

# ECONOMICAL ANALYSIS OF VÁCLAV HAVEL AIRPORT PRAGUE ALTERNATIVES

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**Abstract:** The research was focused on evaluating the possibility of using nearby airport infrastructure to accommodate possible alternative flights. The quest is to reveal the way of choosing desired characteristics of alternative airports, size of catchment areas and cost of airport fees. Furthermore the paper determines the impact of airport fees on the final air ticket price and calculates the total savings gained by moving to an alternative airport. The conclusion is devoted to assess a possibility of alternate particular flights from Václav Havel airport Prague airport (LKPR) to nearby airports, because Václav Havel airport Prague has very specific position, and more 90% of flight is dispatched from there.

**Keywords:** aviation, alternative airports, secondary airports, catchment areas, commuting distance, airport fees, incentive offers, airport development

## 1. INTRODUCTION

The current studies mention that the aviation market has matured due to the birth of new airlines, specifically the low-cost airlines, which have changed the rules on the aviation market. Hand-in-hand with deregulation policies the low-cost airlines have brought the cost down and put full-services airlines on defensive. However some studies do not tell the whole story and refuse to recognize the contribution of new airports to this development. Generally speaking, openings of new airports have led to a market diversification and have brought possibilities of alternative flights to virtually same destinations. These alternatives have allowed any airline to compete with the current airline serving the connection and to avoid strict bilateral agreements. The major benefits

for the airlines serving alternative airports have been generally lower costs, less congestion, faster turnarounds and simple slot rescheduling processes.

## 2. SECONDARY AIRPORT DEVELOPMENT

The developments of airport networks were rapid in adjacent areas of European metropolises in the past, now there is time for smaller capitals to get their own alternative airports. Since the record of many secondary airports through Europe is breathtaking, there is a will to bring more alternative airports to the market. Most of the alternative airports have been able to face traffic declines in bad years and overcome the growth of primary airports in good years. The examples might be Brussels Charleroi, London Stansted or Stockholm Skavsta. Those airports have picked up significant numbers of passengers who would otherwise travel from the main airports.

## 3. ALTERNATIVES

An alternative airport has to match the following list of vital requirements formulated by Warnock-Smith (2005)

- attractive catchment areas
- free slots

- fast turnarounds
- lower airport fees

An alternative airport to LKPR must meet an additional local factor as well – a reasonable commuting distance to an alternative airport from LKPR. The distance has been set to 320 km. The criterion has been chosen so that more airports could take part in the comparison. There are 4 airports with scheduled services and a capacity of handling a typical short haul aircraft<sup>1</sup> in the Czech Republic. The airports are Pardubice (LKPD), Karlovy Vary (LKKV), Ostrava Mosnov (LKMT) and Brno Turany (LKTb). There are several foreign airports considered in this study as well (Dresden Airport, Wrocław Airport).

Additionally, a new project improving the infrastructure of Vodochody Airport (LKVO) to the standards of an international airport is about to be started. LKVO is designed as a low-cost airport and it is going to be focused on price sensitive airlines. The major advantages of LKVO are going to be:

- close distance to Prague
- identical catchment area with LKPR
- presumably lower airport fees

## 4. CATCHMENT AREAS

There is no assurance for airports that people living in their catchment area will be traveling and if so, their choice might be different as generally expected. The way to assure airlines that there are enough passengers to fill introduced flights from a particular airport is to study catchment areas and possible competition from other airlines and airports.

The competition in the Czech Republic has not matured yet, on the other hand the geographical location of existing airports presents an opportunity to expand existing smaller airports and challenge LKPR at least to a couple of flights. Figure 1 presents areas which can be reached within 2 hours from 5 considered Czech airports. The competition is not only within the border but also from abroad as shows Figure 2.

<sup>1</sup> Airbus A320, Boeing 737 and their derivatives



Figure 1 Catchment areas of foreign airports

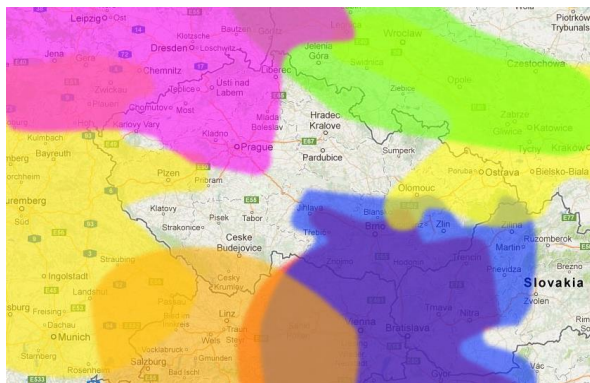


Figure 2 Catchment areas of major Czech airports

To sum up, the number and location of airports possible serving the Czech Republic is promising; however the offer of smaller airports is not sufficient to be considered a threat for LKPR.

