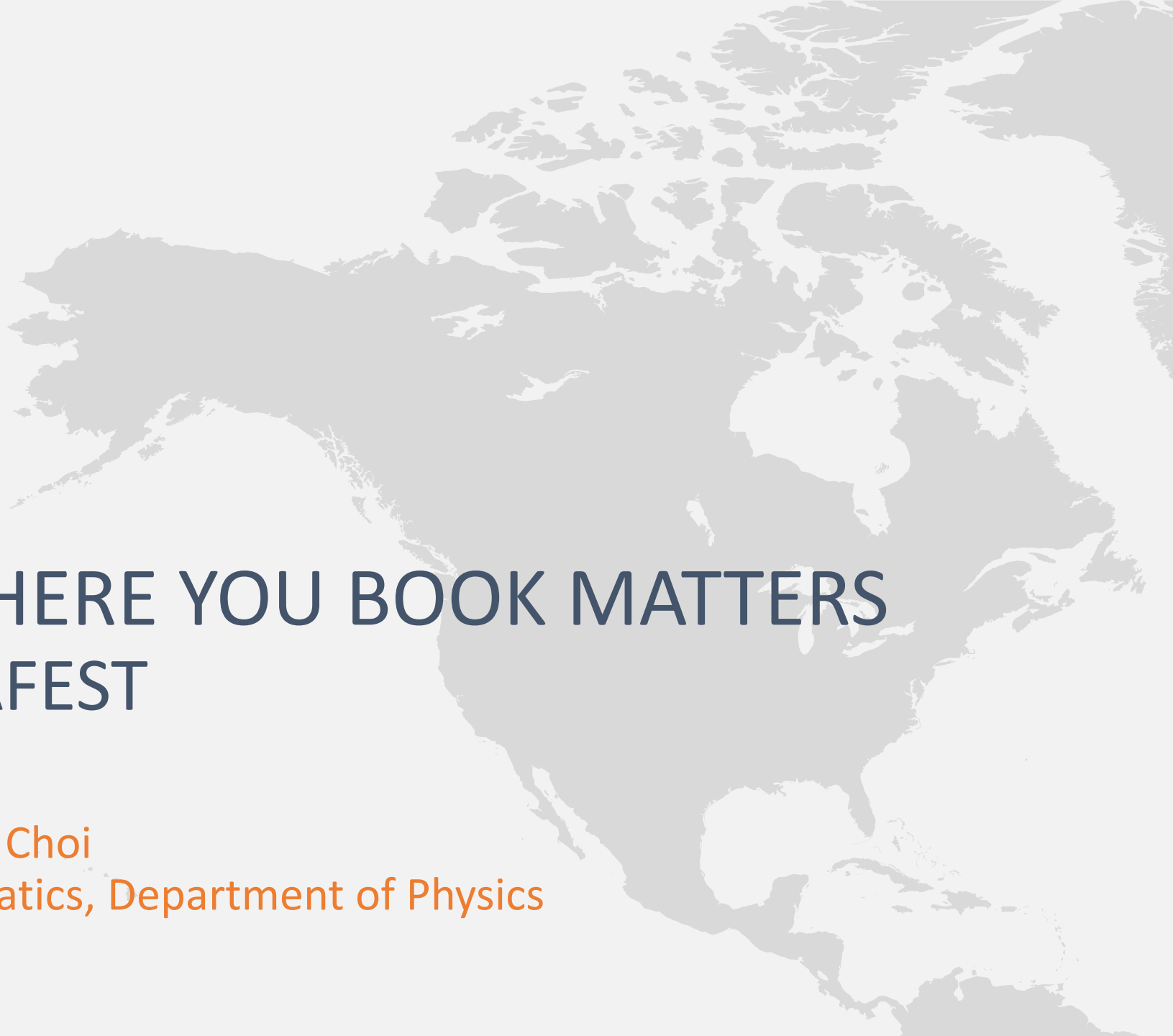


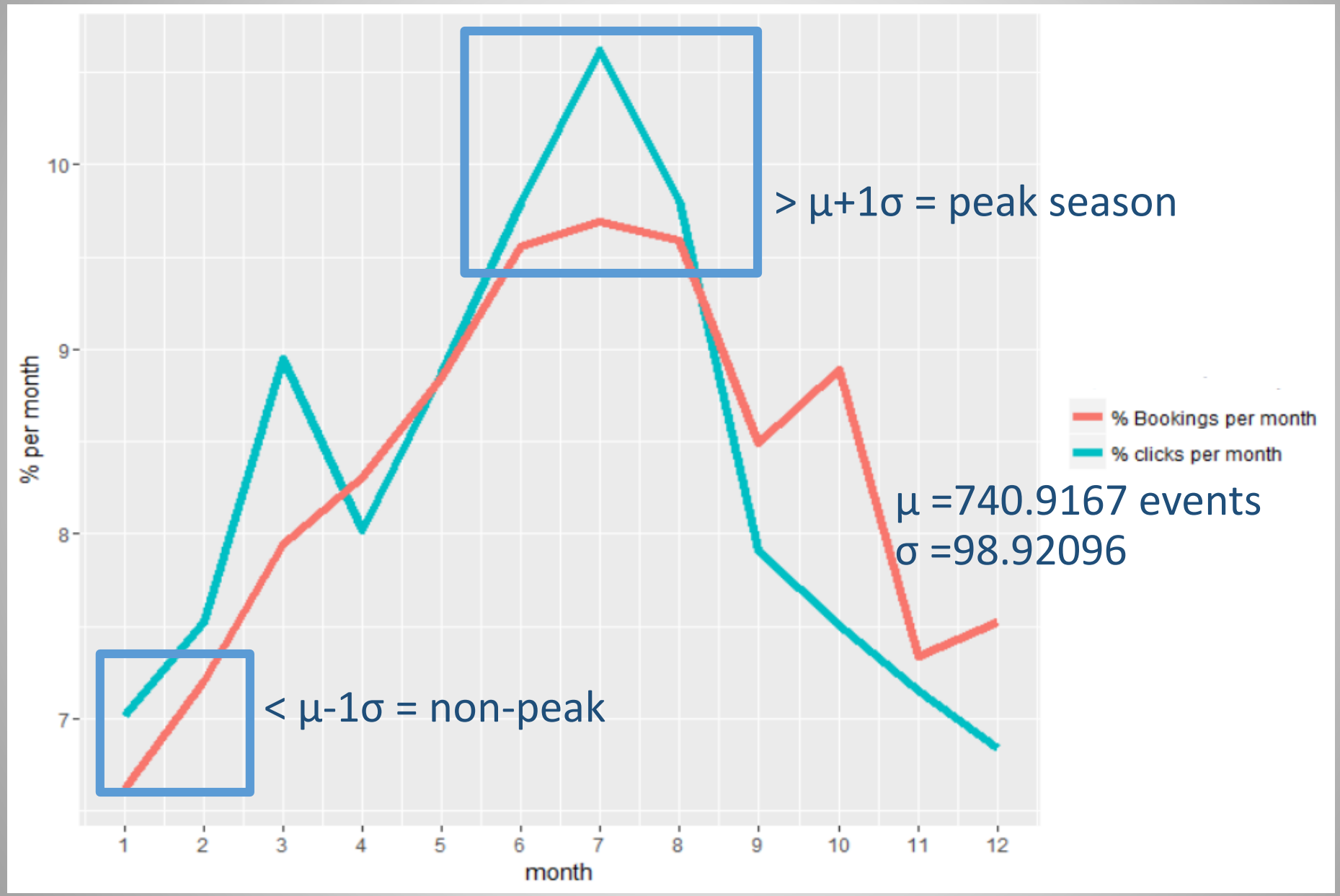
EXPEDIA – WHERE YOU BOOK MATTERS
2017 PSU DATAFEST

Team: MP Analysis
Jongyoon Sohn, Jeongin Choi
Department of Mathematics, Department of Physics

CLICKS AND BOOKS?

- Clicks = Planning
- Books = Finalizing
- When people click and book the most => best advertising period

CLICKS AND BOOKS? (Evaluated with random sample of 100,000)



