What Makes a Movie Profitable ?

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Question

- What's the significant factors that affect the profit of movie?

Genre ?

Box Office ?

Macroeconomics factor ?

Budget ?

Data Source

- IMDB(Internet Movie Database)

- Row Data: 9896 movies with 11 variables.

- Data Cleaning:
  Focus on domestic budget & box office.

- Data Set for Analysis:
  2837 rows with 16 variables.

Measure the Profitability

- Profit = Revenue(Box office)- Cost(Budget)

- Necessary conditions for a profitable film:
  High Revenue & Low Cost

- Return of investment(ROI)= Box office/Budget

Correlation Matrix

	gross	budget	length	open_week	year	rating	audience	ROI
gross	1.000	0.673	0.253	0.876	0.140	0.237	0.658	0.021
budget	0.673	1.000	0.329	0.681	0.181	0.101	0.453	-0.033
length	0.253	0.329	1.000	0.189	0.016	0.423	0.376	-0.038
open_week	0.876	0.681	0.189	1.000	0.219	0.118	0.546	-0.017
year	0.140	0.181	0.016	0.219	1.000	0.037	0.146	-0.004
rating	0.237	0.101	0.423	0.118	0.037	1.000	0.488	0.008
audience	0.658	0.453	0.376	0.546	0.146	0.488	1.000	0.013
ROI	0.021	-0.033	-0.038	-0.017	-0.004	0.008	0.013	1.000

