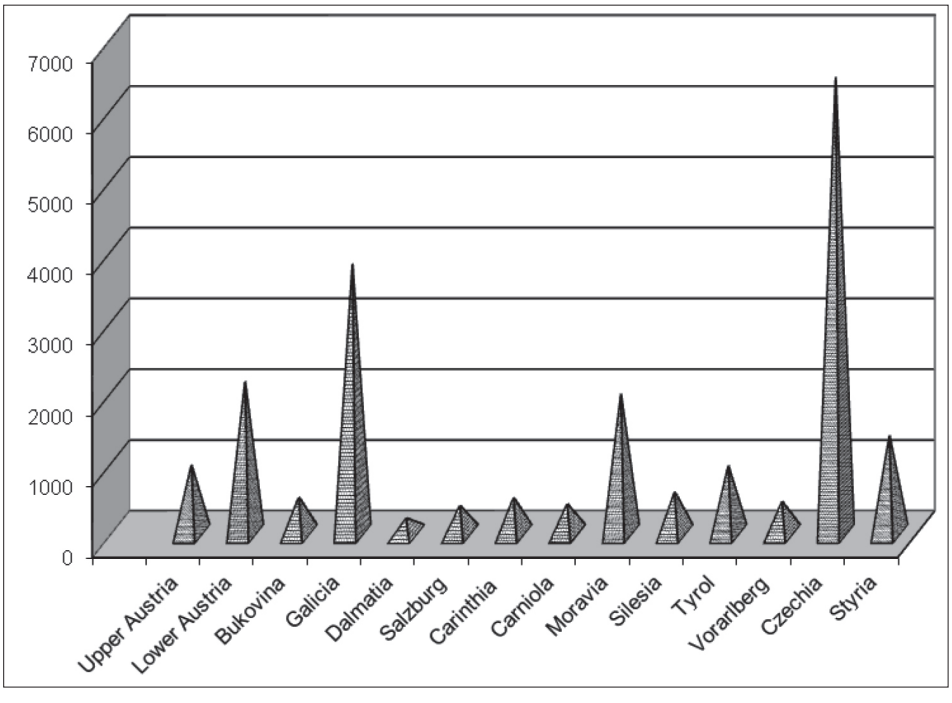

Fig. 9. Structure of Austrian railways by provinces, 1910.

Table 7. Density of Austrian railways, 1910 p. (compiled by the author)

№	Province of Austria	Density	
		km/100 km^2	km/100 thousand people
1	Upper Austria	11	70
2	Lower Austria	8	122

[30] S. Kornman, Mapy Galicyi i Bukowiny, 1911, s. 46–47.

3	Bukovina	5	72
4	Galicia	5	52
5	Dalmatia	2	39
6	Salzburg	6	212
7	Carinthia	5	142
8	Carniola	4	85
9	Moravia	9	84
10	Silesia	12	89
11	Tyrol	5	99
12	Vorarlberg	6	62
13	Czechia	12	102
14	Styria	6	103
	Austria	**6,86**	**95,2**

The timeline of 1848–1909 clearly shows the gradual increase in the length of railways in some parts of the future interwar Poland, except for the sub-Russian part, where a sharp decrease was recorded in 1887 (Fig. 10). During 50 years, the length of railways in Galicia increased by 54 times, in sub-Russian Poland – by 10.5 times, in sub-Prussian Poland – by 43 times.

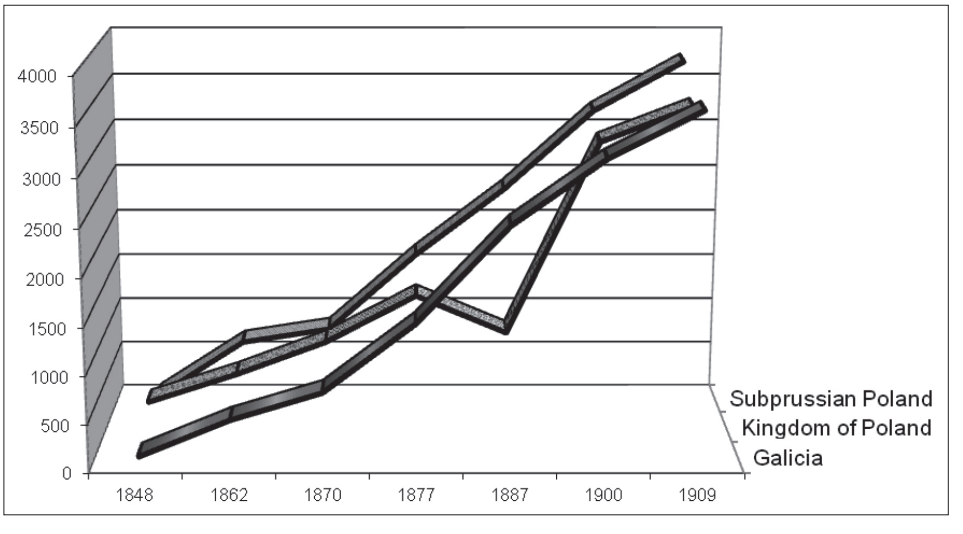

Fig. 10. Dynamics of railways in Galicia and Poland, 1848–1909.

