

COST AND TIME COMPARISON FOR AIR AND LAND TRANSPORT BETWEEN THE CZECH AND SLOVAK REPUBLICS

**Sylva Skupinová – Eliška Smotlachová – Jan Máče – Štěpánka
Drahoňovská**

Abstract

The main aim of this paper is to compare prices and demands on time when using air, bus and train services between the Czech and the Slovak Republics, with practical recommendations for specific connections between selected destinations in both these neighboring countries.

This paper focuses on major transport options on scheduled services between the Czech and Slovak Republics. Based on the data, fare prices were evaluated for trains, buses and air travel to and from destinations that have international airports. Travel time among the explored destinations of the two countries was also examined. The analysis was performed for the period of October 2014 - September 2015. The examined Czech destinations included: Prague, Brno, Ostrava, Karlovy Vary and Pardubice. The Slovak destinations included: Bratislava, Košice, Žilina, Poprad and Sliač. A statistical analysis was performed along with an evaluation of the preferred means of transport for travel between specific cities from the perspective of cost and time.

Key words: price, transport, statistical analysis, the Czech Republic, the Slovak Republic

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Introduction

Air travel is characterized by high speed and transport over long distances. It is the fastest and safest way of transportation, and in addition, the air transport industry provides a large number of jobs. Recently, due to a rapid rise in living standards for people around the world, this type of service has seen a significant increase both in passenger and cargo air transport (Ramos-Perez et al., 2014). This increase in air traffic is also caused by rapid technical and technological development (Wesonga, 2015), liberalization of the economic environment (Baumgartner et al., 2014), increased competition between airlines (Wadud, 2014), and a marked decline in ticket prices (Calzada et al., 2014). The benefits of international air

transport also supports the development of international relations and cooperation between countries on an economic, socio-political and cultural level (Pruša et al., 2007).

The Czech Republic and Slovakia are countries that are very close to each other, share a common history and similar economic level, and are still developing cooperation in all areas of society. Ensuring adequate transport links between the two countries is therefore a crucial issue in the communication between the two countries. In the case of air transport, the situation is very specific. Both countries cover a very small area, and there are therefore currently air connections only between Prague and Bratislava and Prague and Kosice (Wokoun, 2008). Ground transportation, both bus and train, is considerably more varied and connects all major cities in both countries (Toušek, 2009). The price analysis summarized in this paper as well as the comparison of the time required for specific connections and modes of transport may contribute to better understanding and decision-making when choosing the mode of transport.

1 Analysis of prices and demands on time for direct links between the Czech and Slovak Republics

The main aim of this paper is to compare prices and demands on time when using air, bus and train services between the Czech and the Slovak Republics, with practical recommendations for specific connections between selected destinations in both these neighboring countries.

Research included source data provided by the carriers indicating the connections between the Czech Republic and Slovakia for the period October 2014 - September 2015. Average prices are uniformly expressed in euros, and time consumption in minutes. A large amount of the data was determined according to published price lists and times of transport from various Internet sources for the transport companies (ČSA, 2014) (BTS Aero, 2014) (Košice International Airport, 2014). To simplify the issue, partial data was averaged using the arithmetic mean. Mean values for selected connections were calculated from source data with an emphasis on Prague as a starting destination to make the data more easily comparable. The number of connections based on individual modes of transport is shown in Table 1.

Table 1: Number of connections according to individual modes of transport

| Mode of transport | Type of connection | | | |
|-------------------|--------------------|-------------------------|------------------------|-------|
| | Direct | Indirect (1 transfer or | Indirect (2 transfers) | Total |
| | | | | |

| | | stopover) | | |
|--------------|----|-----------|--------------|----|
| Air | 2 | 1 | Undetermined | 3 |
| Train | 18 | 7 | 0 | 25 |
| Bus | 12 | 9 | 4 | 25 |

Source: Authors

Due to the large volume of data, only direct connections were included in the analysis. Average prices in euros for bus and train tickets are given in Table 2, time consumption in minutes in Table 3.

