

Mega Istanbul Airport

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This paper shows that the planned number of passengers at Istanbul Airport can be reached if the Turkish economy grows to its potential over the next 25 years. However, the airport may only reach the capacity of 120 million passengers by the 2050s if economic growth rates stay below the potential level 5 per cent for the period 2013–2019, 4 per cent for the period 2020–2030 and 2 per cent for the period 2031–2043.

Introduction

Turkey has undergone major development in air transportation since the industry was deregulated in 2003. The increasing capacity of airlines, as well as the development of Turkish Airlines after its partial privatization, led to a significant increase in air traffic in Turkey. Air traffic grew by an average of 16 per cent per year in from 2002 to 2012, compared to 5 per cent annually around the world. Istanbul Ataturk Airport (IST) provided approximately 35 per cent of Turkey's total passenger traffic with 45 million passengers in 2012, and it was expected that the number of passengers would exceed 65 million by 2019. Therefore, the authorities decided to build a new airport in May 2012.

Istanbul Airport, which is built on around 7600 hectares, is expected to be the world's largest airport in terms of passenger traffic. The airport is planned to be built in three phases. In the first phase, the new airport is constructed to accommodate 90 million passengers. There are plans to increase the capacity of the new airport to 120 million in the second phase and then to 150 million in third phase. Istanbul Airport, which took over the Ataturk Airport's operations, is the only airport on the European side of Istanbul.

This mega-project has raised debate regarding environmental concerns and profitability. In this paper, I focus on the latter and provide a feasibility analysis on the new Istanbul Airport. To do this, I first simulate the number of passengers under two different scenarios for the following 30 years through an econometric model, and then predict the aeronautical and non-aeronautical revenues depending on the predicted number of passengers to assess the feasibility of the new airport.

Is the expected number of passengers realistic?

The enplaned passenger forecasts are developed using a bottom-up approach based on a regression model using socioeconomic variables. I regressed the number of pas-

sengers on the real ticket prices, real GDP and population. After obtaining the regression parameters, the number of passengers (domestic, international and connecting separately) for each year between 2013 and 2043 are simulated under two different scenarios.

In Scenario 1, the growth rate of real GDP is taken as 5 per cent for the period 2013–2019, 4 per cent for the period 2020–2030 and 2 per cent for the period 2031–2043, according to the OECD medium and long term predictions (OECD 2012). However, the realization of the potential growth rate is possible only if the necessary structural reforms are performed in order to overcome the restriction such as low savings and low competition power. If the necessary structural reforms are not made, then the potential growth rate will not be attained. Hence, I set up Scenario 2, which has lower economic growth rates such as 4 per cent for the first period, 3 per cent for the second period and 1.5 per cent for the last period (Gursel and Toru, 2013). I adapt Turkish Statistics Institute (TUIK) population increase projection; that is, 1.02 per cent for the first period, 0.74 per cent for the second period and 0.36 per cent for the last period (TUIK, 2012). Considering ticket fares, I posit an increase of 3 per cent, 2 per cent and 1.5 per cent for the respective periods. Note that the two scenarios differ only in terms of economic growth assumptions.

Having predicted the total number of passengers, I derive domestic, international and transit passengers according to past observations. In other words, I first project the growth rate of domestic and total international (that is, international and transit) passengers in the Ataturk Airport during 2005–2012 on the first period. Then, the shares of domestic passengers and international passengers in the total number of passengers are taken as 26 per cent and 74 per cent, respectively, for 2019–2043. For 2012–2043, the average annual growth rates are 4.9 per cent for total number of passengers, 4 per cent for domestic and 5.3 for international passengers under Scenario 1. Considering

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Scenario 2, the rates are 3.1 per cent, 2.2 per cent and 3.5 per cent, respectively. In order to identify the number of transit passengers, I use the observations from Turkish Airlines. Precisely, I assess the variation of this during the period from 2005 to 2012, then reflect the rate of variation on the period 2013–2043. The total number of passengers at the new airport will be 80 million under Scenario 1 and 68 million under Scenario 2 in 2019. The distribution of domestic, international and transit passengers are 21 million, 38 million and 22 million, respectively, under Scenario 1, and 18 million, 32 million and 19 million passengers, respectively, under Scenario 2.

Note that 90 million passengers are targeted for the new Istanbul airport in 2019; the capacity utilization in terms of the number of passengers will be 89 per cent under Scenario 1.