The density of railways (km / 1000 km^2) in the parts of Poland neighboring Galicia (Fig. 11) shows its increase in 60 years from 0.9 to 46 km / 1000 km^2 (by 51 times) in Galicia, from 2.7 to 28 km / 1000 km^2 (by 10 times) in sub-Russian Poland, from 1.6 to 68.8 km / 1000 km^2 or by 43 times in sub-German Poland. Thus, the growth in Galicia was much more tangible.

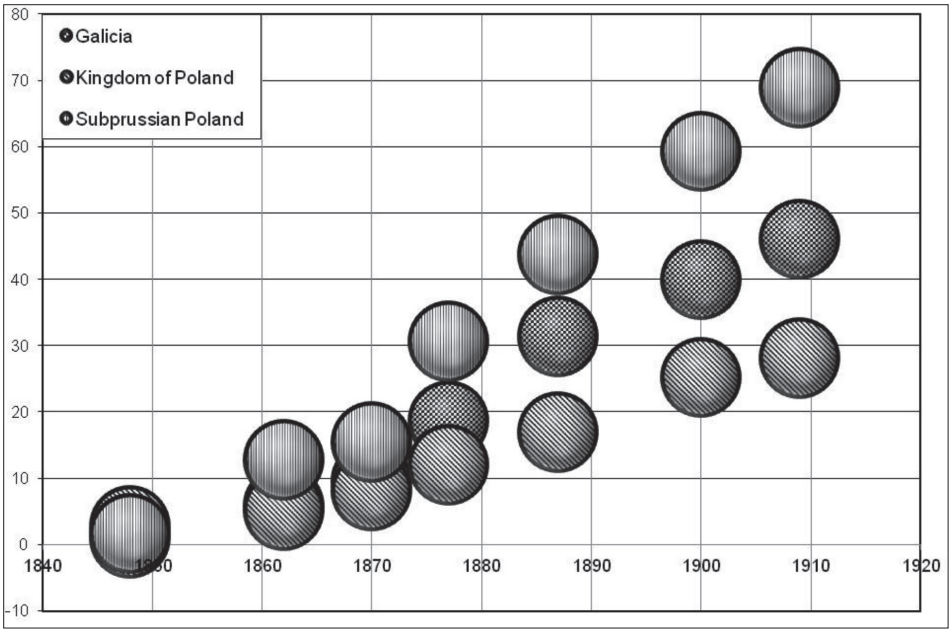

Fig. 11. Density of railways in Galicia and Poland (km / 1000 km^2), 1848–1909.

The length of the railways in Austrian provinces during 1901–1911 shows that the percentage of Galicia slightly decreased (by 0.21%), although the increase in absolute figures was 14.95% (from 3,584 to 4,120 km) compared to the national growth of 16.29% (Fig. 12). In 1911, the length of Austrian railways was 22,749 km in total, of which 6,769 km were in Czechia (Fig. 13). During 10 years, there was one kilometer of rail tracks per 19.05 km^2 of Galicia's territory, which was one third worse than in the whole country. Only in Dalmatia, Tyrol and Carniola had worse rates. There was one kilometer of railways per 1,948 inhabitants in Galicia and this rate was better only before Dalmatia[31]. In terms of the length of railways Galicia ranked second after Czechia (Tab. 8).

[31] Podręcznik Statystyki Galicyi, 1913, s. 252.

