



The Development of Transport in the Czech Republic

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Abstract

Before 1989, transport in the former Czechoslovakia met its tasks based on the controlling principles of planned economy, focused eastwards and oriented on cooperation between the Eastern Bloc countries within COMECON. Due to the preference for raw material extraction and heavy industry, the transport sector dealt mainly with transporting commodities of these branches with high demands in volume. The planned economic principles were also reflected by the consistent division of transport work with a preference for stack substrate transport by rail.

The change of the political and economic circumstances in November 1989 influenced the life and needs of society substantially. A market economy has come, focused on the market of developed European countries and having an impact on the transport sector as such, individual transport systems, transport preferences and transported commodities [2].

As at 1 January 1993, Czechoslovakia has been divided into two independent countries, i.e. the Czech Republic and Slovakia. Therefore the following data from the Transport Statistics of the Czech Republic [1] are comparable starting from 1994. The authors of the article had data available until 2006.

Keywords: Transport, Development trends, Commodities, Statistics.

1. Development of transport from 1994 to 2006

In freight transport, there was an overall decrease in this period (Picture 1, Table 1), as well as a change from the East – West direction to the West/North – South direction and the change of transport labour division (the split model). After the breakup of Czechoslovakia, the average transport distance was shortened, with a negative impact on railway transport. From the macroeconomic point of view, a decrease in transport demands was (and still is) desirable, expressed at the ratio of transport in the overall economic production of the economy. The split model was also disadvantageous, bringing a substantial decrease of railway transport in favour of road transport with all

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the resulting consequences, i.e. a gradual overloading of roads, more accidents and the negative environmental impact. In domestic water transport, the situation did not change in this period, i.e. the share of this kind of transport in overall transport is more or less insignificant. Also the share of air transport was insignificant, even though the trend was on the increase [3].



Figure 1: Freight transport in the Czech Republic from 1994 - 2006. Source: [1].

Table 1: Transport of Goods in the Czech Republic.

<i>Transport of Goods in the Czech Republic (thousands of tons per year)</i>							
Year	1994	1995	1996	1997	1998	1999	
Rail	110,012	108,871	107,235	111,379	104,788	90,735	
Road	701,699	578,796	685,744	521,482	470,888	448,300	
Total	811,711	687,667	792,979	632,861	575,676	539,035	
Year	2000	2001	2002	2003	2004	2005	2006
Rail	98,255	97,218	91,988	93,296	88,843	85,612	97,491
Road	414,724	438,675	474,883	447,955	466,035	461,145	444,573
Total	512,979	535,893	566,871	541,251	554,878	546,757	542,064

Note: Source: [1].

In passenger transport, there was a substantial shift from public transport, both rail and road, to individual road transport (Picture 2, Table 2). There were negative consequences in growing traffic-jams, unsatisfactory safety conditions and growing damage to the environment. Therefore, more attention is paid to acceptable mobility, combined with the regulatory measures imposed by the state and municipalities, leading to sustainable transport. Also the trend of municipal mass transport was decreasing. In

water transport, its recreational character clearly prevailed. In air transport, the number of transported passengers grew steadily and relevantly.

The coordination of individual transport systems was (and still is), by the broadening integrated transport systems, improving the quality of transport availability. These systems gradually included municipal mass transport pursuant to the EU Directive on public services.