## 5. AIRPORT CHARGES

Airport charges consist of an approach fee, a landing fee, a departing tax and some airports applies also a noise charge and an environmental tax. Approach and landing fees are usually based on MTOW<sup>2</sup> of the landing aircraft. MTOW is rounded up to whole tons and multiplied by a coefficient set by each airport. Departing tax for passengers reflects the running costs of the airport. Noise charges are based on the noise classes of the landing aircraft. Finally, environmental taxes<sup>3</sup> are determined by the length of the flight.

The consideration of flying to a distant alternative airport is suited mostly to low-cost and charter airlines, which are driven by costs. Doganis (2010) claims that airport charges are between 15 and 20% of the total airline expenditures. That is the reason why airlines desperately seek for these savings, because they might provide a long-term competitive advantage.

<sup>2</sup> maximum take-off weight

<sup>3</sup> collected in only Germany

Table 1<sup>4</sup> shows the difference in airport charges in the Czech Republic. The possible savings might be significant.

Broadly speaking, lower fees might cause widening airports' catchment areas and thus attract more airlines and passengers. However those airports with minimal traffic could not be set as a cost benchmark for an airport of LKPR's size.

The airport charges of foreign airports are spread around their Czech competitors. The least expensive airport charges pay airlines serving Wrocław Airport, which saves up to 57% of the charges in comparison with LKPR. German airports are backed down due to the environmental tax, but despite this fact they still charges 11% less than LKPR. The most expensive in this comparison are Austrian airports Vienna and Linz.

| Wizzair A320            | LKTB          | LKKV          | LKMT           | LKPD          |
|-------------------------|---------------|---------------|----------------|---------------|
| approach charge         | 8,777         | 8,777         | 8,777          | 7,560         |
| landing fee             | 21,600        | 20,747        | 21,600         | 17,280        |
| departure tax (180 pax) |               | 63,000        | 75,600         | 61,200        |
| <b>total</b>            | <b>96,977</b> | <b>92,525</b> | <b>105,977</b> | <b>86,040</b> |
| <b>difference</b>       | <b>20,200</b> | <b>24,653</b> | <b>11,200</b>  | <b>31,137</b> |
|                         | <b>17%</b>    | <b>21%</b>    | <b>10%</b>     | <b>27%</b>    |

Table 1 Airport fees at Czech airports (CZK)

## 6. PRIMARY VS. SECONDARY AIRPORT

The recent opening of Warsaw Modlin Airport (EPMO) close to main Warsaw Chopin Airport (EPWA) allows to examine the real cost advantage gained from moving from the main to the low-cost secondary airport. At the date of opening Wizzair has immediately moved all their flights to achieve the highest possible cost savings. The saving consists from lower a landing fee and departure passenger tax, an absent noise charge and an incentive offer.

| Wizzair A320            | EPWA          | EPMO          |
|-------------------------|---------------|---------------|
| approach charge         | 6,073         | 6,073         |
| landing fee             | 18,544        | 12,200        |
| departure tax (180 pax) | 65,880        | 43,920        |
| noise charge            | 828           | 0             |
| <b>total</b>            | <b>91,325</b> | <b>62,193</b> |
| <b>difference</b>       |               | <b>29,213</b> |
|                         |               | <b>32%</b>    |

Table 2 EPWA vs. EPMO charges (CZK)

EPMO introduces a policy, which allows airlines to pay landing fees depending on passenger volumes per year. Wizzair bases 4 aircrafts there and has been on the track to transport between 1-1,3 million passengers in the

<sup>4</sup> pax = passengers

year, so the departure tax is 159 CZK per pax, it is clearly less than 360 CZK at EPWA.

Table 3 reveals that standard airport charges in both destinations vary. Moreover the annual passenger numbers for Wizzair causes extending the difference to 46% compared to the standard charges at EPWA. Those airports are separated by only 21 nm so there is not even difference in other cost such as in fuel or navigational charges.

In conclusion a 46% discount on landing fees has proven to be a motivator for airlines to change their base airport.

