Journal of International Trade, Logistics and Law, Vol. 2, Num. 2, 2016, 143-148

THE IMPACT OF THE AIRLINE FREIGHT TRANSPORTATION ON GDP IN TURKEY

Okşan Kibritci Artar, (Asst. Prof. Dr.)

Istanbul Commerce University, Turkey

Nagehan Uca, (Ph.D)

Istanbul Commerce University, Turkey

Mustafa Emre Taşçı, (Ph.D Candidate)

Istanbul Commerce University, Turkey

Abstract:

The demand of passenger and freight transportation has been increasing tremendously each day due to the globalization process. Therefore, the acceleration in the transportation demand has a natural impact on the distances that the freights have been carried through in overall. In this prospect, international logistics provides an economic utility from the sustainability viewpoint in the global competition arena. World-wide supply and distribution channels have become so sophisticated, resulting in having vitality in the field therefore boosting its share in the Gross Domestic Product (GDP). High impact of liberalization in the air transportation markets has been affecting the market of Turkey as well as USA and EU. Moreover, it is one of the industries that have survived from the global financial crises which is also critical from the competition based strategies.

In this study, the relation between the GDP and the air freight traffic of Turkey has been analyzed by using an econometric model. As a result, it has been found that there is a statistically significant relationship between those parameters

Keywords:
Air transportation, Logistics, GDP, Economic Utility, Regression Analysis, Airline Freight

1. Introduction

Economic activities shape the investments, the trade and the transportation through the channels of logistics which are an inevitable result of accelerated globalization and natural effects of the developments in many countries. Increase in the demand of the freight transportation advances every passing day as a result the globalization.

Logistic channels for cargo and passengers have been developed in the last century as a result of the developments in technology but especially after II. World War, it was a new period. After the aviation affected the mobility of the passengers and cargo as aircrafts were no more war instruments but already several pragmatic jumps had been achieved during the war. With the higher mobility advantage of this new aviation are has been shaped since Chicago Convention which has been shaping aviation in the international level but it was also a key start point how to coordinate the complex processes the world-wide countries.

Hence the economies of the countries developed not only in the domestic markets but also international integration of those economies has connected to each other through logistic channels and mainly the transportation had a key role with the effect of the liberalization coming within the globalization period.

2. A Brief Overview on the Air Transportation Industry in Turkey

Prior to 1980, only state-owned companies were allowed to do the business in the Civil Aviation Industry in Turkey. Turkey's flag carrier, Turkish Airlines, was the unique and only airline in the country which created domination in the domestic market. All airports were owned previously by the government, and were operated by state-owned companies. In 1983, Civil Aviation Law, No.2920 was the flashpoint moment of new developments in the Turkish

Aviation Industry. This was not a movement created instinctively, but rather a result of the liberalization domino effect coming from the USA and EU countries. (Gerede, 2010: s.81)

The Federal Aviation Act of 1958 in USA was aiming to improve the market forces in the country where it could provide a range of variety that could create liberalization in the market and result of a higher aspect of the quality with competitive prices within the air services therefore in the continued era EU was also integrating its skies between the member countries and it was a reflection of the liberalization that had started by USA. Not in a coon's age but in 20 years US Deregulation Act of 1978 was removing the power of the government in USA. (Button, 2012: s.17) Just between 1979 and 1982, USA signed 23 bilateral agreements with several countries as a result of open skies policy which was like a turnpike exit to free highways in the world-wide area and it was one of the peak points that globalization evokes its giant steps for many other countries. Undoubtedly 1980 was not an instinctive turn point for Turkey but it was a consideration for the astounding outgrowth of the globalization.

Naturally Turkey has also focused on its domestic markets and even first privatization in the country was USAŞ in 1987 which had been owned by the government and partially sold to a multinational company, Gate Gourmet. It was not a coincidence to make the first step in the aviation area but it was a coming liberalization effect through world-wide aviation industry. During 80's Turkey started regulatory reforms in the aviation arena, developed its domestic markets with several air service agreements and associated services through inter-regional open aviation areas.

