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MACROECONOMIC DETERMINANTS OF DEMAND FOR AIR PASSENGER TRANSPORT AMONG SELECTED AIRLINES

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Abstract

Purpose: The purpose of this paper was to investigate the price and non-price determinants of demand for air passenger transport among selected airlines.

Methodology: The study target population was airlines across the World. The study used a sample of 10 airlines across the World. The airlines included; British Airways, Ethiopian Airways, Emirates , Qatar Airways, Turkish Airlines, South Africa Airlines, China Southern Airlines, Kenya Airways, Egypt air and Air France. Secondary data of the selected airlines was collected from the International Air Transport Association (IATA) for the period from 2005 to 2014. The data collected was analyzed using STATA software to generate descriptive, trends and inferential statistics which were used to derive conclusions and generalizations regarding the population. The panel data regression model was used to determine the relationship between study variables.

Results: Based on the findings, the study concluded that both domestic and global interest rates have a negative and significant effect on demand for air passenger transport. Further, the study concluded that GDP growth (domestic), GDP growth (global) and GDP per capita have a positive and significant effect on demand for air passenger transport.

Recommendations: Based on the findings, the study recommended that, at a macro level, airlines should consider adjusting their travel prices using the directional movements of the above mentioned variables as a guideline. Based on the findings, the study recommended that governments should use the study of demand drivers to forecast their capital investment plan for the improvement of the air transportation systems in their respective countries and design policies that require use of the demand drivers observed in this study for planning of aviation infrastructure expansion.

Keywords: *Price, Non-Price, Determinants, Demand, Passenger, Transport, Selected, Airlines*

1.0 INTRODUCTION

Air transport provides a world-wide transportation network, which makes it essential for business globalization as well as enhancing tourism (ATAG, 2007). Management of air transport industry both at governmental and corporate level make decisions about current and future development within the industry. These include activities such as airport development plans, capital investment decisions and labour hire or shedding. Plans cannot be accurately carried out without knowing the level of demand for the service provided and the determinants thereof (Wells, 2013). This way should a government wish to expand the airport capacity and its infrastructure to handle a 25-50 year traffic growth through its airports, this study of demand drivers becomes imperative. Worldwide, air transport is handling estimated passenger traffic of two (2) billion passengers annually. Therefore, it is necessary to study and plan for future variations to such a demand in the aviation industry (ATAG, 2007).

The expansion of transport infrastructure is expected to contribute to poverty alleviation directly by improving access to services, increasing personal mobility, and lowering transport costs; and indirectly through its effects on economic growth, efficiency, and employment creation (ECAA, 2007). Improvement in transport facilities raises the standards of living, as access to basic infrastructure services (health and education) is an essential component of welfare. Moreover, most programs that directly target the basic needs of a country's populace depend on transport as a complementary input for their effective delivery. For the populace, lack of affordable transport deprives them of the opportunity to take advantage of job opportunities and essential social services. An adequate transport network also reduces the risk of famine by facilitating the movement of food from surplus to deficit areas.

Compared to other industries air transport has traditionally experienced higher growth. Demand for air transport is closely linked with economic development; at the same time air transport is one of the key drivers of an economy. The contribution of air transport and related civil aviation industries to local, regional or national economies includes the output and jobs directly attributable to civil aviation as well as the multiplier or ripple effect upon other industries throughout the economy (ICAO 2012). In this regard, airlines provide several benefits to the host countries as well as to different stakeholders through the provision of different services to its customers (ECAA, 2007) for example; catering, ground crew transport, ground handling, cargo clearing, aircraft cleaning and maintenance and repair organizations just to mention a few. Aviation provides the fastest international transportation network, which makes it essential for global business and tourism. It plays a vital role in facilitating economic growth, particularly in developing and land locked countries. Air transport plays a significant role in the social and economic development of the world economy. This mode of travel is also very capital intensive and requires heavy investment. The air transport industry has been experiencing constant changes as a result of changing economic, political and transport security environment (Ba-Fail, Seraj, and Jasimuddin, 2010). These have had their various significant effects on the performance of airlines depending on their degree of preparedness in responding to the environmental shocks in the varying intensities.

The overall trend of demand for air transport has been consistently increasing worldwide. In 1950s and 1960s, annual growth rates of 15% or more were common. Annual growth rate of 5-6% persisted through the 1980s and 1990s. Growth rates are not consistent in all regions but

countries with a de-regulated airline industry have more competition and greater pricing freedom. This results in lower-fares and sometimes dramatic spurts in traffic growth. The U.S, Australia, Canada, Japan, Brazil, Mexico, India and other markets exhibit this trend (Smith 2012). The industry has been observed to be cyclical in its financial performance. Besides, economic growth, higher disposable incomes and increased leisure time on the demand side, combined with falling real airline tariffs and technical change on the supply side, have been important driving forces behind the long term growth of international air transport (Michalski, 2016).

The Chinese civil aviation industry has achieved phenomenal growth over the last thirty years under economic reforms, especially from the 1990s. In 1990, China's air cargo volume was only 2.5 billion ton-kms, and air passenger volume was only 23.05 billion person-kms. By 2005, the respective figures surged to 26.1 billion ton-kms and 204.49 billion person-kms, making China the world's second largest air transport nation. Over this period, the average annual growth of air cargo transport was 17.53%, which was four times that of American's 4.14%, 3.6 times of UK's 4.86%, 5.3 times of Japan's 3.3% and 2.17 times of Germany's 8.09%. The average annual growth of air passenger volume, measured in passenger-km, was 6.5 percentage points higher than the world average (Planning and Development Division of CAAC, 2006).

