

Travel, the Spread of Contagions and the Economic Impact

Shelley R. Quatralé

MakingBetterDecisions.ca

Author Note

This research paper has been produced independently with no funding and no affiliations.

Abstract

The movement of people via air travel heightens potential risk of the spread of infectious diseases at a much faster rate than in any prior era in history. Curtailing travel comes with enormous economic consequences as the Travel and Tourism Industry contribute significantly to global GDP. This research paper contains data that examines the correlation between travel and the spread of infectious diseases. And further examines the global economic consequences of a decline in travel due to pandemics and other public health emergencies, including the current crisis related to the COVID-19 virus. The author provides a set of recommendations as risk mitigation to a global economic crisis as it relates to travel and public health.

Keywords: Travel and Tourism, Global Economic Crisis, COVID-19, Pandemics, Public Health Emergency, Contagions spread

Travel, the Spread of Contagions and the Economic Impact

An increase in travel and tourism over the last century has seen economies boom.

According to the World Travel and Tourism Council, an authority on the industry, Travel and Tourism contributed USD 8.8 Trillion, and 319 million jobs to the world economy in 2018. The industry continues to grow and grew by 3.9% in 2018 over the previous year (World Travel and Tourism Council, 2019). This increase in travel and tourism activity, means an increase in the movement of people around the globe which enables the faster spread of infectious diseases, and as the spread of disease turns to pandemic levels, the negative impact on the global economy is highly significant when travel and tourism slows.

Global Pandemics

The Spanish Flu pandemic brought on by a deadly strain of the first H1N1 avian flu virus killed approximately 50 million people worldwide, and infected one-third of the world's population (Centres for Disease Control, 2019). The cause of the rapid spread of the Spanish Flu to many countries is attributed in most literature, to soldiers returning home from the first world war via ship. The virus ran a pandemic course between 1917 and 1919 and continued to circulate in the population for the next 38 years.

The next pandemic of the H2N2 virus occurred between 1957 and 1959, with the majority of deaths occurring in the third year of the pandemic (Viboud C S. L., 2016). Following that, in 1968 the H3N2 virus caused a worldwide pandemic. And in 2009 a version of the H1N1 virus re-emerged causing another global pandemic. This most recent viral pandemic in 2009 was distantly related to the Spanish Flu of 1918 (Centres for Disease Control, 2019).

Resulting Deaths

The 1957 pandemic of the H2N2 virus resulted in an estimated 1.1 million deaths. The virus originated in Singapore in the winter of 1957 and by the summer had reached the coastal cities of the United States. “The global mortality rate of the 1957-1959 influenza pandemic was moderate relative to that of the 1918 pandemic but was approximately 10-fold greater than that of the 2009 pandemic” (Viboud C S. L., 2016).

The 1968 pandemic of the H2N3 virus, which included viral components from the previous pandemic killed an estimated 1 million people worldwide. The virus continues to circulate seasonally in the population as the Influenza A virus. Due to variants of the virus the pandemic lasted globally from 1968 to 1970. The first wave was more deadly in North America in 1968/1969 with 70% of deaths occurring during this period. While the second pandemic wave 1969/1970 was more deadly in Europe. The hypothesis for this anomaly is that Europeans had some immunity due to the 1957 pandemic (Viboud C G. R., 2005).

The 2009 Influenza A H1N1 pandemic saw an estimated 284,500 deaths globally, with 51% of these deaths occurring in southeast Asia and Africa. An interesting finding is that 80% of deaths occurred in those under 65 (Dawood, 2012).

Global Travel

The spread of viruses and global pandemics would not be possible without the movement of people. Air travel offers great opportunities for infectious diseases to spread globally at a faster rate. The ability of populations to move from one point on the globe to the opposite side within a mere 24 hours or less means that viruses can be carried across the world with ease, and often means the traveler has touched connecting points on route, creating the potential for greater spread of disease. Additionally, the desire to tick off remote destinations on a travel bucket list

means that large numbers of tourists are visiting remote underdeveloped destinations, thus potentially carrying viruses to or from the destination, posing a significant risk to indigenous populations and increasing potential spread upon return.