PEOPLE ARE DIFFERENT

Single Business Travelers

- # Adult = # Room
- # Child = 0
- 1 day

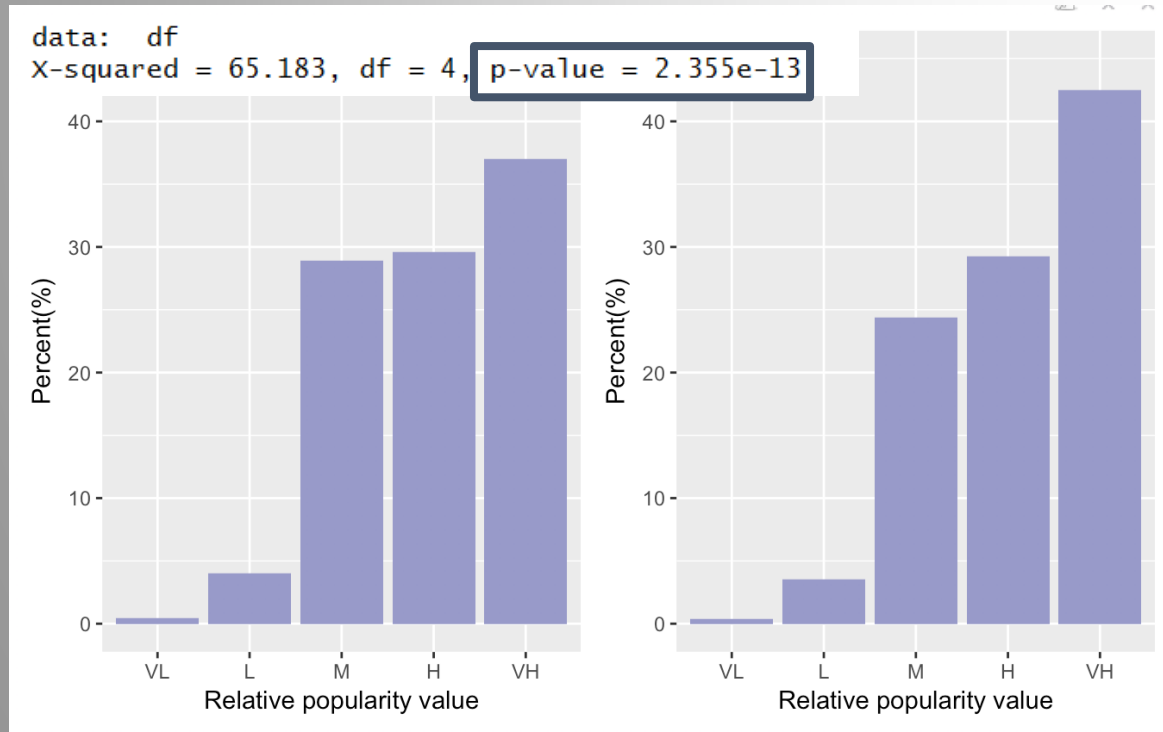
Long Family Travelers

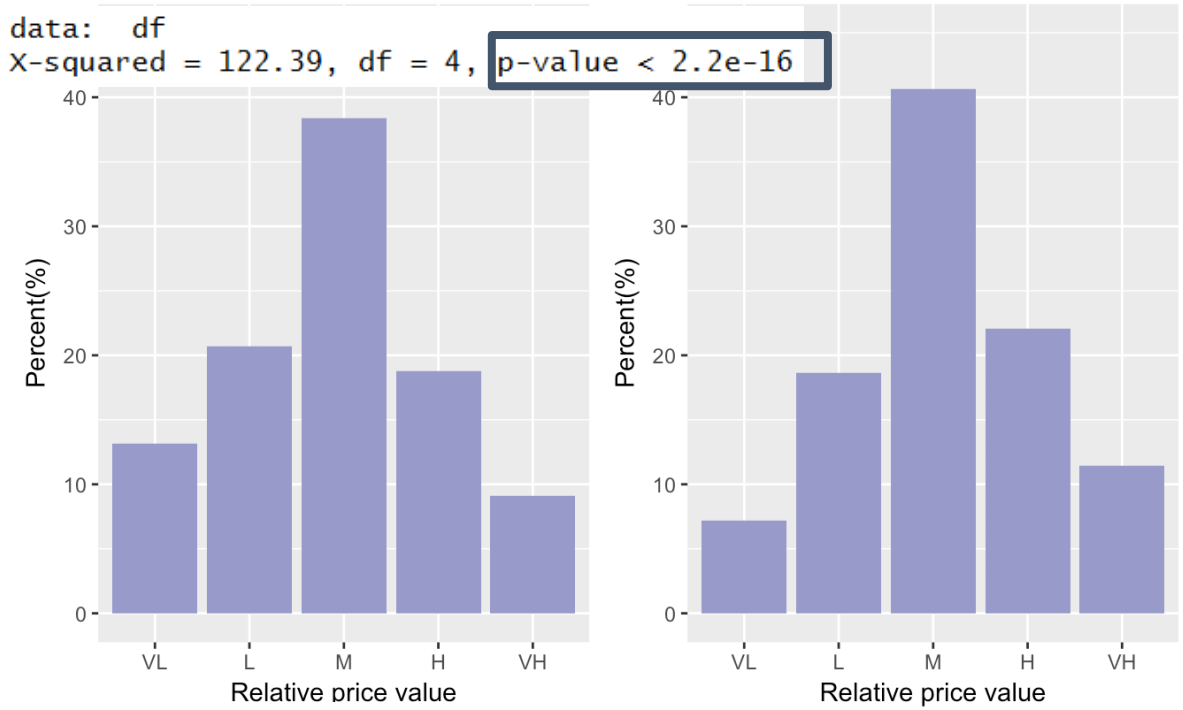
- # Adult $\neq 0$
- # Child $\neq 0$
- $\geq$ 5 days