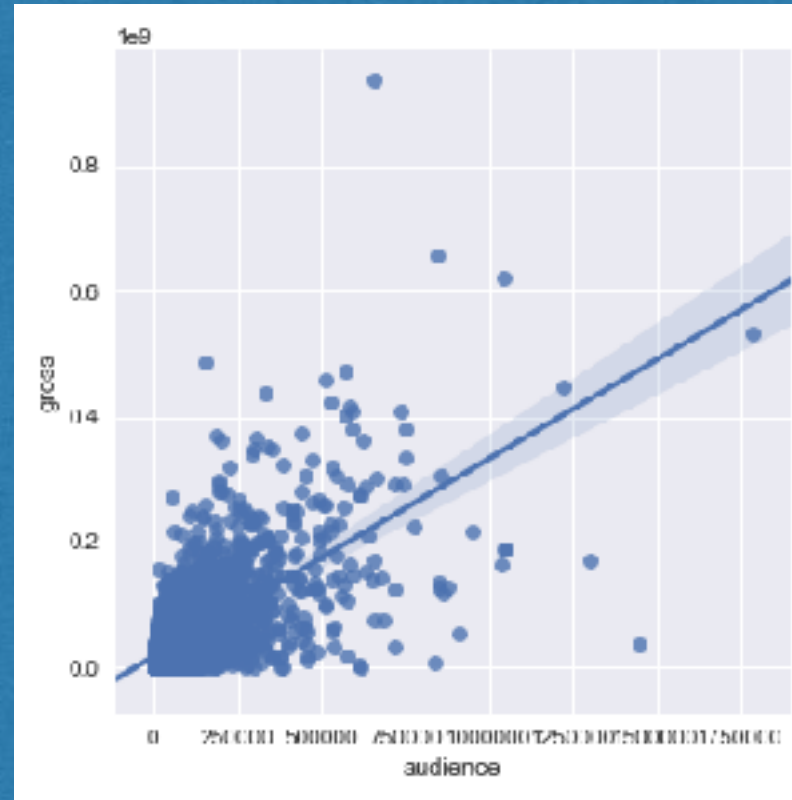Implication: Budget,Open Week & Audience have high correlation with gross(box office)