This capacity utilization rate is acceptable (Vaze and Barnhart 2011). However, in Scenario 2 the capacity utilization rate will be 76 per cent.

Remember that the targeted number of passengers is 120 million and 150 million for the last two phases. To determine whether these targets are realistic, I predict the number of passengers until the end of the consortium's contract. According to the results, the new airport could reach its 150-million-passenger capacity by the 2030s in Scenario 1. Hence, a capacity of 90 million in the first stage seems more than reasonable and 150 million passengers would be achieved around 2030. In Scenario 2, however, the number of passengers barely reaches 70 million in 2019 and the planned airport could reach a maximum capacity of 117 million passengers by 2043.

Year	Number of passengers	Domestic	Total international	International	Transit
2012*	45.1	15.3	29.8	20.0	9.8
Scenario 1					
Year	Number of passengers	Domestic	Total international	International	Transit
2013	54.0	17.3	36.7	23.4	13.3
2019	80.3	20.9	59.4	37.9	21.6
2030	158.2	41.1	117.0	74.5	42.5
2043	201.1	52.3	148.8	94.8	54.0
Growth rate					
Period	Number of passengers	Domestic	Total international	International	Transit
2012–2043	4.9	4.0	5.3	5.2	5.6
2012–2019	8.6	4.6	10.4	9.6	11.9
2019–2030	6.4	6.4	6.4	6.4	6.4
2030–2043	1.9	1.9	1.9	1.9	1.9
Scenario 2					
Year	Number of passengers	Domestic	Total international	International	Transit
2013	52.8	16.9	35.9	22.9	13.0
2019	68.9	17.9	51.0	32.5	18.5
2030	106.4	27.7	78.7	50.2	28.6
2043	116.9	30.4	86.5	55.1	31.4
Growth Rate					
Period	Number of passengers	Domestic	Total international	International	Transit
2012–2043	3.1	2.2	3.5	3.3	3.8
2012–2019	6.2	2.3	8.0	7.2	9.4
2019–2030	4.0	4.0	4.0	4.0	4.0
2030–2043	0.7	0.7	0.7	0.7	0.7

Table 1. The Number of Passengers (million) and the Growth Rates (%) under Scenario 1

Source: Author's own computations

* Actual values in 2012

Operating Revenue and Cost Analysis for the New Istanbul Airport

The second main question is about how the airport could become profitable despite its huge costs. To assess the feasibility of the new airport, I predict the aeronautical and non-aeronautical (commercial) revenues depending on the predicted number of passengers.

According to the conditions of the bid, the new airport will charge 20 Euros per international passenger, 5 Euros per transit passenger and 3 Euros per domestic passenger. The total passenger revenue is calculated by multiplying these prices by the corresponding number of enplaned passengers. Considering the revenue obtained from landing, I obtain the number of aircraft landing by dividing the number of domestic and international passengers by the average number of passengers per aircraft (123). I then multiply the number of aircraft landing by the average maximum aircraft weight (190 tons). The regulated prices listed by General Directorate of State Airports Authority of Turkey (DHMI) are used to obtain the landing revenue (DHMI, 2013). The fees charged to passenger like airport security are collected under the name of other passenger revenue, which is assumed to be one-quarter of the passenger revenue, similar to Hartsfield–Jackson Atlanta International Airport (FAA, 2012). Following the statement of the consortium and the financial statement of Atlanta Airport, I assume that the commercial (non-aeronautical) revenue will be double the revenue from passengers. To compute the operating cost, I assume that the profit margin will be 30 per cent for the new airport, similar to the other two airports in Istanbul – Ataturk and Sabiha Gokcen airports (Operation Report of TAV and Malaysia Airports, 2012).

In Scenario 1, the passenger airline revenue is estimated to be 998 million Euros and the other operating revenue is 1.996 billion Euros. Then, the total operating revenue is computed to be 2.995 billion Euros and the operating cost is 2.96 billion Euros under the assumption of 30 per cent profit margin.

Besides the operating revenue and cost, I need to consider the bid conditions that also generate some revenue and cost to the consortium. Firstly, the Treasury gives a guarantee on the number of passengers such that it will pay the consortium 6.3 billion Euros for the first 12 years covering the international and transit passengers. This means that if the consortium obtains less than 525 million Euros of passenger revenue from international and transit passengers, the Treasury will transfer the difference to the consortium. If the consortium gathers more than 525 million Euros, it will transfer the difference to the Treasury. For example, in

2019, as the revenue from total international passengers is 432.9 million Euros, which is less than the guarantee, the Treasury will transfer 92.5 million Euros to the consortium in the first scenario.