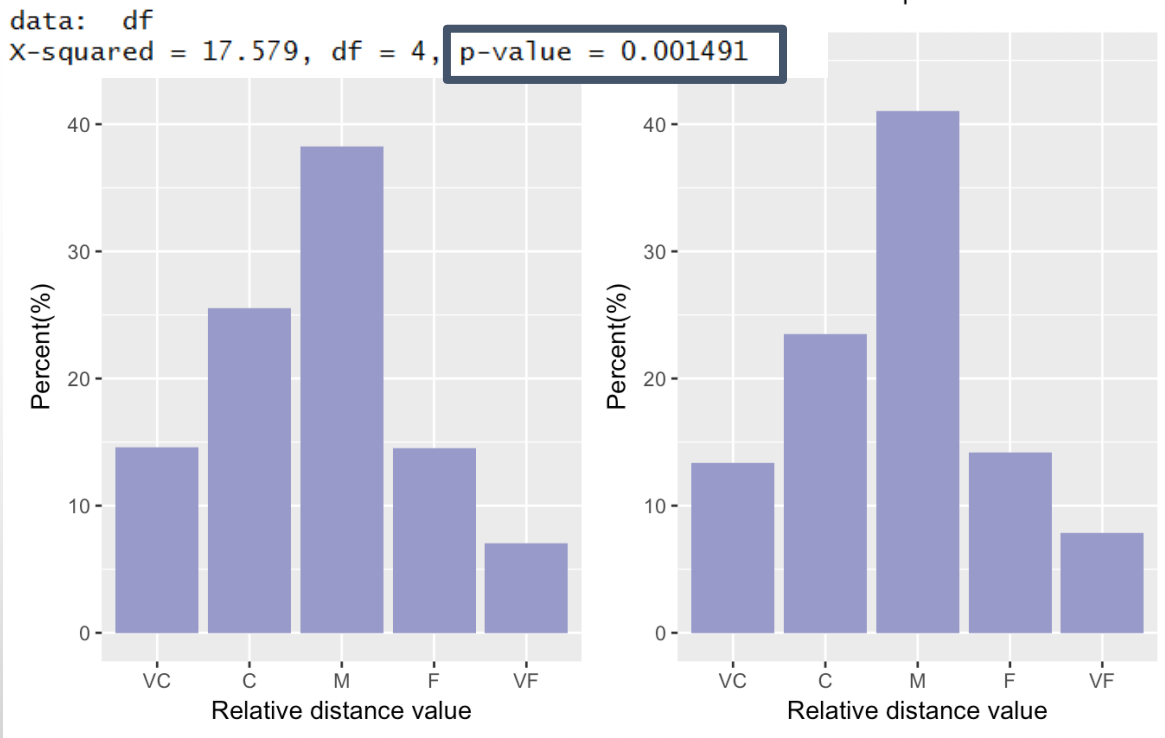
Hotel preferences

Single business travelers (left) vs.
Long Family travelers (right)