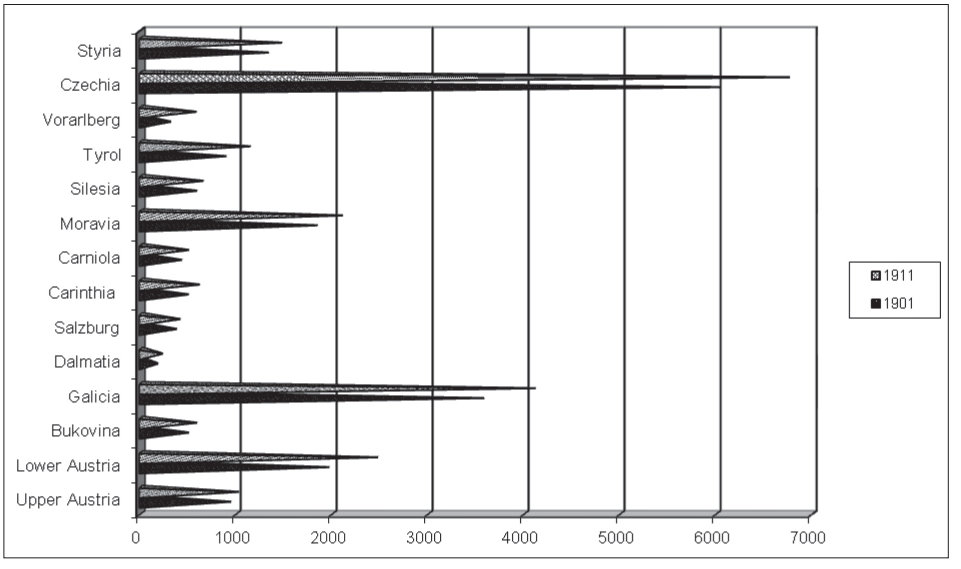

Fig. 12. Dynamics of Austrian railways by provinces, 1901–1911.

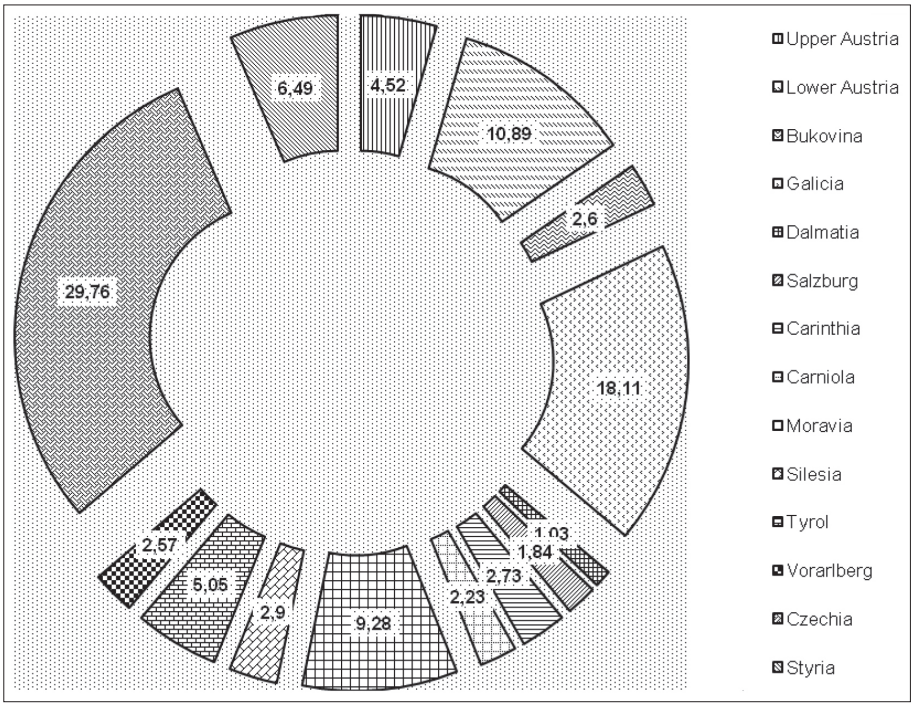

Fig. 13. Structure of Austrian railways by provinces, 1911.

Table 8. Density of the railways in the provinces of Austria, 1901–1911

Provinces of Austria	1 km of railways			
	per 1 km²		per capita	
	1901	1911	1901	1911
Upper Austria	12,66	11,65	856	830
Lower Austria	10,06	8,00	1573	1426
Bukovina	20,66	17,63	1443	1351
Galicia	21,90	19,05	2041	1948
Dalmatia	69,37	54,91	3210	2763
Salzburg	18,77	17,11	506	514
Carinthia	20,49	16,64	729	638
Carniola	22,94	19,60	1171	1036
Moravia	12,02	10,53	1318	1243
Silesia	8,69	7,81	1149	1149
Tyrol	32,65	25,47	1095	950
Vorarlberg	24,97	13,61	2372	1526
Czechia	8,58	7,67	1044	1000
Styria	16,74	15,18	1012	977
Austria	**15,34**	**13,19**	**1337**	**1256**

On the eve of the First World War (Tab. 9), Galicia had modest rates in terms of rail network compared to other parts of the future Commonwealth II. In terms of all indicators (length, density) Galicia was ahead of the Kingdom of Poland (sub-Russian part of Poland) and almost twice behind the sub-German part of Poland, except for the length of tracks (- 20%)[32].

Table 9. Length and density of the rail network in Galicia and neighboring countries, 1912

Region	Railways		
	Length, km	Density	
		1000 km²	100 thousand people
Galicia	4120	52,5	51,0
Kingdom of Poland	3596	28,3	28,8
Sub-Prussian Poland	5140	94,2	134,3

[32] *Historia Polski w liczbach*, s. 252.