Table 2: Comparison of average prices in euros for direct train and bus connections

| Departing station | Route | Bus | Train |
|-------------------|------------------------|-------|-------|
| Prague | Prague – Bratislava | 11.66 | 15.33 |
| | Prague – Košice | 24.53 | 22.49 |
| | Prague – Žilina | 15.24 | 16.34 |
| | Prague – Poprad | 18.93 | 20.44 |
| | Prague - Sliač | - | 20.44 |
| Ostrava | Ostrava – Bratislava | 13.67 | 11.23 |
| | Ostrava - Košice | - | 15.33 |
| | Ostrava - Žilina | 5.58 | 7.87 |
| | Ostrava - Poprad | - | 13.28 |
| | Ostrava - Sliač | - | 13.28 |
| Pardubice | Pardubice - Bratislava | - | 14.29 |
| | Pardubice – Košice | 21.23 | 19.43 |
| | Pardubice - Žilina | - | 13.28 |
| | Pardubice - Poprad | - | 17.38 |

| | | | |
|--------------|-----------------------|-------|-------|
| | Pardubice – Sliac | - | 29.65 |
| Karlovy Vary | Karlovy Vary - Poprad | 24.83 | 23.50 |
| | Karlovy Vary - Košice | - | 25.55 |
| Brno | Brno - Bratislava | 7.448 | 7.16 |
| | Brno – Košice | 17.18 | - |
| | Brno – Poprad | 16.28 | - |
| | Brno – Žilina | 11.51 | - |

Source: Authors

Table 3 Comparison of time required (in minutes) for direct train and bus links

| Departing stations | Route | Bus | Train |
|--------------------|------------------------|-----|-------|
| Prague | Prague – Bratislava | 278 | 251 |
| | Prague – Košice | 608 | 501 |
| | Prague – Žilina | 362 | 327 |
| | Prague – Poprad | 496 | 428 |
| | PragueSliac | - | 495 |
| Ostrava | Ostrava – Bratislava | 345 | 169 |
| | Ostrava - Košice | - | 335 |
| | Ostrava - Žilina | 137 | 120 |
| | Ostrava - Poprad | - | 273 |
| | Ostrava - Sliac | - | 422 |
| Pardubice | Pardubice - Bratislava | - | 231 |
| | Pardubice – Košice | 730 | 435 |
| | Pardubice - Žilina | - | 251 |

| | | | |
|--------------|-----------------------|-----|-----|
| | Pardubice - Poprad | - | 362 |
| | Pardubice – Sliač | - | 449 |
| Karlovy Vary | Karlovy Vary – Poprad | 643 | 810 |
| | Karlovy Vary - Košice | - | 887 |
| Brno | Brno - Bratislava | 98 | 88 |
| | Brno – Košice | 543 | - |
| | Brno – Poprad | 338 | - |
| | Brno – Žilina | 630 | - |

Source: Authors

In order to compare outputs (flights), Prague was selected as the departing destination for the main pricing and time consumption analysis. Data on direct connections is summarized in Tables 4 and 5.

Table 4: Comparison of average prices for individual modes of transport from Prague

| Prices in euros | Air | Bus | Train |
|---------------------|--------|-------|-------|
| Prague - Bratislava | 83.38 | 11.66 | 15.33 |
| Prague - Košice | 103.81 | 24.53 | 22.49 |
| Prague - Poprad | - | 18.93 | 20.44 |
| Prague - Žilina | - | 15.24 | 16.34 |
| Prague - Sliač | - | 17.39 | 20.44 |

Source: Authors

Table 5: Comparison of time required for transport (in minutes) from Prague

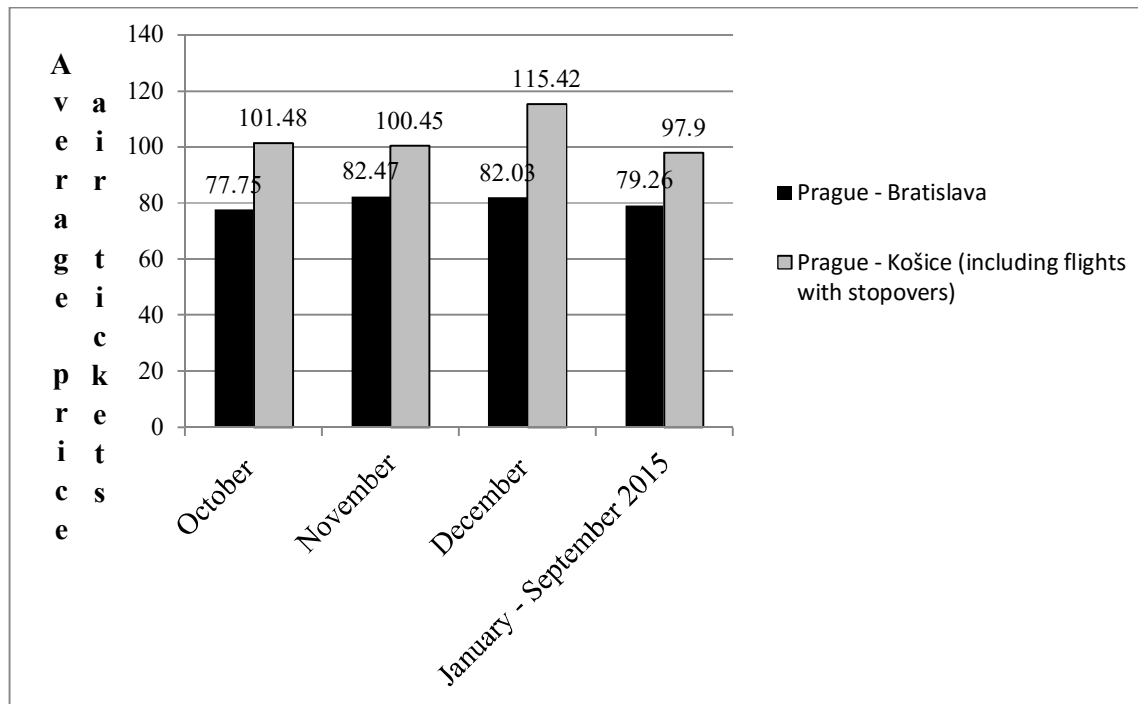
| Connection | Air | Bus | Train |
|---------------------|--|-----|-------|
| Prague - Bratislava | 60 | 278 | 251 |
| Prague - Košice | 90 (150 with a stopover in Bratislava) | 608 | 501 |
| Prague - Poprad | - | 496 | 428 |
| Prague - Žilina | - | 362 | 327 |
| Prague - Sliač | - | 481 | 495 |