p<0.05 for all

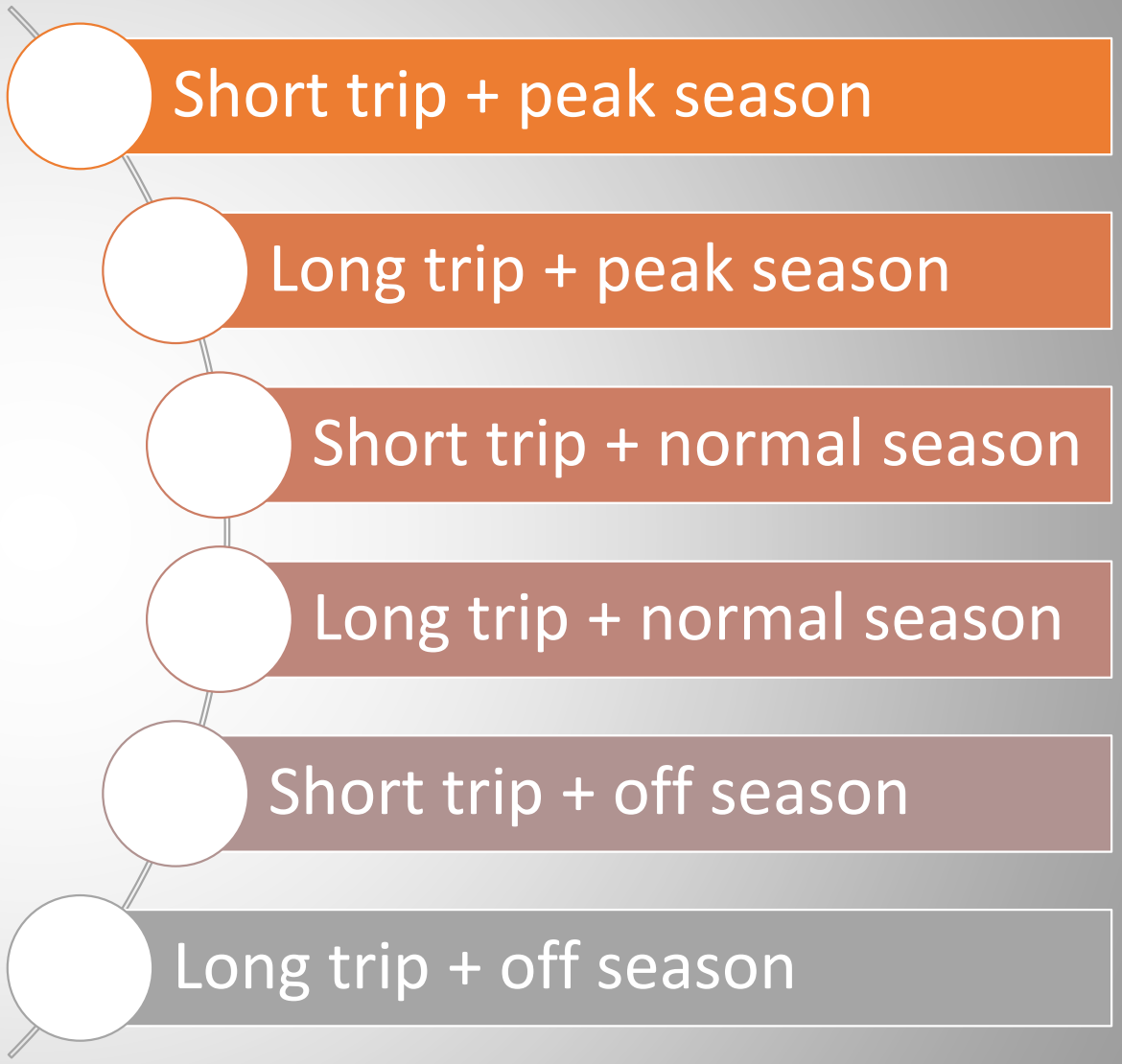






WOULD YOU RATHER WANT A PACKAGE?

Suggest the consumers if they would rather want a package, even when they only search for hotels.



WOULD YOU RATHER WANT A PACKAGE?

Package

	Long	Short
NonPeak	0.120	0.055
Normal	0.370	0.190
Peak	0.175	0.090

```
data:  t1
X-squared = 11.306, df = 2, p-value = 0.003507
```

