

The Change in Airfare Tickets Based on the Weekday and the Continent

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Abstract — *The purpose of this study is to help people understand the different theories that exist and to prove if any of the theories are actually effective when buying an airplane ticket. A research was conducted to have a better understanding of the different theories regarding the topic. Two countries per continent were selected and the price for them was searched in Hopper daily. On a spreadsheet, I kept track of the changes in price for the analysis. The study revealed that prices changed the most on Thursdays and Sundays. The conclusion of the project was that there are too many factors to take into consideration when buying an airplane ticket.*

Key Terms — *Booking, Flight, International and Domestic, Supply and Demand.*

INTRODUCTION

Have you ever had the uncertainty of when is the best day to buy a plane ticket? Usually, this uncertainty does exist among people because of the different theories on the topic. With the frequent fluctuation in airfare prices and the number of websites to acquire a ticket from, it can often feel overwhelming to find a reasonably priced ticket. As a person that loves to travel, I have found myself trying to understand when to buy a ticket therefore, the purpose of this study is to help people understand the different theories that exist and to prove if any of the theories is actually effective when buying a ticket. Also, we intend to have a better understanding of when one should book an airfare ticket. As Ger Murphy says, “I travel because we all deserve a holiday.”

THEORETICAL FRAMEWORK

The Theoretical framework depicts the research done regarding the project’s main topics.

Booking a Particular Day

Why do most people understand that Tuesdays are the best days to book a flight? A Study by Justin Ferris in 2017 explains that [1] “because airlines often announce deals on Monday evenings. By Tuesday at noon, other airlines are scrambling to match those deals. So, Tuesday afternoons are the best time to hunt for reduced airfare.” This is a theory that has been going on for years and many people wait until Tuesdays to actually buy their tickets. Rick Seaney, in March 2018 agreed with the above statement that Tuesdays are the best to book ticket when he stated that [2] “We’ve explained why Tuesday is the best day to shop for airline tickets in the past – because so many airlines release weekly sales early on Tuesday, prompting competing airlines to match prices – and this hasn’t changed much over the years.” He also added that [2] “Careful! Buy too early and you could pay too much. Buy too late and you could pay *way* too much.” What this says is that not only the day you buy the ticket is important but how far in advance is also a factor when booking an airplane ticket. As we can observe this theory shared among many people and has been a finding in different studies throughout the years. In contrast, A study from the Wall Street Journal found out that, [1] “most people can save an average of \$60 by purchasing their tickets on Sundays instead of Tuesdays. The study also showed a significant increase in ticket prices on Mondays, Tuesdays, and Fridays.” Even when most of the studies establish that the best day to buy tickets is on Tuesdays, we have some that disagree with this theory. Moreover, an Expedia and ARC report says that it [3] “backs up the 2016 report that Sunday is the cheapest day to book international and domestic economy tickets and Saturday and Sunday are the cheapest for premium air flights.” Again, another theory as to when one

should buy airline tickets and that's the reason many people have a misunderstanding with regard to when is the best day to buy.

Best Prices the Day One Fly

On the other hand, many studies deny this theory by stating that is not the date you buy your plane ticket but instead the day you actually fly. On the CheapAir study, where it compares over 917 million airfares it states that [3] "there's not actually a best day to book tickets. According to their findings, the average lowest fares on each day of the week only differ by a few bucks, which is clearly nothing to lose your head over." Many people are worrying about the day they buy their tickets when it actually seems to have no correlation what so ever. An article by Justin Ferris says that [1] "Studies show that flying on Tuesdays is still the best day to fly for less. Fewer people travel on Tuesdays, and less demand means a better deal for you. Friday and Sunday are the most expensive." I think it makes sense to think that flying when people travel the least is when prices go down. Because people usually travel when they have free days or kids does not have school, they usually do it on weekends and that's why weekdays is less expensive to travel. Moreover, in an article in the Business Insider David Solomito, Vice president of North America marketing at Kayak, supports this theory by stating that [4] "The supply and demand is really what drives a lot of this. The times when people most want to travel, when things are most convenient, it's more expensive." It is understandable that when people most want to travel is most expensive than other times. In June 2018, Leah Stodart wrote for Mashable an article where she states that [3] "Flying out on a weekend will up the cost significantly, so we'd suggest not doing a Saturday or Sunday unless you have no other choice." We have seen that many articles support the theory that the important thing to find a better airfare ticket price is all about the day you travel not the day you book the ticket.