Air Travel

Prior to the second world war commercial air travel was uncomfortable and expensive. The first airplanes flown in the 1920s carried approximately 30 passengers and did not cross oceans. Commercial air travel increased greatly after the second world war. Technological advances during the war meant planes of the 1950s flew farther distances and carried more people, though air tickets were expensive. In return for high prices airlines provided comforts and glamour making air travel a prized status symbol that shipped people to foreign destinations in much shorter periods of time than ever before.

The 1970s was the age of the jumbo jet, carrying over 166 million passengers around the globe, while the 1980s and 1990s saw the advent of mass tourism and the drop of air ticket prices. The 2000s is known as the time of the no-frills airline, no meals, no extra services, no frills, but provides for inexpensive economy class air tickets accessible to almost all people regardless of socioeconomic status. This simply means that more and more people move around the globe at a much faster pace and more frequently than ever before. Since 1950 global tourist arrivals have increased by a whopping 6000%, and international tourist arrivals continue to increase year over year. *Figure 1.*

Along with the increase in global air travel, the incidents of pandemics have also increased. Since the 1950's the world has seen three pandemics, and the SARS outbreak of 2002 to 2004, which was not elevated to pandemic level, although the mortality rate was extremely high at almost 10%. Currently the world is wrestling with the COVID-19 global Public Health

Emergency. *Figure 2.* The spread of these viruses can be easily correlated to an increase in air travel, though governments are reluctant to curtail air travel during an epidemiological crisis due to the negative impact on the global economy.

Global Economic Impacts

Millions of people travel around the globe each year contributing to the global economy, increasing employment in the travel and tourism industry, and contributing to global GDP. 2018 was the eighth consecutive year in which growth in the travel and tourism industry surpassed growth in global GDP. Travel and Tourism grew by 3.9%, while global GDP grew by 3.2%. Further to that, the industry contributed 10.4% of global economic activity (World Travel and Tourism Council, 2019).

Travel and Tourism Industry Definition

The Travel and Tourism Industry is defined as all activity that deals directly with tourists and encompasses hotels, airlines, travel agents and other passenger transport services. It also encompasses leisure industries that deal directly with tourists.

For accounting purposes, the United Nations Statistics Division has approved a Tourism Satellite Methodology, which considers only the direct contribution of the Travel and Tourism Industry. There are however indirect contributions to GDP that are considered by the World Travel and Tourism Council (WTTC) based in the United Kingdom. The organization considers indirect and Induced contributions in order to quantify total GDP contributions to the global economy.

Direct Contribution. Direct contribution to GDP comprises accommodation, transportation, entertainment and attractions, along with domestic and visitor spending for business and leisure.

Indirect Contribution. Indirect contribution to GDP includes travel and tourism investment spending, government spending and the impact of purchases from suppliers.

Induced Contribution. Induced contribution as defined by the WTTC is the spending of direct and indirect employees on food, recreation, housing, and clothing.

Travel and Tourism Industry Contributions to Global GDP

When considering the contributions of the Travel and Tourism Industry to the global economy it is abundantly clear that the industry is one of the largest in the world. Total contributions to GDP for 2019 were USD 9.25 Trillion. *Figure 3.*

Although passenger arrivals grew by 4% in 2019, this growth has slowed over previous years. Rationale for slowed growth in 2019 was attributed to the uncertainty of Brexit, the collapse of Thomas Cook, and geopolitical tensions. The industry continues to grow and the UNWTO has forecasted travel and tourism passenger arrival growth for 2020 to be between 3% and 4% (United Nations World Tourism Organization, 2020). The UNWTO predicts the increase based on expectations of travel and tourism related to major sporting events such as the 2020 Tokyo Olympics, and large cultural events such as Expo 2020 in Dubai.

