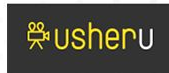


# Analysis on box-office weekly revenue changes

Reel Estate



# Use case

Weekly Revenue Drop is an important metric in a movies success. We analysed the impact of some metrics.



# Dataset

- Portuguese box office data, from 2017  
(Source: ICA - Instituto do Cinema e Audiovisual)
- Top 20 grossers per week
- Fields:
  - Title (in Portuguese)
  - Director
  - Distributor
  - Country of origin
  - **No. of screens (week and all-time)**
  - **Gross revenue (week and all-time)**
  - **No. of tickets sold**
  - **Days since premiere**
  - **Week number**



# Dataset issues

- Inconsistent formatting
- Pre-screening data troublesome
- No universal identifier for films
- Translated titles

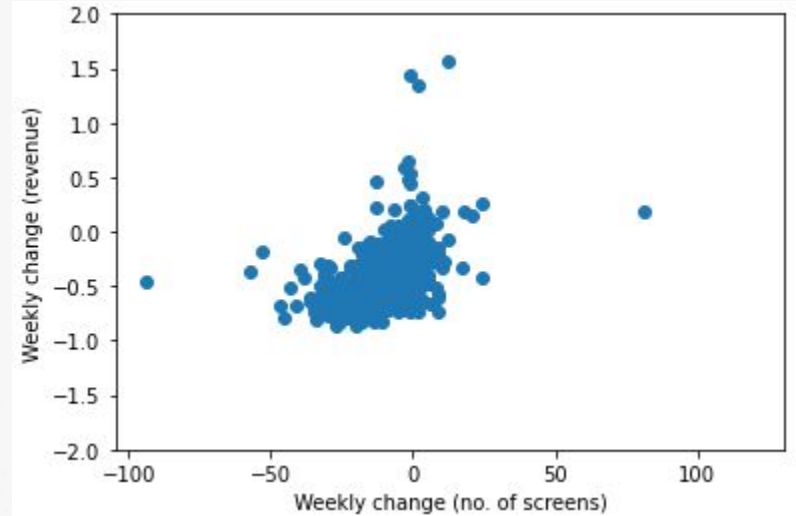
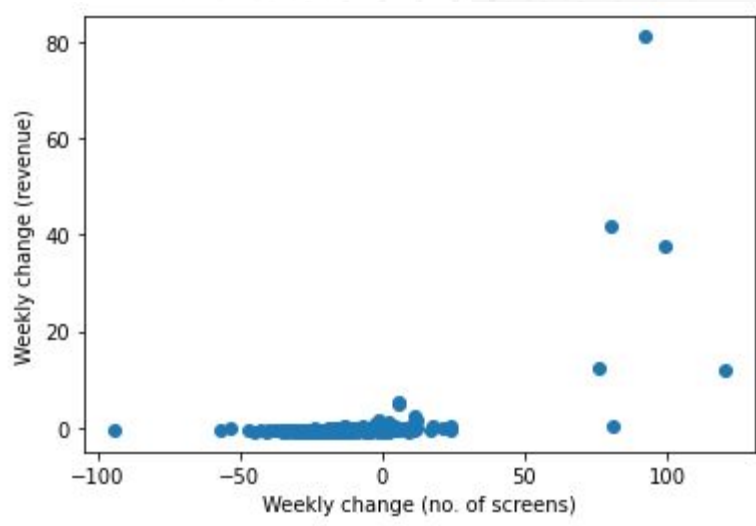


# Feature selection

- Weekly difference in the number of screens
- Days since premiere
- Week of release
- Holidays:
  - number of non-labor days in the week

