

# **SPRINGBOARD CAPSTONE**

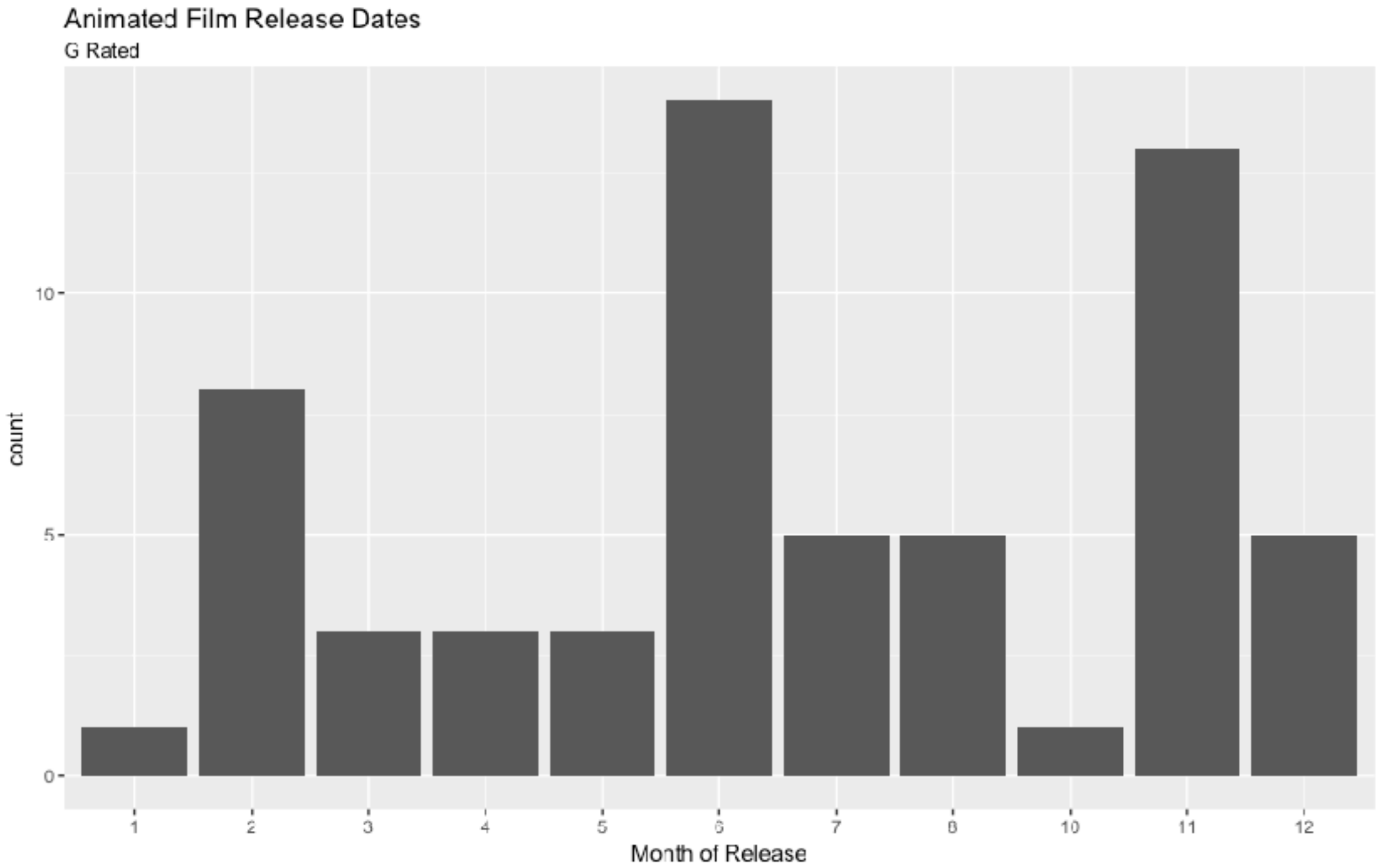