COVID-19 Impacting Travel and Tourism and the Global Economy in 2020 and beyond

The rise of the COVID-19 virus will have an enormous impact on the global economy, with a potential for plunging the economy into a depression. Although this is multi-factored, a significant drop in one of the world's largest industries, Travel and Tourism, may spell doom. This is dependent on several variables including the closing of borders, national quarantines, air

travel stoppage, tourist risk perception, and cancelling of large global events. Additional variables include the duration, severity, and spread of the virus globally, governmental containment measures, and individual reaction and decision making.

China is the largest source country of tourists. Chinese tourists spent about USD 277 billion in 2019. (United Nations World Tourism Organization, 2020) Tourists from the Asia Pacific region travel mostly within the region (76% in 2018), but that travel pattern appears to be declining slightly as tourists from Asia Pacific travel to Europe and the Americas in slightly larger increments. *Figure 4.*

Regardless of the chosen destination Asia Pacific tourists continue to contribute to the global economy. With large cities in China quarantined due to the COVID-19 outbreak, these travel and tourism contributions will see a sharp decline in 2020, and potentially beyond, dependent on the prolongation of quarantine periods and spread of the virus.

Several countries are largely dependent on travel and tourism as a mainstay of their economies. Thailand's economy is largely dependent on Chinese tourists. 11 million Chinese tourists visited Thailand in 2019, up from 2.7 million in 2012. Direct tourism spending is estimated at 12% of Thai GDP, with USD 18 billion, about 25% of Thai GDP coming from Chinese tourists (Biswas, 2020). The lack of Chinese tourists in the Asia Pacific region and beyond will undoubtedly have an enormous economic impact on the global economy in 2020 and potentially beyond. The International Civil Aviation Organization estimates the tourism revenue loss to Thailand to be USD 1.15 billion due to a reduction in Chinese air travelers in the first quarter of 2020 (International Civil Aviation Organization, 2020).

Although Mexico is not a destination of choice for most Chinese tourists and may or may not suffer great economic losses during this COVID-19 crisis, tourism did suffer during the 2009

H1N1 pandemic. The virus was first detected in the United States, and then travelled to Mexico. This created a fear among tourists, and Mexico lost more than a million tourist visits, which translated to USD 2.8 billion over just a five-month period (Rassy & Smith, 2013). Just prior to the pandemic, in 2008 Mexico had bolstered its tourism marketing and had seen tourist expenditures of USD 14 billion. The loss therefore of USD 2.8 billion in 2009 would be considered substantial.

Though estimates vary, the 2003 SARS outbreak is estimated to have cost the global economy USD 40 billion. The outbreak was not as severe as anticipated and was well contained, infecting approximately 8098 people worldwide and claiming 774 lives. The resulting 1% decline in China's growth in 2003 was significant. China currently accounts for 16.3% of global GDP, up considerably from 4.2% in 2003 (IHS Markit, 2020). An additional caveat to consider is that the global economy was just beginning to grow in 2003, after a mild downturn in 2002. This enabled China's economic recovery after SARS, as goods were in demand. Leading indicators in late 2019 prove weakening growth and predictions of a recessionary period as we head into the COVID-19 crisis, deepening concern of swift recovery. An article published by The World Bank in October 2019 states, "A severe pandemic can result in millions of deaths, and even the most conservative estimates suggest that pandemics destroy up to 1% of global GDP." (The World Bank, 2019).

At this time, the World Health Organization's Situation Report 35 dated February 24, 2020 indicates that 79,331 persons are infected with COVID-19 and 2,618 deaths have been confirmed globally (World Health Organization, 2020). We can thus extrapolate that the impact on the global economy due to the spread of the COVID-19 virus, with China as the epicenter,

will have dire economic consequences worldwide, and the impact due to a decline in travel and tourism will be much greater than during previous outbreaks and pandemics.

The International Civil Aviation Organization, a specialized agency of the United Nations provided some preliminary forecasts in mid-February estimating a potential reduction in gross operating revenues of USD 4 to 5 billion for airlines worldwide (**International Civil Aviation Organization, 2020**). This reduction relates directly to cancelled international flights to and from mainland China. A decision made independently by corporations rather than many governments.