How Far in Advance to Book

Have you heard that the more far in advance you buy the tickets the cheapest? I think we have all heard about this theory but is it true that we need to buy it with that much time in advance? None of the articles read for the purpose of this project state that the farther an advance one purchases tickets the cheaper but instead they establish averages as to when tickets should be bought. Justin Ferris wrote for Komando that [1] "After that six-week point, ticket prices tend to climb up slowly, then spike to their highest point a few days before departure." The problem with this statement is that it doesn't take into consideration if it is a domestic or an international flight like most of the article do. Another article states that Patrick Surry, chief data scientist at Hopper, says that, [5] "You'll save a lot more by booking farther in advance, typically, than you will by picking a specific day of the week" We have seen that many articles are against the theory of buying at a specific day of the week but instead agree with many other theories. An article by Biki John expresses that, [6] "It takes a lot more preparation to plan an international trip and that includes booking your tickets further in advance. International flights don't see the same kind of fluctuation domestic flights do, so more often than not what you see is what you're going to get." Since farther flights are usually more expensive than domestic flights you might see less changes in prices so when you see a good price is better to book right away. Also, not only because you have an international flight one should book earlier in advance, but high seasons like summer, based on CheapAir study, should also be booked in advance. Also, the study by CheapAir establishes that, [6] "three months out is when you want to start thinking of booking domestic flights – whereas for booking international flights, three months out is the last minute you want to be thinking of booking. Go more than three months out to book tickets for international flights to ensure that you're getting the best deal possible." Having it separated into two categories, domestic and international helps

understand that this is not as easy as for every flight should wait an established amount of time but instead you need to take into consideration where you are traveling to. In figure 1. Advance purchase date we can observe how far in advance CheapAir suggests buying airfare tickets the pending on the destination.

Where and When to Fly

It is no secret that depending on when you travel prices are going to be more expensive than other times of the year. By doing research on the topic we found out that several studies suggest that traveling in January is one of the best times to find cheap tickets because many people use their vacations day during Christmas. One of those studies was made by Hipmunk in which he stated that [7] “not only is the first month of the year the "most cost-effective" time to book a ticket, but it's also the least-traveled month of the year for residents in the U.S.” Also, an important factor is where you are traveling to. CheapAir says that the cheapest places to fly in 2018, based on various factors are, [8] Montenegro, Croatia, Spain, San Francisco, California, Thailand, Las Vegas, Nevada, India, Namibia, Africa, Washington, D.C., New Zealand, Nicaragua. The cheapest places to travel are not always the same because as stated before the supply and demand is always a factor as to what the price is going to be. There are places that gain popularity making prices to travel to that particular destination more expensive. Another article that denies a relationship between the price of the airfare and the day of the week was done in 2018 by Brianna Mills when she says [9] “While it’s often cheaper to fly on Tuesdays to Thursdays, airlines do not lower their fares for those who buy tickets on those days of the week. The window changes dramatically depending on where you are traveling and when.” Her theory is that there might be a relationship between the day you travel and when you buy the ticket but it’s very important the day of traveling and the destination. Ms. Mills also says that [9] “If there's a sporting event or festival in the country that you wish to travel to, you're

going to pay more to travel there whether you're attending the event or not.” Another factor that one not always take into consideration when traveling maybe because we are not always aware of events happening in each of the places we are going to. Most of the article claim that if it’s an international flight one must book farther in advance than if it’s a domestic flight since international flights are usually costlier. Most of the airlines set prices to be higher at first since they don’t really know what the demand is going to be. Once they get to know the market demand, Patrick Surry says that, it’s simple economics: If demand is low, prices fall. If its high, seats fill up fast and prices get higher. But [5] “there’s usually that sweet spot — two, three, four months in advance — depending on where you’re flying to.” Again, we can observe how the destination is an important aspect on the airfare ticket price.



Figure 1
Advance Purchase Days

In this study we are going to observe if there is a correlation between the price of the airfare and the day of the week by continent.

HYPOTHESIS

- Hi1: There is no specific day in which prices change.
- Hi2: Depending on the destination prices fluctuate and change.

