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# The Development of the Railway Network in the Danubian Countries

## Peter Jordan\*

The article highlights the development of the railway network from the beginnings with the horse-drawn railways up to the postwar period from geographical, economic and political points of view. The development is classified into periods and discussed in the light of its political and economic background as well as regards its geographical, political and economic impacts.

Key-Words: Railways, railway network, railway history, transporta-

tion geography, economic geography

Razvoj željezničke mreže u podunavskim zemljama

Clanak osvjetljuje sa geografskog, gospodarskog i političkog stajališta razvoj željezničke mreže od početka vezanih uz konjsku željeznicu do današnjih dana. Razvoj je željezničke mreže podijeljen u nekoliko etapa. Raspravljena je politička i ekonomska osnova razvoja željezničke mreže, kao i geografske, političke i ekonomske posljedice nastale razvojem željezničke mreže.

Ključne riječi: Zeljeznice, željeznička mreža, prometna geografija, ekonomska geografija.

## HORSE-DRAWN RAILWAYS

Also in the Danubian region the development of the railway begins with the horse-drawn railway. The first public railway of this type in the world was incorporated in England (Croydon-Wandsworth) in 1801. All horse-drawn railways in the Danubian Countries (Fig. 1), however, were built after the first railway in the world to use locomotive traction, the Stockton and Darlington railway, opened in 1825: The first horse-drawn railway in the Danubian Countries, the Budweis (České Budějovice) – Linz line, was partly opened in 1827, but not completed before 1832, its further extension to Gmunden even not before 1836. The track of this extension was already laid with a view to the use of locomotive traction later on. The route of the horse line between Linz and Gmunden could thus be used by locomotive-hauled trains between 1855 and 1859 before to-day's »Westbahn« line bet-

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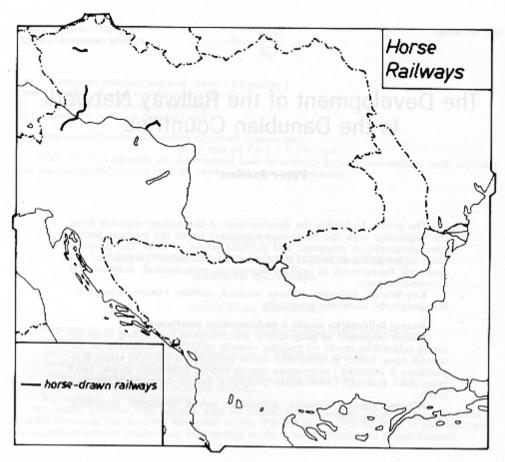


Fig. 1 Horse-drawn railways

## Sl. 1 Konjske željeznice

ween Linz and Lambach was built and the old track finally abandoned. The track between Budweis and Linz functioned as a horse line up to 1872, when it was replaced by a line with locomotive traction connecting Budweis with the present Western Railway.

The second horse-drawn railway in the Danubian Countries, the line from Prague (Praha) to Lány, a place in Pragués western surroundings, followed in 1830, served mainly timber and coal transport and was closed in 1863.

Horse lines, however, were still being planned even after the development of locomotive traction had made considerable progress. Among others a horse-drawn railway was to connect Prague, Pilsen (Plzeň) and Budweis. One of these late projects was actually carried out: the line from Bratislava to Sered' by way of Trnava, completed in 1846, replaced by a locomotivetracted line in 1876.

## THE BEGINNINGS OF RAILWAYS WITH LOCOMOTIVE TRACTION IN THE DANUBIAN REGION (1837–1845)

After locomotive traction had first been introduced in England and shortly thereafter in the United States (1829: Baltimore-Ellicotts Mills), continental Europe finally took it up in 1835. This was the year when the lines from Brussels (Bruxelles) to Mechlin (Mechelen) in Belgium and from Nuremberg (Nürnberg) to Fürth in the Kingdom of Bavaria (Bayern) were opened. In spite of its low degree of industrialization the Austrian Empire soon followed suit with the first part of the »Kaiser-Ferdinand-Nordbahn« going into operation between Floridsdorf near Vienna (Wien) and Deutsch-

