



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

Author: Gabriela Santos Rodriguez  
Advisor: Dr. Nelliud Torres  
Department: Computer Science

## 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.

## 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."

## Methodology

### Hypothesis:

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

### Methodology:

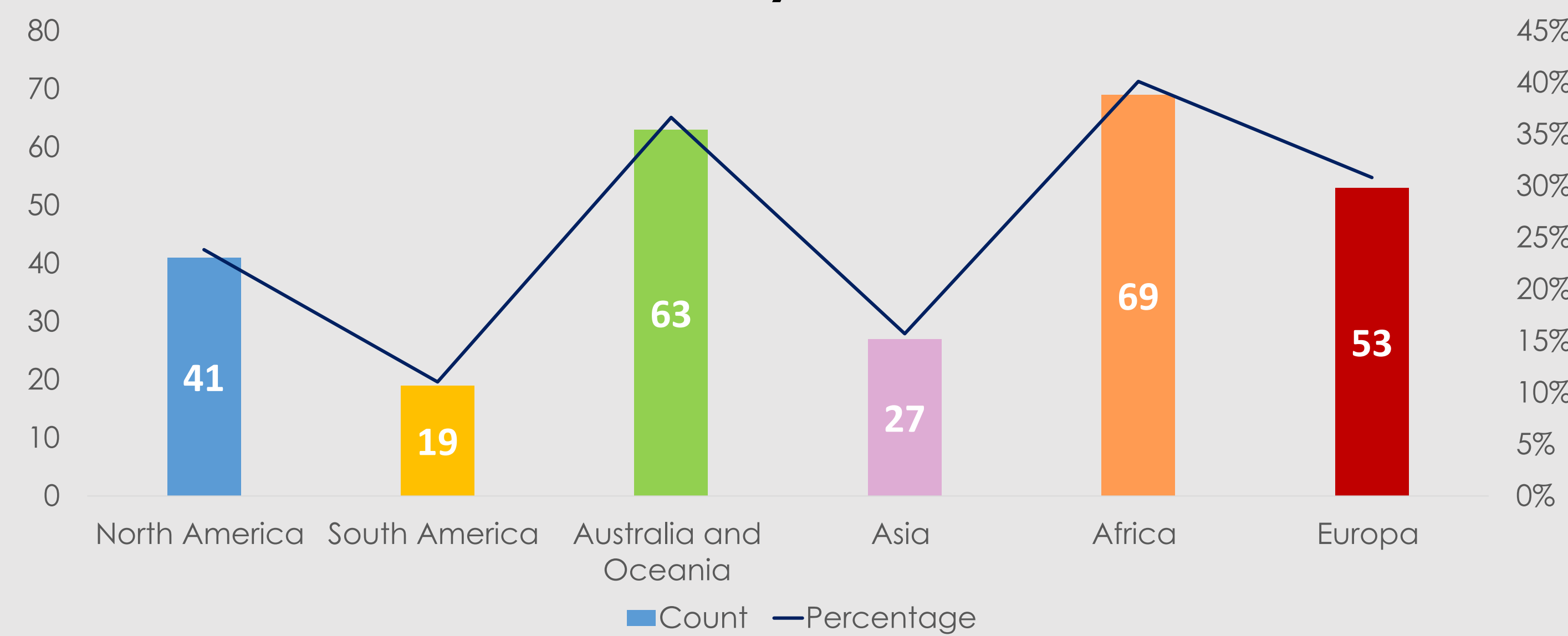
To make this quantitative study a research was conducted to understand if there were any related studies about the topic. Once the research was made, the selection of the topic was made. After the discussion and approval of Prof. Nelliud, there was another research conducted to understand the most visited 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.

## Methodology

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.