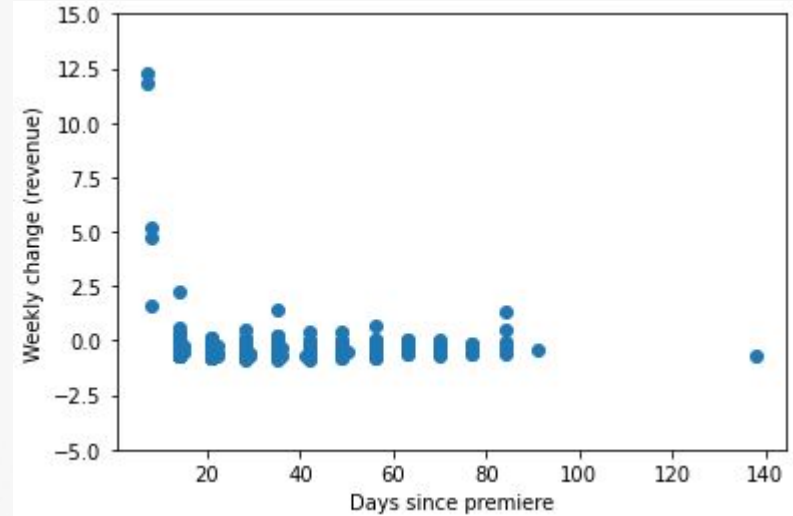
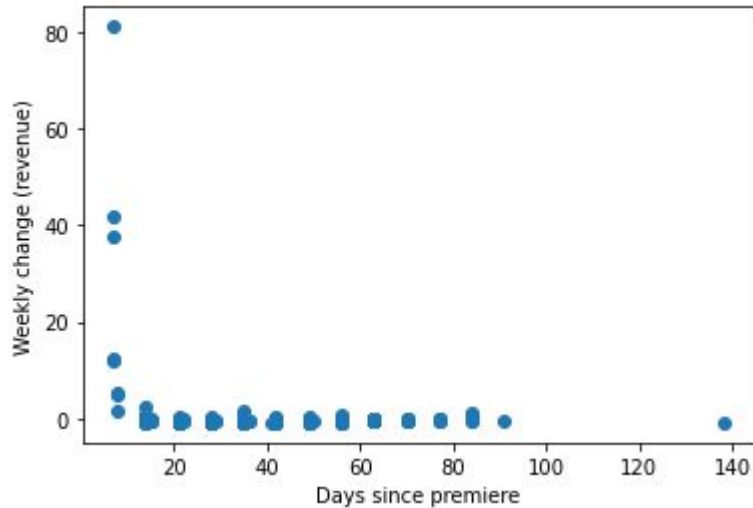


# Weekly difference in number of screens



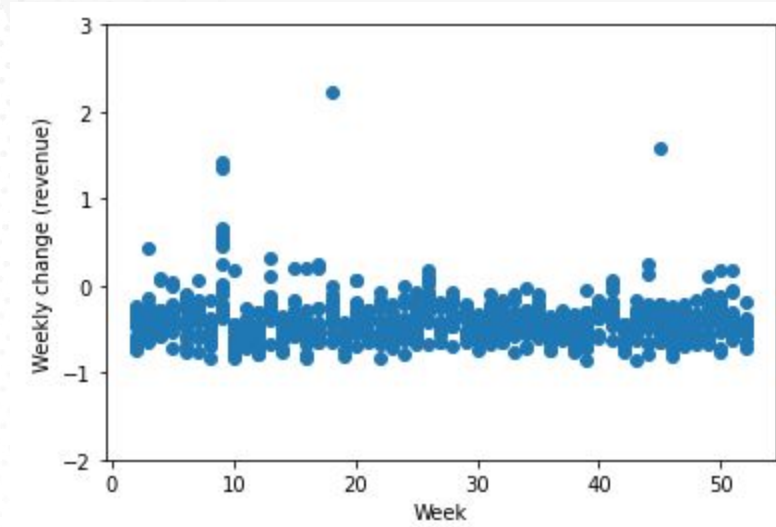
Spearman correlation: 0.4464331334074022