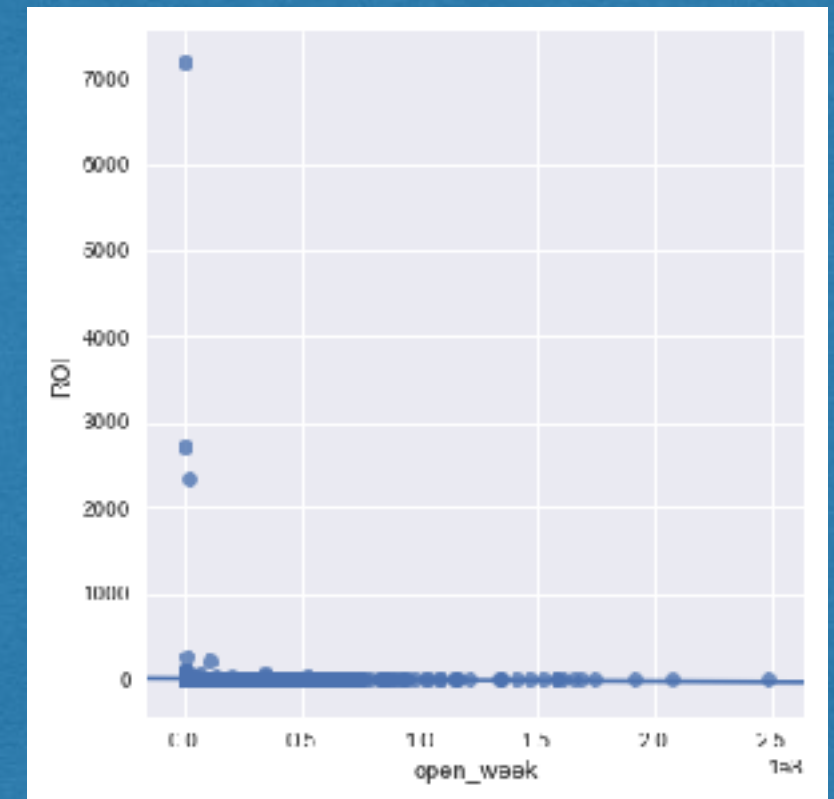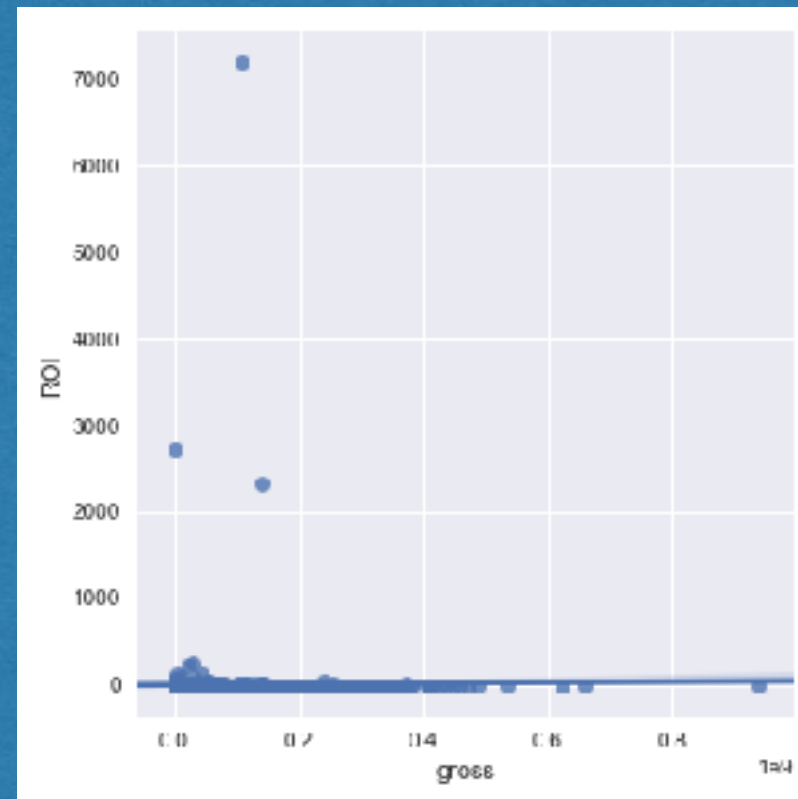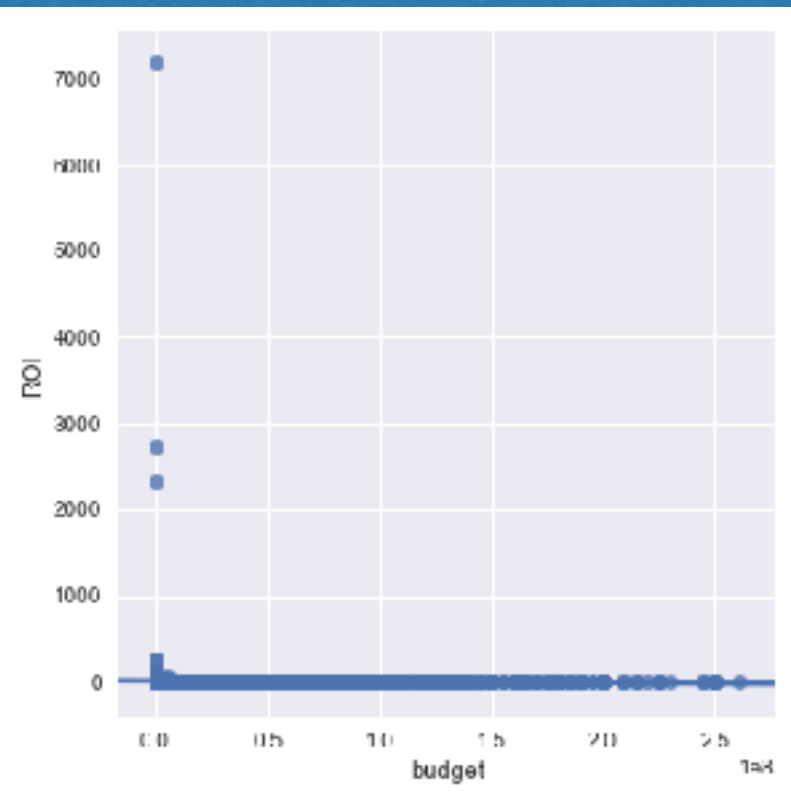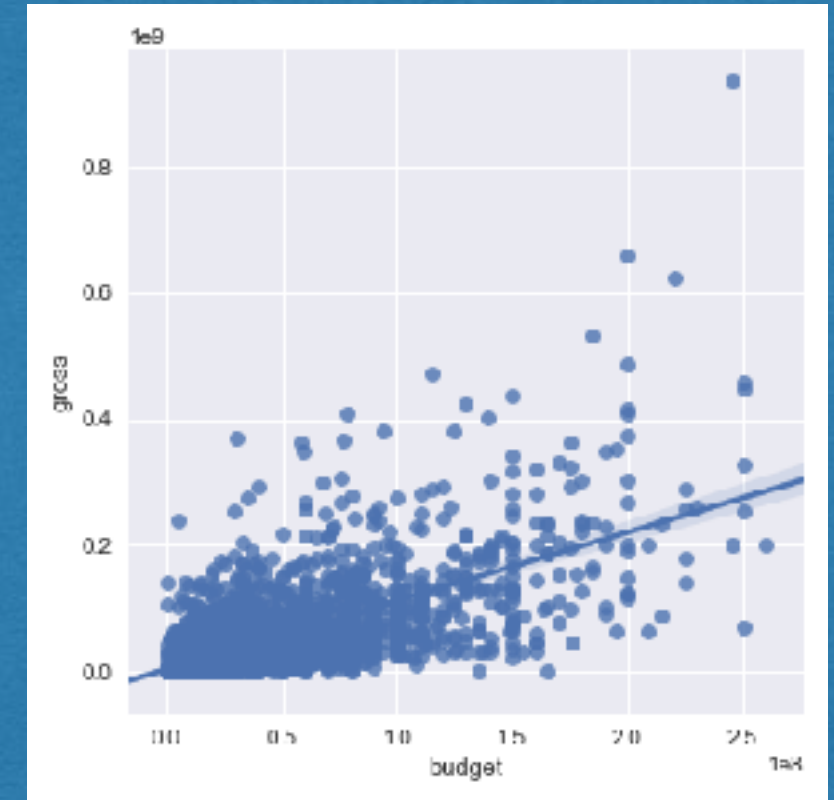
IMDb