Growth in U.S. air transportation goes hand in hand with growth in the economy. Given that air transport is regarded as a normal good, income growth causes people to shift their demand towards faster modes of transportation, thereby resulting in increased demand for air transport (Ishutkina 2009). During the 1996-2010 periods, for example, U.S. gross domestic product (GDP) per capita has increased by approximately 27%. Accordingly, during the same period, U.S. air passenger-miles for international and domestic travel have increased by approximately 52% and 32%, respectively (BTS 2012; BEA 2012).

Canada's share of the world's passenger traffic is relatively small at 2%. However, per person, Canadians travel by air more than residents in most other countries. Canada also has a relatively small share of the world's cargo market (also at 2%). Not surprisingly, growth in passenger traffic has been slowest in the developed countries, and strongest in the developing regions such as the Middle East, Latin America, Asia-Pacific and Africa. Worldwide passenger traffic has grown fairly steadily since the decline caused by the global financial crisis in 2008, unlike air cargo that declined sharply in 2008, rebounded strongly in 2010 but has since shown a decline. Canadian hub airports are relatively small compared to major world hub airports (based on passenger traffic), but in terms of connectivity, they fare better based on the numbers of cities served (CBC, 2013).

In South Africa, the demand for air transport services has been in an increase for the past decade. There has been a growth in passenger demand due to increasing physical activities and economic development of cities in different part of the country. Main activities were seen in provinces such as Gauteng, Eastern Cape and KwaZulu-Natal. These three provinces have more aviation activities than many provinces put together. The South Africa's major international airports are found in these provinces, that is, OR Tambo, Cape Town and King Shaka International airport, respectively (ACSA, 2013).

Ethiopian Airlines is considered the fastest growing airline company in Africa and is listed as second in the top ten safest airlines in Africa ranking. Protective policies have helped the airline

maintain holds a near-monopoly on domestic routes. Although government-owned, the airline is excellently managed, and has been able to raise its own debt and finance its own expansion without government cash which make it unusual among state owned African airlines. Kenya airways operate from JKIA; its hub to the South East Asia destinations like Mumbai, Bangkok, Hong Kong, Guangzhou; China and Dubai. Its competition on these routes is Emirates, Qatar airways, Air Arabia, Saudi Arabia airways, Ethiopian airlines and Air India. Qatar and Air Arabia operate the low cost carrier model on this route. The airline started initially as Wilson airways which operated throughout the East African countries of Kenya, Uganda and Tanzania in the 1930's. This was what was converted to East African airways after the Second World War in 1945 and operated across the territories of Kenya, Uganda and Tanganyika (Tanzania) from its Nairobi base. The airline served as the national airline of Kenya, Uganda and Tanzania until economic and political problems grounded the airline on 1 February 1977, leading to each country forming its own airline.

Analyzing and estimating the current and future demand for air passenger transport plays a crucial role in operations planning of the airlines. Demand for air transport is closely linked with economic development; at the same time air transport is a driver in an economy. The contribution of air transport and related civil aviation industries to local, regional or national economies includes the output and jobs directly attributable to civil aviation as well as the multiplier or ripple effect upon other industries throughout the economy (ICAO, 2012). In this regard, Airlines provide several benefits to the host countries as well as to different stakeholders through the provision of different services to its customers (ECAA, 2007). Aviation provides the fastest worldwide inter and intra country transportation network, which makes it essential for global business and tourism. It plays a vital role in facilitating economic growth, particularly in developing and landlocked countries. Air transport also plays a significant role in the social and economic developments of the world economy.

2.0 LITERATURE REVIEW

2.1 Theoretical Review

The basic idea of consumer demand theory can be traced back to Pigou (1910) who thought that the responsiveness of consumer demand for a commodity to price changes is likely to be related to its responsiveness to changes in income. This suggestion was followed up by Friedman (1935) and finally incorporated into demand theory by Houthakker (1960) which has evolved to become the neoclassical theory of consumer choice (Fishburn, 1988). According to the demand theory, demand is the number of goods bought at a particular place and time with the current price and time. An item in demand is affected by its own price, income levels, the price of other commodities and taste and preferences.

2.2 Empirical Review

Middleton *et al.* (2009), notes that price represents cost to customers in terms of money, time and effort, is relative to their spending power and reflects the economic determinants for tourism demand. Page and Connell (2009), observed that the relationship between price and demand is an inverse one, where higher prices result in lower demand and vice versa, therefore tourism suppliers such as in the accommodation and transport sector may price their products independently. The study also concluded that the demand for tourism is also influenced by other

forms of expenditure associated with the holiday. However, the study noted that while tourists are sensitive to the cost of a holiday and changes in price, a reduction may result in the perception of a lower quality product.

Junwook and Jungho (2013), paper examines the short- and long-run effects of economic growth and market shocks (e.g., 9/11 terrorist attacks, Iraq war, SARS epidemic, and 2008 financial crisis) on air passenger and freight services using an autoregressive distributed lag (ARDL) approach to cointegration. Results show that, in the long-run, both air passenger and freight services tend to increase with economic growth. In the short-run, however, only air passenger service is responsive to economic growth. Finally, only the 9/11 terrorist attacks and the SARS have detrimental effects on air passenger demand both in the short- and long-run, and in the long-run, respectively. However, those market shocks are found to have little impact on air freight demand.