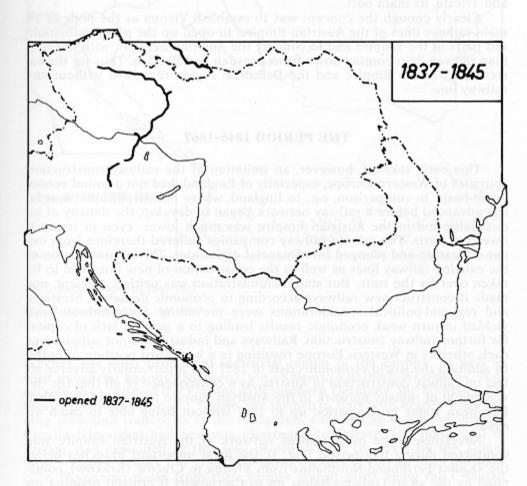


Fig. 2 Railways opened 1837-1845

Sl. 2 Zeljeznice izgrađene 1837-1845

Wagram on November 23, 1837 (Fig. 2). In the same year the first locomotive railway in France (Paris-St. Germain-en-Laye) went into use, followed a short time later by railways in Russia (St. Peterburg – Carskoe Selo /Pu-škin/ 1838), Italy (Naples /Napoli/ – Portici 1839) and the Netherlands (Amsterdam – Haarlem 1839). By the end of 1845 Europe had a railway network of 9,162 kilometres. At the same time there were 7,837 kilometres of line in the United States. Among the European states the Austrian Empire in 1845 ranked second in railway route length (1,058 kilometres) after Great Britain (4,082) and even before France (870 kilometres). The network of the Austrian Empire comprised at that time besides the horse-drawn railways (250 kilometres) the line from Vienna to Prague, a short branch from Vienna to the Northwest (Stockerau) and some sections of the planned Southern Railway Line between Vienna, the metropolis of the Empire, and Trieste, its main port.

Clearly enough the concept was to establish Vienna as the node of all main railway lines of the Austrian Empire, to open up the more industrialized parts of the Empire and to connect the Austrian network with the German railway lines coming down from Dresden and Breslau. Thus far the eastern part of the Empire and the Danubian region remained without any

railway line.

# THE PERIOD 1846-1867

This early take-off, however, an imitation of the railway construction activities of Western Europe, especially of England, had not a sound economical basis. In comparison, e.g., to England, where industrialization was fairly advanced before a railway network began to develop, the density of industrialization in the Austrian Empire was much lower, even in its northwestern parts. The private railway companies suffered therefore from under-utilization and plunged into financial difficulties. The administration of the existing railway lines as well as the construction of new lines had to be taken over by the state. But state administration was neither efficient, nor made it construct new railways according to economic demands. Strategic and regional-political considerations were prevailing. Such railway lines yielded in turn weak economic results leading to a general lack of capital for further railway construction. Railways and industry did not supplement each other as in Western Europe resulting in a backward position of both! In addition the world economic crisis of 1857 had a particularly adverse effect on railway construction in Austria. As a consequence of all that the development of railway network in the Austrian Empire fell behind the other European states in the period up to 1867 without being able to catch up again.

Nevertheless the main railway network of the Austrian Empire was completed during this period (Fig. 3), the most important branches being the »Kaiser-Ferdinand-Nordbahn« from Vienna to Cracow (Kraków), continued by the »Karl-Ludwigs-Bahn« up to Czernowitz (Černivci) opening up Galicia (Galicija, Halyčyna) and the Bucovina and connecting the Austrian with the Silesian network; the railways connecting Vienna with Bohemia