Scatter Plot

open week V.S box office
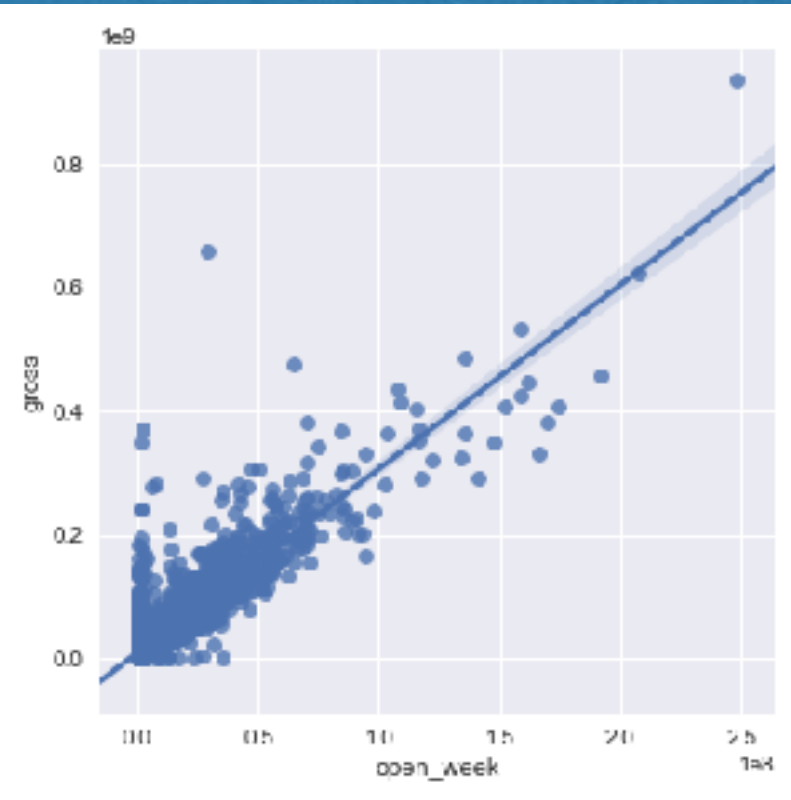
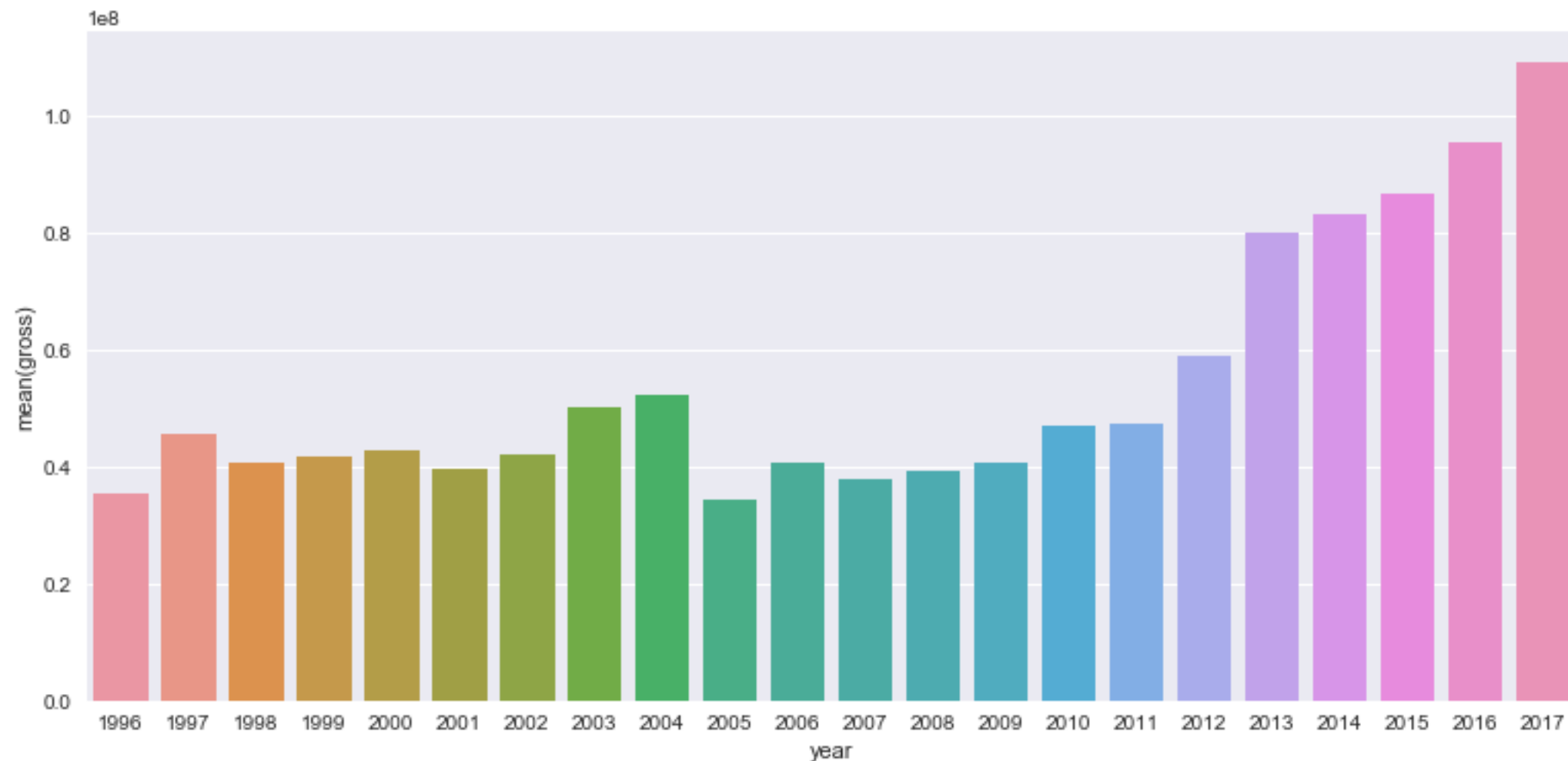audience V.S box office