Aderamo (2010) showed that, of the selected variables, Index of Agricultural Production, Index of Manufacturing Production, Gross Domestic Product and Consumer Price Index are important in the explanation of the demand for air transport in Nigeria. Marazzo, Scherre, and Fernandes (2010) study findings suggest that GDP and PAX are co-integrated. Impulse-response analysis indicates a strong positive reaction of PAX due to a positive change in GDP. However, GDP reacts to a change in PAX in a slower and moderated way. The researchers interpret findings as an empirical evidence of air transport multiplier effects in the economy.

Ba-Fail, Abed and Jasimuddin (2010) findings reveal a positive correlation between domestic air travel expansion and individuals' income growth. Dargay and Hanly (2011) observes that the growth in air travel can be explained by rising incomes. Per capita income (or GDP), and consumer expenditure are widely discussed income types in the literature. Shafer and Victor (2012) argued that time and income shares allocated to travel are constant over time and space. When the individuals' incomes increase, they do not raise the proportion of expenditures for transportation, but along with the income increase their budget for the transportation expenses automatically grows. Thus, air transportation is becoming more desirable once higher income levels are achieved by individuals, prompting them to shift from slower and cheaper means of transport to the faster ones like air travel.

2.3 Conceptual Model

Using the proposed conceptual model in Figure 1, the study sought to interest rates (global and domestics), GDP growth rate (global and domestics) and domestics GDP per capita affect the demand for air passenger transport. The dependent variable is the demand for air passenger transport measured by Passenger Number for selected airlines.
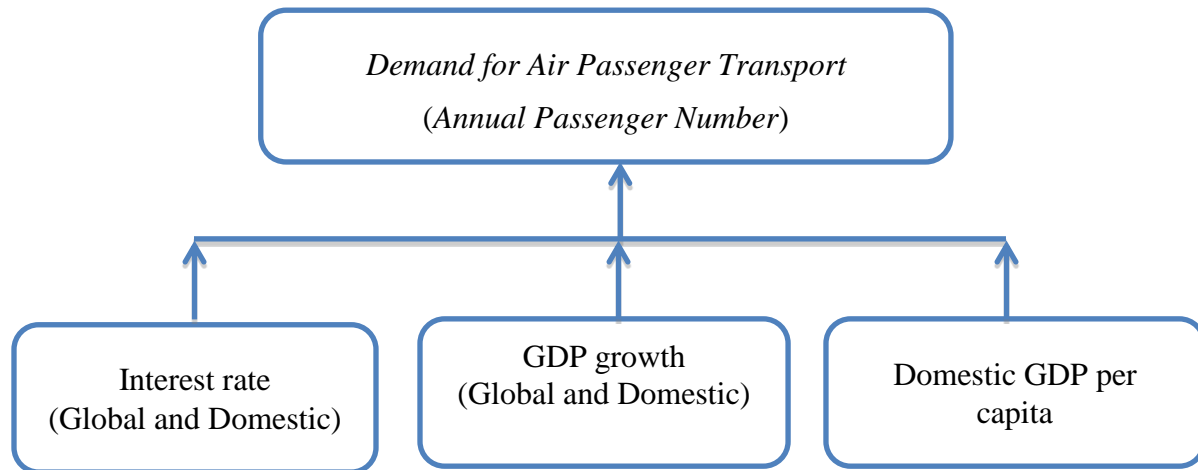
Figure 1: Proposed Conceptual model

3.0 RESEARCH METHODOLOGY

The paper used descriptive research design. The study target population was airlines across the World. The study used a sample of 10 airlines across the World as follows; Kenya airways, British airline, Ethiopian airlines, Emirate airlines, Qatar airways, Turkish airlines, South Africa Airlines, China Southern Airlines, Egypt airlines and Air France. For the purpose of this study, the GDP, interest rate (global) was for the United States. Similarly, the GDP, interest rate (domestic) were for the home countries of each of the selected airlines. The countries included; Kenya, United Kingdom, Ethiopia, United Emirates, Qatar, Turkey, South Africa, China, Egypt and France. Secondary data of the selected airlines was collected from the International Air Transport Association (IATA) for the period from 2005 to 2014. The data collected was analyzed using STATA software to generate descriptive, trends and inferential statistics which were used to derive conclusions and generalizations regarding the population. The panel data regression model was used to determine the impact of price and non-price determinants on demand for air passenger transport. The panel regression model helped to explain the magnitude and direction of relationship between the variables of the study through the use of coefficients like the correlation, coefficient of determination and the level of significance. Thus the proposed demand model for the study is;

$$Q = b_o + b_1 Dr + b_2 Gr + b_3 Dgdp_1 + b_4 Ggdp_2 + b_5 GdpPC + u \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots \quad (1)$$

Where:

Q =	Quantity demanded of air passenger transport
Dr =	Interest rate (domestic)
Gr =	Interest rate (global)
$Dgdp_1$ =	GDP growth (domestic)
$Ggdp_2$ =	GDP growth (global)
GdpPC =	GDP per capita
u =	Error term

b_o, b_1, b_2, b_3,b_4,b_5 are the coefficients of the demand equation.