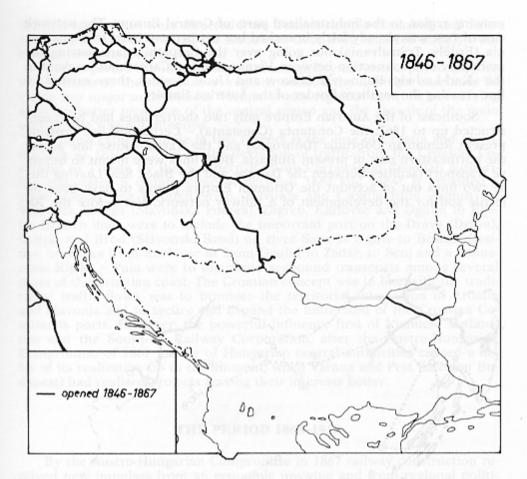


Fig. 3 Railways opened 1846-1867

Sl. 3 Zeljeznice izgrađene 1846-1867

(Cechy), the most prominent industrial region of the Empire, as well as with industrial Saxony (Sachsen); the »Kaiserin-Elisabeth-Westbahn«, connecting the centre of the Empire with southern Germany; the Southern Railway Line from Vienna to Trieste and farther to Italy with branch lines leading seabound transports of the Hungarian coreland as well as of interior Croatia (Hrvatska) and Slavonia (Slavonija) to Trieste. The hinterland of Trieste was expanded in this way decisively, not the least by the Zidani most – Zagreb – Sisak line (1862) deviating exports of cereals from the southern Pannonian Basin from their former transit ports along the Croatian Coastland (Hrvatsko primorje) to Trieste.

A further main line was the railway from Vienna via Pest to the Great Hungarian Plain (Alföld) facilitating exports from this prominent cereal growing region to the industrialized parts of Central Europe. The network east of Pest was already fairly branched but neither extended to Transylvania (Erdély, Transilvania) nor going over the Carpathian arc leaving the monopoly of a connection between Vienna and the Carpathian foreland to the »Karl-Ludwigs-Bahn« via Cracow and L'vov. Besides, there existed no line crossing the southern border of the Austrian Empire.

Southeast of the Austrian Empire only two shorter lines had been constructed up to 1867: the Constanta (Constanța) – Cernavodă line crossing present Rumanian Dobrudja (Dobrogea) and the Varna – Ruse line across the northeastern part of present Bulgaria. Both lines were meant to improve transport facilities between the Danube and the Black Sea. Leaving these two lines out of account the Ottoman Empire proofs to have been no fertile soil for the development of a railway network. Not before the 70s

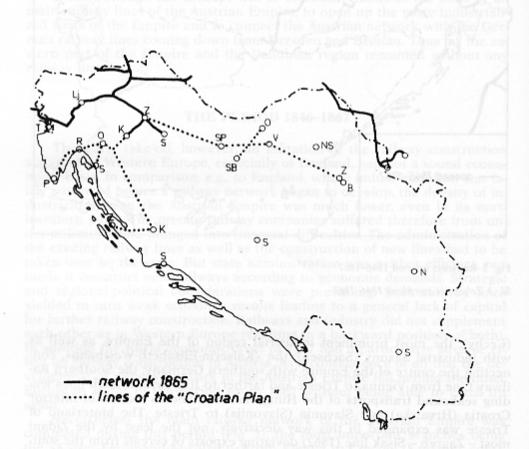


Fig. 4 The »Croatian Plan« 1862/64.

Sl. 4 »Hrvatski plan« iz 1862/64

the first major lines were directed from Constantinople (Istanbul) and Salonica (Thessaloníke) towards the Danubian Countries, financed mainly from

foreign (British, French) sources.

In this period the railway development policy of Austria payed only little attention to the demands of regions outside the Austrian coreland. To create any major node besides Vienna or any regional network not serving mainly a better provision of the central region and the growth of the main

port Trieste was not intended.

A remarkable example in this respect is the case of Croatia and Slavonia (Fig. 4). Discomforted by the deviation of traffic from the Croatian Coastland to Trieste by the Southern Railway Corporation Croatian authorities elaborated a counter-concept between 1862 and 18642. It provided a main railway line through Srem, Slavonia and Croatia from Zemun via Vinkovci, Požega (Slavonska Požega), Zagreb, Karlovac and Ogulin to Rijeka. Branch lines were to include the important port on the Drave (Drava), Osijek, and Brod (Slavonski Brod) on river Sava as a gate to Bosnia. Besides, branches from Karlovac or from Ogulin to Zadar, to Senj and a connection Rijeka - Pula were to distribute seabound transports among several ports of the Croatian coast. The Croatian concept was in line with the traditional traffic flows, was to promote the territorial integration of Croatia and Slavonia and to secure and expand the hinterland of the Croatian Coastlands ports. However, the powerful influence first of Viennese authorities and the Southern Railway Corporation, after the Austro-Hungarian Compromise of 1867 mainly of Hungarian central authorities caused a delay of its realization up to the moment, when Vienna and Pest (later on Budapest) had realized projects serving their interests better.

## THE PERIOD 1868-1918

By the Austro-Hungarian Compromise in 1867 railway construction received new impulses from an economic upswing and from regional political aspirations in the two parts of the Empire. Thus, between 1870 and 1874 alone the railway network in the Hungarian part of the Empire grew from,

2.732 kilometres to 6,411 kilometres (Fig. 5).