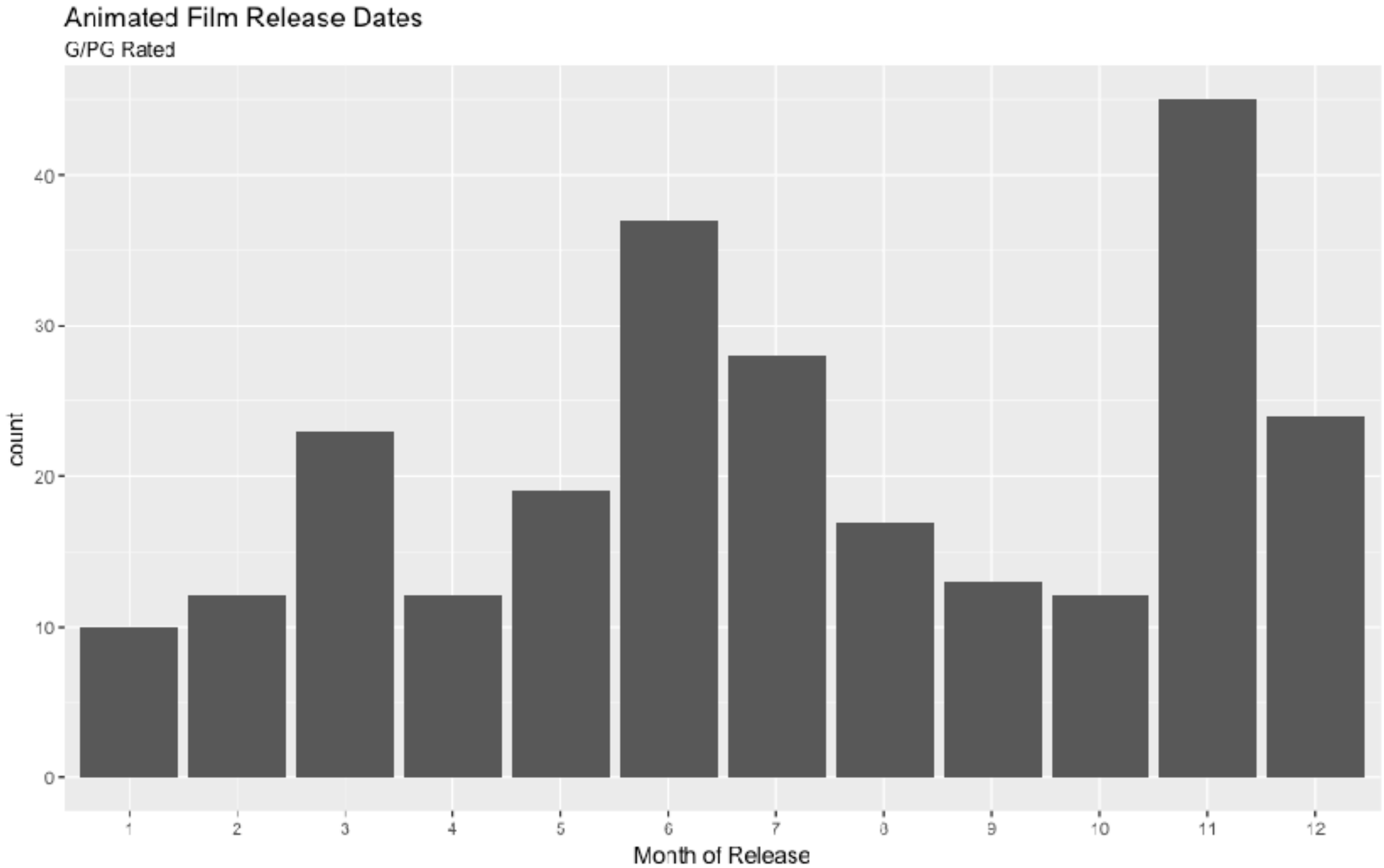
## AN ANALYSIS OF FILM SEASONALITY