2000's is also another progressive period for Turkish Aviation Industry after the developments in the base of the aviation in Turkey. Turkish Airlines were no longer owned by government and it was open to public in the stock exchange market. It started to increase its fleet faster after 2001 and meanwhile Onur Air, Atlas Jet, Pegasus Airlines and other private airline companies was established and started to operate their aircrafts in the liberated domestic and international market.

Air cargo with its premium service capability is a result of the factors that it is providing in logistics such as a strong flexible alternative, speed and security belief. Accordingly with the advancements in the aviation industry in Turkey and with this nature of air cargo, after 2003 it has generated an increase in the freight carried though air as it could be seen from Figure 1. (İstatistiklerle Ulaştirma Denizcilik ve Haberleşme, 2003-2014: s.41)

Figure 1: Airfreight Traffic in Turkey (million ton) 2003- 2014

Source: DHMI

Air freight is not only the products that are being carried by aircrafts but also passengers are the air freights that are being moved from one destination to another. As a result of the correlation of the passengers and the cargo which is carried under-deck of the aircraft, there is a capacity relation between seat capacity and cargo capacity in aviation logistics. Seating and freight capacity of the airlines in Turkey has also shows this natural relation and besides it proofs the increasing trend after 2003 as in the Figure 2. (İstatistiklerle Ulaştirma Denizcilik ve Haberleşme, 2003-2014: s.43)

Figure 2: Seating & Freight Capacity of the Airline Companies in Turkey 2003-2014

Source: SHGM

3. Literature Review

The Airline Freight Transportation is one of the important transportation modes that provide the integration of the marketplaces removes the barriers between the economies and shortens the distances in a most efficient way from the time perspective. Economic activities shape investments, trade and transportation through the channels of logistics which is also an inevitable result of accelerated globalization and naturally effects the developments in the countries.

In the literature, there have been a few studies indicating the causal analysis between the air transport and economic growth for developing countries which is the potential reason for the growth in the air transport demand. There have been many studies issued by many researchers over the last decade.

Gerard de Jong and et all. (2005), they analyzed the Uncertainty in traffic estimates analyzed with Dutch national model system (LMS) and the national model for (NRM) Noord Brabant by using time series method. They found a various methods rather than input uncertainty.

Mariya A. Ishutkina and R. John Hansman (2009), they analyzed the individual country level to indicate the development model differences between air transportation passengers and GDP for 139 countries. The result of the study reveals that the individual country level is important for determining the effect of air transport for each economy.

Yu-Hern Chang and Yu-Wei Chang, (2009), in their study; the relationship between the expansion of air transport and economic growth has been explored in Taiwan over the period 1974-2006. The results of the empirical analysis show that there is a long-run equilibrium between Taiwan's expansion of air transport and economic growth and a bi-directional relationship between them.

Marazzo et al. (2010) studied the relationship between air passenger demand and economic growth in Brazil and found that GDP and air passenger growth are co-integrated. They have indicated that there is a positive intense effect on air passenger growth due to have a significant alteration of GDP.

Elton Fernandes & Ricardo Rodrigues Pacheco (2010), in Brazil, the relationship between economic growth and domestic air passenger transport has been examined by using empirical analysis over the period 1966- 2006. The result of the study shows that the economic growth has a unidirectional causality relationship with the demand for domestic air transport in Brazil.

The study of G. S. Çekerol and Nalçakan M. (2011) analyzed the demand related to the railway transportation mode within the logistic sector in Turkey. Their study was determined that the variable having the least effect on demand in the study is the gross domestic product per capita and there is a positive relationship between the demand and GDP.

Gerard de Jong and et all. (2013) their study ensured that the European literature was audited on freight transport models developed at the national or international level since 2004. This study describes the progress achieved in the incorporation of "logistics" in the regional, national and international transport model.

Elien Van De Vijver and et al. (2014), they investigated the frequency and reciprocal linkages between the deployment of transport infrastructure and spatial economic development in Asia-Pacific by using empirical analysis for the period 1980–2010 and they examined the causality scenarios among different countries.

