

Gender differences in booking business travel

Advance booking behavior and
associated financial impact



Executive Summary

As travel becomes more personalized, there is an increasing need to understand how travel preferences and behaviors vary from one traveler type to another. Traveler groups such as millennials (Generation Y) or road warriors (frequent travelers) are often under the spotlight, especially in connection with their technology use and productivity on the go. In this paper we investigate gender differences in booking business travel.

The research is based on a set of 6.4 million air booking transactions from around the world recorded by Carlson Wagonlit Travel in 2014. The traveler population responsible for these bookings amounts to 1.8 million people, of whom 30% are women. We studied the advance purchasing behavior, producing the following conclusions:

- ▶ Female travelers book earlier than their male counterparts, on average. A like-for-like comparison shows a difference of 1.9 advance booking days between the two genders.
- ▶ As traveler age increases, so does the advance booking; between 30 and 70 years of age, the advance booking increases by roughly 5 days for both genders.
- ▶ As employee's travel frequency - number of business trips per year - increases, the advance booking decreases. The gender gap is largest at the low frequency end (1 or 2 trips per year) and virtually disappears in the highest-frequency group.

Furthermore, we quantified the financial impact arising from this gap. By comparing the ticket prices paid by men and women for the same routes and under the same travel conditions, we measure a difference of \$17, representing approximately 2% of the average ticket price. For large companies, this gap has the potential to generate significant savings.

This research introduces an advanced approach to studying traveler segments. The large dataset and rigorous statistical technique allow us to detect and measure differences in the advance purchasing behavior of male and female travelers. Beyond gender and advance booking, this method can be extended to other types of traveler segmentation and other areas of travel management.

Introduction

When it comes to travel, certain behavioral differences between men and women exist. For instance, different patterns were found in the quantity and purpose of trips taken by each gender throughout the life cycle [1]. Within the realm of business travel, past CWT research has found that travel stress is more strongly perceived by female travelers [2]. In this study we investigate the advance booking behavior of employees traveling for business.

Advance booking ties into the success of a corporate travel program [3]. As opposed to the leisure segment, business travel is more constraining regarding the dates and places of travel, which implies a smaller selection of flights or hotels is typically available to travelers. As seats get filled, prices increase according to the yield management strategies defined by airlines. With very few exceptions, booking early saves money. Most companies therefore require their employees to reserve flights at least one or two weeks in advance for domestic and continental trips, and three weeks for intercontinental trips.

In this context, it is important to understand the advance purchasing behavior of business travelers. Specifically, we aim to answer the following questions:

1. Do women book earlier than men?
2. Within each gender, do younger travelers tend to book closer to departure?
3. Are these behaviors changing as men and women travel more frequently?
4. What is the financial impact of the behavioral gender difference in booking air travel?

Our results show that gender differences in buying business travel do exist, and we assess their financial impact. This study advances our knowledge and understanding of the purchasing patterns in business travel. Beyond gender, this technique can be generalized to other dimensions used in segmenting travelers, such as booking channel, technology usage, business unit or geographical region.