4.0 ANALYSIS AND RESULTS PRESENTATION

4.1 Descriptive Statistics

Results in table 1 indicate the summary descriptive statistics of domestic interest rates, global interest rates, domestic GDP growth, global GDP growth, net income and airline passenger number. Results indicate that the mean of air passengers for the period 2005 to 2014 was 26115729 with a standard deviation of 24873498 indicating wide variability in the number of air passengers over time. The Minimum and Maximum value of air passengers over the same period of time was 1147329 and 91504242 respectively. The overall mean of domestic interest rate was 15.12 with a standard deviation of 2.03693 and this indicates high variations in domestic interest rates. The minimum and maximum values of domestic interest rates for the period 2005 to 2014 were 12.9 and 19.7 respectively. The overall mean of global interest rate was 4.72 with a standard deviation of 1.92317 and this indicates high variations in global interest rates. The minimum and maximum values of global interest rates for the period 2005 to 2014 were 3.3 and 8.1 respectively.

Further, the overall mean of domestic GDP growth was 5.28 with a standard deviation of 2.1357 and this indicates high variations in domestic GDP growth. The minimum and the maximum values of domestic GDP growth for the period 2005 to 2014 were 0.20 and 8.40 respectively. The Mean of global GDP growth was 1.35 and had a standard deviation of 71.749 indicating a wide variability in the global GDP growth over time. The minimum and maximum values were -2.80 and 3.40 respectively. Further, results indicated that the mean of GPD per capita for the period 2005 to 2014 was 22603.21 while its standard deviation was 25462.74. Its minimum and maximum values were 161.88 and 84944.09 respectively.

Table 1: Summary Descriptive Statistics

	Observation	Mean	Std. Deviation	Minimum	Maximum
Passenger Number	100	26115729	24873498	1147329	91504242
Domestic Interest Rates	100	15.12	2.03693	12.9	19.7
Global Interest Rates	100	4.72	1.92317	3.3	8.1
Domestic GDP Growth	100	5.28	2.1357	0.2	8.4
Global GDP Growth	100	1.35	1.74903	-2.8	3.4
GDP per capita	100	22603.21	25462.74	161.88	84944.09

4.2 Trend Analysis

4.2.1 Interest Rate (Domestic)

Figure 2 below indicates the trend of domestic interest rates for the period from 2005 to 2014. The trend line reveals a steady increase in the interest rates over time. This could be attributed to unfavorable economic environment in most of the countries. Interest rates are highly correlated with price and, therefore, a rise in interest rates implies an increase in price. Increase in price of air passenger transport is likely to have a negative impact on demand for air passenger transport.
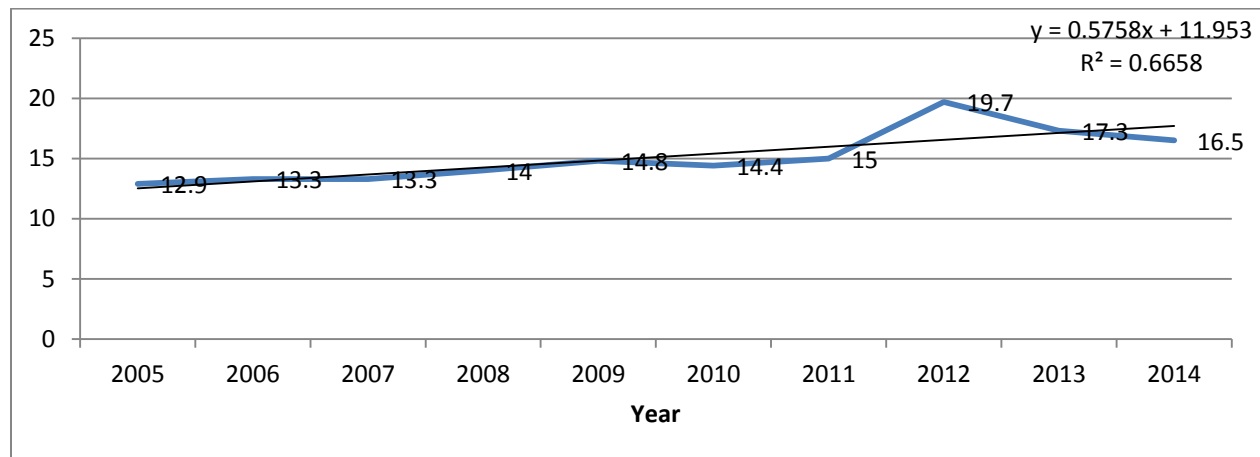