## 7. INCENTIVE OFFERS

Another way how to attract new airlines is to introduce incentive programs for new destinations. These programs are commonly based on discounting landing fees or departure taxes. The incentive programs last from 3 to 5 years. The initial year of the service is highly discounted to cover the initial weak demand for the introduced flights and then it is decreasing. Czech airports recognize the opportunities provided by these programs and implement them into their policies.

The leading airport in discounting new services is LKMT, which offers 73% discount for full 5 years. Such a discount however brings in question the LKMT profitability in long-term. Table 3 shows the savings gained by using the incentive offers.

| Wizzair A320       | LKPR           | LKTB           | EPWR           |
|--------------------|----------------|----------------|----------------|
| airport charges    | 117,177        | 96,977         | 50,169         |
| navigation charges | 22,630         | 24,925         | 24,250         |
| fuel difference    | 41,225         | 54,967         | 48,457         |
| <b>total</b>       | <b>181,032</b> | <b>176,868</b> | <b>122,876</b> |
| difference         |                | 4,164          | 58,156         |
| per passenger      |                | 23             | 323            |

Table 3 LKPR/LKBT/EPWR – EGGW (CZK)

## 8. IMPACT OF AIRPORT CHARGES ON AIR TICKET PRICES

The attempts to reduce cost are long lasting, but the question is if the reduction benefits are swallowed by airlines or passengers benefit from as well. In this study a link between airport fees and air ticket price is examined.

A possible way to assess this link is to find an airline which operates flight from the same departing airport to different airports in examined areas. Those airports have presumably various airport fees. There are two possibilities of choosing the departing airport – London Luton and Eindhoven.

| Wizzair A320 |                                        | approach charge | landing fee | departure tax | total per flight | savings per flight | per cent   | savings per year |            |            |
|--------------|----------------------------------------|-----------------|-------------|---------------|------------------|--------------------|------------|------------------|------------|------------|
|              |                                        |                 |             |               |                  |                    |            | 1x week          | 2x week    | 3x week    |
| <b>LKTB</b>  | 1 <sup>st</sup> year                   | 8,777           | 10,800      | 33,300        | <b>52,877</b>    | 44,100             | <b>45%</b> | 2,293,200        | 4,586,400  | 6,879,600  |
| <b>LKKV</b>  | 1 <sup>st</sup> year                   | 8,777           | 1,037       | 31,500        | <b>41,315</b>    | 51,210             | <b>55%</b> | 2,662,923        | ---        | ---        |
|              | 2 <sup>nd</sup> year                   | 8,777           | 10,374      | 63,000        | <b>73,374</b>    | 19,151             | <b>21%</b> | 995,855          | ---        | ---        |
|              | 1 flight per week                      |                 |             |               |                  |                    |            | 3,658,777        |            |            |
|              | 1 <sup>st</sup> year                   | 8,777           | 1,037       | 31,500        | <b>41,315</b>    | 51,210             | <b>58%</b> | ---              | 5,325,846  | 7,988,769  |
|              | 2 <sup>nd</sup> year                   | 8,777           | 5,187       | 63,000        | <b>76,964</b>    | 15,561             | <b>22%</b> | ---              | 1,618,299  | 2,427,449  |
|              | 3 <sup>rd</sup> year                   | 8,777           | 11,411      | 63,000        | <b>83,188</b>    | 9,336              | <b>15%</b> | ---              | 970,980    | 1,456,469  |
|              | 2+ flights a week                      |                 |             |               |                  |                    |            |                  | 7,915,125  | 11,872,687 |
| <b>LKMT</b>  | 1 <sup>st</sup> – 5 <sup>th</sup> year | 8,777           | 4,320       | 15,120        | <b>28,217</b>    | 77,760             | <b>73%</b> | 4,043,520        | 8,087,040  | 12,130,560 |
|              |                                        |                 |             |               |                  |                    |            | 20,217,600       | 40,435,200 | 60,652,800 |
| <b>LKPD</b>  | no incentive programs provided         |                 |             |               |                  |                    |            |                  |            |            |
| <b>LKPR</b>  | 1 <sup>st</sup> year                   | 8,777           | 654         | 94,500        | <b>104,759</b>   | 12,418             | <b>11%</b> | 645,757          | 1,291,514  | 1,937,270  |
|              | 2 <sup>nd</sup> year                   | 8,777           | 3,268       | 94,500        | <b>107,373</b>   | 9,804              | <b>8%</b>  | 509,808          | 1,019,616  | 1,529,424  |
|              | 3 <sup>rd</sup> year                   | 8,777           | 6,536       | 94,500        | <b>110,641</b>   | 6,536              | <b>6%</b>  | 339,872          | 679,744    | 1,019,616  |
|              | 4 <sup>th</sup> year                   | 8,777           | 9,804       | 94,500        | <b>113,909</b>   | 3,268              | <b>3%</b>  | 169,936          | 339,872    | 509,808    |
|              |                                        |                 |             |               |                  |                    |            | 3,330,746        | 4,996,118  |            |