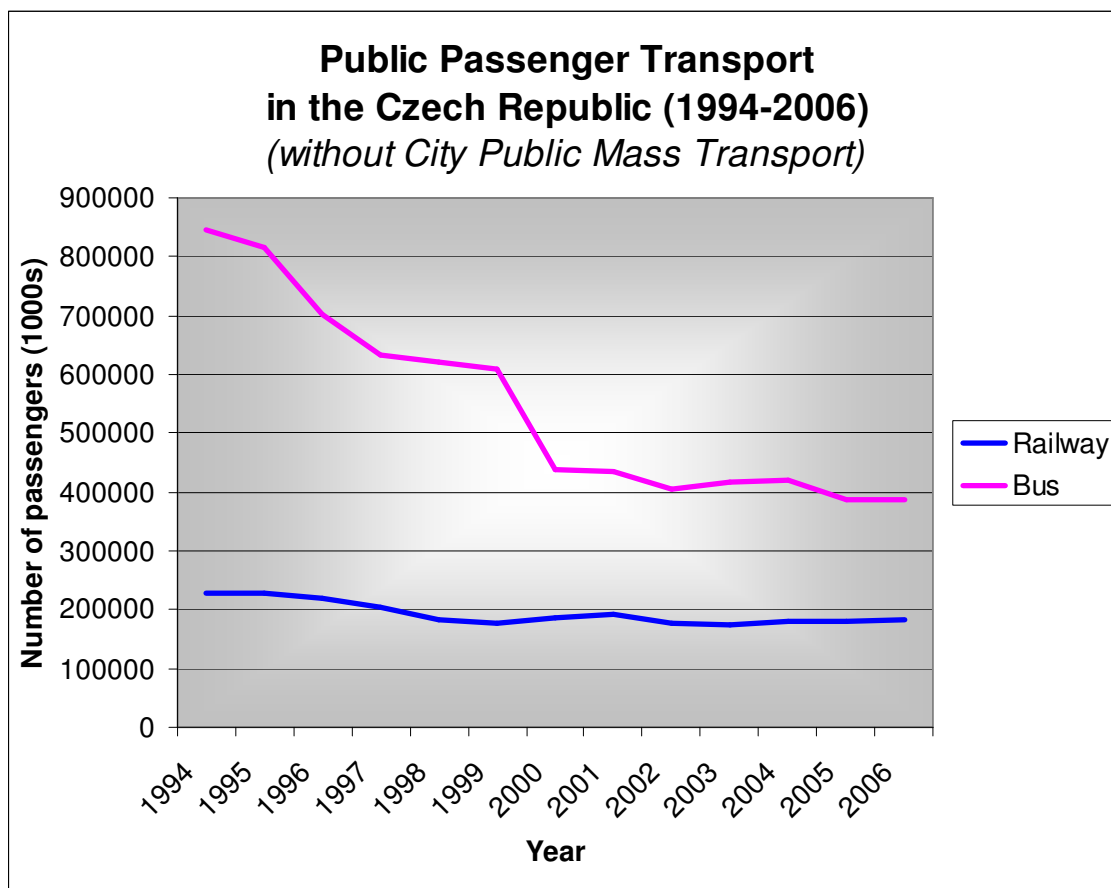


Figure 2: Public passenger transport in the Czech Republic (1994 - 2006). Source: [1].