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FEB 2018

**BACKGROUND:**

STUDIOS RELEASE FILMS IN  
RECOGNIZABLE AND (FAIRLY)  
STANDARD PATTERNS BASED ON  
NARRATIVES ABOUT CONSUMER  
BEHAVIOR/PREFERENCES



## CHALLENGE

**WHAT IF SEASONALITY IS NOT A FUNCTION OF CONSUMER PREFERENCE? WHAT IF THE SEASONALITY WE OBSERVE IS A FUNCTION OF THINGS WE CONTROL?**

## **OBJECTIVE:**

EXAMINE FILM SEASONALITY

### **WHAT WE ARE TRYING TO SOLVE**

- Establish if movie industry seasonality is related to observable consumer preferences and behaviors
- Examine if other factors (like supply, film budget, etc.) play a greater role in achieving commercial success

### **WHAT WE ARE NOT TRYING TO SOLVE**

- Predicting which films will become successful and which will not
- Identifying what it takes for a film to be a hit

### **WHY IT MATTERS**

- If we can better understand the role of consumer preferences with respect to release date, we may be able to create advantages by ignoring conventional wisdom

## THE DATA:

### HISTORICAL FILM DATA AND CONSUMER SURVEY

#### **HISTORICAL BOX OFFICE DATA**

- Sourced from the database behind the movie website [the-numbers.com](http://the-numbers.com)
- Dataset includes over 5000 movies released between 1970 and 2017
- Contains fields like release date, production budget, genre, box office (domestic and international), MPAA rating, and so on

#### **AMERICAN TIME USE SURVEY**

- Sourced from the Bureau of Labor Statistics
- Diary-based survey of how Americans spent their time over the years 2002-2016
- Diary entries are coded by activity (e.g sleeping, watching TV, or shopping) and duration (e.g. 90 minutes)