budget V.S box office

Macroeconomics Factor: Financial Crisis

- Question:
  Did the film industry shrink during the Financial crisis?

  What happened with the box office, budget, ORI?
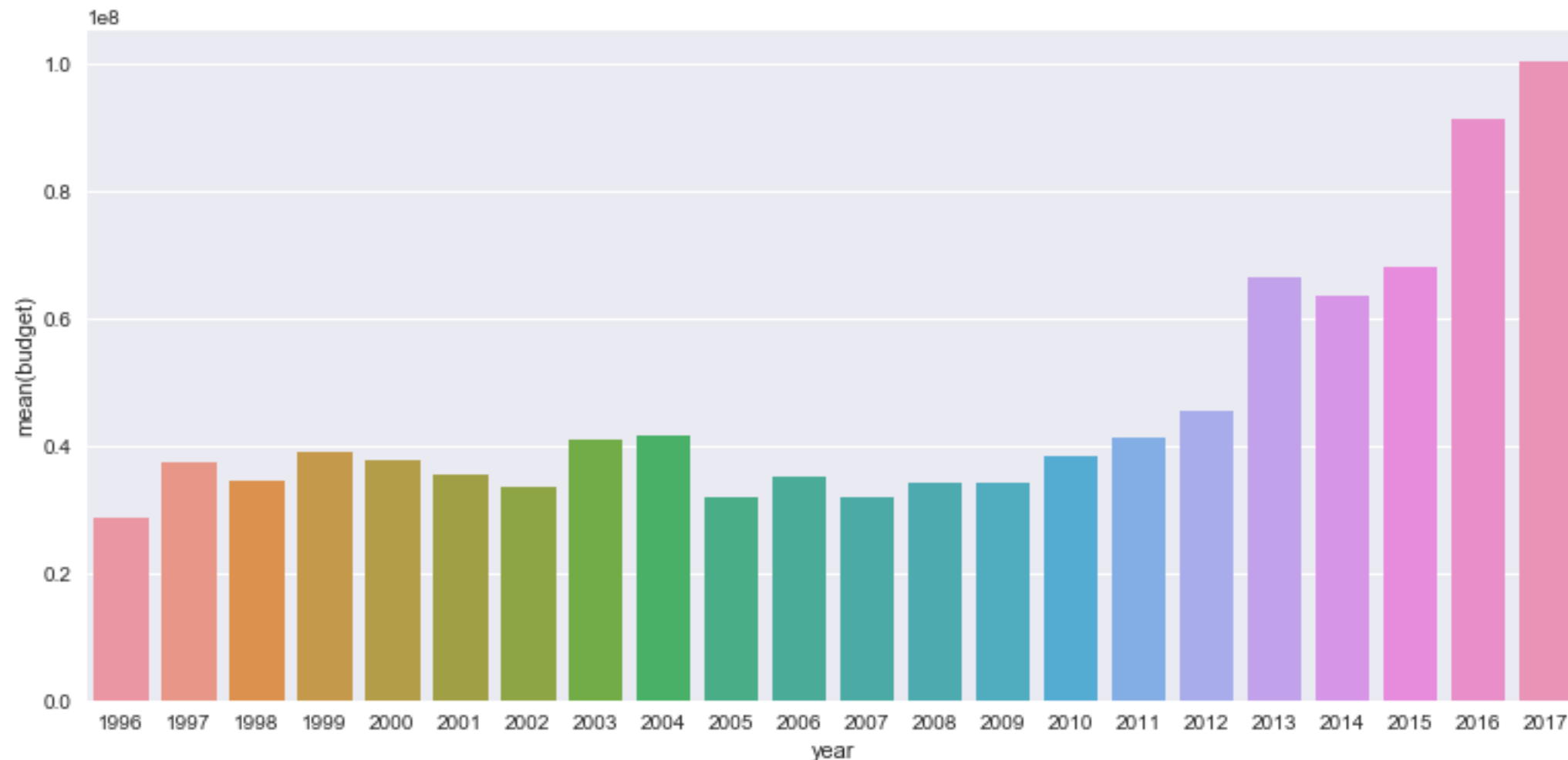
Box Office V.S. Economics Shock