Table 4 Incentive offers at Czech airports (CZK)

Firstly, London Luton (EGGW) is offers Wizzair flights to LKPR, LKTB and EPWR. The comparison is particularly precise for both Czech airports, because the same aircraft from LKPR base is used to serve both flights. That provides the same compilation of the total costs, thus variable costs would be the deciding factor.

Flying to a different airport means a change in fuel costs, navigation costs, airport fees and handling costs.

Handling costs are considered to be the same due to lack of reliable data. Table 4 summarizes the difference in costs. Not surprisingly flying longer distance from EGGW reduces the difference in flight expenditures between LKPR and LKTB to almost zero under the standard airport charges. However flights from LKTB are discounted due present incentive offer, which brings LKTB back in lead. EPWR once again proves its position and provides lower costs accommodating basically the same flight.

The next step is to compare the found flights' expenditure with the price of air tickets for flights departing from all airports. The data were collected on 15.10.2012 for the following 3 months. The average price on departure from LKPR was 1,938 CZK, from LKTB 1,139 CZK and from EPWR 1,028 CZK. A further analysis shows that 109 out of 136 flights from LKPR were more expensive than flights departing from LKTB, in average by 1,086 CZK. When the difference is compared with the various flight expenditures, it is obvious that flights from LKPR are generally more expensive than would dictate the flights' expenditures.

The same conclusion is found for LKPR and EPWR, but there might be more to the story, because Polish crews and Czech crews might be paid unequally. Anyway LKPR is significantly more expensive than EPWR. There is no objective way how to decide if the lower airport charges cause this difference or not.

Secondly, Eindhoven airport is served by both LKPR and LKBT. The situation is the same - a Wizzair A320 is based at LKPR and serves both routes. In this case LKBT is more expensive than LKPR even though the connection still benefits from an incentive offer and has lower total expenditures for flight.

To sum up, the analysis of those two connections has not proved any direct connecting between air ticket price and airport charges at least for Wizzair flights. Thus doubts questioning the premise that lowering airport fees lead directly to cheaper air tickets remains.

## 9. PASSENGER BEHAVIOR

The induction of new airports have cased that hardly any region in Europe is served by one only airport. The overlapping airport catchment areas noticeably

change behavior of passengers. However there is not a clear pattern to this transition. Several studies attempt to tackle this issue, for instance Suzuki (2003) claims that VFR<sup>5</sup> and low-cost passengers are willing to travel to a distant airport if that brings price benefits. Pantazis (2006) determines that VFR passengers cause extending the catchment areas of low-cost airports. However on the other hand the situation might change, because the latest study Lian (2011) argues that Norwegians have abandon the concept of flying from regional airports and are willing to commute longer distances to depart from a main airport.

The behavior of passengers might be altered by improving quality of service, introduction more flights or massive advertisement. Generally, passengers have become more informed about their possibilities and react to these changes rather promptly, which made airline to fight each other even harder.

## 10. CONCLUSION

The conclusion from the analysis is following:

There is a possibility to find lower airport charges than LKPR has. Generally, the possible discount gained by moving services from LKPR an alternative airport is might realistically be up to 30% for Czech airports. Czech airports belong to the average in airport charges.

Even though an airline finds a suitable alternative with cheaper charges, the gained benefit is direct only for the airline, because a link between these benefits and air ticket prices is not clear.

The only viable alternatives for LKPR might be LKPD and LKVO. Both of those alternatives offer similar catchment areas to LKPR, great commuting times and lower airport fees. However neither of them is ready to fulfill this role now. LKVO is only on the paper at this very moment and LKPD needs to build a new terminal, which would allow accommodating more than one aircraft at the same time. For that reason airlines are not in rush an introduction of alternative services to the Czech Republic.

The other considered airports are not suitable to be direct LKPR alternatives, however they might serve a limited number of destination predominantly intend to serve regional passengers.

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<sup>5</sup> visit friend and relatives passengers

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