# **ANALYSIS:** APPROACH

## **AGGREGRATE**

Across the  
entire movie  
marketplace

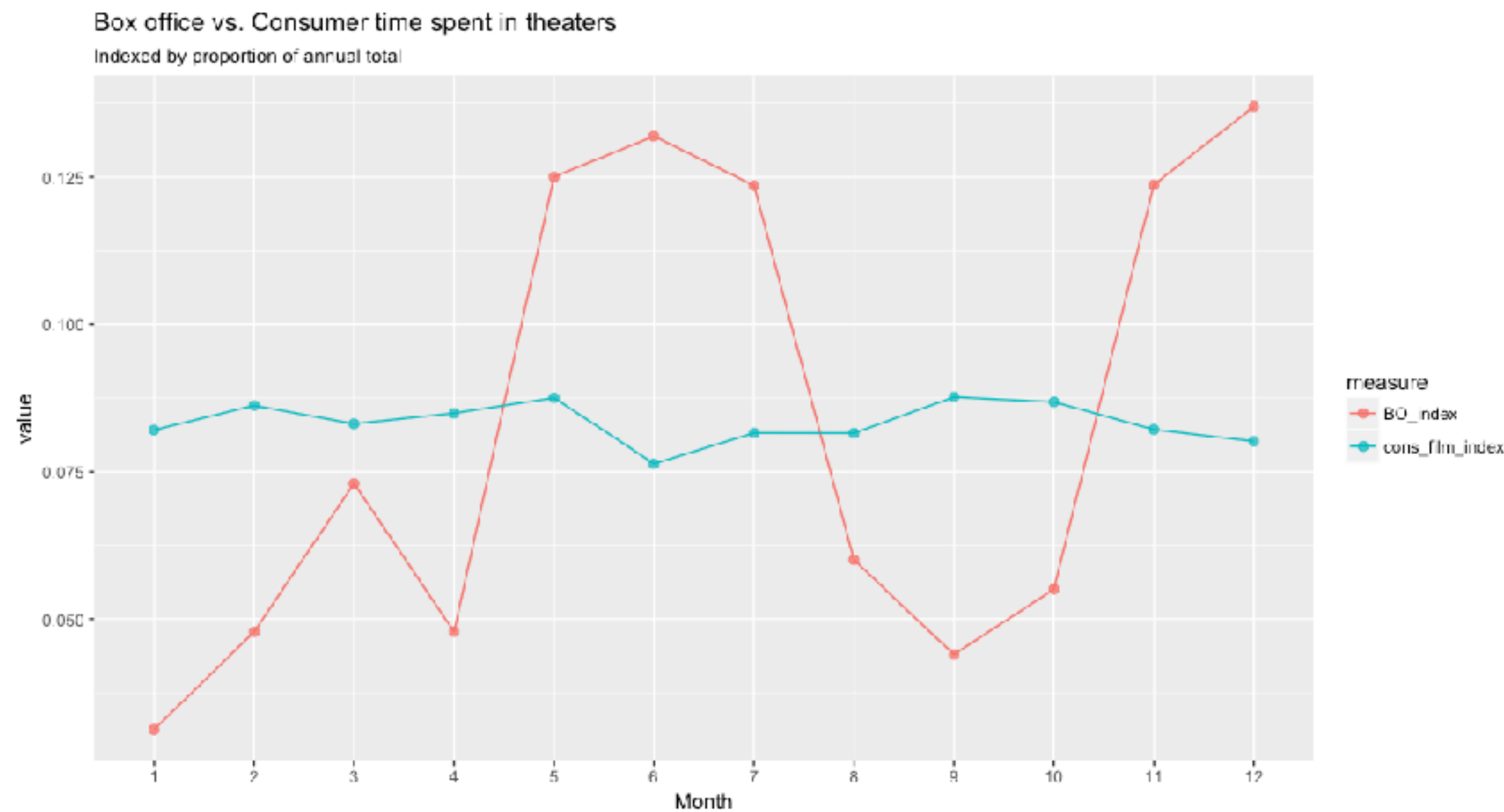
