

GLOBAL OIL CURRENT NEWS AND ANALYSIS

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Immigration and air travel: Our analysis shows that US native born take proportionately more flights than US immigrants, since the former tend to be wealthier than the latter and air travel depends overwhelmingly on income.

- A 1% change in US immigrant and native born citizen populations corresponds to a 0.7% and 1.9% increase in international flights for each of these populations, respectively, implying that US immigrants take proportionately fewer international flights than native born citizens.
- We believe that this differential behavior is largely due to immigrants' lower income levels as US born citizens on average have a higher education level than immigrants.
- Extrapolating from the US to the rest of the world is difficult since the source regions for migrants and therefore income differentials between immigration's sources and destinations vary widely. What is already established though is that air travel is highly correlated with income levels. Therefore, as Emerging Markets transition into Developed Economies and their ranks of middle classes swell, air travel will continue to increase.

Migration around the world has affected jet travel. When Poland entered the European Union in 2004, Polish workers migrated to the UK resulting in a significant increase in flights between the UK and Poland. Similarly, the presence of a large number of Indian workers working in Qatar significantly increased the number of flights between the two countries. Apart from returning home to visit your family and countrymen, what else determines the level of international travel? Does the US follow the same patterns and how will changes in immigration patterns in the US affect the number of international flights?

Unfortunately, there are no data available on the number of flights by immigration status. To figure out if recent immigrants travel abroad more than native born citizens, we have undertaken a statistical analysis on international flights of permanent residents compared to the total US population so as to make an educated hypothesis on all foreign born residents of the US. Our analysis shows that all things being equal, immigrants take proportionately fewer international flights than native born citizens.

The Department of Homeland Security has data on the number of people obtaining lawful permanent resident status. We assumed that they remained "immigrants" for a generation and therefore took a rolling twenty year cumulative of this data to calculate the total number of "immigrants" in the country for any one year. We assume that after twenty years, they take on the characteristics of native born Americans. To calculate the "native born citizens" we subtract this number from the reported population. Our regression of international flights as a function of "immigrants" and "native born citizens" showed that a 1% change in each of these populations resulted in a 0.7% and 1.9% increase in international flights for "immigrants" and "native born citizens", respectively, implying that "immigrants" take proportionately fewer international flights than "native born citizens."

Our analysis suggests that immigrants travel proportionately less due to their lower income levels. A general rule of thumb suggests that when a family becomes middle class it takes its first flight and typically fly twice a year. There are two bits of evidence for this rule. According to data from Pew Research, US born citizens have a higher education level than US immigrants suggesting that the latter has lower incomes. In addition, our own statistical analysis suggests that immigrants have a lower income elasticity for international travel than US born citizens.

Regression results for international flights as a function of immigrants and native born citizens

Regression Statistics	
Multiple R	0.93
R Square	0.87
Adjusted R Square	0.85
Standard Error	0.04
Observations	16

	Coefficients	Standard Error	t Stat	P-value
Intercept	-34.183	5.252	-6.509	0.000
Immigrants	0.702	0.314	2.236	0.044
Native Born Citizens	1.874	0.368	5.098	0.000

US born versus US immigrants education levels

	High School or Less	Two Year Degree	Bachelors or Higher
US Born	37.3	31.1	31.6
US Immigrants	51.3	18.7	30

Source: Pew Research Center tabulations of 2016 American community Survey (IPUMS)

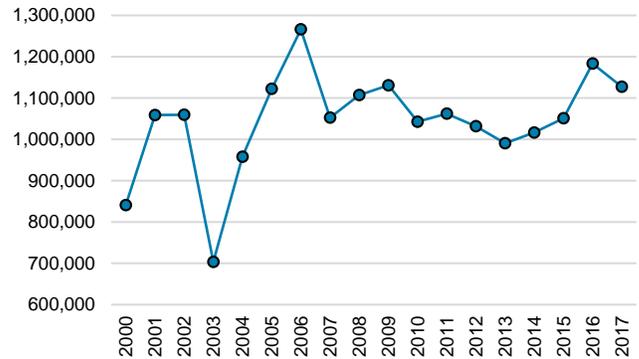
Educational attainment	Median Weekly Earnings
Doctoral Degree	\$1,743
Professional Degree	\$1,836
Master's Degree	\$1,401
Bachelor's Degree	\$1,173
Associate Degree	\$836
Some college, no degree	\$774
High school diploma, no college	\$712
Less than a high school diploma	\$520

Source: US Bureau of Labor Statistics
Note: Data are for persons age 25 and over. Earnings are for full-time wage and salary workers.

The Bureau of Labor Statistics reports data on weekly income levels by educational attainment. People with a high school diploma earn 60% of what someone with a bachelor’s degree earns; associates degrees 71% of bachelor’s degree. This makes up 70% of the immigrant pool. If we include people with Master’s degree and above this gap widens. This would corroborate the findings above.

The number of people obtaining permanent resident status has basically been flat over the last 15 years. If that trend remains steady and our 20 year hypothesis is correct, then the native-foreign born composition of the US population will be less of a factor in determining international jet fuel demand than total population, disposable personal income, and fare prices.

Persons obtaining lawful permanent resident status



Source: Department of Homeland Security

While we can infer that migration changes will affect jet demand, it is difficult to extrapolate from the US experience to Europe and the rest of the world. As shown in the following table, the source region for migrants to Europe is vastly different than that of the US. Whereas foreign born Africans and Asians are the largest immigrant group into Europe, Latin Americans dominate migration into the US.

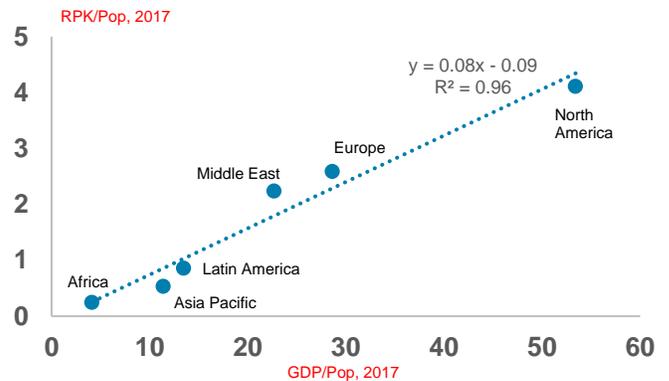
International migrant stock: By destination and origin, 2013
Percentage of total number of immigrants

Area of origin	to Europe	to N. America
Africa	12	4
Asia	27	30
Europe	52	15
Latin America and the Caribbean	6	49
Northern America	1	2
Oceania	0	1
Various	2	0

Source: United Nations

What is, however, apparent in all cases is the importance of income in determining air travel. As shown in the graph, GDP/Pop is highly correlated with revenue passenger kilometers/Pop (RPK/Pop). (We calculated revenue passenger kilometers using Boeing data.) This correlation between income and travel is not only true within country but as shown by our research on the US, all else being equal, immigrants coming from countries with lower educated places, will engage in less international travel than higher income native born citizens with higher educational levels. Over time, it follows that as these immigrants and their children move up the socio-economic ladder, their propensity to travel internationally will increase.

Jet travel tends to increase with income



Source: Boeing

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