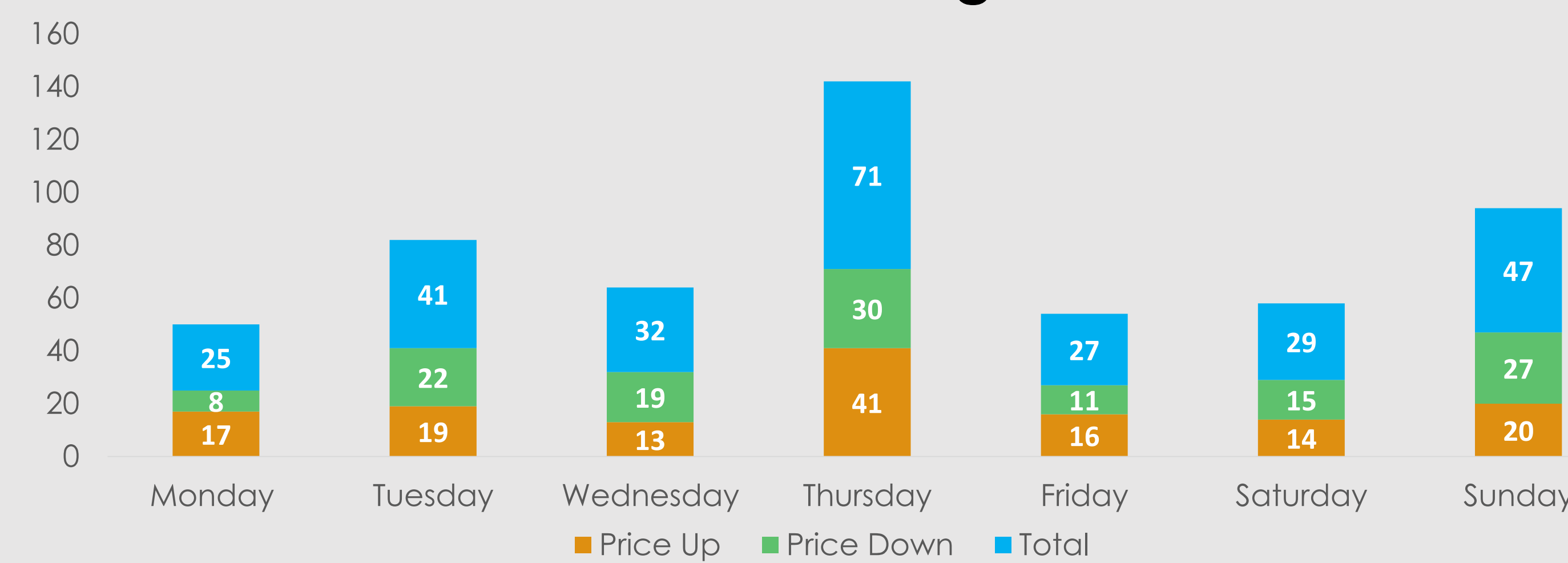
## Results

### Price Volatility Per Continent



The graph, Price Volatility per Continent 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.

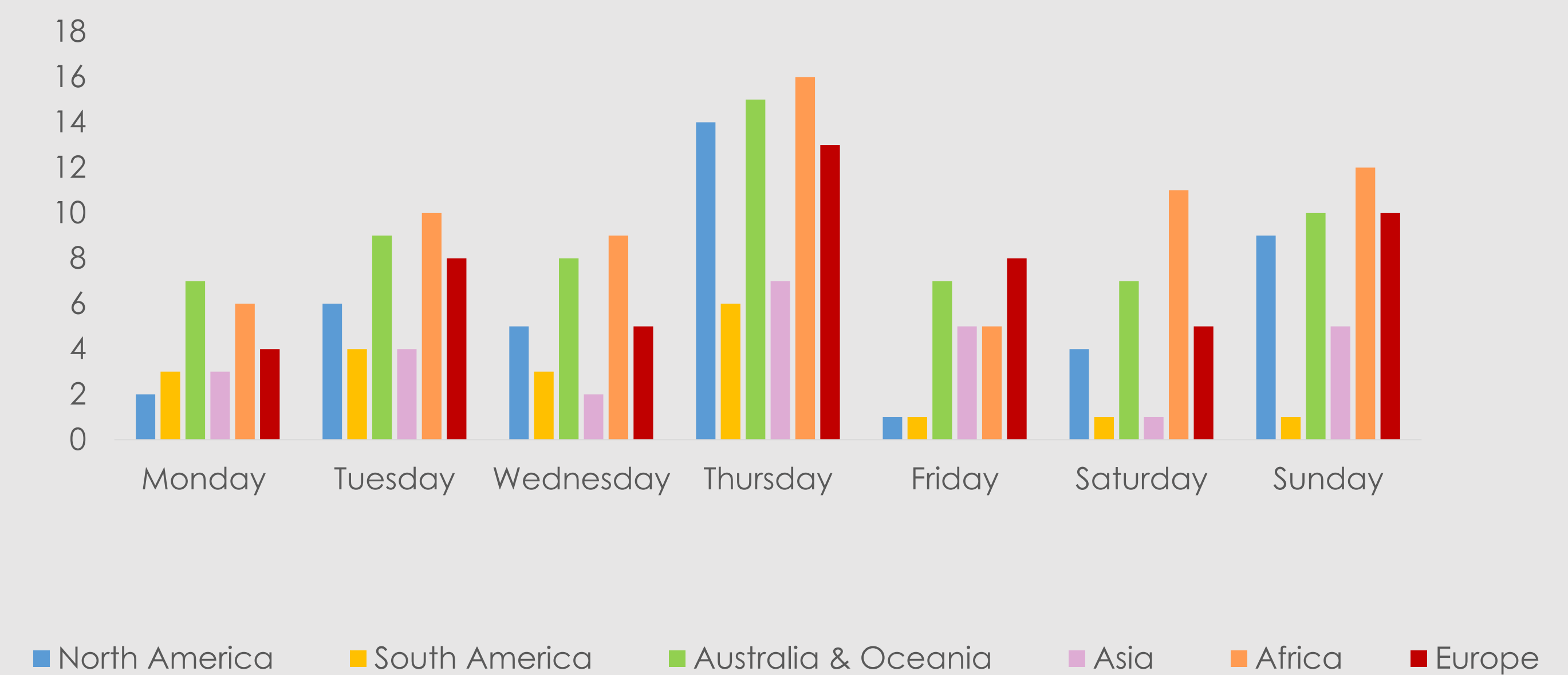
### Price Change



The price change graph 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.

## Results (Cont.)

### Price Change By Date and Continent



The graph, Price Change by Date and Continent, 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.

## 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.