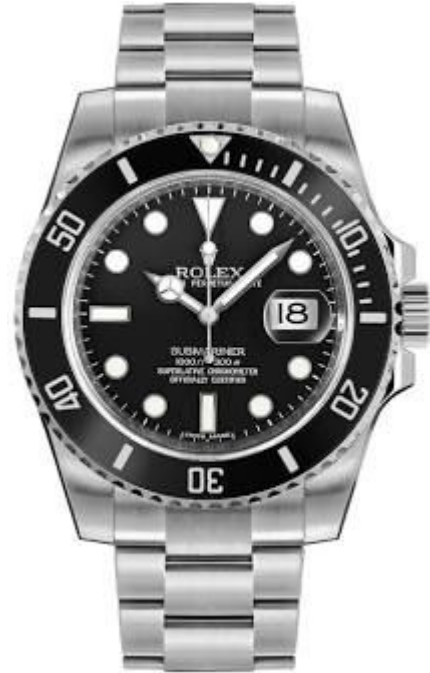# The Market For Luxury Watches

Jacob Epstein

Primary Objectives

1. Generate a dataset of luxury watch features and prices using web scraping

2. Determine relevant factors in pricing of luxury watches

3. Evaluate whether vintage watches represent a viable investment

4. Create an RShiny app to visualize and share data with the public

Data

- **~2000 luxury watches** scraped from CHRONEXT, a luxury watch exchange

- Prices, size, material, gender, year, condition, brand, model name

- **Price significantly right skewed**, 50+ brands and 25+ materials
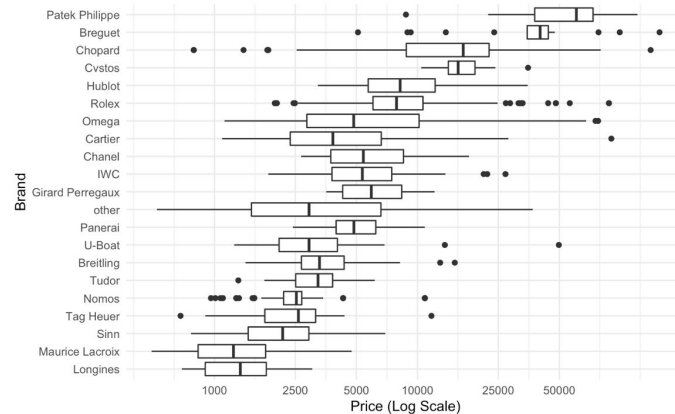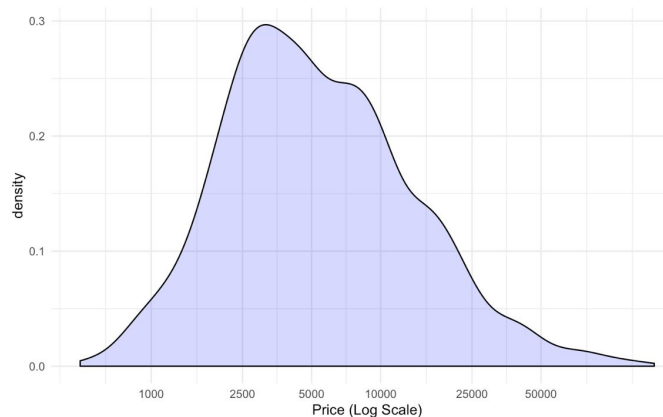
Model

- **Mixed effects model** on log-transformed price
- Random effects: brand, material
- Fixed effects: year, gender, condition, size
- **Interaction effects:** year x gender
- Selected best model by **AIC**

Model	AIC
Base: RE for Brand and Material	2548
Gender x Size	2556
Gender x Year	2483
Both Interactions	2486
FE for Brand — Gender x Year	2520
FE for Material — gender x Year	2551

Random effects

Random effects
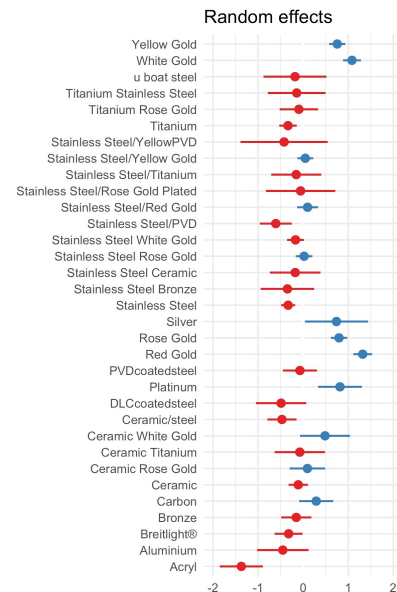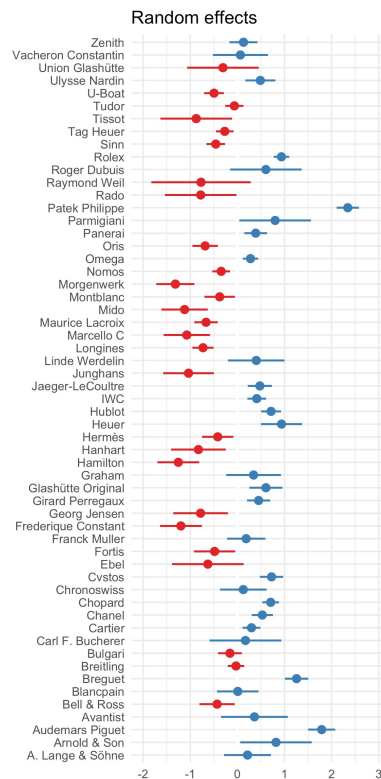
Conclusions