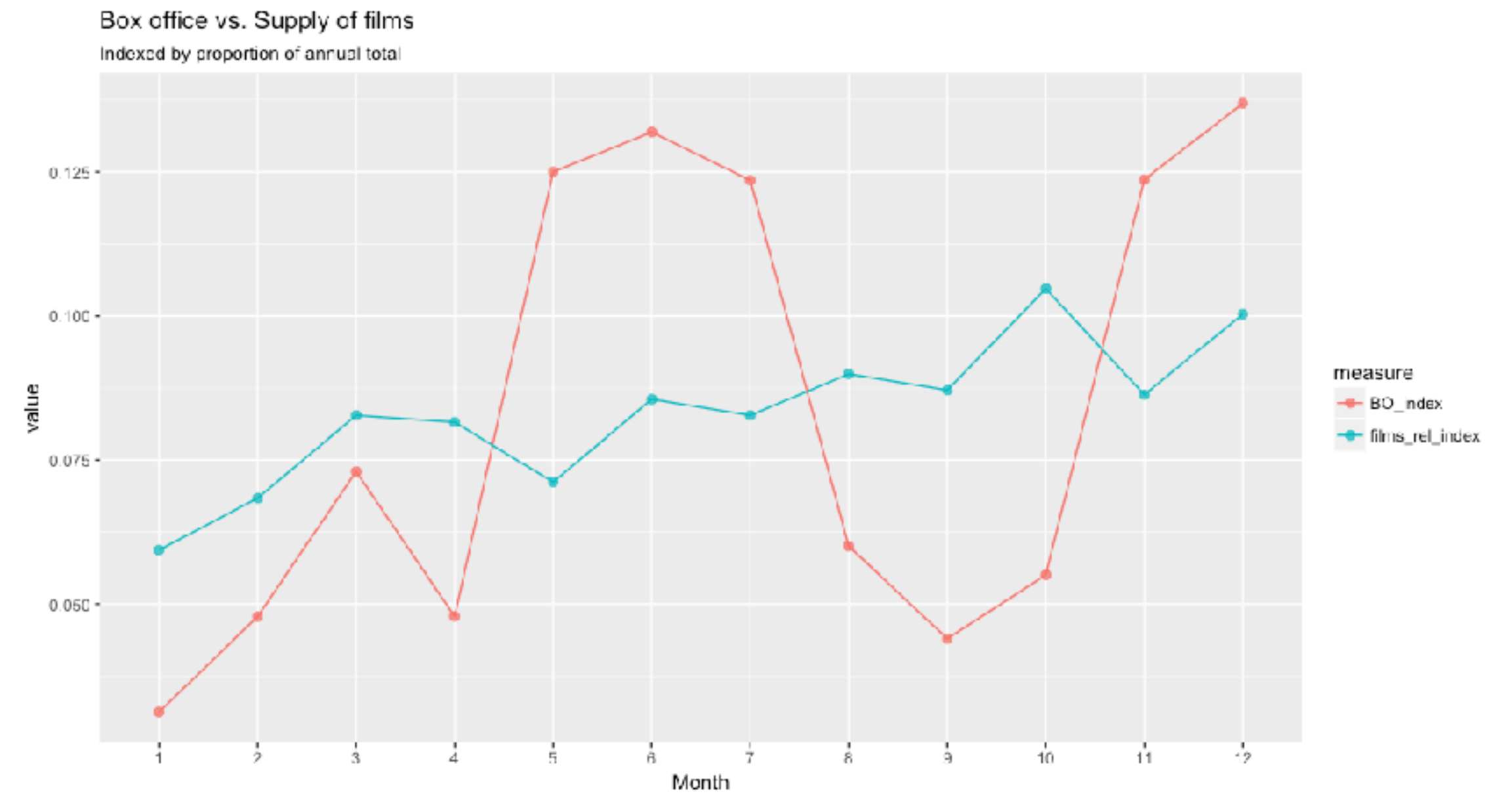
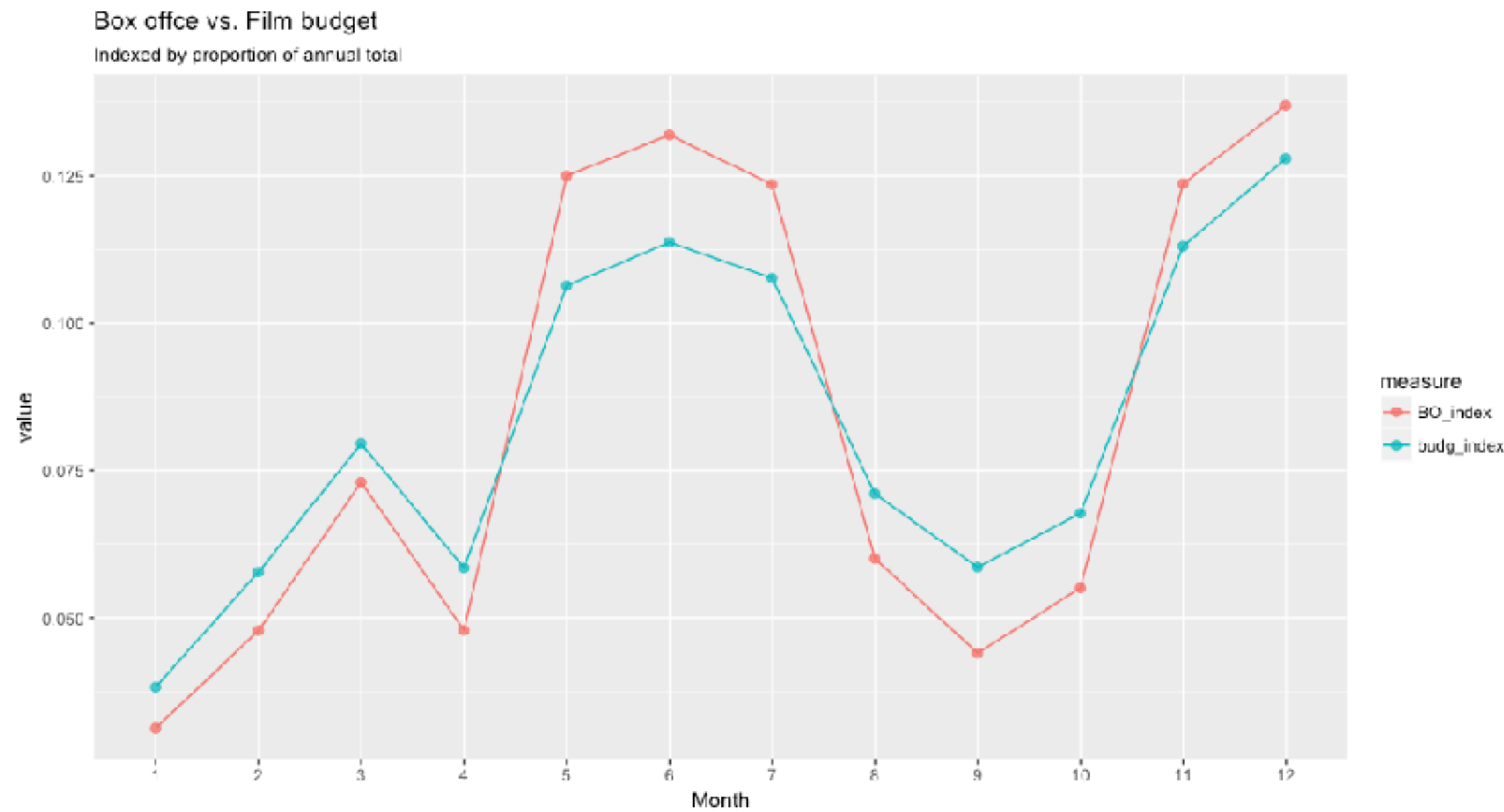
## **YEAR-MONTH**