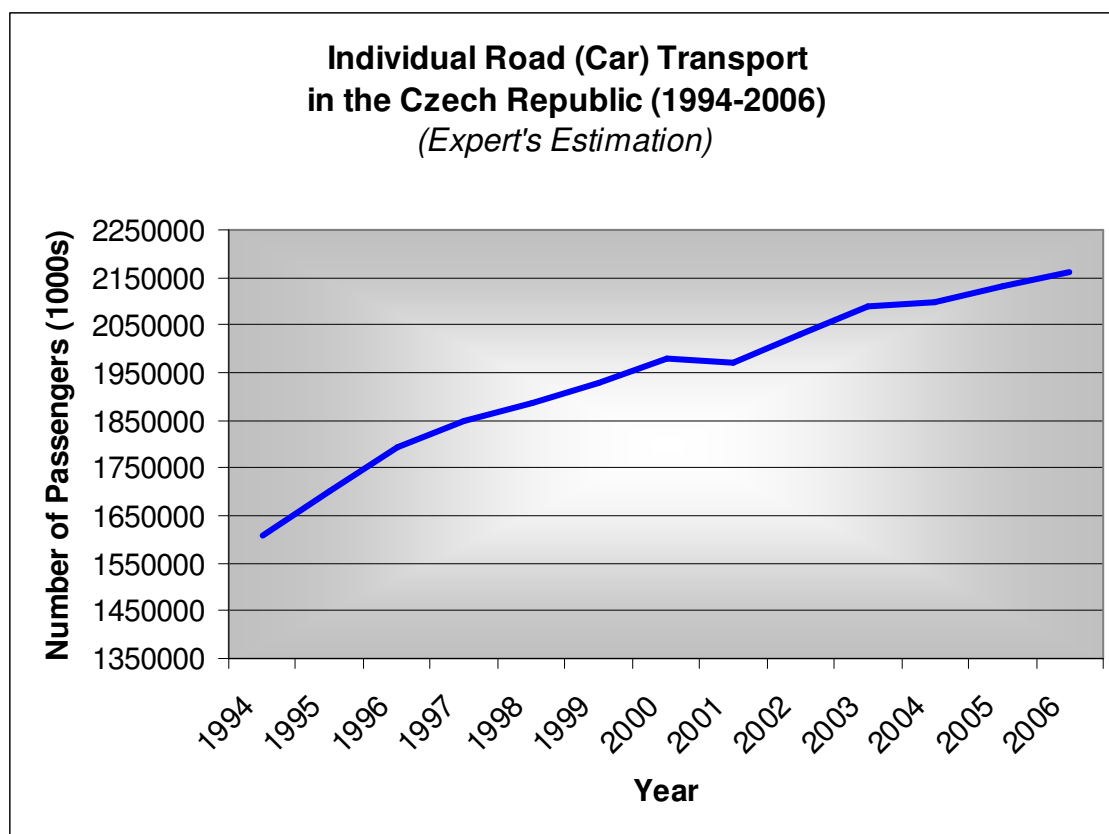


Figure 3: Individual road (car) transport in the Czech Republic (1994 - 2006). Source: [1].

Table 2: Passenger Transport in the Czech Republic (1994 - 2006).

<i>Passenger Transport in the Czech Republic, 1994 - 2006 (in number of passengers - thousands).</i>							
Year	1994	1995	1996	1997	1998	1999	
Railway - Total	228,719	227,147	219,244	202,894	182,944	177,046	
Public Bus Transport	845,500	817,200	702,235	633,873	622,394	608,331	
City Public Mass Transport	2,563,000	2,230,000	2,216,000	2,235,000	2,175,000	2,264,000	
Individual Road Transport*	1,608,000	1,700,000	1,795,000	1,850,000	1,885,000	1,930,000	
Year	2000	2001	2002	2003	2004	2005	2006
Railway - Total	184,735	190,748	177,232	174,179	180,949	180,266	183,027
Public Bus Transport	438,878	435,913	406,097	417,012	418,598	386,415	387,708
City Public Mass Transport	2,289,700	2,343,700	2,338,700	2,302,200	2,309,600	2,268,900	2,238,000
Individual Road Transport*	1,980,000	1,970,000	2,030,000	2,090,000	2,100,000	2,130,000	2,160,000

Note 1: * expert's estimation.

Note 2: Source: [1].

1.1. Railway transport

The political and economic changes had an immense impact on railway transport, both external, i.e. restructuring the national economy, and in transport itself. From the transport sector as a whole, production, assembly and repair activities were separated first and privatized subsequently. At that time, railway transport consisted of unitary railways, taking care of the transport infrastructure and railway transport in one accounting system. Therefore in the 1990s, these were separated in the sense of accounting, in accordance with the EU directive.

The state organization Czech Railways was established as at 1 January 1993, with the breakup of Czechoslovakia. Ten years later, transformation led to establishing the stock company Czech Railways as a transport company and the state organization Railway Infrastructure Administration as an infrastructure administrator. This act fulfilled the EU directive to separate both institutions physically.

In the following years, the stock company Czech Railways left to its subsidiaries, who numbered eighteen in 2007, all activities not directly connected with its main activity. In late 2007, a part of the main activity – freight transport – was separated into the independent stock company CD Cargo. At present, the separation of passenger transport, also the main activity, into another independent subsidiary is being prepared.

Due to the restructuring steps performed, the number of employees decreased substantially from 116,000 in 1993 to one half, i.e. 58,000 in 2006. A further decrease followed in 2007 with the separation of the freight carrier CD Cargo, a.s., and the same can be followed after the separation of passenger transport.