Other factors that will have a negative impact on the Travel and Tourism Industry but remain difficult to quantify currently, include tourist risk prevention and fear, which is dependent on the duration, severity and spread of the virus. Cancellation of cultural events and sporting events like the Olympics may be necessary to prevent spread of the virus effectively, however these containment measures will have a dire economic impact globally. Some economists estimate the global economic impact of the COVID-19 crisis to be USD 1 trillion.

Conclusion and Recommendations

Recommendations to Mitigate a Health and Economic Crisis

To mitigate a health crisis that mushrooms to a pandemic with potentially massive economic consequences, governments and policy makers must listen to experts that have detected a health anomaly at the local level. Although, isolation of early patients may seem excessive, a detection of a novel virus calls for early isolation, testing, management, and consistent assessment of early patients, while collecting data.

This data must be shared immediately both at the local level and at the global level. Accurate and factual data examination is vital to making accurate predictions. The desire to

sequester information for fear of negative economic consequences or political suitability means that accurate information is not shared, and this heightens public safety risk as well as future economic risk both locally and globally.

Effective communication, and expert assessments from a global panel that include epidemiologists, economists, policy makers, risk assessment analysts, disaster preparedness experts, and other medical professionals should provide accurate information spoken with one voice. This panel must include experts at the local level with their feet on the ground. Findings and information should be disseminated electronically on a globally accessible platform on a consistent basis. Keeping the public informed and educated will allay fear and help with preparatory interventions.

In the event that a novel virus begins to spread from one nation to another, an immediate ban on travel must be implemented to prevent further spread. Though this comes with major economic consequences, the movement of people is the greatest risk in the spread of infectious disease. Early actions are required to diminish both public health and economic risk in the long-term. Curtailing movement locally and early will prevent further global consequences and will mitigate a health and economic crisis.

Conclusion

There is no doubt that air travel increases the spread of infectious diseases throughout the world. And spread that turns to pandemics or major outbreaks have a detrimental impact on the global economy. The Travel and Tourism Industry is a large contributor to global GDP, a decline in this sector means a sizable and unfavorable impact on the global economy and a severe impact to countries whose economies are largely dependent on travel and tourism. The duration, spread,

and severity of the COVID-19 virus will ultimately determine how large the impact will be on the global economy and on the Travel and Tourism Industry.

References

- Biswas, R. (2020, February 03). *China's Stock Markets Slump on Coronavirus Black Swan Economic Impact*. Retrieved from IHS Markit: <https://ihsmarkit.com/research-analysis/chinas-stock-markets-slump-on-wuhan-virus.html>
- Centres for Disease Control. (2019, March 20). *1918 Pandemic H1N1 Virus*. Retrieved from CDC.gov: <https://www.cdc.gov/flu/pandemic-resources/1918-pandemic-h1n1.html>
- Dawood, F. S. (2012, June 26). *Estimated global mortality associated with the first 12 months of 2009 pandemic influenza A H1N1 virus circulation: a modelling study*. doi:10.1016/S1473-3099(12)70121-4
- IHS Markit. (2020). *IHS Markit Report*. Retrieved from IHS Markit.
- International Civil Aviation Organization. (2020, February 13). *Economic Estimates Due to COVID-19 Travel Bans*. Retrieved from International Civil Aviation Organization. A United National Specialized Agency: <https://www.icao.int/Newsroom/Pages/Economic-impact-estimates-due-to-COVID-19-travel-bans.aspx>
- Rassy, D., & Smith, R. (2013, June 7). *The Economic Impact of H1N1 on Mexico's Tourist and Pork Sectors*. doi:doi.org/10.1002/hec.2862
- The World Bank. (2019, October 15). *Pandemic Preparedness and Health Systems Strengthening*. Retrieved from The World Bank: <https://www.worldbank.org/en/topic/pandemics#1>
- United Nations World Tourism Organization. (2020, January 20). *International Tourism Growth Continues to Outpace the Global Economy*. Retrieved from United Nations World Tourism Organization: <https://www.unwto.org/international-tourism-growth-continues-to-outpace-the-economy>

Viboud C, G. R. (2005, July 15). *US National Library of Medicine*. doi:10.1086/431150

Viboud C, S. L. (2016, March 1). *US National Library of Medicine*. doi:10.1093/infdis/jiv534.