As of 1912, the length of Austrian railways was 22,879 km (country area – 300,007 km^2), of which 4,128 km (18%) were built in Galicia. Rail track density increased by one half to 5.4 km / 100 km^2 compared to 1895 (3.56 km / 100 km^2), but it was still too low to claim leading positions not only in Europe (Belgium – 29.3 km / / 100 km^2; England – 12 km / 100 km^2; Switzerland – 11.5 km / 100 km^2; Germany – 11.4 km / 100 km^2; Denmark – 9.7 km / 100 km^2; Holland – 9.6 km / 100 km^2; France – 9.3 km / 100 km^2), but also in Austria-Hungary, or rather in Austria : Czechia – 12.8 km / 100 km^2; Moravia – 9.5 km / 100 km^2; Silesia – 12.9 km / 100 km^2.[33] Galicia continued to be average in the development of standard railways, but held a leading position in the construction of narrow-gauge lines (see below).

49,526 workers (12 people / km) were employed for Galicia's railways. Taking into account the average wages of Austrian railways workers (9,125 Kr / km), the total amount of wages in Galicia was 37.66 million Kr annually[34].

During 1860–1913, that is, during the main construction of the rail network in Galicia, the length of standard tracks (Fig. 14) increased by 9 times (from 457.6 to 4,131 km), it was one third of all railways in interwar Poland. However, the density of railways (km / 1000 km^2) in the region was 85% of the averaged national rate. The density of railways per 100 thousand people was slightly higher – 88%, and in absolute figures varied from 10 to 51.3 km, since 1910, it was equal to that of Poland (Tab. 10).

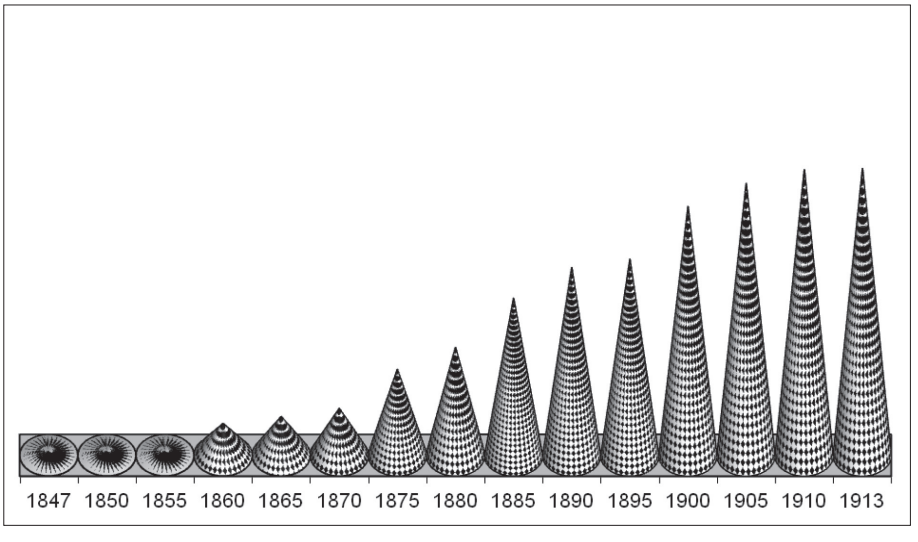

Fig. 14. Dynamics of railways in Galicia.

[33] H. Diamant, *Położenie gospodarcze Galicyi przed wojną*, Lipsk 1915, s. 36–37.
[34] Ibidem, s. 93–94.

Table 10. Dynamics of railways in Galicia and Poland, 1860–1913 (compiled by[35])

Year	Length, km			Density, kn/1000 kn^2			Density, km/100 thousand people		
	Poland	Galicia	% Galicia	Poland	Galicia	% Galicia	Poland	Galicia	% Galicia
1860	1433,1	457,6	31,9	6,9	5,8	84	11,9	10,0	84
1870	2463,5	673,1	27,3	12,0	8,6	72	17,4	12,4	71
1880	5007,9	1552,5	31,0	24,3	19,8	81	31,3	26,1	83
1890	7850,0	2705,9	34,5	38,1	34,5	91	43,7	40,9	94
1900	9951,7	3584,2	36,0	48,3	45,7	95	48,3	49,0	101
1910	12275,1	4117,0	33,5	59,5	52,4	88	52,2	51,3	98
1913	12477,3	4131,0	33,1	60,5	52,6	87	?	?	?

Thus, on the eve of the First World War, there were 2,942.168 km of state railways in Galicia, of which 281.0 km were owned by the "C. K. Privileged North Railway of the Emperor Ferdinand", 977.672 km – by the Kraków Directorate of State Railways, 1,152.035 km – by the Lviv Directorate of State Railways, 531.461 km – by the Stanisław Directorate of State Railways. 1,313.611 km of railways were owned by private companies, but control over their operation was exercised by the Kraków (228.559 km), Lviv (491.391 km) and Stanisław (596.661 km) Directorates of State Railways. That is, there were 4,258.779 km of railways in Galicia in total, including 668.509 km of double-track railway lines. The budget value of state-owned railways was 629,576,769 Kr, the budget value of private railways was 107,544,190 Kr, that was almost 737,121 thousand Kr in total[36]. The density of the railways was 5.448 km / 100 km^2 and 5.295 km / 10 thousand people.