Freight transport decreased from 110 million tons in 1994 to 97 million tons in 2006 (Picture 3, Table 3), with a substantial decrease from 1998 to 1999, linked with the total drop of the gross domestic product. Despite some fluctuations in 1990s, the trend in transit transport was rising slightly. The structure of transported goods changed from stack substrates to goods with a higher value and lower specific weight. The share of railway freight transport in total transport was approximately 25 per cent. In 2007, there was a slight increase in railway freight transport, as preliminary data show. The cause was a partial shift from the overloaded road transport to the railway.

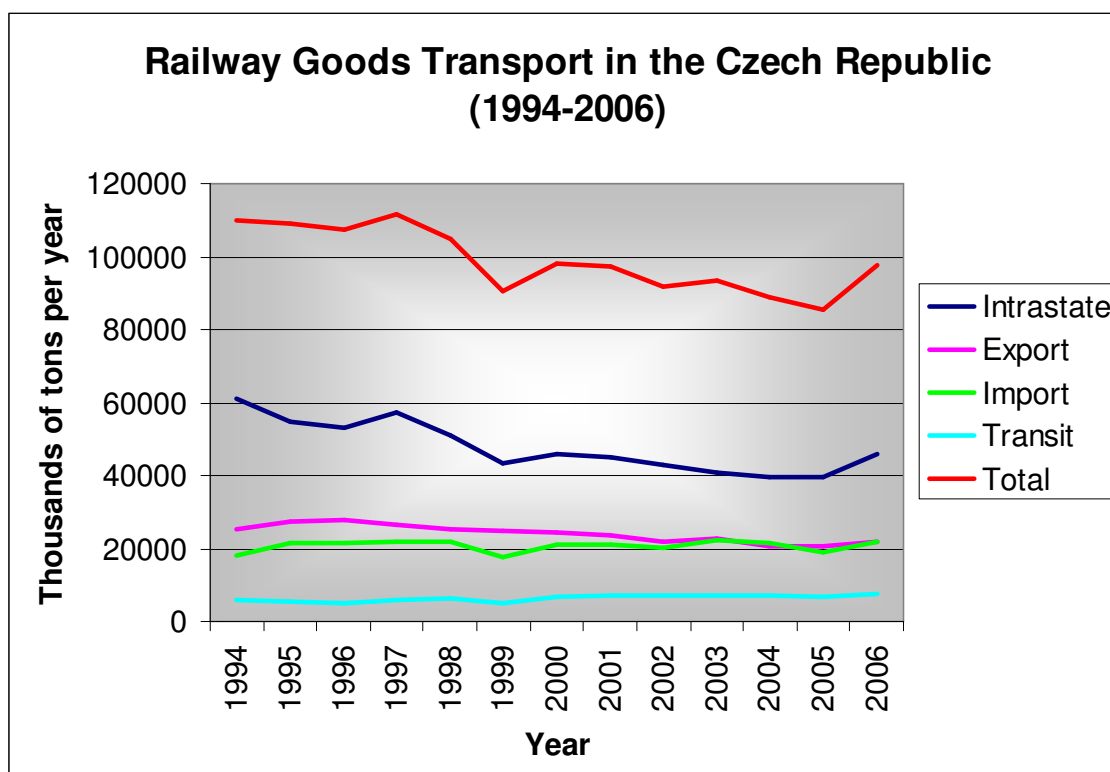


Figure 4: Railway freight transport in the Czech Republic (1994 - 2006). Source: [1].

Table 3: Railway transport of goods in the Czech Republic (1994 - 2006).