Only hotel

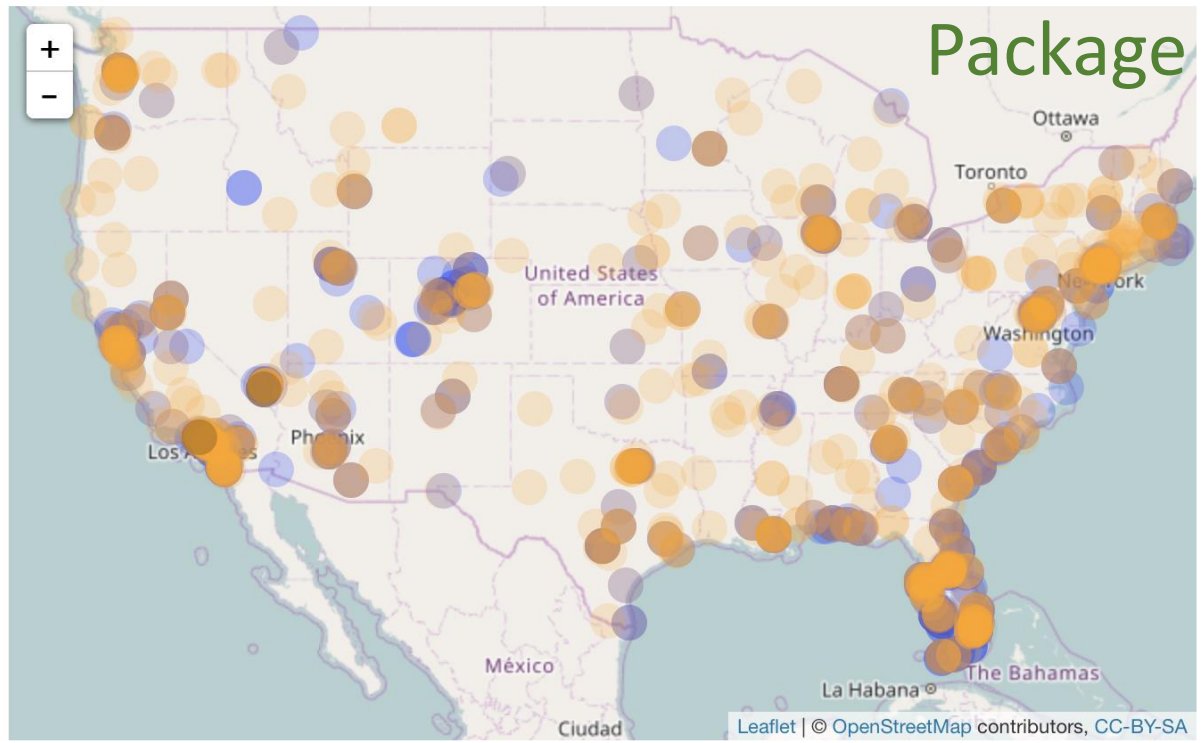
	Long	Short
NonPeak	0.035	0.099
Normal	0.126	0.427
Peak	0.065	0.250

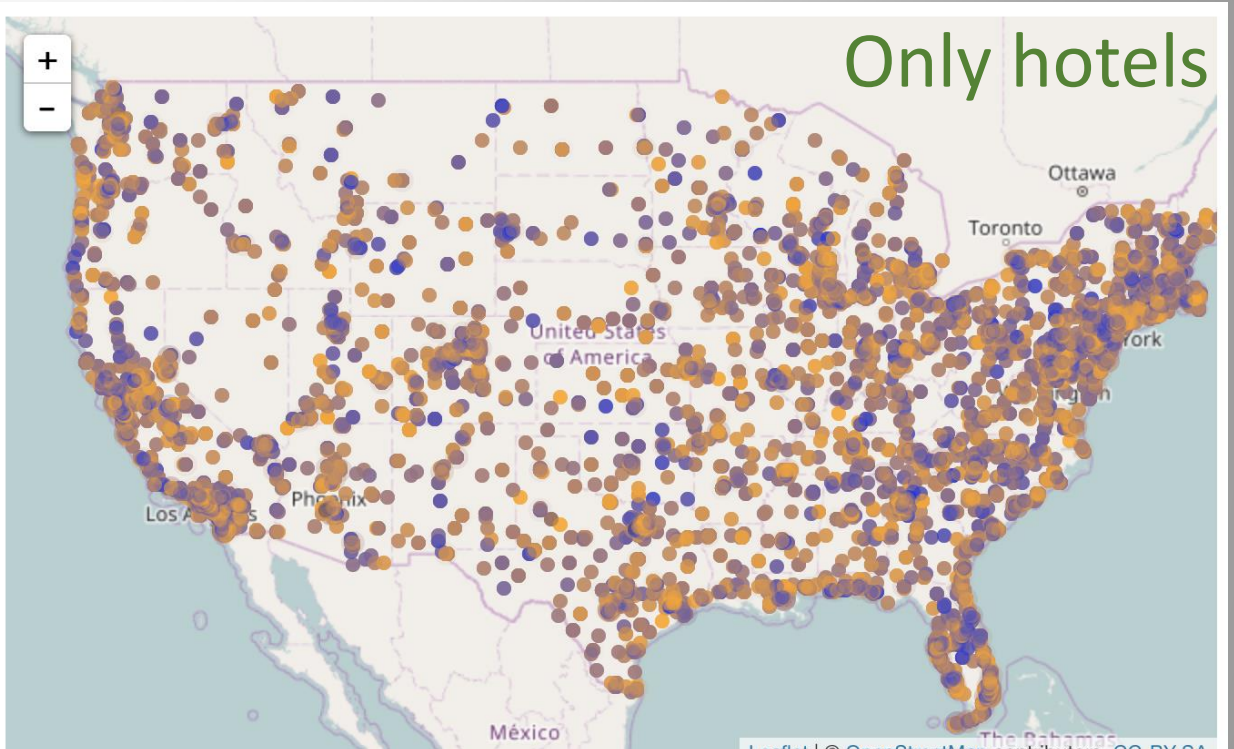
```
data:  t2
X-squared = 112.17, df = 2, p-value < 2.2e-16
```