Examine  
relationships on a  
month-by-month basis

## **FILM BY FILM**

Model success for all  
relevant films  
in database

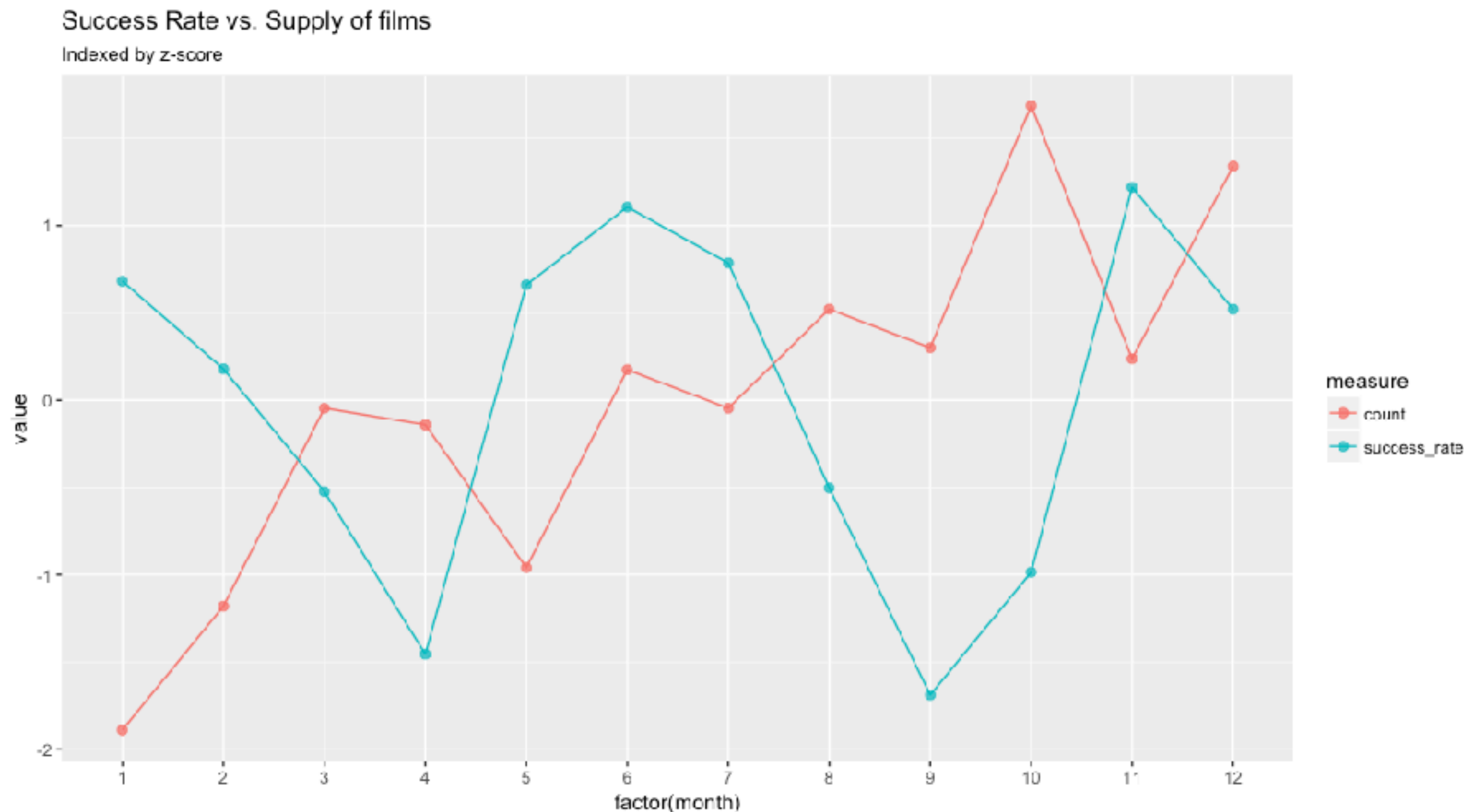
# ANALYSIS - AGGREGATE MARKET (BOX OFFICE)



