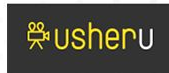


Analysis on box-office weekly revenue changes

Reel Estate



Use case

Weekly Revenue Drop is an important metric in a movies success.

So, a predictor of those changes would be a good tool to use when selecting when to release a movie.

For this case we are considering the Portuguese box office in the year 2017.



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

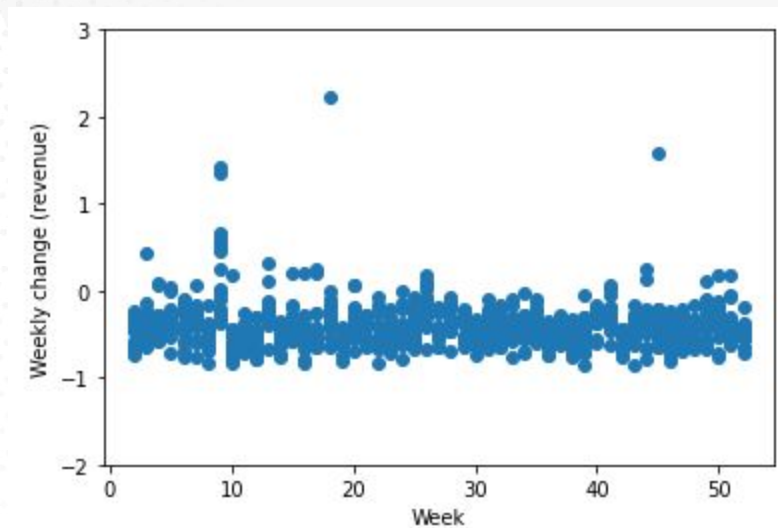


Feature selection

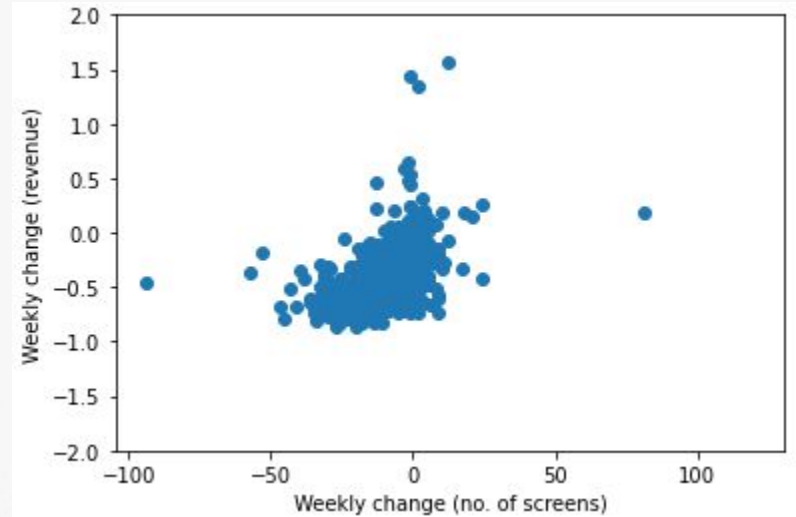
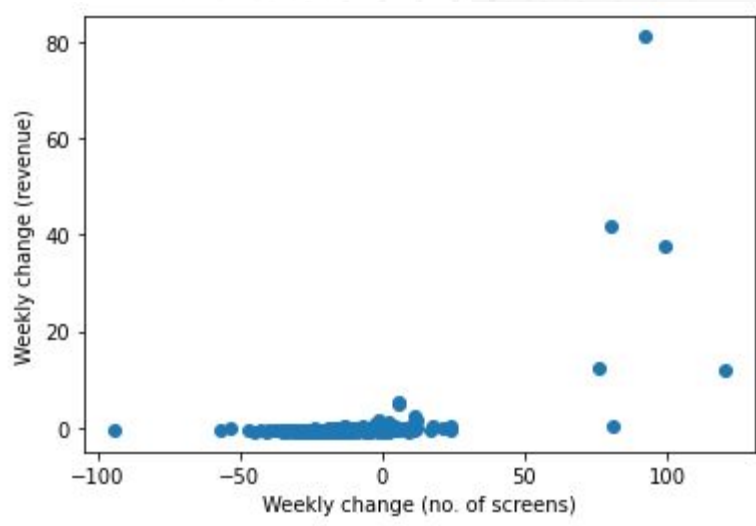
- Weekly difference in the number of screens
- Days since premiere
- Current Week
- Holidays:
 - number of non-labor days in the week