Figure 2: Annual trend for Domestic Interest Rates from 2005 to 2014

4.2.2 Interest Rate (Global)

Figure 3 below indicates the trend of global interest rates for the period from 2005 to 2014. The trend line reveals a steady decline in the global interest rates over time. This could be attributed to increased economic activities across the World. For instance, globalization has tremendously enhanced economic activities between different states all over the World. Generally, interest rate (price) is expected to have an indirect impact on demand for air passenger transport. In this case, a downward global interest rates trend implies a drop in prices at the global level. Therefore, the demand for air passenger transport is expected to increase with the fall in prices.
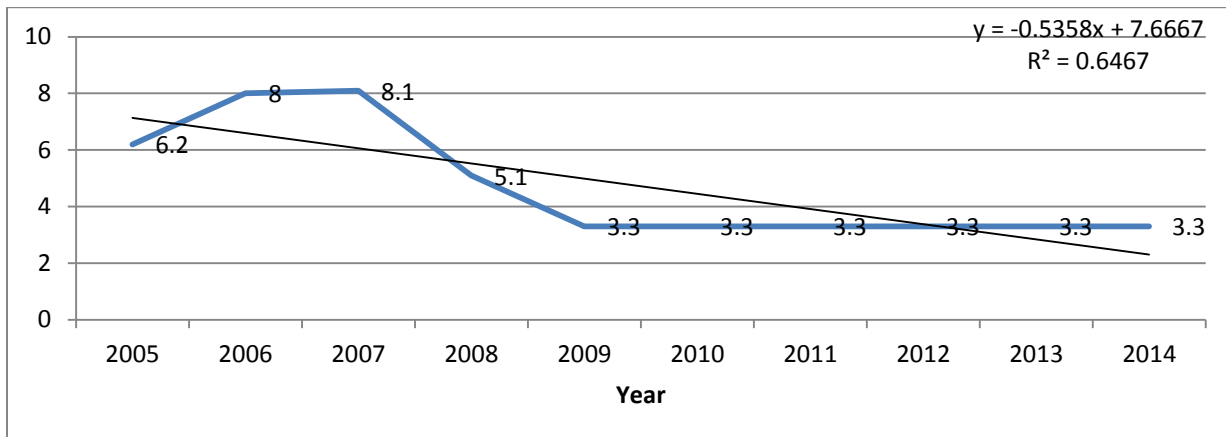
Figure 3: Annual trend for Global Interest Rates from 2005 to 2014

4.2.3 GDP Growth (Domestic)

Figure 4 below indicates the trend of domestic GDP growth for the period from 2005 to 2014. The diagram shows a fluctuation trend of domestic GDP growth over time. In 2008, the trend reveals the worst downward fluctuation in domestic GDP for selected airlines. This could be attributed to domestic economic slowdown in the various respective countries. In 2010, the trend reveals the best upward fluctuation in domestic GDP for selected airlines. This could be attributed to economic growth in the various respective countries. The trend line reveals a constant growth in domestic GDP over time. The fluctuations in domestic GDP growth are likely to have an impact on demand for air passenger transport.
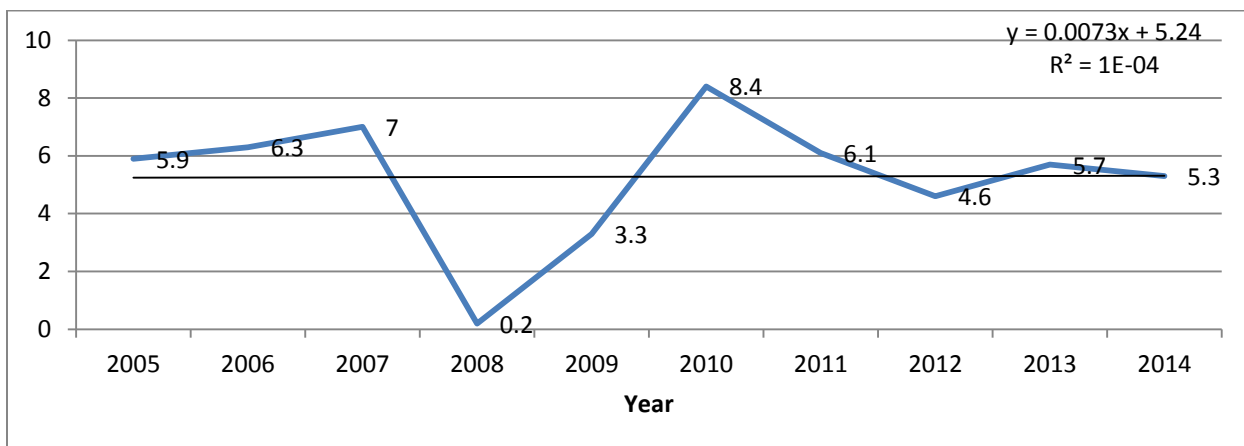

Figure 4: Annual trend for domestic GDP growth from 2005 to 2014

4.2.4 GDP Growth (Global)

Figure 5 below indicates the trend of global GDP growth for the period from 2005 to 2014. The diagram shows a fluctuating trend of global GDP growth over time. The trend line reveals constant decline in global GDP growth over time. This could be attributed to global economic crises experienced by most countries. The downward trend is likely to have a negative impact on demand for air passenger transport.
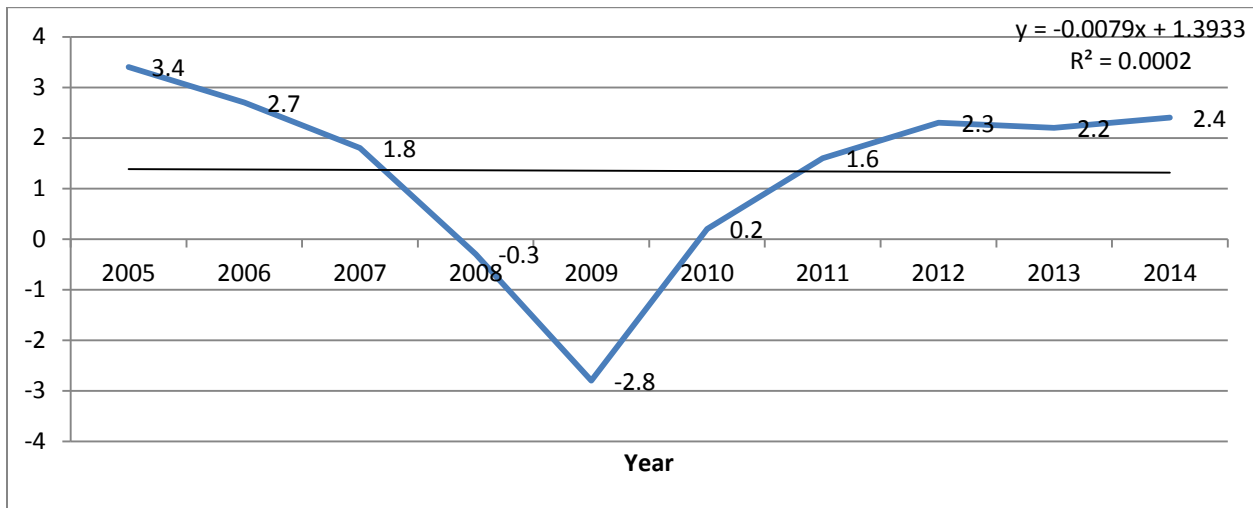
Figure 5: Annual trend for domestic GDP growth from 2005 to 2014