Secondly, the consortium promised to pay approximately 26.1 billion Euros (including VAT) for 25 years, starting from 2019 and ending in 2043. Hence, the rent paid by the consortium will be 1.45 billion Euros per year. Thirdly, the consortium is planning to take a loan of 6 billion Euros for construction cost of about 7.5 billion Euros. Nihat Ozdemir, CEO of LIMAK, mentioned that it would be possible to find a loan for 16 years without repayments for the first four years. Therefore, I assume that the consortium will have a loan for 16 years without repayments for the first four years at an interest rate of 4 per cent per year. I compute the interest rate by adding a half point of risk premium to the Eurobond interest rate of 3.5 per cent. This interest rate is the lowest rate that the consortium could find under the current economic conditions. Under these assumptions, the repayment of the loan will be 628.9 million Euros per year.

In Scenario 1, the consortium will have a loss of 683.5 million Euros. That is to say, the operating profit of airport will not be sufficient to pay the rent and the loan repayments. The situation will be even worse in the case of low economic growth (Scenario 2) and the loss will be equal to 749.7 million Euros when the airport starts to operate.

In these computations, I only consider the operating revenue (that is, predicted aeronautical and commercial revenues), operating cost and the bid conditions. However, it is well known that the operating services are not the only revenue resource for airports. There are non-operating activities (passenger facilities, real estate, sponsorship, etc.) that generate extra revenue for airports. For instance, the new airport can charge an extra fee to passengers through passenger facility fees, which are collected to finance certain projects at the airport.

Predicted Return of the Consortium

Table 2 presents the revenue and cost of the new airport for the entire contract period. Recall that I have considered the prices charged to passenger by the airport to be constant for the period 2019–2043. However, the tariff may change for the following years.

Under the constant price assumption, the new airport is expected to post losses until 2030, when the loans are repaid. The accumulative loss would reach 5.7 billion Euros in Scenario 1 and 7.7 billion Euros in Scenario 2 by 2030. However, the planned airport could accumulate profit of

Year	Scenario 1			Scenario 2		
	Total Operating Revenue	Total Cost	Net Profit/Loss	Total Operating Revenue	Total Cost	Net Profit/Loss
2019	3.0	3.8	-0.7	2.6	3.5	-0.7
2030	5.9	5.8	-0.2	4	4.5	-0.5
2043	7.5	6.3	1.2	4.4	4.1	0.3
2019–2030 total	52.0	56.5	-5.7	39	47.4	-7.7
2031–2043 total	88.6	75.6	13.0	55	52.1	2.9
2019–2043 total	140.6	132.1	7.3	94	99.5	-4.8

Table 2. Revenue and Cost, 2019–2043 (billion Euros)

Source: Author's own computations

7.2 billion Euros by the end of 2043 in the first scenario, but the new airport would suffer a loss of 4.8 billion Euros by 2043 in the second scenario.

The results show that the operating revenue of the new airport will not be sufficient to cover operating cost, rent and loan repayments. Unless the non-operating revenues are high enough, the new Istanbul airport as a business will not be profitable under the existing rental conditions and predicted revenues.

Conclusion

The Istanbul Airport will only reach its potential of 150 million passengers in the 2030s if Turkey as a country achieves sustainable growth; otherwise, the airport may only reach a capacity of 120 million passengers by the 2050s. Hence, the expected number of passenger traffic will not be attained during the contract period if economic growth remains below its potential. Particularly, if the economic growth remains below its potential due to a failure to implement key structural reforms, passenger traffic will remain below 120 million in 2043. Therefore, the requirement for a mega-airport in Istanbul depends crucially on the future growth performance of the Turkish economy.

The results show that, in Scenario 1, cumulative losses of 5.7 billion Euros appear until 2030 because of rent and loan instalments. However, these losses are largely compensated by large profits and the cumulative profit is estimated to reach 7.2 billion Euros by the end of the end of the tender period. Nevertheless, in Scenario 2, the cumulative losses are estimated to be 4.8 billion Euros. The profitability of the mega-airport might be problematic unless the consortium succeeds in raising enough non-operational revenue from real estate developments in the extensive area (7400 hectares) provided to the new airport. As the consortium could not undertake such losses, there would be two pos-

sibilities: the loss would most probably be compensated by extra charges on passengers or the consortium would try to get some non-operational incomes on the land.

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