## KEY TAKEAWAYS

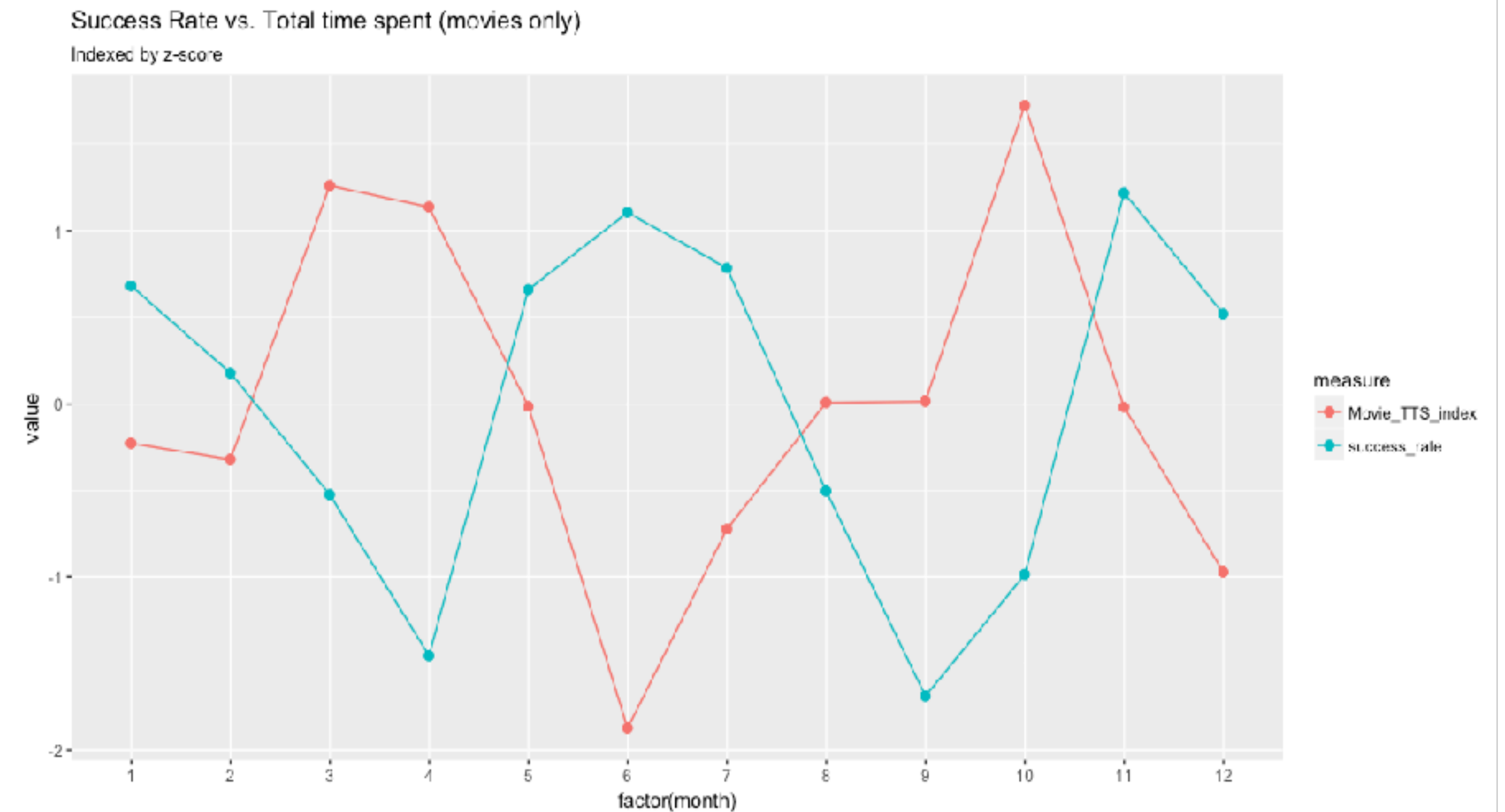
- Tight correlation between budget and box office; to be expected (movies that cost more money should make more money)
- Seasonality is not observed at all in the consumer survey; people report spending about the same amount of time watching movies regardless of month
- Supply of films doesn't initially appear to have impact on total box office