Local railways. The priority task of main railways was to create important international transport arteries for passenger and freight transportation to secure strategic interests of the state. Along with the development of railway construction, there was a need to create railways that would also secure interests of local self-governments, primarily facilitating the export of industrial and handicraft products, timber etc.

Due to the construction of such railways, it would be possible to intensify industry and agriculture, attract internal and external investments taking into account local needs. First local railways were built with significant problems and efforts, which were

[35] Rocznik statystyki Rzeczypospolitej Polskiej. 1920/1922: Rok wydania I, Nakładem Głównego Urzędu Statystycznego, Warszawa 1923. Cz. II, s. 166.

[36] J. Skwarczyński, *Rozwój sieci kolejowej pod zaborem austriackim*, № 8–9.

connected not only with the attraction of investment in the construction itself, but also with the impossibility to set high tariffs, which reduced their efficiency and profitability.

Both the authorities and the people in Galicia gradually came to the conclusion that it was necessary to build a developed network of local railways, which would benefit the economy and prosperity of the region.

Building of local railways became possible with the participation of the companies that built first main arteries in Galicia. First local lines from Jarosław to Sokal and from Dębica to Rozwadów with a branch to Nadbrzeże were built at the initiative of the "Galician Railway of Archduke Charles Louis", while the "Railway Lviv-Chernivtsi-Iaşi" line initiated building lines from Lviv through Rava-Ruska to Belzec[37].

Local tracks included the line from Bielsk to Kalwaria owned by the "C. K. Privileged North Railway of the Emperor Ferdinand", and the line from Jasło to Rzeszów built with funding from public treasury. Transportation on these railways was carried out in accordance with the norms provided for the operation of the main railways, thus, in our opinion, they should not be included in local railways.

Local railways also included branches of main railways connecting them with industrial objects and owned by private companies. At the end of 1890, there were 41 km of such rail tracks in Galicia, including 13.3 km owned by the "C. K. Privileged North Railway of the Emperor Ferdinand"; 6.5 km of state railroads; 23.8 km of the Tlumach – Palahychi line; 3.9 km along private railways[38].

By the end of 1890, there were 892.5 km of local railways in total with a value of 13,288,341 G. As a result of their operation the following results were achieved[39]:

- 329,028 km of passenger transportations and 126,093 km of freight transportations were carried out;
- freight turnover was 71,853.9 thousand tons-km of gross weight; there were 183.1 thousand tons-km of gross weight per 1 km of railways;
- 324,323 passengers were transported (except for the Dolyna – Vyhoda line); 845 people were transported per 1 km of railways.

At the beginning of the 20th century, the local rail network reached 811 km: Borki Wielkie – Hrymailiv (33.025 km); the narrow-gauge line Przeworsk – Bachóż (Dynów) (46.248 km); Deliatyn – Kolomyia – Stefanivka (112.622 km); Dolyna – Vyhoda (8.531 km); Kolomyia local railway (32.15 km); Kraków – Koćmierzów with the branch of Czyżyny – Mogiła (18.91 km); Lviv – Belzec (88.42 km); Lviv – Yavoriv (48.735 km); Pila – Jaworzno (25.835 km); Eastern Galician Local Railways (195.541 km); Tarnów – Szczucin (48.636 km); Ternopil – Zbarazh (22.478 km); Tlumach – Palahychi

[37] L. Wierzbicki, op. cit., s. 58–60.
[38] Ibidem, s. 70–71.
[39] Ibidem, s. 69–70.

(6.379 km); Trzebinia – Skawce (59.263 km); Chabówka – Zakopane with the branch of Nowy Targ – Sucha Góra (64.35 km). In general, at the beginning of the 20th century, there were 15 private local railways with a length of 811.123 km and a total construction budget value of 72.352 million Kr (the cost of construction of 1 km – 85.3 thousand Kr), as well as more than 37.3 thousand trains. In 1902, they transported almost 1.75 million passengers in and over 138 thousand tons of freight (Fig. 15)[40]. Local railways were of industrial importance and connected with sources of resources or means of their processing.