Hungary, having become almost an independent state, used the economic upswing between 1867 and 1873 to implement a radial system of railways covering the whole country and focusing on its capital. Besides the intention to push Pest (later Budapest) in the position of a European metropolis by the means of a proper railway network further goals of Hungarýs railway policy were

- to develop a network independent from the existing lines owned by

the Austrian State Railways and the Southern Railway Corporation,

- to develop Rijeka to Hungarýs main port by the enlargement of its hinterland and

- to prevent its capital and coreland from being bypassed.

In all these respects Hungarys railway policy was pretty successful:

 Budapest emerged to the second traffic node of the Monarchy. It could not be bypassed within a circle of about 200 kilometres in diameter,

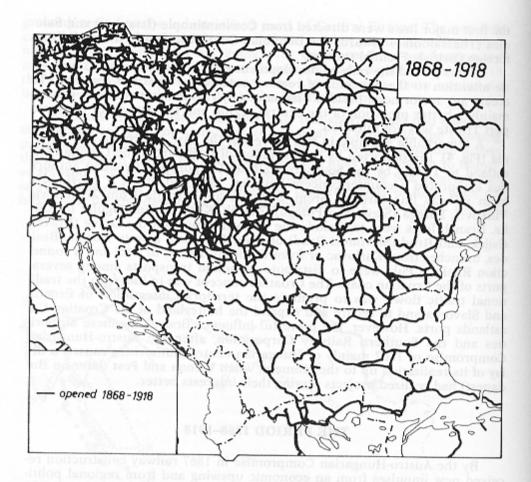


Fig. 5 Railways opened 1868–1918

Sl. 5 Zeljeznice izgrađene 1868-1918

not only because of a lack of transversal routes, but also because a special tariff-system made transports via Budapest cheaper than on any other route. The result was taht agricultural exports from all the regions of the Hungarian half of the Monarchy crossed Budapest and were partly reloaded there. This contributed a lot to the development of industry and a strong service sector<sup>3</sup>.

2) The second goal, to develop Rijeka to the main port of the Hungarian half of the Monarchy and to make it a competitor of Trieste as regards the first rank in the whole Monarchy, was achieved too, foremost by building the Rijeka Railway Line (Riječka željeznica) from Karlovac to Rijeka

(1873) and by connecting Zagreb with Budapest (1870-1882). By preventing Vienna from the construction of any railway line connecting the Austrian half of the Monarchy with ports in its exclave Dalmatia (Dalmacija) Hungary succeeded in the prevention of the emergence of a stronger competitor of its port Rijeka in the southern Adriatic. Even the almost desperate attempt of Vienna to establish a traject railway line from Preluka near Rijeka across the island of Pag and Zadar to Southern Dalmatia in the years before the First World War was in vain4.

3) The goal to prevent the Hungarian coreland from being bypassed was achieved also both in an active and a destructive attitude. By the construction of railway lines from the Pannonian Basin across the Carpathians to Galicia, Moldavia (Moldavija, Moldova) and Walachia (Țara Românească) and by connecting Budapest with the Morava Railway Line across Serbia (Srbija) being the link to the Turkish lines across present Bulgaria to Constantinople and present Macedonia (Makedonija) to Salonica, respectively, Budapest and the Hungarian coreland attracted a lot of transit traffic from Central Europe to the East and Southeast. By hindering Vienna and the Ottoman Empire to lead an Orient Railway via Bosanski Novi, Banja Luka, Sarajevo and the Sandshak (Novopazarski sandžak) to Skopje and Salonica Hungary successfully prevented a bypass in the South.

Railway construction in the Turkish-controlled Balkan countries was limited to branch lines and a few main lines and was financed predominantly by foreign capital. Only when the various countries gained sovereignty and when Austria-Hungary occupied Bosnia-Hercegovina in 1878 did the pace of building quicken. In Bosnia and Hercegovina a system of narrow-gauge lines was implemented, not in one single case connected with the Serbian railway network (partly also of the narrow-gauge type), which was developed from 1884 onward.

Walachia and Moldavia, united to Rumania in 1861 and enjoying comparatively early independence from the Ottoman rule (sovereignty 1878), were able to construct a nation-wide network already in the 70s connected with the Transylvanian lines as well as with the »Karl-Ludwigs-Bahn« and with lines to Ukrainian Odessa. During the 80s and 90s number of lines from the Danube ports to their hinterlands was opened.