Current Week

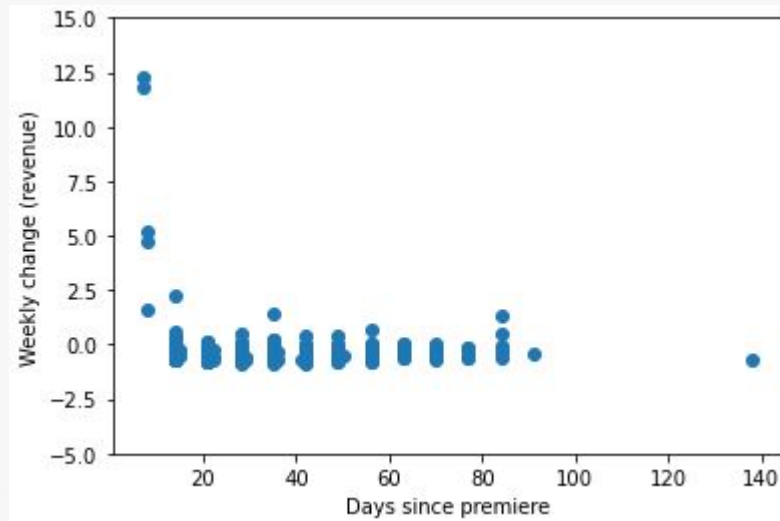
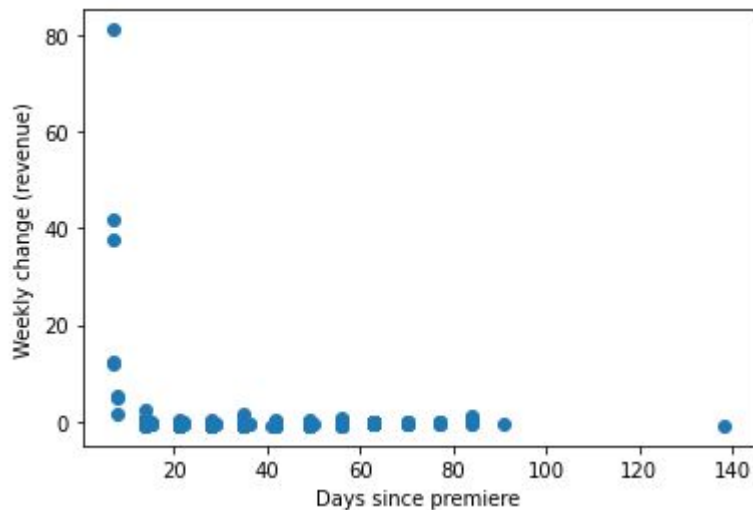


Weekly difference in number of screens



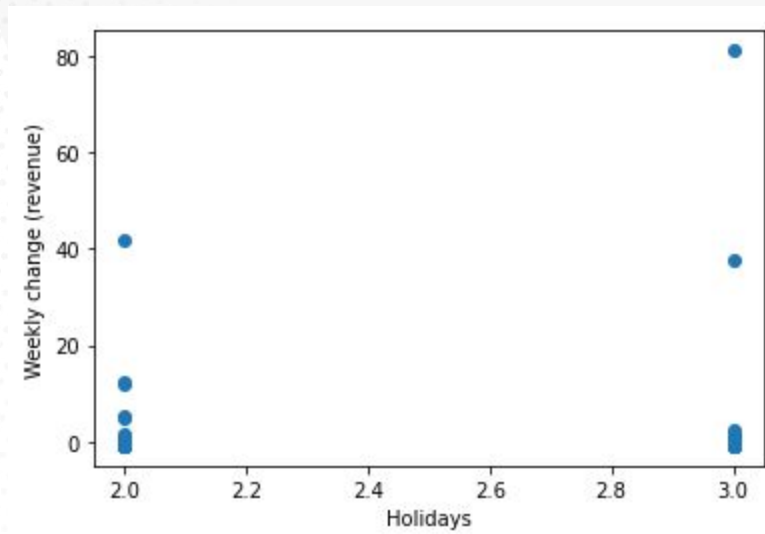
Spearman correlation: 0.4464331334074022