	Df	Sum Sq	Mean Sq	F value	Pr(>F)
x$year	21	5.795e+17	2.760e+16	6.36	<2e-16 ***
Residuals	2772	1.203e+19	4.339e+15		

Budget V.S. Economics Shock

ROI V.S. Economics Shock
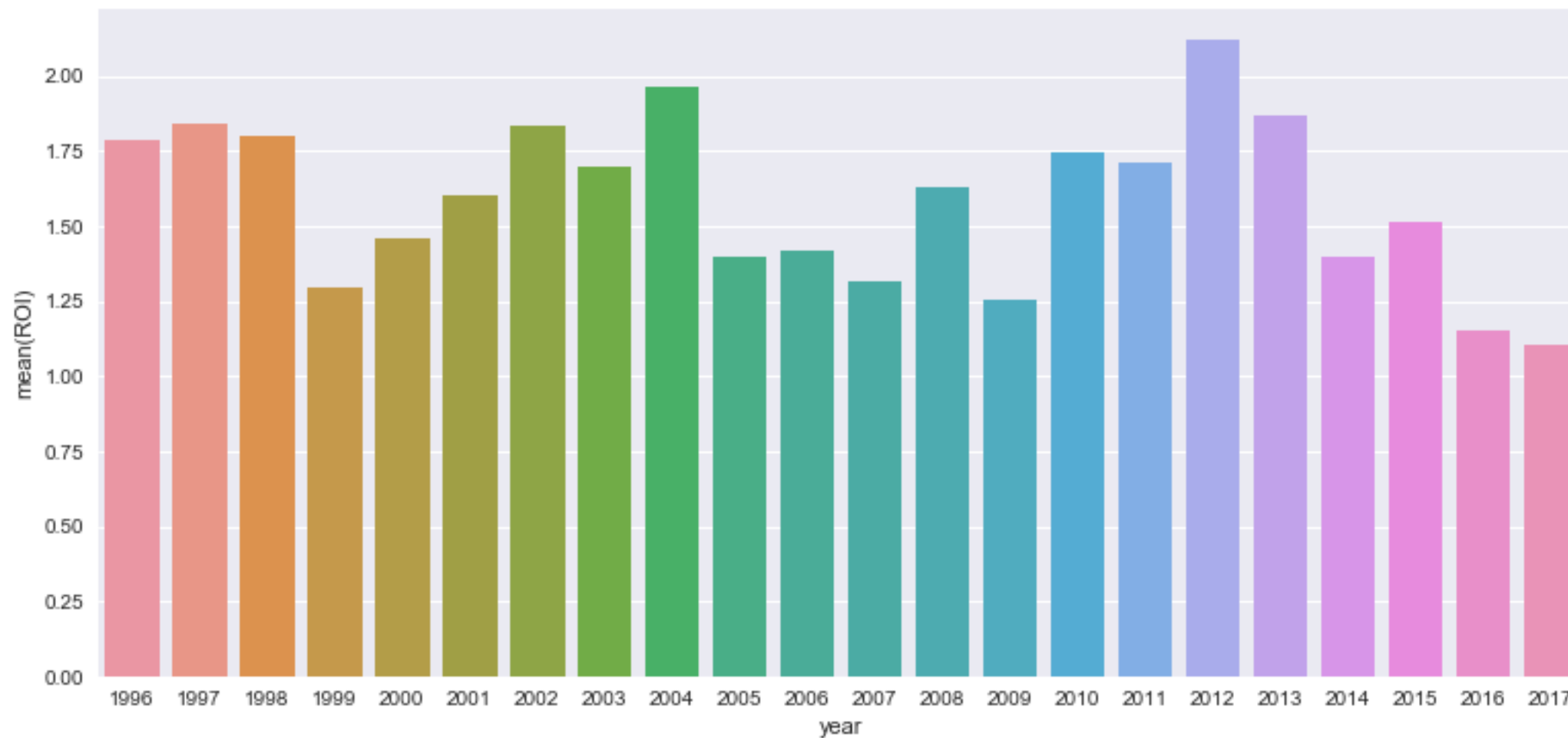
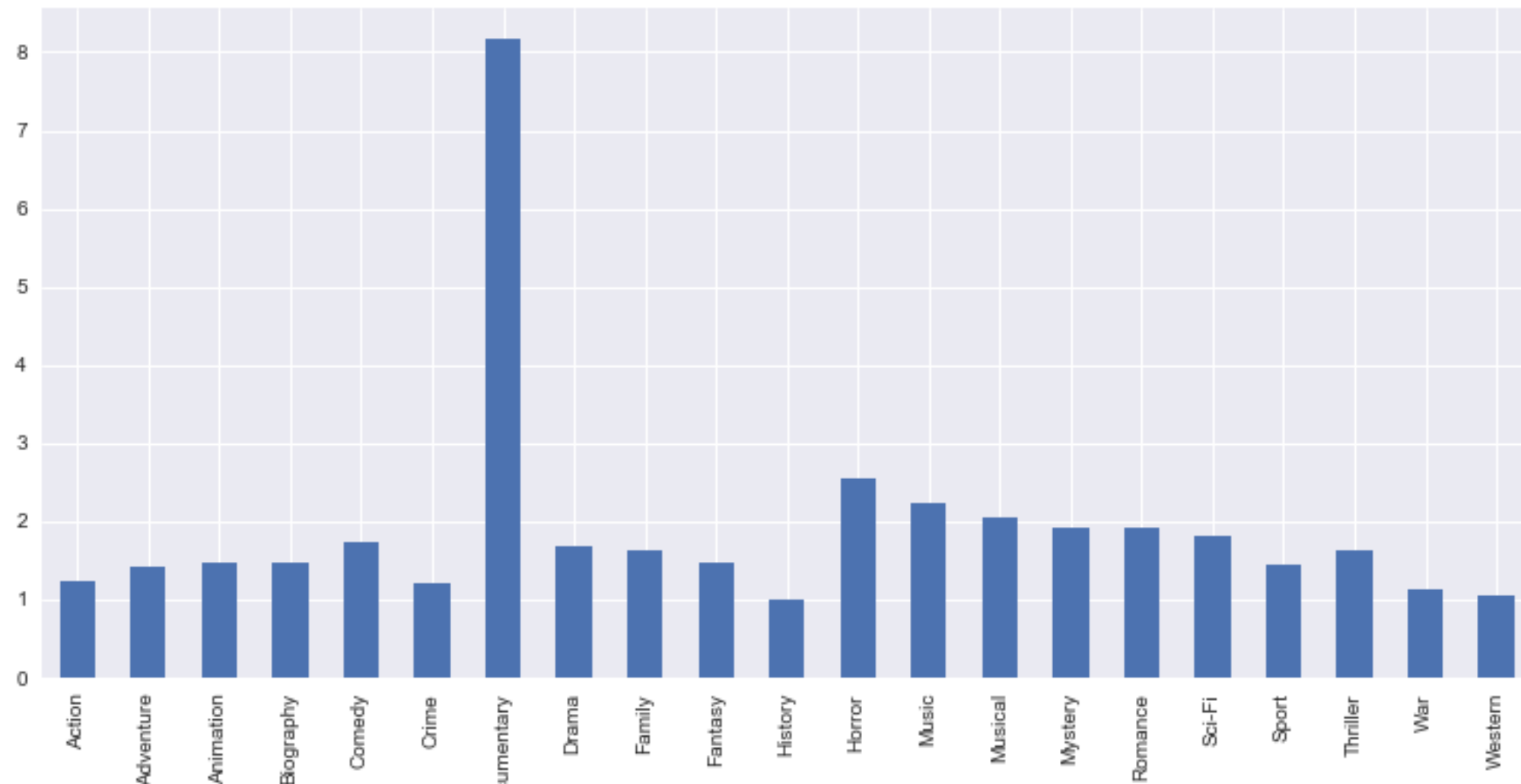|	Df	Sum Sq	Mean Sq	F value	Pr(>F)
x$year	21	353895	16852	0.726	0.81
Residuals	2772	64348747	23214		