4.2.5 GDP Per Capita

Figure 6 below indicates the trend of net income for the period from 2005 to 2014. The trend line shows a steady increase in net income over time. This could be attributed to increased economic activities in most countries. This is likely to have a positive impact on demand for air passenger transport.
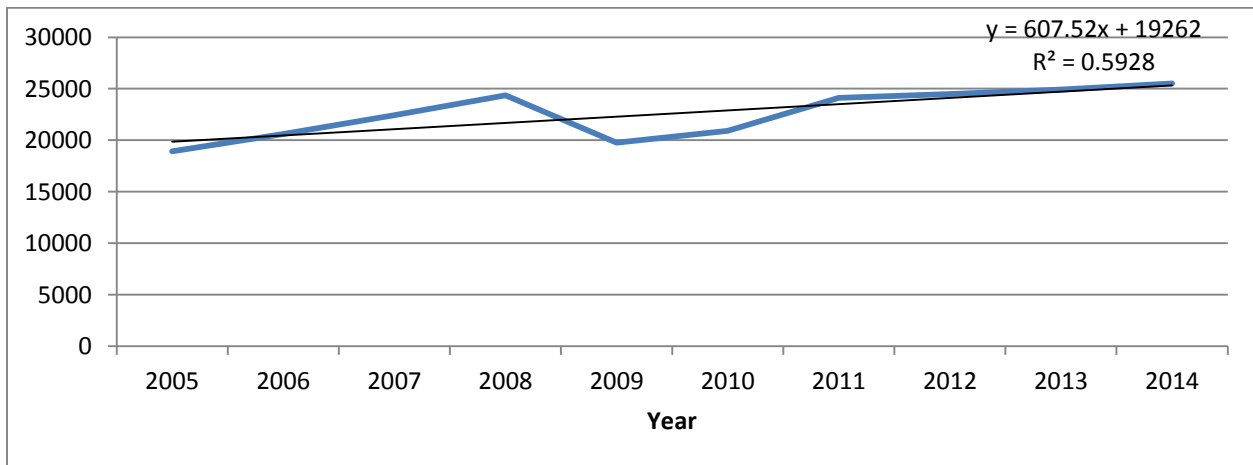

Figure 6: Annual trend for GDP per capita from 2005 to 2014

4.2.6 Air Passenger Number

Figure 6 below indicates the trend of air passenger number for the period from 2005 to 2014. The trend shows a steady increase in the number of air passengers over time. This implies that the number of people using airline transport has been rising over time. This could be attributed to increased net income, globalization, where people do business anywhere in the world.
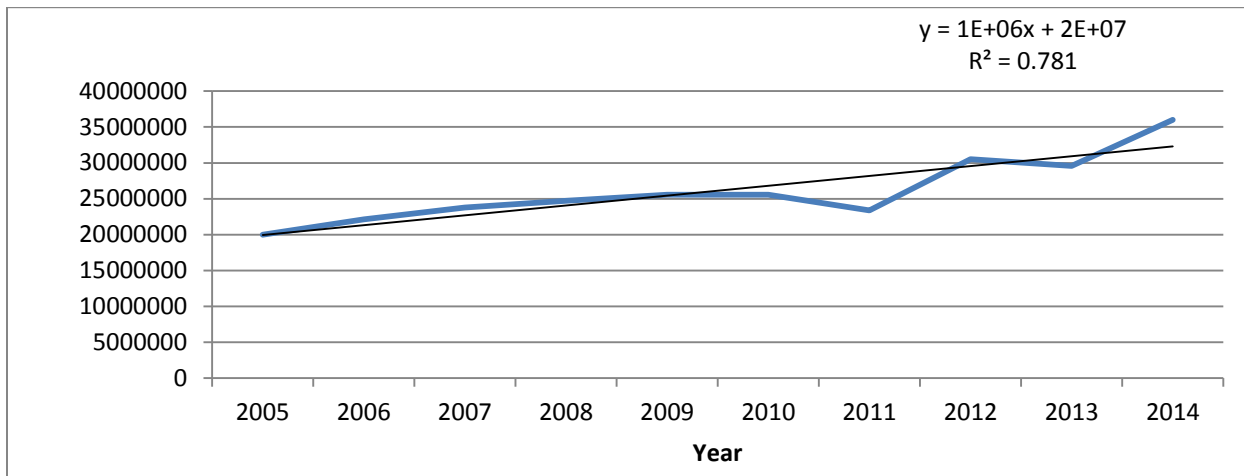
Figure 7: Annual trend for number of passengers from 2005 to 2014

4.3 Pre-Estimation Tests

Prior to modeling the regression, the multicollinearity test was first performed to ensure there would be no spurious regression results.

