The Analysis of the Possibility of Serving Mass Events by Air Transport

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The paper presents the analysis of the influence mass events (such as EURO 2008) has on number of passengers and freight. The main objective of the paper is to present in what way mass events preparation influences the number of passengers handled at big airport (Zurich) and at small local airport (Basel). Road transport will be subject to similar analysis.

1. INTRODUCTION

It's an extremely complicated task to prepare an airport for the purposes of serving mass events. The paper will present the analysis of air traffic at Zurich and Basel airports in Switzerland, where among others EURO 2008 was organized. The estimation of the number of passengers in 2008 will be done on the basis of the data from 2006 and 2007 (with the help of the time series theory [1]). Furthermore, the estimation will be compared with actual figures.

2. THE ANALYSIS OF PASSENGERS' TRAFFIC.

Switzerland is a country with well-developed transport infrastructure. High quality of both highways and high-speed rail result in the fact that air transportation is not as competitive as in case of countries with less developed transport infrastructure. Also the limitations resulting from the choice of a particular mode of transport must be kept in mind: when travelling by car, coach or train, a passenger must appear at the departure point only a few minutes prior to actual departure. In case of air transport each passenger (with some exceptions such as e.g. a presidents or Prime Minister) undergoes safety check. Therefore, the duration of the flight is not the only time that needs to be taken into account. The data from tables 1 and 3 refer to air transport and provide flights durations only. According to information from airlines (LH, LOT, SWISS, AF, AI) each passenger should present himself at the airport 90 minutes before the actual plane departure. If the passenger carries only hand luggage, he may leave the airport immediately after the plane arrival. However, if he carries registered luggage as well, he needs to wait until the plane is unloaded. The minimum waiting time is 30 minutes and it results from ground handling for planes and from the distance our luggage needs to cover from the plane to the terminal. The location of the airport and the distance from the cultural centres must also be taken into account.

2.1. ZURICH

The city of Zurich was responsible for organizing three group matches. As a result of drawing, teams of Romania, Italy and France played at Letzigrund stadium. Table 1 shows transfer times for various modes of transport.

Table 1. Transfer times from main cities of Romania, Italy and France to Zurich, Switzerland.

City	by car	by train	by plane
Milano	3:30 h	4:00 h	1:15 h
Roma	9:30 h	8:30 h	1:30 h
Torino	4:30 h	6:00 h	0:55 h
Paris	7:00 h	4:30 h	1:25 h
Marseille	8:00 h	7:00 h	1:20 h
Bucharest	10:30 h	14:00 h	1:35 h

Source: [2] [3] [4] [5] [6] [7]

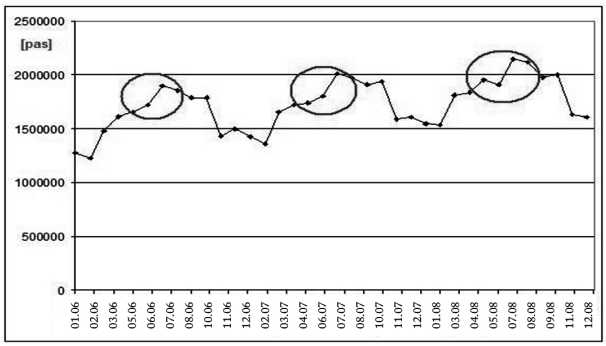

Figure 1. The number of passengers handled in 2006-2008 as per month.
Source: [8]

Picture 1 shows the number of passengers using Zurich airport in 2006-2008 as per month.

It must be noticed however, that the times series of the amount of passengers has a growing tendency and is characterised by a periodicity. Decreasing number of passengers in November, December, January and February must be stressed. We can presume the number of passengers in these months is really low (a winter connection network is valid from October till April).

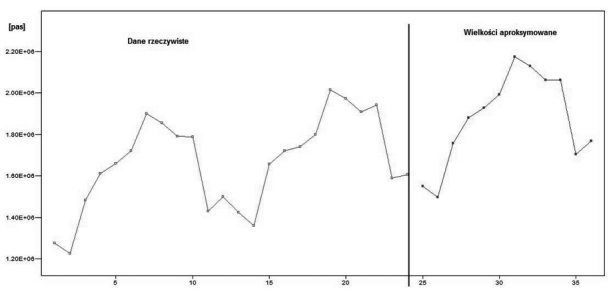

Figure 2. Passengers at Zurich airport (subsequent months, starting from January 2006).

EURO 2008 took place in June. Picture 2 shows the estimated level of passengers' movements in 2008 on the basis of data from 2006 and 2007.

Basing on the estimation, the following data were received (Table 2).