Genre Factor

- Different genres have significant different budget, Is genre a good indicator of movie ROI?
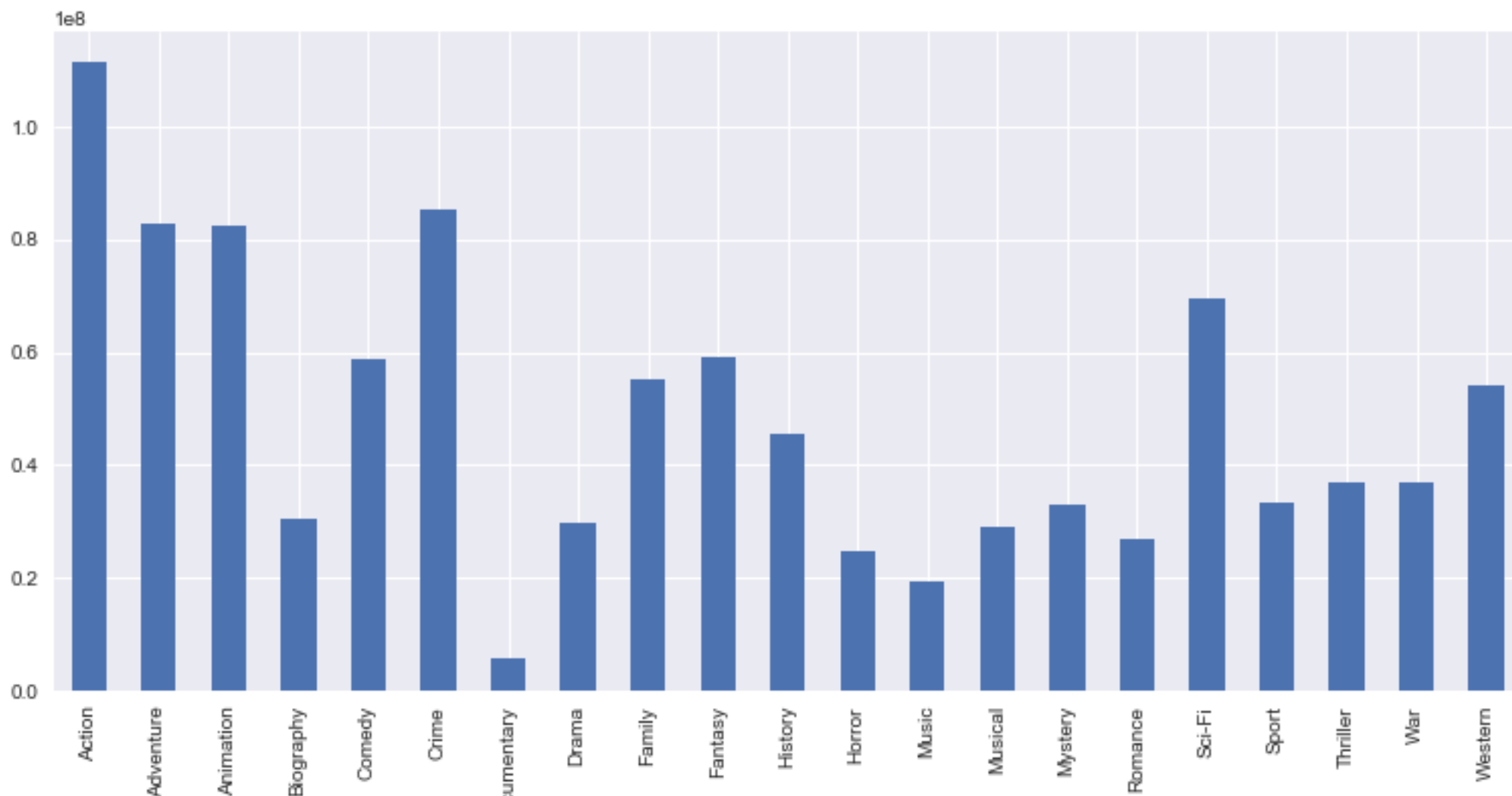
ROI V.S. Genre

	Df	Sum Sq	Mean Sq	F value	Pr(>F)
x$genre	20	1301377	65069	2.617	0.000106 ***
Residuals	7234	179885374	24867		

Conclusion

- Great box office doesn't guarantee great profit
  However, a Big opening weekend might result in
  high box office.

- During the recession, it's still possible to produce
  good movies.

- If we want to film a profitable movie,
  Try documentary!