Days since premiere



Spearman correlation: `-0.12752298925309907`

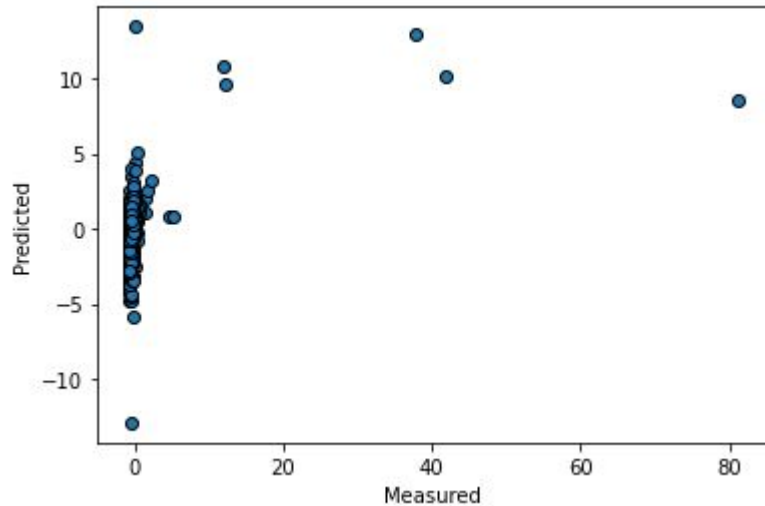
Holidays



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 revenue increases 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 drops in revenue coincided with Carnival

Conclusions

- Pre-release screenings affect the data quality negatively

4.7374600013689925	Sete Irmãs	6.0	8	2
5.16065295944122	Stronger - A Força de Viver	6.0	8	2
11.833687611482858	Star Wars: Episódio VIII - Os Últimos	120.0	7	2
12.301911919300366	Alien: Covenant	76.0	7	2
37.7967591354633	As Cinquenta Sombras Mais Negras	99.0	7	3
41.866108934307746	Valerian e a Cidade dos Mil Planetas	80.0	7	2
81.141045093635	Thor: Ragnarok	92.0	7	3

Conclusions

- Biggest drops correspond with the final weeks of release and decrease in number of screens

Weekly change (revenue)	Title	Weekly change (no. of screens)	Days since
-0.857500717116279	Linha Mortal	-27.0	28
-0.8563555623031085	Um Voo em Grande	-20.0	35
-0.835081236550266	Kong: A Ilha da Caveira	-27.0	42
-0.8304876338844598	Foge	-18.0	28
-0.8245507050462926	Ozzy	-11.0	56
-0.8206926235616382	Resident Evil: Cap�tulo Final	-26.0	28
-0.8197438827886164	Kickboxer: A Vinganc�a	-14.0	21
-0.7987898212534128	O Boneco de Neve	-34.0	28
-0.7897768368678527	Vida Inteligente	-22.0	28
-0.7846694147049991	Jackie	-16.0	28
-0.7845622420937801	Rings	-12.0	28
-0.7820429851924081	Veda��mes	-22.0	28
-0.7813351392412959	Amarelinho	-45.0	28
-0.7751565354838019	A Grande Muralha	-30.0	35
-0.7745223642739117	Kingsman: O C�rculo Dourado	-24.0	42

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