<i>Railway Transport of Goods in the Czech Republic (1994 - 2006) (Thousands of tons per year).</i>							
Year	1994	1995	1996	1997	1998	1999	
Total	110,012	108,871	107,235	111,379	104,788	90,735	
Intrastate	60,926	54,562	53,192	57,187	51,075	43,229	
International - total	49,086	54,309	54,043	54 192	53,713	47,506	
Export	25,228	27,246	27,627	26,441	25,415	24,661	
Import	18,157	21,466	21,277	21,942	22,053	17,627	
Transit through CZ	5,701	5,597	5,139	5,809	6,245	5,218	
Year	2000	2001	2002	2003	2004	2005	2006
Total	98,255	97,218	91,988	93,296	88,843	85,612	97,491
Intrastate	46,039	45,196	42,741	40,849	39,765	39,506	45,861
International - total	52,216	52,022	49,247	52,447	49,078	46,106	51,630
Export	24,582	23,760	21,913	22,692	20,456	20,523	21,924
Import	20,908	21,167	20,301	22,442	21,321	18,907	22,057
Transit through CZ	6,726	7,095	7,033	7,313	7,301	6,676	7,649

Note: Source: [1].

Railway passenger transport also decreased dramatically in the studied period, from 229 million passengers in 1994 to 183 million in 2006 (Picture 2, Table 2). The share of

railway passenger transport in the total number of transported passengers was approximately 6.5 per cent. The main reason for the decrease in passenger railway transport was the dynamic rise of individual auto transport. However, the preliminary statistical data for 2007 show that the number of passengers transported by the railways rose slightly. This change was a result of the improved transport culture due to the new means of transport in public mass transport and the rising fuel prices.

The transport infrastructure modernization received a contribution by the completion of construction of national railway corridors I and II and the commencement of construction of national corridors III and IV. Reconstruction of the main railway stations and junctions not included in the corridor construction is ongoing. This results in increasing speed, capacity and quality of travel.

Replacement of the ageing rolling stock started in both freight and passenger coaches.

In replacement of freight cars, it was important that Czech Railways got their share in the international organization EUROFIMA, financing the replacement of rolling stock of many European railways. Separating freight transport into the company CD Cargo, a.s., allowed financing replacement of its rolling stock from the profit of this company.

The replacement of rolling stock in passenger transport was resolved by deploying PENDOLINO units with a tilting car body, continuing deliveries of engine units CITY ELEFANT for commuter transport and modernization of REGIONOVA units for regional transport. To replace rolling stock in passenger transport, the government of the Czech Republic adopted the strategic document "Programme of the Renovation of Railway Rolling Stock in Passenger Transport".

Passing the amendment to Act No. 266/1994 Coll., the Railway Act, created equal conditions for conducting railway transport by all carriers on the basis of national law, complying with the EU legal regulations. This fact allows increasing the service quality due to competition between various railway transport providers.

1.2. Road transport

Road transport was privatized in the early 1990s from the former national companies of Czechoslovak Automobile Transport into separate private companies in both bus and freight transport. At present, there is no state-run company in road transport and approximately 35,000 transport companies with more than 150,000 employees are registered. However, some carriers only own one or a few vehicles, vehicles ageing both physically and technically. One serious and long-term problem is the unsatisfactory situation in road traffic safety, although it was improving moderately (in 2005, 25,239 accidents and 1,286 people killed were recorded; in 2006 it was 22,115 accidents and 1,063 people killed). In connection with the Czech Republic's accession to the European Union as at 1 May 2004, transit road freight transport increased sharply, with a negative impact on the environment.

The number of passengers in road public transport in 1994 was more than 845 million passengers; after ten years, in 2004, it decreased to less than half, i.e. 418 million passengers. This decreasing trend continues. In 2006, less than 388 million passengers were transported (Picture 2).

A similar trend can be seen in freight transport. While more than 701 million tons of goods were transported in 1994, it was only 398 million tons in 2006 (Picture 4).