Bulgaria, on the other hand, having remained longer under Ottoman influence, started to develop a coherent national network not before 1895.

From the mid-eighties of the 19th century to the First World War the construction of local railways predominated in the Austro-Hungarian Monarchy. However, in constructing connections from Trieste to its hinterland and by building of railways instigated by the military authorities in the Carpathians, projects of more than regional importance were also realized.

During the First World War important sections of the front were reinforced by military railways. Some of these survived the war and continued in use for public transport for some time. Such railways are found notably in Northwest Galicia, in Greek Macedonia and, above all, between the Isonzo (Soča) and Piave rivers.

# THE INTERWAR AND POSTWAR PERIODS

The political reorganization of the Danubian region after the First World War also led to a reorganization of the railway network in some areas (Fig. 6). Thus, notably Yugoslavia was faced with the task of creating a railway network to serve the needs of the new state out of the systems in the various parts of the country which either converged on centres abroad (Vienna, Budapest) or were conceived to serve smaller territorial units. Even the later main line of Yugoslavia from Ljubljana via Zagreb and Belgrade to Skopje, e.g., was up to 1918 a mere patchwork of Austrian, Hunga-

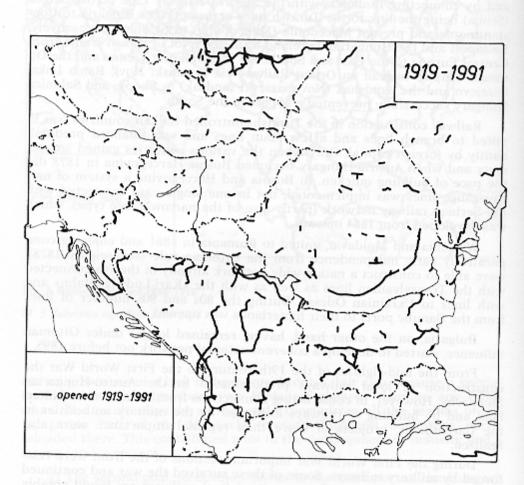


Fig. 6 Railways opened 1919-1991

Sl. 6 Željeznice izgrađene 1919–1991

rian, Serbian and Turkish railways which had to be adapted to the new main direction e.g., by the construction of a loop between Indija Selo and Stara Pazova. A particular problem in this context was the integration of the Bosnian narrow-gauge network. Although strong efforts were made a fully satisfying integration of the heterogeneous networks could never be obtained resulting in a large share of road transport in comparison with other former socialist countries.

With the exception of the Košice-Bohumín line, Slovakiás railway network was focused entirely on central Hungary and lacked east-west links

that then had to be built by the new state of Czechoslovakia.

Similarly, southeastern Poland had only a few railway links with the

centre of the new Polish state.

Railway construction, which was generally tapering off in the inter- and postwar periods, continued nevertheless on an extensive scale in less developed areas such as Rumania outside the Carpathian arc in southern Bulgaria and in Albania.

Rumania constructed a new main line across the plains of Oltenia and

Walachia during and immediately after the Second World War.

Bulgaria completed – besides several branch lines in all parts of the country – the important Central Line from Sofija via Kazanlak and Sliven to Burgas and Varna (1931–1952).

In Albania the first railway line was the work of the revolutionary postwar period (1948). The construction of a national network is still on the way. The first international connection (with the Yugoslavian network)

has been established not before 1985.

During the 60s, 70s and 80s of this century in the average of the region more lines have been closed than opened as a result of the growing competition of road transport. Local lines, the last to be built, and stretches of main lines started but never completed have most often been affected. Yugoslavia and, to a somewhat lesser degree, Hungary have pursued the

most rigorous policy of closures.

Stronger activities in the construction of new railway lines displayed in the last decades besides Albania mainly Poland and Yugoslavia, partly Bulgaria. In Poland the most important tasks were to intensify traffic in the North-South direction and to facilitate the supply of the industrial regions of Southern Poland with raw materials from the Soviet Union. The response to the first task was among others the construction (1974–1977) of a main line from the Upper Silesian Industrial District to Warsaw (Warszawa), a response to the second the broad-gauge line from Krivoy Roh in the Ukraine to the Upper Silesian Industrial District.