Table 2. The comparison of the estimated data versus the actual ones.

	actual data	estimated data	estimation mistake
January	1544640	1548900	+0,28%
February	1537704	1495800	-2,73%
March	1815231	1758100	-3,15%
April	1839760	1880600	+2,22%
May	1956752	1927500	-1,49%
June	1912488	1991800	+4,15%
July	2150234	2173800	+1,10%
August	2119863	2129200	+0,44%
September	1977286	2062800	+4,32%
October	2003525	2063400	+2,99%
November	1631564	1704700	+4,48%
December	1610186	1768300	+9,82%

On the basis of data received it can be said that EURO 2008 which took place in Zurich did not increase the air traffic. On the contrary – the number of passengers handled at that time decreased. The expected number of passengers was lower than it would normally be. Also a decreased number of passengers in November and December must be stressed. Such a situation may be a result of the world economic crisis. In order to confirm such thesis one should thoroughly analyse connection networks of carriers who provide services for this airport, check various kinds of planes (paying special attention to the number of passengers allowed on each plane) and analyse load factor.

2.1. BASEL

The city of Basel was responsible for organizing both group matches (3 matches) and quarterfinals (2 matches) and semifinal. St. Jakob-Park Stadium hosted the following teams: Switzerland, Czech

Republic, Turkey, Portugal, Germany, the Netherlands, and Russia.

Table 3. Transfer times from the teams' main cities to Basel

City	by car	by train	by plane
Praha	7:30 h	15:30 h	1:25 h
Istanbul	40:30 h	46:00h	3 h
Lisbon	24:00 h	21:00 h	6 h
Berlin	9:00 h	8:00 h	3 h
Frankfurt	3:30 h	4:00 h	1:05 h
Amsterdam	7:30 h	9:00 h	1:30 h
Moscow	33:00 h	44:00 h	6 h

Source: [2] [3] [4] [5] [9] [10]

Such allocation of teams to Basel resulted in a fact that most football fans chose air transport. Picture 3 shows the number of passengers handled at Basel airport in 2006-2009.

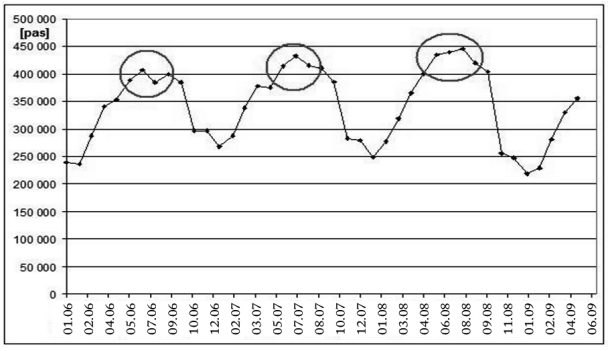

Figure 3. Passengers flows in a given period of time

Similarly as with Zurich analysis, a clear tendency and periodicity must be noticed. The same as in case of the previous airport, a decrease in the number of passengers in November, December, January and February can be observed. A decrease in the number of passengers since November 2008 must be particularly stressed.

Picture 4 shows the approximate number of passengers in 2008 on the basis of data from 2006 and 2007.

Having estimated particular months, we have received an expected time series in 2008 and at the beginning of 2009. It must be noticed that the approximated data have a slightly growing tendency. Table 5 shows the approximated data versus the actual ones.

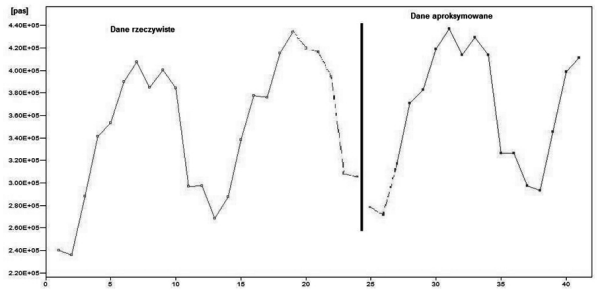

Figure 4. Passengers at Basel airport (subsequent months, starting from January 2006).

Table 4. The estimated data versus the actual ones.

Month	actual data	estimated data	estimation mistake
2008			
January	248748	269220	+8,23%
February	277961	265300	-4,55%
March	318609	317300	-0,41%
April	365556	370710	+1,41%
May	401244	382720	-4,62%
June	435769	419080	-3,83%
July	440489	436860	-0,82%
August	445377	413860	-7,08%
September	421064	429520	+2,01%
October	403973	413660	+2,40%
November	255799	326340	+27,58%
December	247334	326420	+31,98%
2009			
January	219089	297470	+35,78%
February	229035	293550	+28,17%
March	280770	345550	+23,07%
April	330691	398960	+20,64%
May	356517	410970	+15,27%

Data presented clearly show the growth in the number of passengers in May, June and July. Therefore, the preparation of the championships did influence the air traffic. The allocation of countries that played at Basel stadium was of great importance. As a matter of fact, the air transportation was the only available option for fans from Russia, Portugal or Turkey. The decrease in number of passengers since the world economic crisis has begun must be noticed. For the airport with the average number of passengers at 350,000, the difference of 80,000 between the approximated and actual data is of great importance.