METHODOLOGY

To make this quantitative study a research was conducted to understand if there were any related studies about the topic. Once the research was made, the selection of the topic was made. After the discussion and approval of Prof. Nelliud, there was another research conducted to understand the most visited airports in the world. Since the study was going to be by continent the airports selected was based on the most visited airports by continent. The two cities selected, by continent, for this project were Vancouver, San Francisco, Buenos Aires, Bogota, Sidney, Auckland, Bangkok, Tokyo, Johannesburg, Casa Blanca, Istanbul, Amsterdam. As established with the professor data was going to be gathered for two months and a half. The time for which the flights were going to be searched were July 12 to July 19, 2018. This was selected since based on research summer is a high season to fly. Hopper was the airfare analysis app chosen to look for airfares every day. An alarm was set up for all those cities for the app to inform if any price changes occur. Also, every day the price was checked to see any change in price. Since February 4, 2018, until April 29, 2018 data were collected on a daily basis for the selected cities. An excel sheet was updated to track the changes if prices increase it will be represented in red. On the other hand, if the prices drop it was represented in green. No change in price was left without color. This process was repeated throughout the data collection period. After all the data was collected, a thorough analysis was conducted. Graphs and tables were created in order to have a better understanding of what the raw data meant. The final process was to write an article to present to Prof. Nelliud.

RESULTS

This section will explain the different analysis made to explain the data gathered.

Figure 2, Changes per Country, represents the number of changes, regardless of prices going up or down. Sidney was the country with the most changes and Buenos Aires the country with the

least changes. Between the countries in each continent, there is not much difference since the differences go from 3-11 (excluding Australia and Oceania) changes between one and the other. The biggest change is found in Australia and Ocean with a difference of 19 between Sidney and Auckland. We can observe that changes mostly depend on the continent you are visiting but also the country.

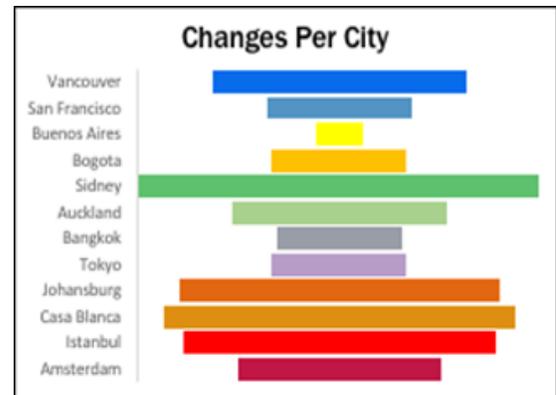


Figure 2
Changes per Country

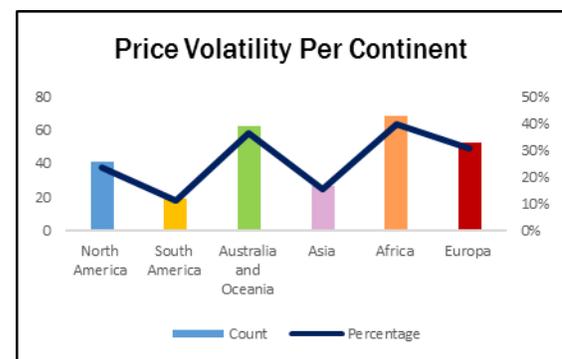


Figure 3
Price Volatility Per Continent

Figure 3 represents the number of changes where per each continent. Also, this graph includes the percentage they represent based on the changes. As we can observe, Africa and Australia and Oceania, are the continents with the most changes with 69 and 63, respectively. The continents with the least changes are South America and Asia with 19 and 27, respectively. Prices to North America and Europe are in the in-between but they are also the most visited from Puerto Rico which could be a reason as to why they are constantly changing since

the Supply and demand for them are constantly changing and they can risk raising prices or push down prices. Also, they have to be competitive with other airlines, since many go to these places, and prices tend to rise or go down.

Figure 4 represents the number of changes, increase or decrease in price, per weekday and continent. The purpose of this graph is to have a better understanding if there is any correlation on the price of airfare tickets and the weekday. As we observe most of the changes occur on Thursday followed by Sundays. The changes not necessarily are prices going decreasing, but they might be increasing. For every single continent, the day that changes occurred the most was on Thursday. Even when most theories support the fact that the best day to buy tickets is Tuesday we can observe that is not necessarily true at least for the period in time evaluated.

