



**THE
KABLE
GUYS** RYAN MITCHELL
ARJUN PRABHAKAR
JERRY HOU
NATHAN HUANG

**WHICH FACTORS AFFECT THE
ODDS THAT A MOVIE PASSES
THE BECHDEL TEST?**

INTRODUCTION

TOPIC

Measuring the impact of factors like release date and critical reception on a movie's odds of passing the Bechdel test, a measure of female representation



MOTIVATION

A desire for greater knowledge behind the history of gender inequality and sexism in the film industry and how it affects film outcomes

INTRODUCING THE DATASET

OVERVIEW

Compiled by **FiveThirtyEight**
data from **BechdelTest.com**
The-Numbers.com with and

The original dataset had **1794**
observations and **34** variables

PREDICTORS

FILM INFO

Release Year
Film Budget
Content Rating
Film Runtime

RECEPTION

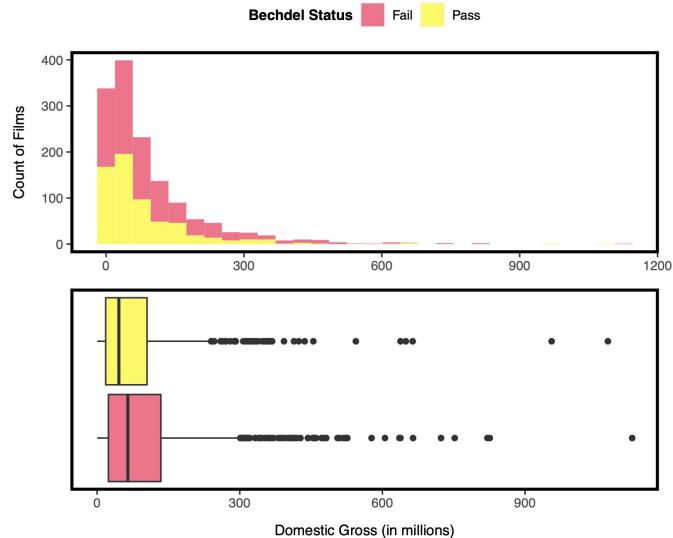
Domestic Gross
International Gross
IMDB Rating
Metacritic Score

RESPONSE

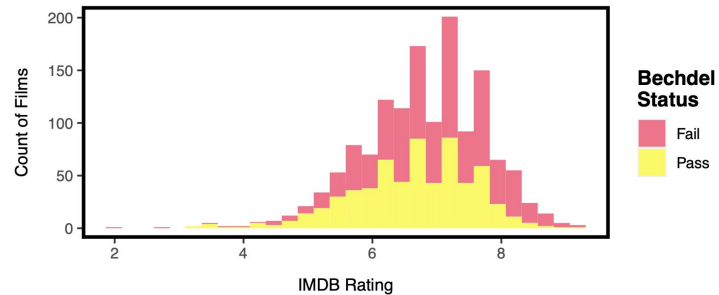
Log-odds of a
film passing the
Bechdel test

EXPLORATORY DATA ANALYSIS

Distribution of Domestic Gross
By Passage of Bechdel Test



Distribution of IMDB Rating of Films
By Passage of Bechdel Test



**PASSING
FILMS**

MEAN
6.6

MEDIAN
6.7

**FAILING
FILMS**

MEAN
6.9

MEDIAN
7.0

FINAL MODEL

#Release Year	0.01610*	*0.00852	Film Runtime
##Film Budget	-0.01094*	*0.39461	Content Rating - Child
##Domestic Gross	0.00030	*0.36256	Content Rating - Teen
Metacritic Score	0.01703*	*-0.95425	Content Rating - Unrated
IMDB Rating	-0.61942*	*0.00002	Budget : Domestic Gross##

* p < 0.1

Defined as number of years since 1970

Scoped as millions of dollars, normalized to 2013, and mean-centered

$$\log\left(\frac{\hat{\pi}}{1-\hat{\pi}}\right) = 1.210 + 0.016 \text{ years}_{1970} - 0.011 \text{ budget}_{2013\text{Cent}} + 0.0003 \text{ domgross}_{2013\text{Cent}} + 0.395 \text{ ratedChildAudiences} + 0.363 \text{ ratedTeenageAudiences} - 0.954 \text{ ratedUnrated} + 0.017 \text{ metascore} - 0.619 \text{ imdb_rating} + 0.009 \text{ runtime} + 0.00002 \text{ budget}_{2013\text{Cent}} : \text{domgross}_{2013\text{Cent}}$$

MODEL FINDINGS



\$1M
FILM
BUDGET



1.1%
ODDS OF
PASSAGE



1
RELEASE
YEAR



1.6%
ODDS OF
PASSAGE



1
MIN OF
RUNTIME



0.9%
ODDS OF
PASSAGE



1.0
IMDB
RATING



46%
ODDS OF
PASSAGE



1
ON META-
CRITIC



1.7%
ODDS OF
PASSAGE



FILMS FOR
CHILD
AUDIENCES



48.3%
INCREASED ODDS OF PASSAGE
COMPARED TO FILMS FOR ADULTS



FILMS FOR
TEEN
AUDIENCES



43.7%
INCREASED ODDS OF PASSAGE
COMPARED TO FILMS FOR ADULTS



SUMMING IT UP

CONCLUSIONS

- ❑ 8 Predictors
- ❑ Sensitivity: 51.1%
- ❑ Specificity: 74.7%
- ❑ AUC: 0.673
- ❑ Newer movies, movies for younger audiences more likely to pass Bechdel Test

LIMITATIONS

- ❑ Esoteric nature of Bechdel Test: Test criteria may not relate to metrics of the film
- ❑ Relatively low AUC value: $\frac{1}{3}$ of films were incorrectly classified

FUTURE WORK

- ❑ Examine relationship between the diversity of a movie with its commercial success
- ❑ How does the genre of films affect Bechdel Test passage?
- ❑ Similar analysis for TV Shows