4.3.1 Multicollinearity Test

Multicollinearity was measured using the variance inflation factors (VIF). According to Field (2009) VIF values in excess of 10 is an indication of the presence of Multicollinearity. The results in Table 2 present variance inflation factor results and were established to be 1.249 which is less than 10 and thus according to Field (2009) indicate that there is no Multicollinearity.

Table 2: Multicollinearity results using VIF

Variable	Tolerance	VIF
Domestic Interest Rate	0.766	1.306
Global Interest Rate	0.757	1.321
Domestic GDP Growth	0.810	1.234
Global GDP Growth	0.881	1.135
Net Income	0.801	1.249
Mean VIF		**1.249**

4.4 Post-Estimation Tests

Test for normality, Heteroscedasticity and autocorrelation were conducted so as to ensure all the OLS assumptions are not violated.

4.4.1 Test for Normality

The test for normality was done using the graphical method as indicated in figure 7. The results indicate that the residuals are not normally distributed.
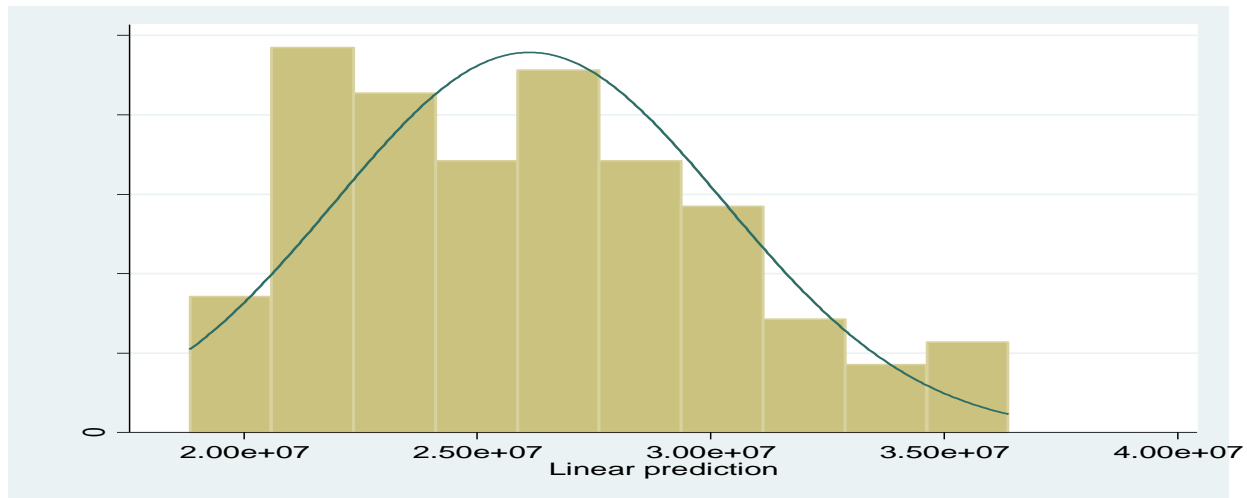
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Figure 8: Normality of Residuals

4.4.2 Test for Heteroscedasticity

The OLS assumption states that the residuals should be Homoscedastic. The Modified Wald test was used in the study where the null hypothesis of the test is error terms have a constant variance (i.e. should be Homoscedastic). The results in the table 3 indicate that the error terms are not homoscedastic, given that the p-value is less than the 5% and this also indicates a violation of the OLS assumption of constant variance of residuals.

Table 3: Modified Wald Test for Heteroscedasticity

Modified Wald Test for Heteroscedasticity in fixed effect regression model
H0: Constant Variance
chi2 (79)   =   2393.86
Prob>chi2   =   0.000

4.4.3 Test for Autocorrelation

The test for autocorrelation was done to determine whether residuals are correlated across time. The results of table 4 indicated that the H_0 of no autocorrelation is not rejected and that residuals are not auto correlated (p-value=0.8461).

Table 4: Wooldridge test for Autocorrelation

Wooldridge test for autocorrelation
H0: no first-order autocorrelation
F(1, 78)=0.040
Prob>F   =   0.8461

Given that the normality and Homoscedastic variance on which the OLS regression lean upon are violated the study adopted a panel regression in order to establish the influence of interest rate (domestic), interest rate (global), GDP growth (domestic), GDP growth (global) and GDP per capita on demand for air passenger transport.

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4.5 Hausman Test

In order to determine whether the fixed or random effects model is appropriate Hausman test was used. The Hausman test fundamentally tested whether the unique errors (ui) are correlated with the regressors. The results in table 5 below illustrate the results of the Hausman test. A resultant p value of 0.0407 was smaller than the conventional p value of 0.05 leading to the rejection of the null hypothesis that the unique errors (ui) are not correlated with the regressors and thus the fixed effects model is more appropriate.