World Health Organization. (2020, February 24). *Coronavirus Situation Reports*. Retrieved from

World Health Organization: https://www.who.int/docs/default-source/coronaviruse/situation-reports/20200224-sitrep-35-covid-19.pdf?sfvrsn=1ac4218d_2

World Travel and Tourism Council. (2019, February 27). *Travel & Tourism Continues Strong*

Growth Above Global GDP. Retrieved from World Travel and Tourism Council:

<https://www.wttc.org/about/media-centre/press-releases/press-releases/2019/travel-tourism-continues-strong-growth-above-global-gdp/>

Figures

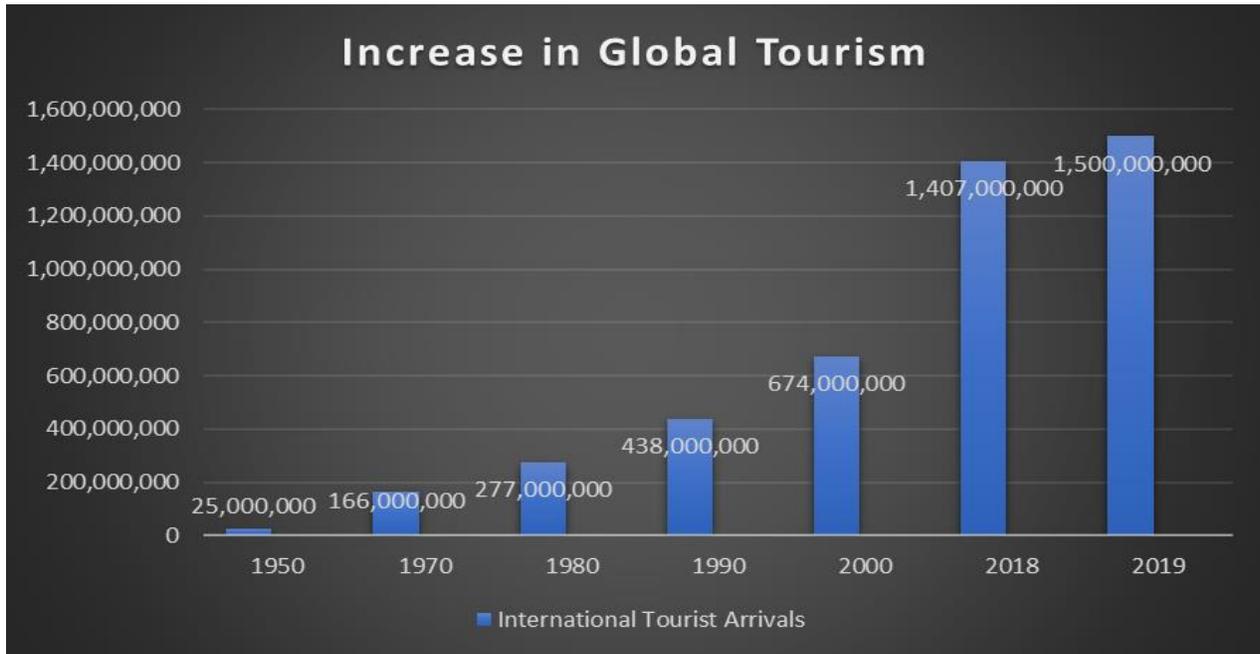


Figure 1. The increase in global tourism in international tourist arrivals from 1950 to 2018.