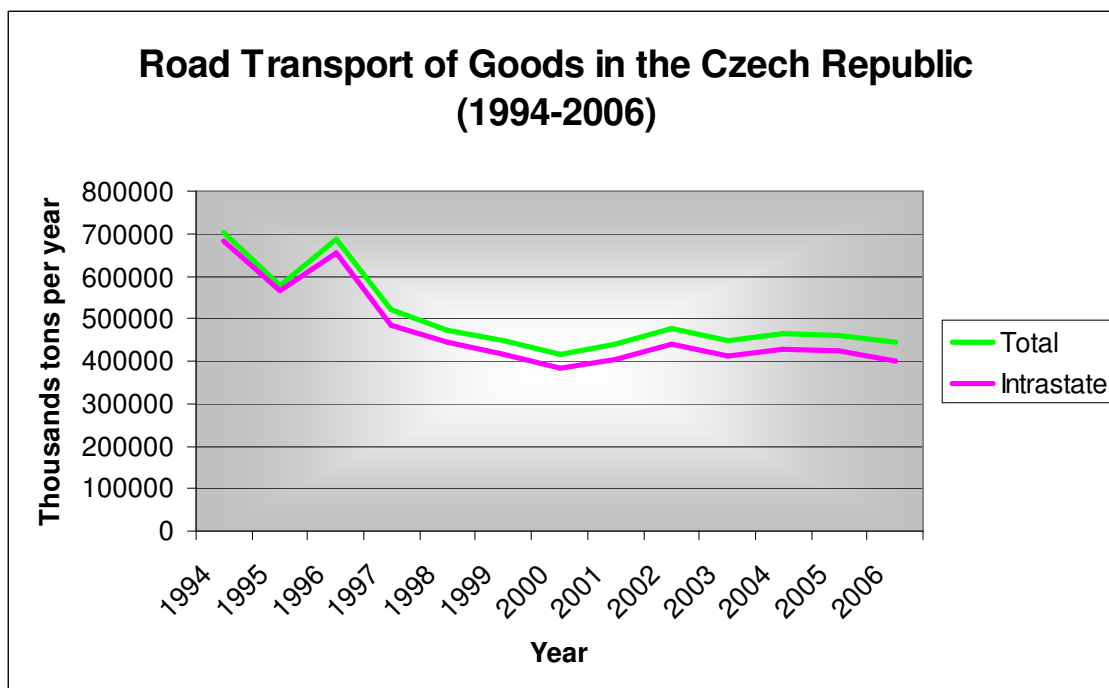


Figure 5: Road transport of goods in the Czech Republic (1994 - 2006). Source: [1].

Roads, previously owned entirely by the state, were subject to Act No. 132/2000 Coll., to change acts connected with the Act on Regions and Municipalities, dated 1 January 2001; motorways and trunk roads (1 class) are still owned by the state, administered through the state company Road and Motorway Directorate, and major main and main roads (2nd and 3rd class) are owned by regions, administered through the Road Administration and Maintenance of individual regions. In general, the condition of roads is poor, especially that of bridges.

1.3. Municipal mass transport

A similar trend to public railway and road transport was manifested in municipal mass transport. While in 1994 2.563 million passengers were transported, it was only 2.348 million passengers in 2006 (Table 4), i.e. a decrease of 338 million passengers. Preliminary statistical data for 2007 demonstrate a further decrease in favour of individual car transport.

Table 4: Number of passengers in city public transport in the Czech Republic (1994 - 2006) (thousands of tons per year).

Year	Number of Passengers (thousands)	Year	Number of Passengers (thousands)
1994	2,563 000	2001	2,343,700
1995	2,230 000	2002	2,338,700
1996	2,216 000	2003	2,302,200
1997	2,235 000	2004	2,309,600
1998	2,175 000	2005	2,268,900
1999	2,264,000	2006	2,238,000
2000	2,289,700		

Note: Source: [1].

1.4. Air transport

On the other hand, air transport in the Czech Republic increased dramatically after 1993.

In passenger transport, the total number of passengers in 2006 was 12.44 million, with the greatest share at the largest airport, Prague – Ruzyne. Some problems with transporting passengers between the Prague centre and this airport remained, caused by the long-delayed construction of a railway line in this relation.

In air freight transport, 22,000 tons were transported in 2006.

The national air carrier Czech Airlines was privatized and more carriers were established subsequently, both charter and low-cost carriers.

Airports in Brno, Ostrava and Karlovy Vary were privatized. The Prague – Ruzyne airport is still owned by the state; its privatization is being prepared and it will be the biggest privatization event of the current period (estimated at approximately CZK 100 billion, i.e. approximately EUR 4 billion).