- Probability of an event (click/book) happening in case of package or non-package
- Short and long trips were separated based on Check out date – check in date. (weighted μ =3.11 days. If $<\mu$, short trip, if $>\mu$, long trip)

WOULD YOU LIKE TO SEE OTHER DESTINATIONS?

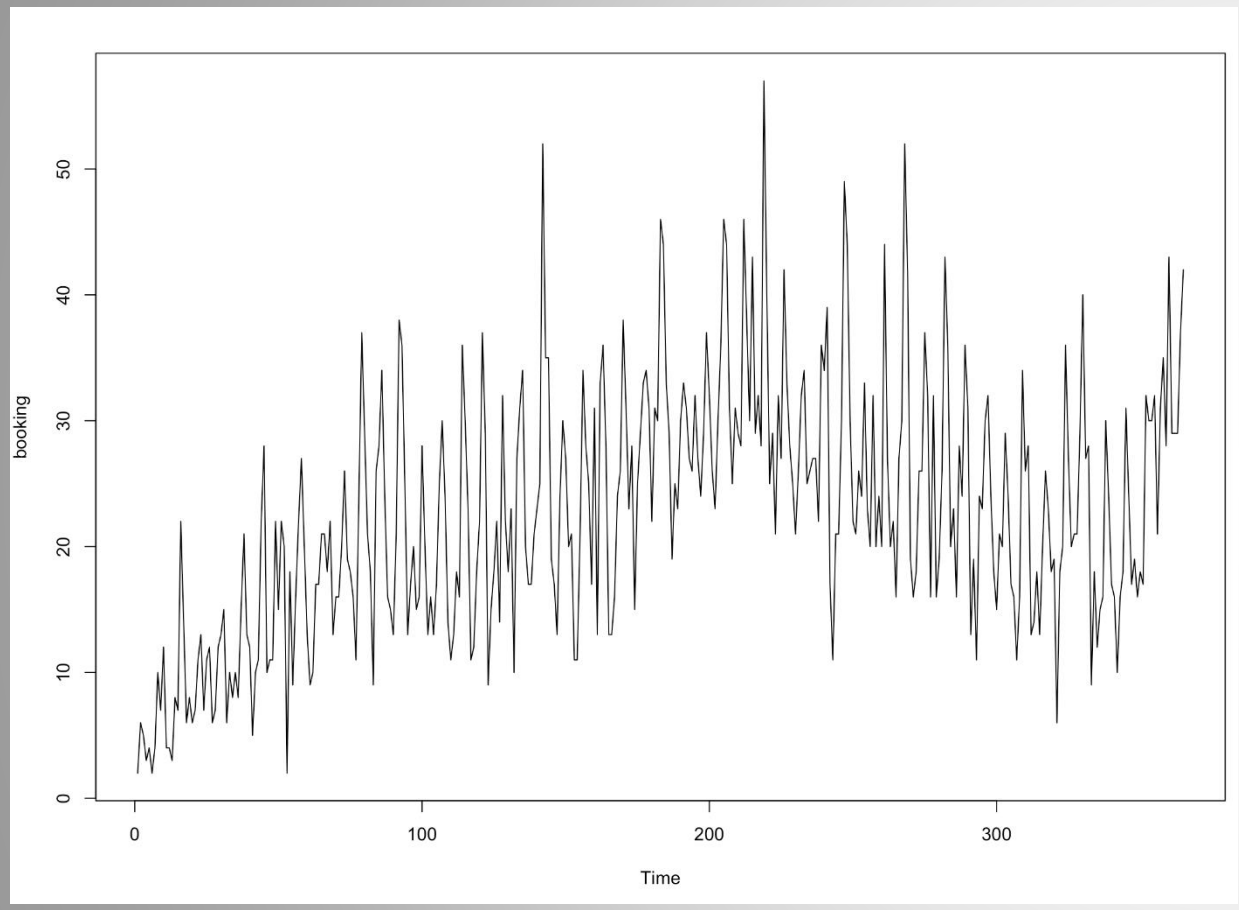
Short trips < 3.11days
Long trips > 3.11days