Data Source: Data compiled from WTTC and UNWTO

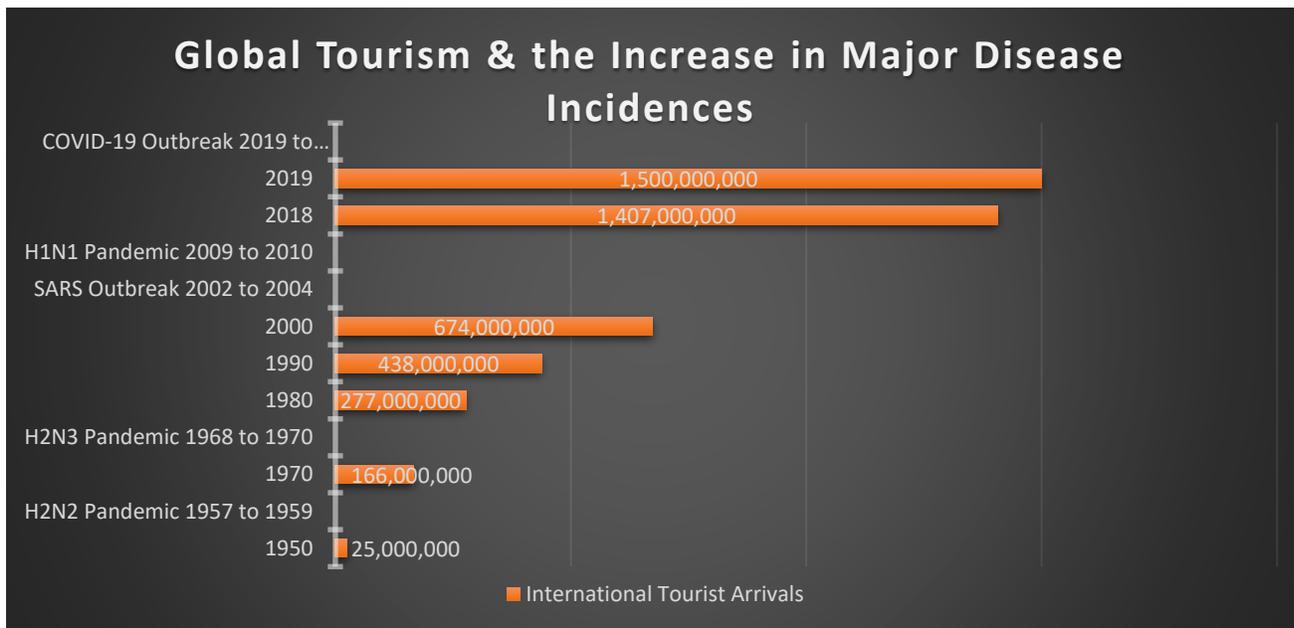


Figure 2. As global tourism has increased, so has the incidents of pandemics and outbreaks