3. FREIGHT TRAFFIC ANALYSIS

The EURO championships organizational committee requires the host cities to be ready much in advance (the usual deadline is 6 months ahead of the event). The air freight traffic is characterised by a few factors: it is more expensive than other modes of transportation; however the delivery time is much shorter. The host cities are selected three years ahead of championships. Thanks to that it is possible to prepare a detailed schedule of the program. As a result a different (cheaper) means of transport can be chosen.

The size of aircrafts is the next limitation. In case of local airports most aircrafts go medium or short range. The ATR Dash or Avro aircrafts have very small baggape deck. With big amount of passengers the probability of cargo transport decreases which results from the airlines rules and regulations as well as priorities given to business and economy class baggage and other goods (such as normal and express parcels, animals, hazardous goods etc.). Transportation of air integrated load unit (special pallets and containers) with the usage of special trailers seems to be the solution to this problem. This issue has been fully discussed in [12].

The limitation for air freight is inability to load cargo onto cheap airlines' aircrafts as they serve passengers only. Local airports handle mainly cheap airlines.

3.1 ZURICH

The city of Zurich was responsible for 3 matches during Europe Championships. However, one must bear in mind that Zurich is the main airport in Switzerland. Picture 5 shows monthly freight figures (in tons).

It must be noticed that there are no major fluctuations. The figures show the amounts between 28 thousand to max. 36 thousand tons. The substantial growth in air freight figures in months preceding championships in Europe must be noticed. It could be connected with the event but it didn't have to be. It could be the result of wrongly scheduled works which might have forced the usage of an expensive but fast means of transport. In order to prepare a deeper analysis the permission from the airlines should be granted. The airlines would have to provide the information on cargo recipients and what is more, the recipients themselves would have to confirm the necessity to carry the cargo solely for the championships and related activities.

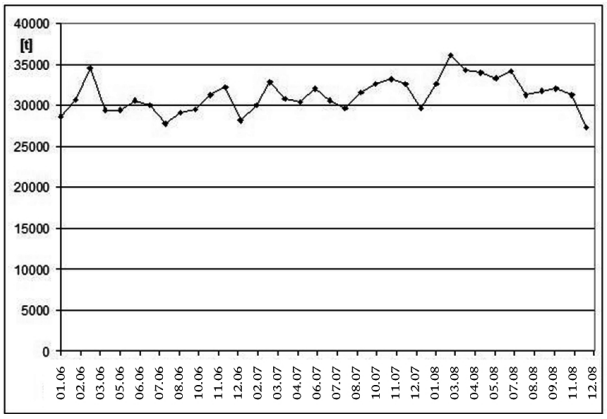

Figure 5. Freight figures in a given period of time
Source: [8]

3.2 BASEL

The airport of Basel is a local one. Nevertheless, as the city has a big stadium, it organized the most of matches. The Basel airport serves a few destinations with big aircrafts, able to carry integrated unit loads. Picture 6 shows the freight figures.

The growth in freight figures at the Basel airport is noticeable, especially from August 2006. The freight figures from August 2006 till July 2007 are between 6000 tons to 8000 tones. Lack of any regularity is visible. Special attention must be paid to a dramatic drop in figures after the championships. The drop might have been a result of economic crisis.

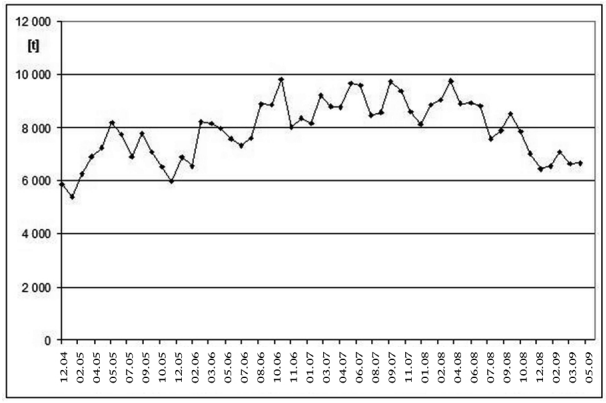

Figure 6. Freight figures in a given period of time.
Source: [11]

4. SUMMARY

The analysis done clearly shows that the influence mass events (such as Europe Championships) have on air traffic at airports may vary. Such events do not change much in case of big international airports such as Zurich, for both passengers and freight traffic.

The situation is different, however in case of smaller, local airports. In Basel one could observe a significant growth in passengers' traffic during the mass event. The freight traffic is more broken down in time and it starts to increase two years prior to the event.

In order to perform a deeper analysis of the air traffic at airports being affected by mass events, one should closely examine the number of aircrafts flying during the month of Championships (June) and one should juxtapose the data on maximum number of passengers that could have been handled by aircrafts on each day with the actual figures. Also the size of aircrafts in a given period of time (e.g. a year) could be analysed.

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