# Days since premiere



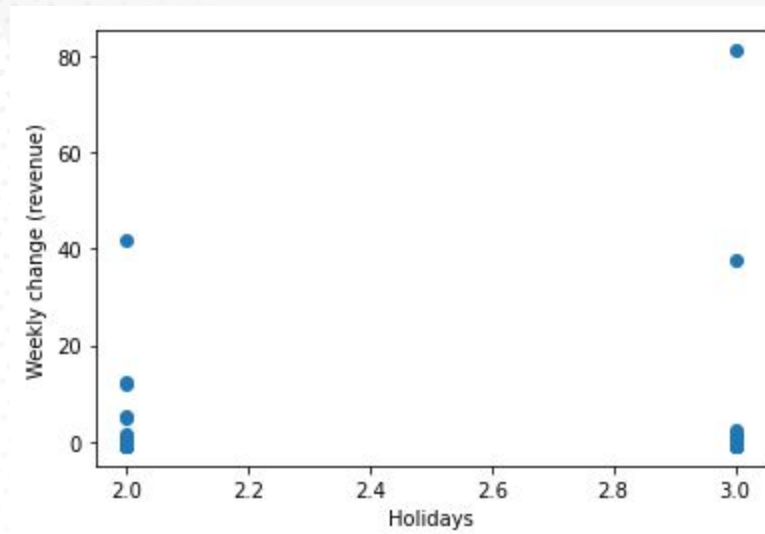
Spearman correlation: `-0.12752298925309907`

# Week of release





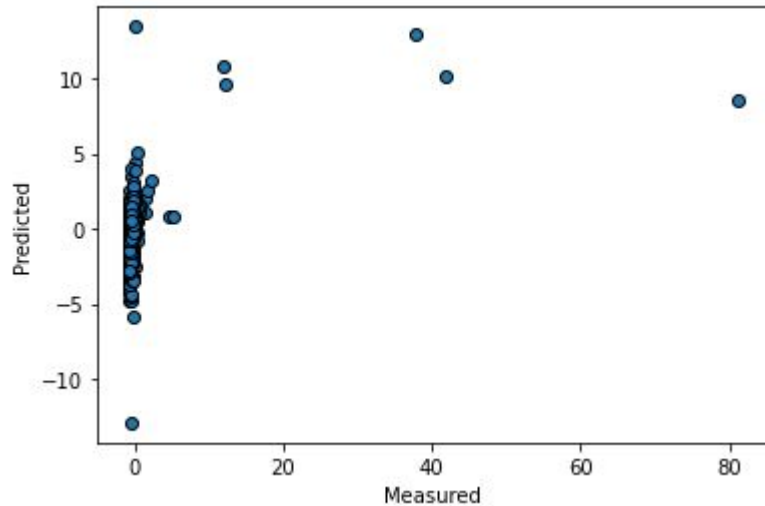
# Holidays



Spearman correlation: 0.15932824313163443



# Regression



```
metrics.max_error(Y, predicted)
```

```
72.55537890748417
```

```
metrics.explained_variance_score(Y, predicted)
```

```
0.16626663551613363
```

```
metrics.mean_squared_error(Y, predicted)
```

```
11.470785613867305
```

```
metrics.r2_score(Y, predicted)
```

```
0.16626632378812944
```

# Conclusions

- Biggest drops after the first week of release imply a correlation with weeks with holidays

|     |                    |                      |      |    |   |
|-----|--------------------|----------------------|------|----|---|
| 176 | 1.3484163029286678 | Cantar!              | 2.0  | 84 | 3 |
| 179 | 1.4288251725271115 | Aqui Há Gato!        | -1.0 | 35 | 3 |
| 882 | 1.5739488426505628 | O Gangue do Parque 2 | 12.0 | 8  | 2 |
| 351 | 2.2202054791547106 | O Jovem Karl Max     | 11.0 | 14 | 3 |

- Week of lowest values in revenue changes coincided with Carnival

# Further work

- Award season dates (nominations/wins)
  - Movie nominated for Oscars (from nomination date till ceremony week)
  - Movie won Oscar (from ceremony week on)
- Critic and Audience reviews: - Requires API access request
  - RottenTomatoes Critic Score
  - RottenTomatoes Audience Score
- Piracy: - Crawler for DVDsReleaseDates.com
  - Digital Release as per DVDsReleaseDates.com

# Reel Estate

- Flávio Couto
- José Diogo Martins