Data Source: Data compiled from WTTC, UNWTO and CDC

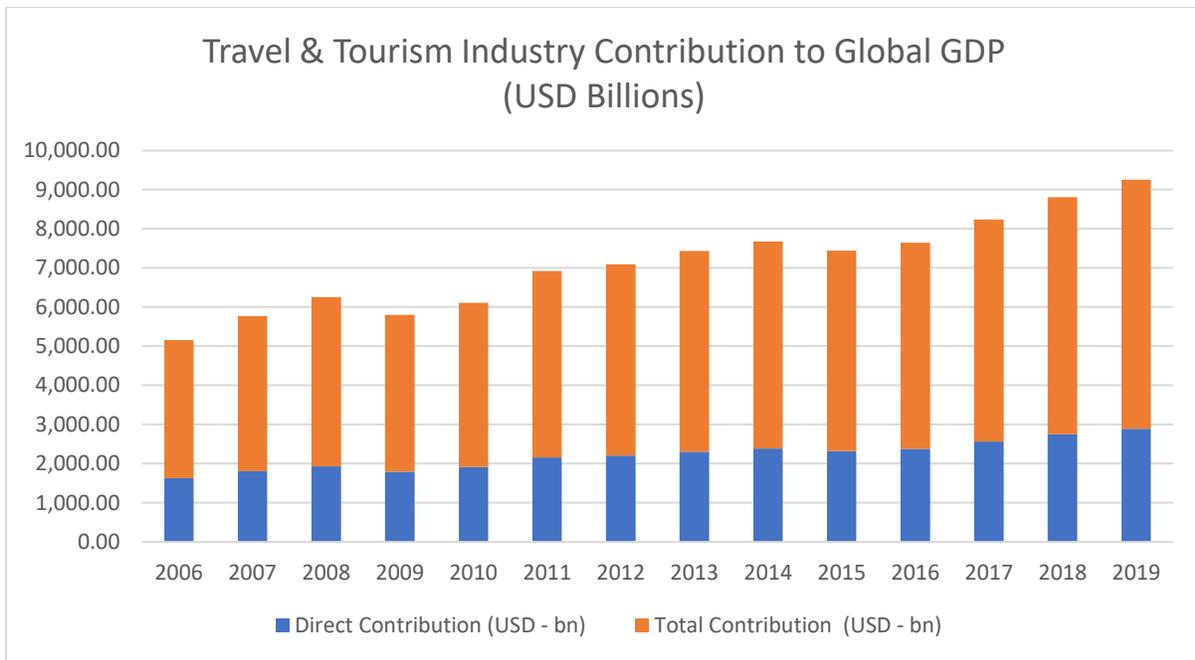


Figure 3. Direct and Total Contributions to Global GDP

Data Source: Data compiled from WTTC and UNWTO

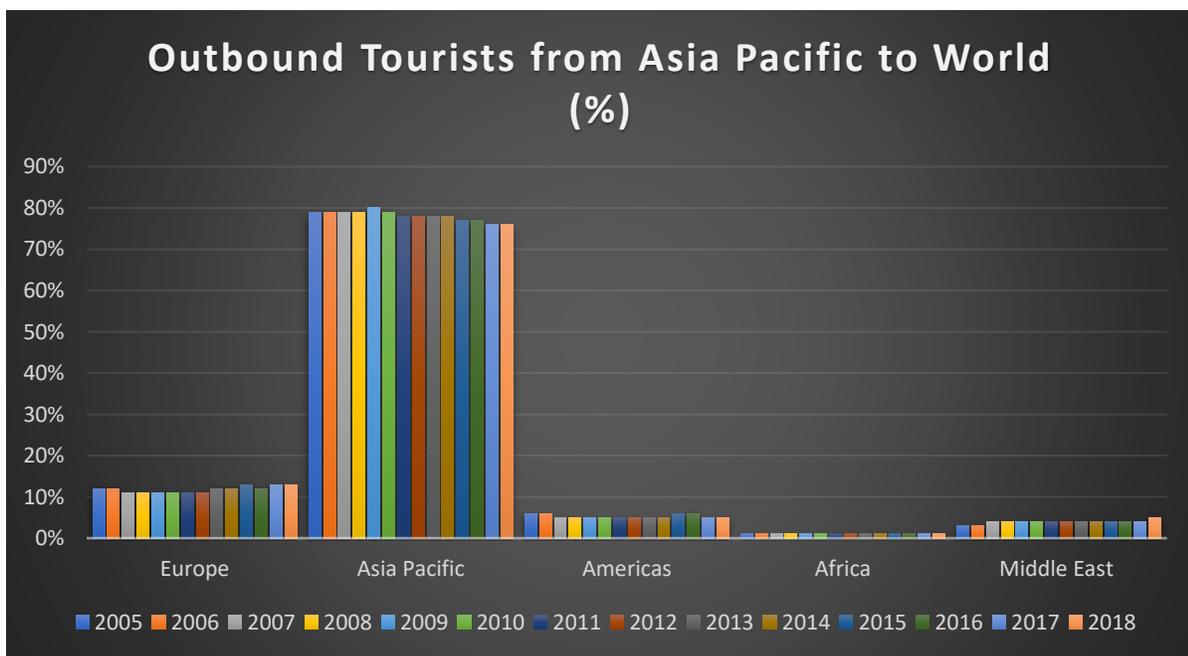


Figure 4. Outbound tourists from Asia Pacific to World

Data Source: Data compiled from UNWTO