1.5. Water transport

In individual water transport, recreational transport prevailed significantly. In freight transport, the transport of coal from North Bohemia to the Chvaletice power plant in East Bohemia stopped, and in 2006, water transport represented approximately 2 million tons of goods, of the total freight transport amounting to 555 million tons.

There are certain problems in making navigable the short section of the Elbe River from Prelouc to Pardubice and from Usti nad Labem to the Czech-German border due to protection of the environment [4].

1.6. Individual car transport

The opposite trend in comparison with public transport is displayed in individual auto transport. Based on experts' statistical estimation, approximately 1.608 million people used cars in 1994; this number was 2.160 million in 2006 (Table 5).

Table 5: Number of passengers in individual transport in the Czech Republic.

Year	Number of Passengers (thousands)	Year	Number of Passengers (thousands)
1994	1,608,000	2001	1,970,000
1995	1,700,000	2002	2,030,000
1996	1,795,000	2003	2,090,000
1997	1,850,000	2004	2,100,000
1998	1,885,000	2005	2,130,000
1999	1,930,000	2006	2,160,000
2000	1,980,000		

Note 1: Experts' estimation only.

Note 2: Source: [1].

2. Status of the harmonization of rail and road transport and infrastructure financing

From the point of view of competition between two major types of transport, i.e. rail and road transport, there is no condition of harmonization of their enterprise in terms of the infrastructure use. While the infrastructure use in railway transport has been paid since 1st January 2003, payment is partial only in road transport. One positive step in this area was the introduction of tolls on motorways and high-speed roads for road vehicles over 12 tons as at 1st January 2007 and on some 1st-class roads as at 1st January 2008. Other road vehicles, including cars are still subject to paying the highway fee in the form of highway stickers.

To finance the financial infrastructure, the State Fund for Transport Infrastructure with its own yearly budget was established by government decree. With respect to the poor condition of the infrastructure, the budget is insufficient and new sources of financing must be sought.

3. Expected development in transport

Further development in passenger transport will be influenced, among other things, by the prepared Act on public transport, as well as by carrier coordination by means of introducing, broadening and deepening more integrated transport systems

In freight transport, we can expect a partial shift from road to railway transport, a substantial growth of intermodal transport and more steps in the harmonization of the transport infrastructure conditions.

In railway transport, more important changes can be expected, connected primarily with the ongoing liberalization. A substantial increase of railway transport competitiveness is foreseen, thanks to the railway infrastructure modernization and replacement of rolling stock in both passenger and freight transport. By passing the prepared amendment to Act No. 266/1994 Coll., the Railway Act, equal conditions for operating railway transport will be created for all carriers on the basis of national law, corresponding to the EU legal regulations. This fact will allow increasing the quality of service thanks to competition between various operators of railway transport. The number of passengers in railway transport will probably grow slightly in long-distance and commuter railway passenger transport. The present studies and projects of high-speed transport create a basis for its implementation, based on financial resources in the acceptable future.

In road transport, no organizational changes can be expected. The existing trends will probably endure in passenger and freight transport. More motorways and high-speed roads will be under construction.

In municipal mass transport, a slight increase can be expected in the number of passengers, connected with more frequent traffic-jams (not only in built-up areas) and growing fuel prices.

In air transport, further increase of the number of passengers is expected, continuing modernization and prepared privatization of the Prague – Ruzyne Airport and construction of a railway line between the Prague centre and this airport.

Further development of water transport will probably be influenced by the enduring negative opinion of the Ministry of the Environment on resolving the Elbe River navigability.

The trend of increasing individual auto transport will continue. However, this can be influenced negatively by the rising fuel prices and measures against the worsening condition of the environment.

4. Conclusions

The presented facts show that transport has experienced complicated and dynamic development from the establishment of the Czech Republic until today. Most changes performed were beneficial for meeting transport demands in domestic and international dimensions. The existing problems are similar to many countries of the European continent. In future, it is necessary to focus on the effective use of various transport systems in their mutual relationships, with an emphasis on quality, lower energy demands and environmental protection. The transport infrastructure must be improved as well. Financing will be of special importance in this.

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