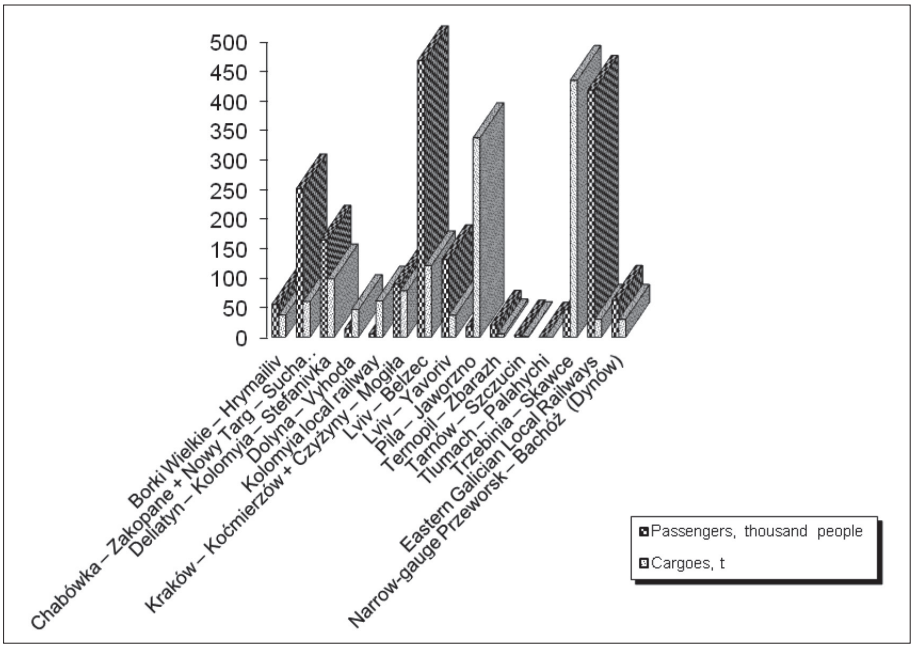

Fig. 15. Transportation of passengers and freight by local railways of Galicia, 1902.

At the beginning of the 20th century, there were 16 railway branches with a total length over 520 km in Bukovina: Chernivtsi – Zalishchyky (49 km), Chernivtsi – Novoselytsia (36 km), Karapchiv – Chudyn (19 km), Nepolokivtsi – Vyzhnytsia (45 km), Nepolokivtsi – Sniatyn (11 km), Hlyboka – Berehomet (53 km), Stebnyk – Lopushna (17 km), Hlyboka – Siret (19 km), Hadikfalva – Brodina (51 km), Hatna – Dorna Vatra (128 km), Karlsberg – Putna (6 km), Chudyn – Koschuya (25 km), Pozhoritta – Fundul-Moldovei (8 km), Vama – Ruşii Moldoviţa (23 km), Iţcani – Suceava (7 km), Vereshchanka – Vikna (26 km), etc.[41]

[40] S. Kornman, Mapy Galicyi i Bukowiny: Dodatek statystyczny. Wydanie III, uzupełnione, Lwów: Nakładem księgarni H. Altenberga, 1911, s. 50.

[41] Ibidem, s. 52.

During 10 years (1902–1911), private local railways, thanks to the extension of the network to 950 km (by 17%) and innovations (mainly due to the modernization of rolling stock), significantly increased the volume of freight and passenger transportations. The number of passengers transported increased from 1,750 to 2,442 thousand people or by 40%, the number of freight – from 138 to 232 thousand tons or 68% (Tab. 70). The income increased by 258% and reached almost 3.7 million Kr for the corresponding period. One kilometer of rail tracks had 3,893 Kr of income. In 1911, the annual income was only 3.55% of the total cost of construction of private local railways. It should be noted that in 10 years the cost of private local railways increased from 72.3 to 104.2 million Kr (44.1%), and the cost of construction of 1 km increased from 1,194.6 to 1,731.4 million Kr (44.9%). Thus, it can be argued that the income growth of rail tracks was twice as high as the growth of the cost of their construction. Eastern Galician Local Railways operated most effectively, yielding 23% of income. The percentage of the Lviv – Pidhaitsi line was slightly lower (19%).

Conclusions

1. The first railway construction project in Galicia (on the section Bochnia – Vienna) was approved in 1830. It launched the construction of the rail track from Stryi through Sambir, Lviv, Przemyśl, Jarosław, Podgórze, Lipnik, Przyrów, Lundenburg, Vienna, Bruk, Ljubljana, Gorizia, Montfalcon to Triest.
2. In 1847, the first railway from Krakow to Myslowice with a branch to Szczakowa was built to connect with the Warsaw-Vienna railway.
3. In 1852–1856, the Vienna – Trzebinia and Kraków – Dębica railways with a branch to Wieliczka and Niepołomice were built.
4. In 1857, the "C. K. Privileged North Railway of the Emperor Ferdinand" took the Oświęcim – Krakow railway with branches to *Mysłowice* and Szczakowa.
5. The Krakow – Dębica line with branches to Wieliczka and Niepołomice came under control of the "Galician Railway of Archduke Charles Louis".
6. During 1855–1861, the "Galician Railway of Archduke Charles Louis" built the Rzeszów – Lviv – Brody railway.
7. The Lviv – Chernivtsi railway was put into operation in 1866, the Lviv – Zolochiv, Krasne – Brody railway were commissioned in 1869, the Krasne – Volochysk railway started operating in 1871.
8. At the end of 1870, the length of railways in Galicia was 885 km. The density per area unit was 1.13 km / 100 km^2 and the density per capita was 1.627 km / 10 thousand people.
9. The rolling stock consisted of 161 locomotives and 4,265 cars. Locomotive and carriage repair plants were built in Przemyśl, Lviv, Stanisław, Stryi, Nowy Sącz and Tarnów.