Scope of the Study

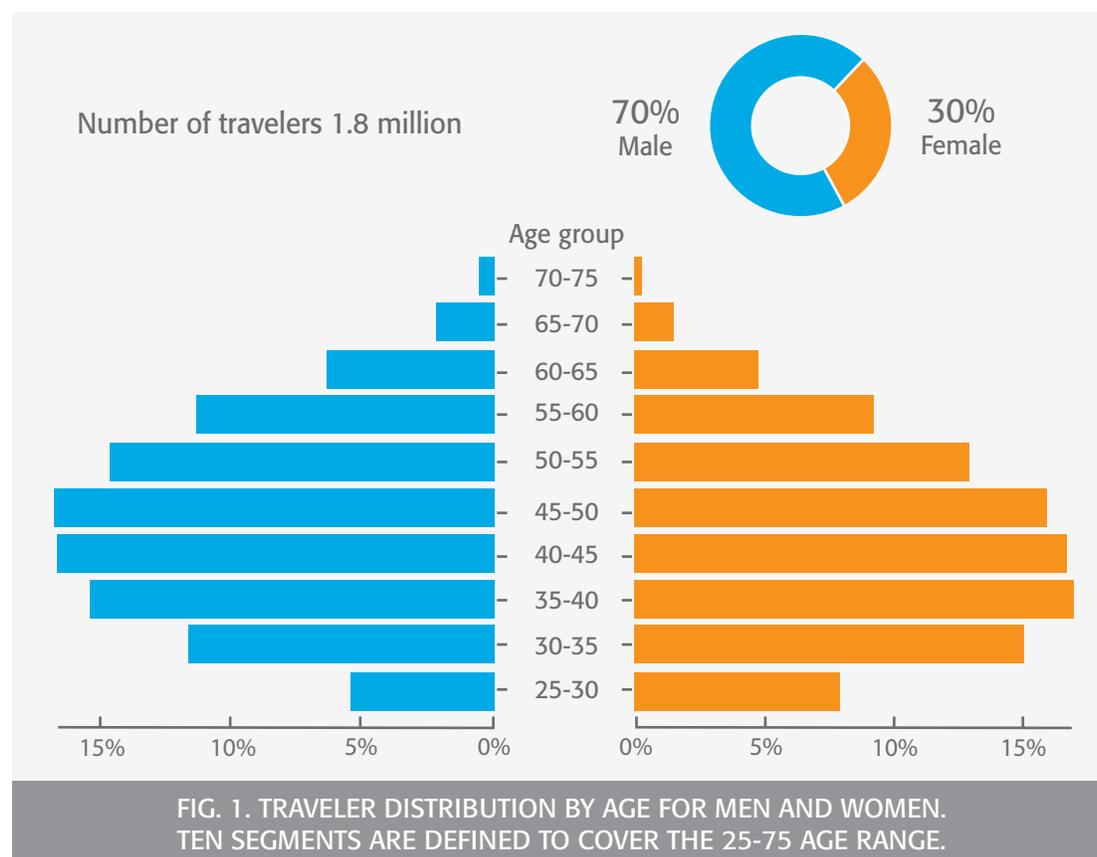
This study is based on a set of 6.4 million air booking transactions recorded by CWT in 2014. In order to avoid potential bias from unusual itineraries, the sample was limited to round-trips on CWT routes with more than 100 tickets. Refund and ticket exchanges are not part of the sample.

For each transaction we focused on the following parameters:

- › Origin-destination airport pair, issuing country, class of service, week of the year, length of stay, advance booking, ticket price.
- › Traveler demographic category, determined using CWT's traveler profile database (*CWT Portrait*).

The number of travelers in our sample is 1.8 million, with a 70:30 male-female ratio. The age distribution is slightly different, as illustrated in Figure 1; the average age is 43.3 for women and 45.2 for men.

In the next section we will analyze the advance booking patterns for the two genders.



Analysis of advance booking patterns

For this research, we define the advance booking as the number of days between the flight booking date and the flight departure date. In general, the advance booking is an interplay of three factors:

1. **Meeting lead time**, which is determined once the decision to meet in person is taken. Depending on the geographical locations of the participants and the urgency to meet, meeting dates can be set anywhere from a few days to a few months in advance.
2. **Traveler's planning habits**, or the propensity to buy early and secure the seat. For short lead times - urgent trips - this factor plays a lesser role.
3. **Corporate policy and process**, or the path to obtain the necessary trip approvals and execute the booking using the company's reservation channels.

When meeting lead times are sufficiently high - more than 2-3 weeks in advance - advance booking is largely determined by the traveler's planning habits.

ADVANCE BOOKING BY GENDER, AGE AND TRAVEL FREQUENCY

The relationship between advance booking and traveler's age and gender is presented in Figure 2. It shows that:

- › Women book earlier than men in each of the 10 age categories. Across the full age spectrum, the observed advance booking difference is 2.8 days.
- › Advance booking improves with age. As age increases from 30 to 70, the advance booking increases by roughly 5 days for both genders.