Source: Authors

Tables 4 and 5 show that air transport significantly exceeds the average price of cheaper land transport, but is much faster. However, one can argue about the choice of transport when optimizing prices and time spent for the Prague – Bratislava connection, where the price for the bus is 7 times lower and the price for train is 5.5 times lower than travelling by air, but "only" four times higher for time consumption. One must consider whether these time savings are really worth it, since the time required does not include the time spent at the airport at check-in (on average 50 minutes) and for transfers, which at airports is always longer.

For interest, Figure 1 shows average ticket prices in euros, which were determined from the source data, including already planned prices for January - September 2015.

Figure 1: Average air ticket prices (in euros) for October 2014 – September 2015.



Source: Authors

From the statistical analysis of prices and the time required for connections between the Czech Republic and Slovakia, it appears that air transport is not advantageous, in terms of prices for these shorter distances, but high passenger comfort is very often cited as one of the benefits of air transport. Currently, however, with an increasingly competitive environment for rail and bus carriers, the level of quality and comfort for trains and buses is rising. Even on these modes of transport one will find stewards and stewardesses, passengers can buy snacks, newspapers and magazines, and there is a Wi-Fi connection, etc. Some companies, as part of

this competitive struggle, provide many services in the price of the ticket (e.g., snacks or newspapers). This means that passenger comfort is assured even in many buses and trains. In addition, on the Prague - Bratislava and Prague – Košice routes, there are mainly turboprop aircraft, which are considerably noisy, and which certainly do not contribute to passenger comfort. The indisputable advantage of air transport is saving time, which, however, decreases with destinations that are closer together and due to the need for checking-in (Castillo-Manzano et. al., 2014). Another advantage of air travel is the high level of safety compared to land travel. The disadvantage of air transport compared with other modes of transport is the very high price (Narangajavana et al., 2014). As a result, one can determine under which circumstances it would be worth it for a passenger to use air transport.

Conclusion

Fares for air travel are significantly higher than prices of bus and train tickets. This disadvantage, however, decreases with increasing distance. Airfares between Prague and Kosice are thus more advantageous compared to buses and trains than airfares between Prague and Bratislava. Conversely, in terms of time, air transport is preferred for the fact that it saves time, which increases with increasing distance. Air transport, however, presents many other positive factors, whether it is the high level of safety or the comfort of passengers. Airlines should focus even on these factors when promoting short haul flights.

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Contact

Sylva Skupinová

Department of Management

Vysoká škola hotelová v Praze 8, spol. s r. o.

Svídnická 506

181 00 Prague 8

Czech Republic

Email: skupinova@vsh.cz

Eliška Smotlachová

Department of Economics

Vysoká škola hotelová v Praze 8, spol. s r. o.

Svídnická 506

181 00 Prague 8

Czech Republic

Email: smotlachova@vsh.cz

Jan Máče

Department of Economics

Vysoká škola hotelová v Praze 8, spol. s r. o.

Svídnická 506

181 00 Prague 8

Czech Republic

Email: mace@vsh.cz

Štěpánka Drahoňovská

Department of Economics

Vysoká škola hotelová v Praze 8, spol. s r. o.

Svídnická 506

181 00 Prague 8

Czech Republic

Email: s.drahonovska@email.cz