10. In 1872, The "First Hungarian-Galician Iron Railway" completed construction of the Przemyśl – Łupków line, the "Dniester Railway" launched the Khyriv – Stryi line with a branch to Boryslav.
11. In 1876, the Tarnów – Nowy Sącz – Leluchów line was put into operation.
12. The "Railway of Archduke Albrecht's" commissioned the following railways: from Lviv to Stryi in 1873; from Stryi to Stanisław in 1875. In 1866, they were transferred to state ownership.
13. As of 1876, there were 7 railway companies (1,395.8 km) in Galicia: the "C. K. Privileged North Railway of the Emperor Ferdinand", the "Galician Railway of Archduke Charles Louis", the "Railway Lviv-Chernivtsi-Iaşi", the "First Hungarian-Galician Iron Railway", the "Dniester Railway", the "Railway of Archduke Albrecht's", the "Railway Tarnowsko-Leluchowska".
14. In 1878, the line from Bielsk to Żywiec was commissioned by the "C. K. Privileged North Railway of the Emperor Ferdinand".
15. During 1884–1885, the "Galician Transversal Railway" was put into operation due to the necessity of using raw materials of the Carpathians.
16. At the end of 1880, there were 1,552.6 km of railways in Galicia with a budget value of 176.1 million G. The rolling stock consisted of 319 locomotives, 286 conductor cars, 549 passenger cars and 7,806 freight cars. Passenger turnover was 2.6 million people, freight turnover was 1,532.5 million tons-km. The density of railways was 1.977 km / 100 km^2 and 2.605 km / 10 thousand people.
17. In 1885, Galicia's railways maintained 691 locomotives, 1,186 passenger cars, 18,466 freight cars and 78 mail cars. 6.4 million passengers were transported. Crop production, sugar and flour had the highest percentage of goods transported by railways. Almost 60% of these goods were transported by the "C. K. Privileged North Railway of the Emperor Ferdinand".
18. During the last 15 years of the 19th century the following railway lines were built according to strategic plans of Austria-Hungary: Stryi – Beskid (1887); Rzeszów – Jasło (1890); Stanisław – Voronienka (1894); Ternopil – Pidvolochysk – Halych; Khodoriv – Pidwysokie (1894); Stryi – Khodoriv; Przeworsk – Rozwadów (1899). In the early 20th century (1903–1905), the Lviv – Sambir – Uzhok railway was put into operation, connecting Galicia and Hungary for the second time.
19. At the same time, local lines were put into operation: Jarosław – Sokal (1884); Dębica – Rozwadów (1887), Kolomyia local railway (1886); Lviv – Belzec (1887); Bielsk – Kalwaria (1888).
20. Between 1898 and 1912, about 950 km of railways were commissioned in Galicia thanks to significant investments of the Diet of Galicia and Lodomeria: Eastern Galician Local Railways; Borki Wielkie – Hrymailiv; Łupków – Cisna (narrow-gauge

line); Kraków – Koćmierzów, Siersza – Trzebinia – Skawce; Deliatyn – Kolomyia – Stefanivka; Saw – Jaworzno; Lviv – Yavoriv; Chabówka – Zakopane (with the branch of Nowy Sącz – Sucha Góra); Przeworsk – Dynów; Ternopil – Zbarazh; Tarnów – Szczucin – Lviv – Pidhaitsi; Lviv – Stoyaniv; Muszyna – Krynica; Drohobych – Truskavets.