Yugoslavia continued its construction activities of the interwar and postwar periods especially in the eastern part of its territory. Besides the line linking Belgrade with the Adriatic port of Bar in the region of Belgrade a completely new network has been created facilitating especially trans-

it traffic.

# rian Serbian and Turkish rally :RARAMAN had to be adapted to the new construction of a loop between

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## SAZETAK

# Razvoj željezničke mreže u Podunavskim zemljama

#### Peter Jordan

Prva željeznička linija u podunavskim zemljama – konjska željeznica od Českih Budejovica do Linza – otvorena je 1827. Prvi dio željezničke pruge sa lokomotivskom vučom (Vienna-Deutsch) pušten je u promet 1837. Sve do 1845. godine ukupnom dužinom željezničke mreže Habsburška monarhija (1058 km) zauzima drugo mjesto u Europi. Beč je postao čvorište svih

glavnih željezničkih prometnih pravaca Monarhije.

Između 1846. i 1867. godine Habsburška monarhija što se tiče izgradnje željezničkih pruga zaostaje za ostalim europskim državama uslijed financijskih teškoća privatnih poduzeća i državne uprave. Ipak, glavnina željezničke mreže Monarhije je dovršena. U prostorima jugoistočno od Habsburške monarhije samo su dvije kraće linije izgrađene na prostoru današnje Rumunjske i Bugarske. Politika razvoja željezničke mreže Habsburške monarhije malo je pažnje posvećivala zahtjevima regija izvan jezgre državnog teritorija. Nije bilo predviđeno formiranje velikih prometnih čvorišta osim Beča niti regionalne mreže koja prvenstveno ne služi boljitku središta

Monarhije ili rastu njezine glavne luke – Trsta.

Austro-ugarskom nagodbom iz 1867. godine izgradnja željezničke mreže dobila je nove poticaje zbog ekonomskog napretka i regionalnih političkih težnji u dva dijela Monarhije. U ugarskom dijelu Monarhije radijalni sistem željezničke mreže pokrivao je cijelu državu sa središtem u Budimpešti. U Austrijskom je dijelu povećana gustoća postojeće željezničke mreže. Izgradnja željezničke mreže u balkanskim zemljama pod kontrolom Turskog carstva bila je ograničena na ogranke i nekoliko glavnih linija i najvećim dijelom bila financirana stranim kapitalom. Tek kad su te zemlje stekle suverenitet i kada je Austro-Ugarska okupirala Bosnu i Hercegovinu 1878. brzina izgradnje je povećana. U Bosni i Hercegovini izgrađen je sistem pruga uskog kolosijeka; srpska željeznička mreža se razvija od 1884.; Vlaška i Moldavija (od 1861. Rumunjska, stekla suverenost 1878.) izgrađuju 70-tih godina 19. stoljeća željezničku mrežu u cijeloj zemlji, dok Bugarska koja je duže pod utjecajem Otomanskog carstva počinje razvijati koherentnu željezničku mrežu tek poslije 1895. godine.

Politička reorganizacija podunavskog prostora poslije I svjetskog rata dovela je u nekim prostorima do reorganizacije željezničke mreže. Tadašnja je Jugoslavija bila suočena sa zadatkom stvaranja željezničke mreže koja će služiti potrebama nove države, izvan postojećeg sistema koji je ili gravitirao centrima u inozemstvu ili je bio namijenjen potrebama manjih teritorijalnih jedinica. U Slovačkoj je trebalo izgraditi veze istok-zapad, a u Poljskoj veze od juga do središta zemlje. Izgradnja željezničke mreže koja se smanjila u međuratnom i poslijeratnom periodu ipak se, iako ekstenzivnije, nastavlja u manje razvijenim područjima kao što su: Rumunjska izvan Karpatskog luka, južna Bugarska i Albanija. Tijekom 60-tih, 70-tih i 80-tih godina, kao rezultat rastuće konkurencije cestovnog prometa, prosječno je više linija zatvoreno nego otvoreno, a time su najčešće obuhvaćene lokalne linije koje su zadnje izgrađivane i potezi glavnih linija čija je izgradnja započeta ali nije nikad dovršena. Bivša Jugoslavija i Mađarska provodile su

loign escrine razvoja mie do danas precizno obiašnjen ni empirir

najrigorozniju politiku zatvaranja željezničkih linija.

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