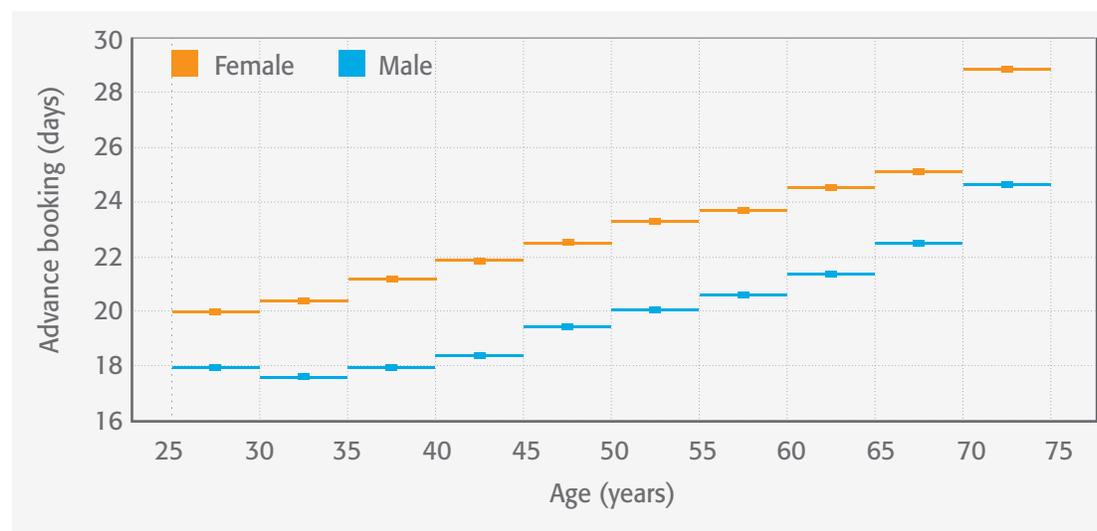


FIG. 2. ADVANCE BOOKING AS A FUNCTION OF AGE FOR MEN AND WOMEN.

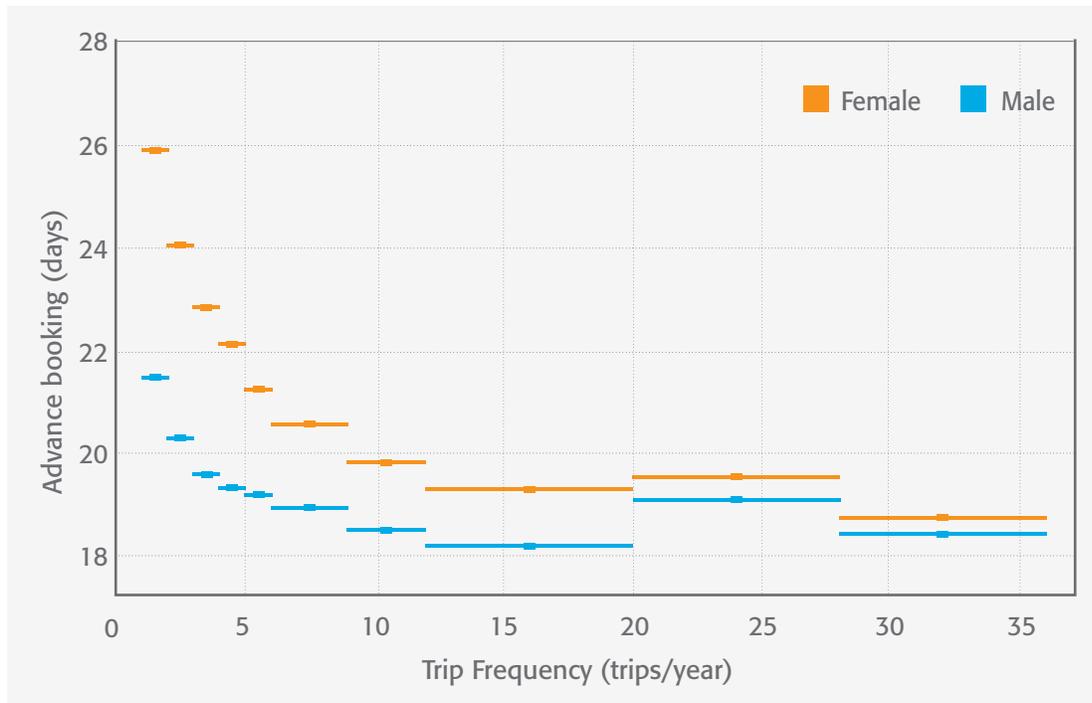


FIG. 3. ADVANCE BOOKING AS A FUNCTION OF TRIP FREQUENCY FOR MEN AND WOMEN.

The relationship between advance booking and annual trip frequency is also investigated, as shown in Figure 3. As trips become more frequent, advanced booking decreases. This is partly explained by the increased percentage of short-haul trips taken (60% to 73%) and by the lower lead time available to book. In the high-frequency regime of over 2 trips per month, the gender gap in advanced booking becomes negligible.

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... as the amount of travel increases, the gender differences in advance booking progressively disappear...

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STATISTICAL ANALYSIS

We investigated several factors which could generate the higher advance booking pattern observed for female travelers.

First, we considered the lead time and its proximity to the typical two-week advance booking deadline recommended by corporate travel policies. Is the early booking pattern due to women rushing to meet these booking deadlines? As previously explained, for meeting lead times of two weeks or more we expect the traveler planning habits to be the main factor in determining when the ticket is bought. Our analysis shows that women are more likely to book 2-4 weeks or more in advance than men:

- › 15 days or more in advance: women's probability of booking within this range is 9 percentage points higher than men's (53% for women versus 44% for men)
- › 22 days or more in advance: women's probability of booking within this range is 7 percentage points higher than men's (36% for women versus 29% for men)
- › 29 days or more in advance: women's probability of booking within this range is 5 percentage points higher than men's (25% for women versus 20% for men)

These results show that women buy earlier than men even when corporate policy deadlines do not come into play.