21. At the end of 1891, there were 642.1 km of double-track railway lines on the following sections: Dziedzice – Oświęcim, Oświęcim – Podgórze, Nowy Sącz – Stróże, Łupków – Khyriv – Przemyśl, Kraków – Przemyśl – Lviv.
22. Since January 1, 1889, the government took control of all the railroads in Galicia. The only exceptions were lines belonging to the "Galician Railway of Archduke Charles Louis" within the western part of the region.
23. By the end of the 1880s, Galicia had 2,815.2 km of main railways in total. 2,644 million tons-km of freight and 4.5 million passengers were transported. There were 474 locomotives, 367 conductor cars, 812 passenger cars and 9,659 freight cars operating on the railways. There were 3.379 km of rail tracks per 100 km^2 of Galicia's territory and 4.116 km of railways per 10 thousand people.
24. During 1885–1890, the rolling stock of Galicia's railways increased by one third: locomotives – by 32.7%; passenger cars – by 30%; freight cars – by 26.9%; post cars – by 76.9%. At the same time, the number of passengers transported by railways increased by 68.8%. During the corresponding period, the volume of grain and vegetables transportation remained almost constant, and the volume of cotton and knitwear transportation decreased. The volume of transportation of other goods increased by 15–30%. The largest increase was recorded for transportation of livestock products, first of all, transportation of cattle, sheep and goats that increased twice and transportation of pigs that increased by 11 times. On the other hand, there was a decrease of horse transportation (by 53%), as well as of butter, cheese and lard transportation (by 34%). The volume of transportation of round timber and firewood has doubled. On the other hand, the volume of transportation of crude oil and petroleum products decreased by 2.5 times, while the volume of transportation of forged products decreased by 10%.
25. In 1889, the Przemyśl – Łupków and Lviv – Chernivtsi lines were transferred to state ownership. In 1892 and 1906, respectively, the "Galician Railway of Archduke Charles Louis" and "C. K. Privileged North Railway of the Emperor Ferdinand" were nationalized.
26. In the middle of 1890s, Lviv (1,439.363 km) and Kraków (1,082.862 km) Directorates of State Railways operated in Galicia (2,795.089 km of railways of all forms of ownership; 35.6 km / 1000 km^2, 42.3 km / 100 thousand people). The "C. K. Privileged North Railway of the Emperor Ferdinand" was a private railway company, with a total railway lines length of more than 201 km.

27. From 1879 to the end of the 19th century, the length of the railways increased by 2.3 times. The percentage of Galicia within Austria increased from 13.7% to 18.5% for the corresponding period. In terms of the railways length growth, Galicia ranked second after Bukovina, and in absolute terms, after Czechia. The density of railways was 44 km / 1000 km^2 (9th place) and 52.7 km / 100 thousand people (12th place).
28. At the beginning of the 20th century, main European railroads passed through Galicia, connecting Kraków with Radyvyliv and Pidvolochysk in the north and with Novoselytsia in the south. International railways connected Berlin with Constanța, St. Petersburg and Odessa with Italy and France.
29. At the beginning of the 20th century, there were 15 private local railways (811 km), transporting 1.75 million passengers and over 138,000 tons of freight annually. They played an important role for the industry of Galicia.
30. At the beginning of the 20th century, there were 16 railway branches with a total length over 520 km in Bukovina.
31. At the beginning of the 20th century, there were 50 railways with a total length of over 3,915 km in Galicia.
32. At the beginning of the 20th century, the rail network in Austria was over 21,000 km long. The longest rail network was in Czechia (6,466 km), which was of exceptional geopolitical importance for Europe. Galicia ranked second (3,830 km). The least amount of railways was in Dalmatia (230 km) and Salzburg (408 km). The highest density per area unit was in Czechia and Silesia (12 km / 100 km^2), and the highest density per capita was in Salzburg (212 km / 100 thousand people) and Carinthia. On these indicators, Galicia ranked 9th and 13th of 14 provinces of the monarchy.
33. During 1897–1906, the dynamics of railway length growth was 24% in Austria, and 26.5% in Galicia[2]. In absolute terms, the largest increase was recorded in Czechia (1,338 km) and Galicia (819 km), the smallest one – in Carniola (50 km) and Silesia (52 km). In percentages, the highest growth was recorded in Dalmatia (82.54%) and Bukovina (51.99%), the lowest one – in Silesia (9.45%) and Styria (10.12%).
34. By 1910, the length of railways was 3,900 km, it was 1,216.659 km more than in 1895. The density of railways per area unit increased by 193%, and the density per 100 thousand people – by 225%. During 1905–1910, the length of railways in Galicia increased by 227.3 km.
35. During 1848–1909, the density of railways increased by 51 times in Galicia, by 10 times in sub-Russian Poland, and by 43 times in sub-German Poland. During 1901–1911, the length of railways increased by 15%.
36. On the eve of World War I, the length of Austrian railways was 22,879 km, of which 4,128 km (18%) were built in Galicia. Rail track density increased by one half com-

pared to 1895 and reached 5.4 km / 100 km^2. Only Belgium, England, Switzerland, as well as Czechia, Moravia and Silesia had higher rates in Europe.

37. Between 1860 and 1913, the length of standard rail tracks increased by 9 times.

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Railways of Galicia before the First World War

Summary: The Galician rail network in Austria and Austria-Hungary was built before the outbreak of World War I. The first railway construction projects were developed in the 1830s. The construction of the first rail tracks began in the late 1840s. The first railway connecting Western and Eastern Galicia was put into operation in 1861. Before WWI, the Galician rail network spanned a total length of more than 4,000 km. The construction of local wide and narrow gauge railways began in the same period. The railway construction process, transport capacity and the railway infrastructure in Galicia have never been comprehensively studied in view of recently emerged data. This article offers a thorough analysis of the Galician network of strategic and local railways beginning from their construction to the outbreak of WWI.

Keywords: railway, length, density, freight traffic, passenger traffic