# ANALYSIS - AGGREGATE MARKET (SUCCESS RATE)



## KEY TAKEAWAYS

- Potentially an inverse relationship between supply of films in the market and success rate (the proportion of films that exceed a 4x return on budget)
- January has few films, but a well above average success rate, while October has many films but a well below average success rate



## KEY TAKEAWAYS

- Another potentially inverse relationship between success rate and total time spent by consumers watching movies
- Possible explanations:
  - ATUS survey under-indexes on some portion of the population that sees more films in some seasons (e.g. children)
  - Indexed value has less actual variability than it shows (difference between 1 and -1 is only 11 minutes; a fraction of a film)



ANALYSIS:

YEAR MONTH RELATIONSHIPS

CORRELATION MATRIX

	ATUS - Movies	ATUS - TV	Production Budget	Domestic Box Office	Succes Rate
ATUS - Movies		0.27	-0.09	-0.15	0.00
ATUS - TV	0.27		0.01	-0.01	0.08
Production Budget	-0.09	0.01		0.88	0.18
Domestic Box Office	-0.15	-0.01	0.88		0.35
Succes Rate	0.00	0.08	0.18	0.35	

KEY TAKEAWAYS

- Summarized all data to examine relationships between consumer time spent, production budget, domestic box office, and success rate on month by month basis for Sept 2002 - Oct 2016
- No significant relationships exist (other than between Production Budget and Box office)
- Once again, consumer measures aren't related to success rate

# ANALYSIS:

## FILM BY FILM

### METHOD

- Logistic regression, independent variables for the analysis included release month, consumer survey results for the release month, production budget, and number of films released in the same month

### MONTH AS A CATEGORICAL VARIABLE

- With month as a categorical variable, no meaningful/statistically significant relationships exist between the variables and commercial success

### ‘PRIME’ RELEASE SEASON

- Grouped the months May, June, July, November, and December (months considered ‘prime’ by studios, or through examination of release patterns)
- In this regression, month of release had a statistically significant relationship (positive relationship)
- Supply also had strong relationship with commercial success (negative relationship)

### KEY TAKEAWAY

- Unsurprising results do not rebut the idea that consumer behaviors are not the source of seasonality
- Studios control both the supply and the release of films, which means the studios, not the consumers, are primarily responsible for the commercial success of films (w/r/t seasonality)

## **CONCLUSION:**

## WHAT'S NEXT

### **INFLUENCES ON SEASONALITY**

- From all of the preceding, it is reasonable to conclude that studio behavior (when they release and along with how many other films) has as much (or more) to do with film seasonality as consumer behaviors
- Intuitively, this conclusion makes some sense; consumers' desire to be entertained does not fluctuate with the calendar (ATUS data shows same conclusion)

### **FURTHER ANALYSIS**

- Deeper dive into ATUS data to identify sub-groups within survey and understand important seasonal differences between sub-groups (e.g. parents vs. non-parents)
- All films not created equal - entirely possible that different clusters of films (genres, ratings, etc.) would exhibit interesting seasonal patterns that are not caught when considering all films together

**T H A N K   Y O U**