- **All variables highly significant** in predicting price
- Most effects intuitive:
  - **Larger, better condition more expensive**
- Most expensive brands and materials:
  - Patek Phillipe, Audemars Piguet, Breguet
  - Gold (White, Yellow, Rose, Red), Platinum, Silver
- Year effect most interesting:
  - **Women's watches depreciate** over time: a watch one year older is expected to be 1.3% less valuable
  - **Men's appreciate**: 0.6% per year
    - Below inflation –> **not a viable investment**

Predicted values of price

Predicted values of price
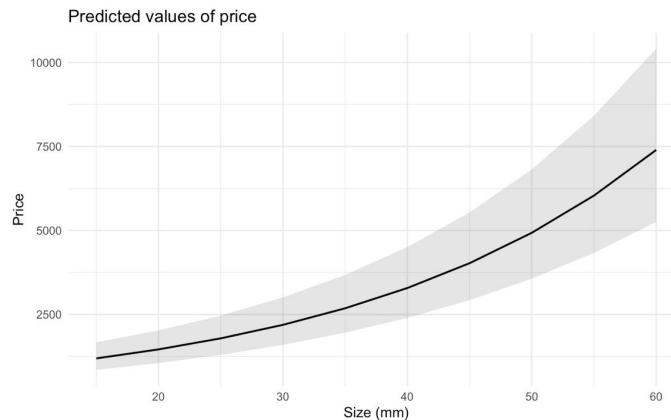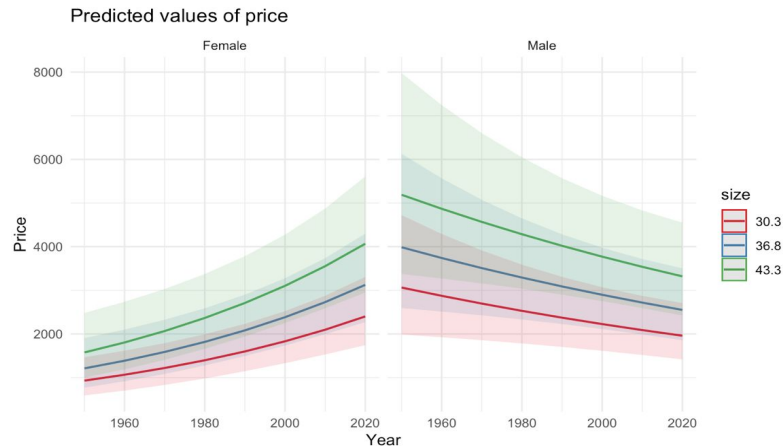
R Shiny App

- **Visualize Luxury Watch Data**: Exploratory data analysis

- **Explore the Data**: data browser with search and filtering functionality, ability to download data

- **How much is your watch worth?** Prediction from our mixed effects model for price to value a particular watch based on input data. Also displays other watches with similar features

The Market For Luxury Watches

Select a Variable:

Size ▼

☑ Group Gender (if Applicable)