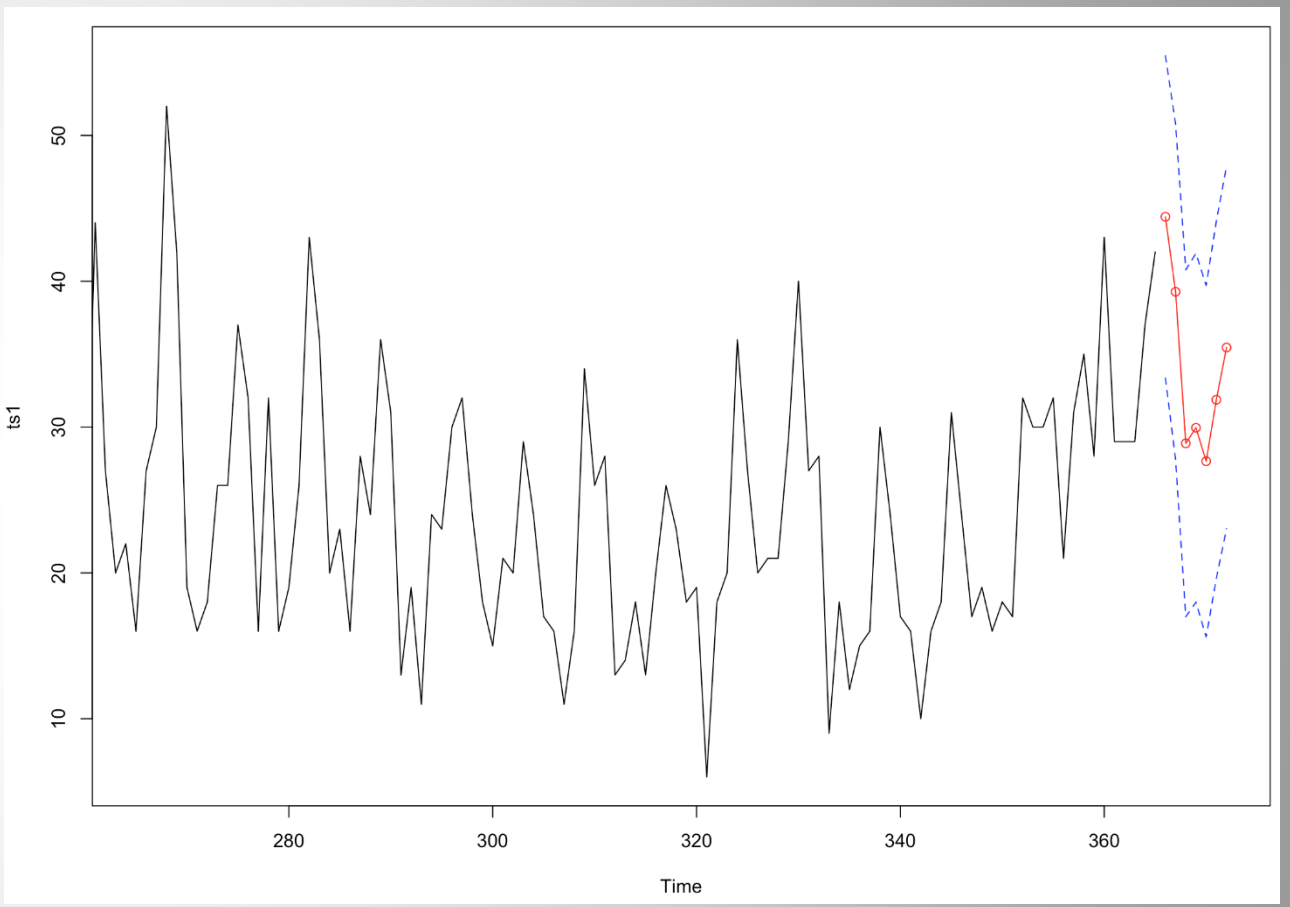




There are MANY factors that can be used to determine the user's interest/preference!

MODEL PREDICTION FROM 2015





Seasonal ARIMA $(5,1,1)x(2,1,1)_7$

RECOMMENDATIONS

Advertising

- Advertise more when people plan their trips
  - June, July and August more than others
- Advertise what people want/need on top of the page
  - Single Business vs. Long Family

Provide alternatives

- Would you rather want a package?
- Would you like to see other destinations?

Predict

- Predict the number of bookings and act accordingly