Douglas Baker and et al. (2015), their study determined the catalytic effects of regional air transport on regional economic growth and they examined the short-term and long-term relation between regional aviation and economic growth in Australia for the period of 1985-86 to 2010-2011. The analysis concluded that the airports affected regional economic growth and that the economy directly affected regional air transport.

Megersa Abate (2016) study empirically analyzed the economic effects of liberalization in air transport by using two variables such as wage and service quality, which measure the frequency of departure. The result of the study suggests when compared to fully liberalized, there is a relatively larger increase in departure frequency in routes with partial liberalization. The impact of liberalization is significant for the development of service quality and there is no significant effect on fare reduction.

M., Hakim and R. Merkert (2016) examined the causal relationship between air transport and economic growth in the South Asia. The result of their study establishes the existence of a long-run unidirectional causality relationship that extends from GDP to air passenger traffic, as well as air transport volumes. Contrary to the current literature, they have not found a long-run and bi-directional causality that confirms the importance of spatial dimensions.

J. Westin and et all. (2016), they analyzed the uncertainty and economies of scale of the Swedish domestic freight transport system. The results show that by shifting the logistics model predominantly to freight transport, new logistics solutions for larger demand can be found.

4. Methodology and Empirical Findings

This study aims to analyze the relation between economic growth and air freight traffic in Turkey. The ordinary least squares (OLS) technique was used to estimate the parameters of the model. Data used in the analysis has obtained from Turkish Statistical Institute for the period 1980-2014. There were 35 observations for the selected period in Turkey. Particularly, the analysis is used to explain (1) how cargo flow of air transport, goods and services flows affect economic growth in Turkey and (2) how the air transport flows can affect the factors and demand conditions of Turkey.

Table 1. Results of the Ordinary Least Squares (OLS)

Dependent variable :LGDP	
Constant	0,0007***
	0,118342
LYT	0,0116**
	0,2857
n	35
F Statistics	7,191248
D-W Stat	1,98
R^2	18,83%

Notes: (***), (**) and (*) denote the significance level of 1 per cent, 5 per cent and 10 per cent, respectively.

In this model; GDP is a dependent variable - where it indicates the economic growth of Turkey. Air Freight demand is the independent variable which indicates millions of tones carried.

The result of the analysis shows that there is an autocorrelation between GDP and Air Freight demand. A number of alternatives have been developed which can capture autocorrelation in the moment conditions by Generalized Method of Moments (GMM). Variables are stationary at the 2nd difference.
There is no heteroscedasticity hence it was determined by Wald Test for the model. In the most recent studied model, deviations from the assumptions have been controlled in the classical regression analysis and no deviation has been found. It has been discovered that the %18 of the increase in GDP was sourced because of the increase in the GDP. The model that has been used in the analysis is statistically significant.
As air freight demand increase has a positive effect on the increase in the GDP, %1 increase in air freight has been resulting in a %0.76 increase in GDP as shown in Table 1.

5. Conclusion

In the historical background, developments of the air transportation have a significant role in the social and economic development as a result of the development in the mobility of the freights. In this study, the effect of air freight demand on the GDP has been analyzed. The increase in the air freight demand is explaining a slight part of the increase in the GDP and it is a positive relationship in the same direction. GDP is the total money value of all products and services produced in the country. Not only the air freight but also the transportation of the passengers has a positive effect on the GDP.

Air transport creates economic growth by facilitating tourism and trade, provides job opportunities, improves living standards and alleviates poverty and increase incomes from taxes. Efforts to develop demand forecasts by making the right planning to allow healthy development of the air transportation sector, which survived from the global financial crisis, are important for making concrete investment decisions. Thus, it contributes to sustainable economic development.

These studies could be extended through several perspectives such as including EU countries and USA. Some other explanatory variables (Macro indicators) could be added. Further research could be analyzed by using (in and by the - cross sectional/times series time) panel data..

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