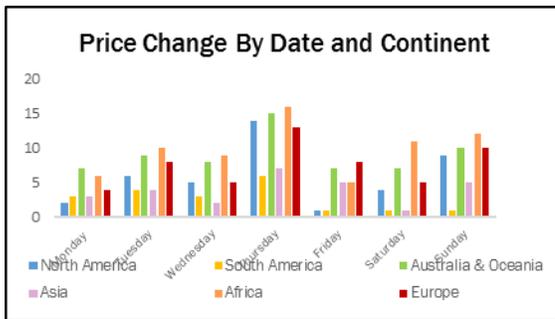


Figure 4
Price Change by Date and Continent

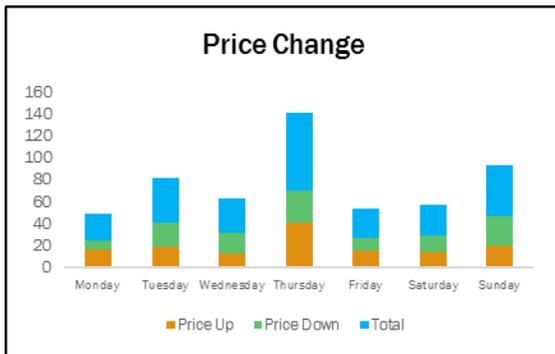


Figure 5
Price Change

Figure 5, price change, is to have a better understanding of the total changes, for each weekday. Even when prices changed the most on

Thursday it was also the day where prices went up the most. On the other hand, on Sundays, even when there weren't as many changes as Thursdays, we have almost the same amount of changes positively. Mondays and Fridays were the days with the least changes even when Wednesdays and Saturday don't have significant changes.

Figure 6 purpose is to have a better understanding, for each weekday, if the changes were positively or not. If we refer to figure 5, price change, we can observe that Thursdays have the most changes followed by Sundays. If we put it into perspective, on Sundays we have 20 changes of increase in price, but we also have 27 times where prices went down compared with the 30 on Thursday. Consequently, out of 47 changes on Sunday, 27 where positive and that accounts for 57% of the changes. On the contrary, out of the 71 changes on Thursday, only 30 were positive which is only 42% of the changes. Tuesdays follow Thursdays and Sundays on both, prices going up and down.

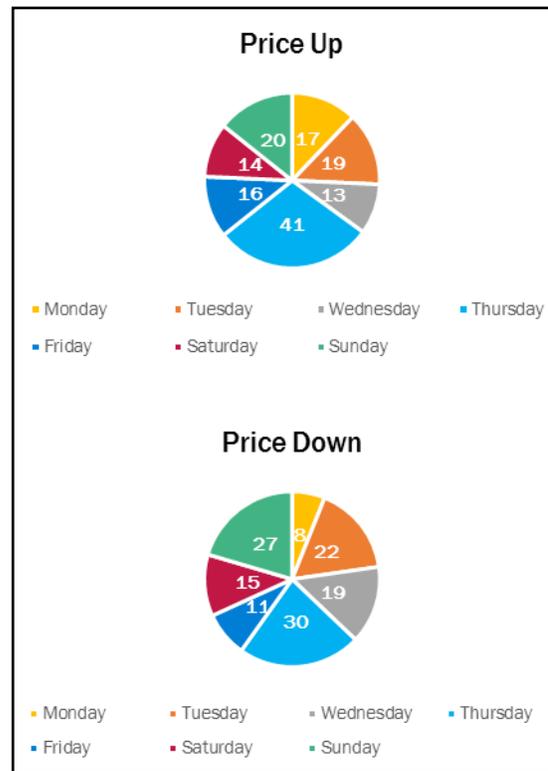


Figure 6
Comparison of Prices

CONCLUSION

In conclusion, there are too many factors that influence the airfare ticket prices. Even when there have been many studies regarding this topic none of them have focused on all different possibilities. The second hypothesis, depending on the destination prices fluctuate and change was validated with the study because depending on the continent the prices were more volatile or less volatile. The first hypothesis, there is no specific day in which prices change, seems to be valid even when there are two days that prices changed the most because we only took into consideration one point in time. There are too many factors that need to be taken into consideration in order to fully understand what drives airfare ticket prices. As you can see on the charts prices mostly change on Thursdays and Sundays contrary to what many studies say. However, statistics are flexible because of the many factors that come with buying the ticket. There are too many variables to think of when buying a ticket that you can't rely on just one day to get the cheapest deal, there are no one-size fits all when buying a plane ticket.

FUTURE WORK

As a future work, the period for which data can be searched could be longer. We can make a study of the different seasons to fly. Another research could be searching more countries for each continent.

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