Our statistical analysis uses a technique known as multi-linear regression with fixed effects (see Appendix and Ref. [4]). This model takes into account the average advance booking differences for different origin-destination airport pairs, weeks of the year, issuing countries, traveler types, companies and divisions. This ensures a like-for-like comparison. The results show that women book 1.9 days earlier than their male counterparts (right hand column of Table 1).

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FINANCIAL CONSIDERATIONS

As done for the advance booking, we use the same technique to calculate the average paid fare difference between men and women travelers. The result is \$17.3, which represents about 2% of the average ticket price. As it can be seen in Table 1, this value is significantly lower than the \$113.8 obtained by simply subtracting average ticket prices calculated in the male and the female subsamples. The rest of the gap is explained by other factors such as the mix of routes, class usage or period of travel.

We can estimate the impact of the price gap for a company with 1,000 travelers, assuming that men show the same booking behavior as women:

- › At 70% male ratio, there will be 700 male travelers
- › At 4 trips per year, the male segment will generate 2,800 business trips
- › At \$17.3 per ticket the savings would amount to roughly \$48,000 per year

As the number of travelers grows, so do the savings, exceeding \$1,000,000 for a traveler base of 21,000.

In summary, our analysis found that women book their flights earlier than men, on average. This result takes into account corporate policy and process, as well as other fixed effects, and it holds true regardless of the meeting lead time. Depending on the size of the traveler population, these observed differences can open up significant savings.

Women – Men Difference [Delta]	No Correction	Corrected
Advance booking days	+2.8	+1.9
Fare paid per ticket	-\$113.8	-\$17.3
Probability of booking more than 2 weeks in advance (percentage points)	+8.9	+5.4
Probability of booking more than 3 weeks in advance (percentage points)	+7.0	+4.4
Probability of booking more than 4 weeks in advance (percentage points)	+5.1	+3.3

TABLE 1: DIFFERENCES IN BOOKING BEHAVIOR BETWEEN WOMEN AND MEN. "NO CORRECTION" COLUMN SHOWS THE DIFFERENCE BETWEEN AVERAGES OVER THE TWO GENDERS. "CORRECTED" COLUMN PRESENTS THE LIKE-FOR-LIKE COMPARISON RESULTS.

Conclusions

The aim of this research was to test if and to what extent the advance purchasing behavior of male and female business travelers is different. We found that women book their flight tickets earlier than men and consequently pay lower fares. Age and trip frequency are also related to advance booking. Specifically, booking behavior improves with age and degrades at higher trip frequencies. Similar conclusions have been obtained in other fixed-capacity purchasing environments such as event ticket sales [5].

Besides the insights it conveys, this publication introduces a new method of analyzing traveler behavior within different segments:

- › By looking at a large sample of trips (6.4 million) we ensure a high level of robustness for our results.
- › By correcting for fixed effects we are able to perform a like-for-like comparison and investigate advance purchasing differences between women and men, both in temporal and financial terms.

As tracking the average ticket price or average advance booking has become routine, travel managers and finance professionals are increasingly looking at new ways to improve employees' purchasing behavior. The method presented here can be extended beyond gender to other types of traveler segmentation, such as travel demand (domestic versus international), booking channel (phone or online), business unit or geography, for example.

Moving beyond all-traveler averages towards analyzing and understanding traveler *segments* opens up new avenues for managing travel and represents a step forward in the quest for travel personalization.

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... moving from all-traveler averages to understanding traveler segments represents a step forward...

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References

- [1] D. H. Collins and C. A. Tisdell, "Gender and Differences in Travel Life Cycles" *Journal of Travel Research* 41: 133-143 (2002)
- [2] *CWT Solutions Group*, "Stress Triggers for Business Travel" (2012)
- [3] CWT Travel Management Institute, "Mastering the Maze – A Practical Guide to Air and Ground Savings" (2012)
- [4] J. M. Wooldridge, "Econometric analysis of cross section and panel data", MIT press (2010)
- [5] Eventbrite, "When do People Buy their Tickets", public report (2015)

Appendix

The independent variables used in our regression are:

- › age segments
- › annual trip frequency
- › ticket class
- › geographical region
- › trip type (domestic, continental or intercontinental)
- › type of flight (direct or indirect)
- › length of stay

The fixed effects considered are:

- › origin-destination airport pair
- › departure week of the year
- › issuing country
- › company
- › division
- › traveler type (travel policy group)

Credits

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