☐ Only Show Top Brands

☐ Only Show The Top Materials
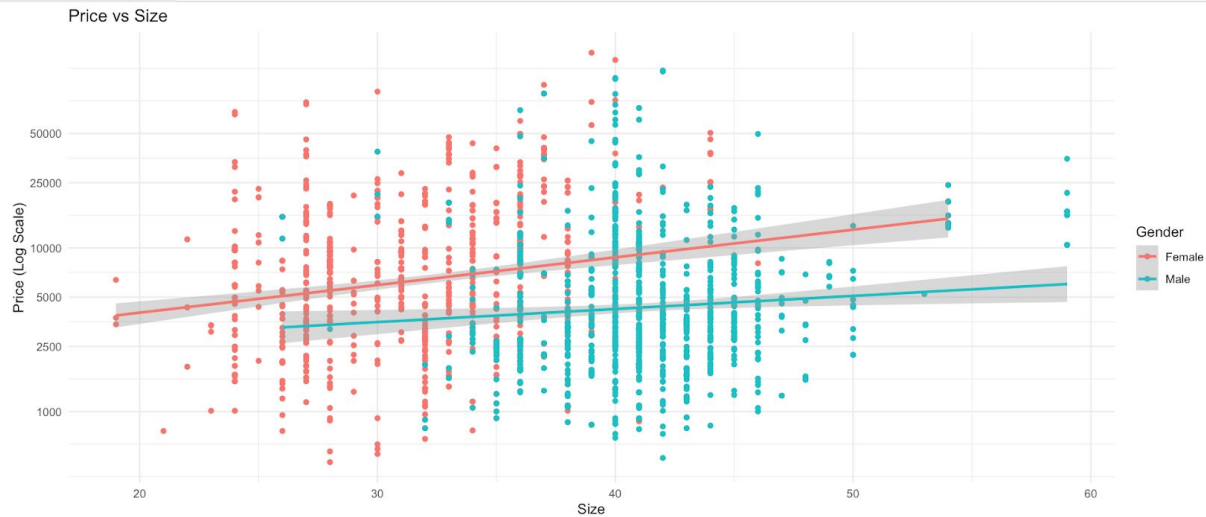
Minimum Price ($000s)

0

Maximum Price ($000s)

200

Generate Plot

Price vs Size

Gender
— Female
— Male

The Market For Luxury Watches

Select a Gender

Male ▼

Select a Material

Rose Gold ▼

Select a Brand

Any ▼

Select a Condition

New ▼

Year Range

1957 — 2019

1957 1964 1971 1978 1985 1992 1999 2006 2013 2019

Size Range

19 — 59

19 23 27 31 35 39 43 47 51 55 59

Minimum Price ($000s)

0
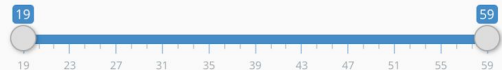
Maximum Price ($000s)

200

Find All Matches | ⬇ Download This Data

We found 23 watches that fit your criteria, for an average price of $24.1k!

Show 25 entries   Search:

Size	Material	Condition	Year	Brand	Title	Price	Gender
36	Rose Gold	New	2018	Cartier	Ballon Bleu	20020	Male
42	Rose Gold	New	2019	Chopard	Mille Miglia	14250	Male
44	Rose Gold	New	2019	Chopard	Mille Miglia	18150	Male
41	Rose Gold	New	2019	Chopard	Classic Racing Superfast	16570	Male
40	Rose Gold	New	2019	Patek Philippe	Nautilus Date Sweep Seconds	109230	Male
42	Rose Gold	New	2019	Chopard	Mille Miglia	15600	Male
26	Rose Gold	New	2019	Chopard	Chopard Classic	11390	Male
26	Rose Gold	New	2019	Chopard	Chopard Classic	15480	Male
33	Rose Gold	New	2019	Chopard	Chopard Classic	14270	Male
30	Rose Gold	New	2019	Chopard	Chopard Classic	15550	Male
33	Rose Gold	New	2019	Chopard	Chopard Classic	14840	Male
39	Rose Gold	New	2019	Bulgari	Bulgari Solotempo	8800	Male
46	Rose Gold	New	2016	IWC	Big Pilot Annual Calendar "Le Petit Prince"	21180	Male
36	Rose Gold	New	2016	Cartier	Ronde Louis	8270	Male
40	Rose Gold	New	2019	Rolex	Cosmograph Daytona	32550	Male
45	Rose Gold	New	2019	Chopard	Classic Racing Superfast Power Control	17520	Male

The Market For Luxury Watches

| Explore the Data | What is your Watch Worth?

Gender:

Male ▼

Material:

Stainless Steel White Gold ▼

Brand:

Rolex ▼

Condition:

New ▼

Size (mm):

40

Year:

2019

Find Out

Our model estimates your watch is worth $10.08k

We found 57 watches very similar to yours, with an average price of $12.2k:

Show | 25 | entries

Search:

Size	Material	Condition	Year	Brand	Title	Price	Gender	similarity_score
41	Stainless Steel White Gold	New	2018	Rolex	Datejust 41	12080	Male	6
36	Stainless Steel White Gold	New	2018	Rolex	Datejust 36	7940	Male	6
41	Stainless Steel White Gold	New	2019	Rolex	Datejust 41	10750	Male	6
41	Stainless Steel White Gold	New	2019	Rolex	Datejust 41	10750	Male	6
41	Stainless Steel White Gold	New	2019	Rolex	Datejust 41	10750	Male	6
41	Stainless Steel White Gold	New	2019	Rolex	Datejust 41	10970	Male	6
41	Stainless Steel White Gold	New	2019	Rolex	Datejust 41	10310	Male	6
41	Stainless Steel White Gold	New	2019	Rolex	Datejust 41	9660	Male	6
36	Stainless Steel	New	2019	Rolex	Datejust 36	8160	Male	6

Questions?