Table 5: Hausman Test Results

	(b) Fixed	(B) random	(b-B) Difference	sqrt(diag(V_b-V_B)) S.E.
Interest rate (domestic)	690388.6	657161	33227.57	
Interest rate (global)	1802467	1709641	92825.73	
GDP growth (domestic)	169343.1	275832.7	-106490	
GDP growth (global)	-63733.3	374371.2	-438104	
GDP per capita	-105.364	-58.695	-46.6686	
chi2(2)	11.60			
Prob>chi2	**0.0407**			

4.6 Correlation Results

The correlation results presented in table 6 revealed that there is a negative and significant association between interest rate (domestic) and number of air passengers (r=-0.0382*). The results also indicated a negative and significant association between interest rate (global) and number of air passengers (r=-0.1283*). Further, the results indicated a positive and significant association between GDP growth (domestic) and number of air passengers (r=0.4743*). In addition, the results indicated a positive and significant association between GDP growth (global) and number of air passengers (r=0.7180*). Finally, the results indicated a positive and significant association between GDP per capita and number of air passengers (r=0.3271*).

Table 6: Correlation Matrix

	passenger number	Interest rate(domestic)	Interest rate(global)	GDP growth(domestic)	GDP growth(global)	GDP per capita
passenger number	1.000					
Interest rate(domestic)	-0.0382	1.000				
Interest rate(global)	-0.1283	0.0631	1.000			
GDP growth(domestic)	0.4743	-0.048	0.0707	1.000		
GDP growth(global)	0.7180	0.1902	0.0757	0.1644	1.000	
GDP per capita	0.3271	-0.4534	-0.0556	0.1643	0.3092	1.000

4.7 Regression Analysis Results

In order to establish the influence of interest rate (domestic), interest rate (global), GDP growth (domestic), GDP growth (global) and GDP per capita on demand for air passenger transport, a fixed effects regression model was run and the results are as presented in the table 7 below. The results presented in table 7 present the fitness of model used of the regression model in explaining the study phenomena. All the independent variables were found to be satisfactory variables in explaining demand for air passenger transport. This is supported by coefficient of determination also known as the R square of 70%. This implies that the independent variables explain 70% of the variations in the dependent variable which is number of air passengers. The results further means that the model applied to link the relationship of the variables was satisfactory.

Further, table 7 provides the results on the analysis of the variance (ANOVA). The results indicate that the model was statistically significant. Further, the results imply that the independent variables are a good predictor of demand for air passenger transport. This was supported by an F statistics of 43.763 and a p value (0.000) which was less than the conventional probability of 0.05 significance level.

Regression of coefficients results in table 7 shows that there is a negative and significant relationship between interest rate (domestic) and demand for air passenger transport (r=-3983430.415, p=0.001). Results further indicate that there is a negative and significant relationship between interest rate (global) and demand for air passenger transport (r=-2155281.047, p=0.007). Results also indicate that there is a positive and significant relationship between GDP growth (domestic) and demand for air passenger transport (r=3700298.069, p=0.000). In addition, results indicate a positive and significant relationship between GDP

growth (global) and demand for air passenger transport (r=5586553.509, p=0.000). Finally, results reveal a positive and significant relationship between GDP per capita and demand for air passenger transport (r=595.0355, p=0.024).

Table 7: Fixed Panel Regression Results

Passenger Number	Coefficient	Std. Error	t-Statistic	Prob.
Interest rate (domestic)	-3983430.415	1198148.066	-3.325	0.001
Interest rate (global)	-2155281.047	783200.380	-2.752	0.007
GDP growth (domestic)	3700298.069	683842.087	5.411	0.000
GDP growth (global)	5586553.509	1308261.795	4.270	0.000
GDP per capita	31.008	6.4053	4.841	0.003
c	70139577.450	22051585.502	3.181	0.002
R-squared	0.700			
Adjusted R-squared	0.684			
F-statistic	43.763			
Prob(F-statistic)	0.000			

The study findings revealed that both domestic and global interest rates are negatively and significantly associated with demand for air passenger transport. Further, the results indicated that GPD growth (domestic), GDP growth (global) and GDP per capita are positively and significantly associated with demand for air passenger transport. The regression results indicated a negative and significant relationship between both domestic and global interest rates and demand for air passenger transport. Further, the results indicated a positive and significant relationship between GDP growth (domestic), GDP growth (global), GDP per capita and demand for air passenger transport.

5.0 CONCLUSIONS AND RECOMMENDATIONS

5.1 CONCLUSION

Based on the findings, the study concluded that both domestic and global interest rates have a negative and significant effect on demand for air passenger transport. Therefore, an increase in interest rate (domestic and global) by 1 unit, would lead to decrease in demand for air passenger transport by 3983430.415 and 2155281.047 units respectively. Further, the study concluded that GDP growth (domestic), GDP growth (global) and GDP per capita have a positive and significant effect on demand for air passenger transport. Therefore, an increase in GDP growth (domestic), GDP growth (global) and GDP per capita by 1 unit would lead to a corresponding increase in demand for air passenger transport by 3700298.069, 5586553.509, 31.008 units respectively.

5.2 RECOMMENDATIONS

Based on the findings, the study recommended that airlines should consider adjusting their travel prices riding on the directional effects of the above parameters. This harmonious synchronization will most likely increase the demand for air passenger travel. Based on the findings, the study recommended that due to the capital intensive nature of the aviation industry, governments

should use the study of demand drivers to formulate their capital investment plan for the improvement of the air transportation infrastructure and systems in their respective countries and design policies that require use of the demand drivers observed in this study for planning of aviation infrastructure expansion. This will, with a high probability, translate into increased timely and efficient response to the growth in the demand a country's aviation infrastructure due to increased passenger throughput, economic growth and job creation. With such improved planning, the negative effects of reactionary investing in airport infrastructure, when the passenger throughput has already exceeded the passenger throughput as per the original aviation infrastructure design; for example, high cost of funds, would be a thing of the past.

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