

# An Analysis of the Production and Consumption Pattern of the U.S. Film Industry During the 2008 Great Recession using an Computational Content Analysis Approach

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## Abstract

The production, consumption, and dynamics of the U.S. culture industry was extensively studied during the period of the Great Depression during the 1930s. Many theories and hypotheses about consumption preferences, production choices, and changes in ideologies were massively proposed but not yet validated. In this paper, we leverage the power of modern computation and use computational content analysis to study approximately 20,000 Hollywood film plots before and after the period of the Great Recession during the late 2000s and early 2010s. We are interested in studying whether the hypotheses and theories proposed during the Great Depression period are still valid and could be applied to explain the changes and the dynamics of collective social behaviors before and after the recent economic downturns in the early 21st century.

*keywords:* natural language processing, content analysis, recession, culture industry, IMDb, films

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# 1 Introduction

Home of the largest film industry in the world, Hollywood has exerted significant socio-economic impacts and tremendous cultural influences to the U.S. society since the early 1900s. Because movie-going is recognized to be one of the most popular leisure activities, Hollywood films offer great opportunities to study consumption preferences and production choices during different time periods, such as the Great Depression period during the 1930s or the most recent economic recession during the late 2000s and early 2010s.

Many interesting findings and theories were proposed after the Great Depression and they discussed how and why did movie-goers favor certain films over others as well as how and why did movie-producer choose to make or promote films differently in response to the depression. Nevertheless, many of those hypotheses and theories are yet validated, so in this paper, we would try to answer, validate, and refine some of those findings and theories by leveraging the power of modern computation. Using computational content analysis to study approximately 20,000 modern Hollywood films released before and after the 2008 Great Recession, we will borrow some findings and theories proposed by scholars who extensively studied the dynamics of the culture industry during the Great Depression period in the 1930s and will try to see whether those findings and theories would remain and hold true during the most recent economic downturn.

The modeling and detection of changes in consumer preferences and production choices have been a long-lasting topic in economics. By borrowing some concepts from economics, this paper will contribute some insights into both economics and film study. In addition, our methodologies used in this study on the film industry during the economic downturn could also be applied to other entertainment businesses or mass media at any given time period, so these firms would be able to acquire a better marketing sense of what products or services to offer during varying economic conditions. Lastly, this study could potentially generate policy implications that could assist the government to better subsidize certain industries so as to better adjust and

remedy market expectations during economic downturns.

This paper is structured as follow. In the [Literature](#) section, we would provide a brief literature review of the findings and theories related to movie-goers' consumption preferences and movie-producers' production choices proposed during the Great Depression period back in 1930s. In the [Data](#) section, we would briefly explain the source of our data and how we categorized different film plots into different corpora by time, together with some descriptive statistics of each corpora. In the [Methods](#) section, we would present our results, validation, and findings of those hypotheses and theories mentioned in [Literature](#) together with methodological justifications, descriptions, and interpretations. In the [Conclusion](#) section, we would summarize our results, discuss some limitations of our study, and present potential future works.

## 2 Literature

### 2.1 The Great Recession

The Great Recession was a period of sharp economic decline observed in world markets during the late 2000s and early 2010s. It is generally considered the largest downturn since the Great Depression. According to NBER and S&P 500 Index, the recession period in the United States started in the third quarter of 2008 and ended in the second quarter of 2009. Nevertheless, the long-lasting aftermath of the economic downturn in the early 21st century remained strong and let market expectation stayed low persistently.

According to [Morgan \(2011\)](#), Gallup poll in 2011 showed among 1,013 U.S. adults, only 27 percent said the economy is growing, about 29 percent said the economy is in a depression, and close to 26 percent said it is in a recession, with another 16 percent saying it is "slowing down". [Kohut \(2015\)](#) claimed even in early 2015, a majority of Americans still believed that the nation's economy was still in recession.

In order to control the effect of natural preference and development of movie industry, and to take into consideration of the long-lasting aftermath of the economic

recession exerted on the market expectation, we decided to define Pre-Recession period to be year 2003 to 2007, and to define Post-Recession period to be year 2009 to 2013.

## 2.2 The Great Recession and the Movie Industry

The response of the culture industry to social affairs, including wars, economic crisis, and political revolutions, is a lasting topic in culture studies. Especially during the 1930s, this period was regarded as a golden decade of iconic movies featuring a great number of glamorous stars, and it was also the period when Hollywood survived through the Great Depression and underwent strict regulations. Current literature extensively studied on the transformation of Hollywood during the Great Depression.

Today, with profound social changes and reinvented cinematic narrative, the reactions from both the producers and consumers to the 2008 Great Recession is worth noting. The comparisons between the reactions today with the reactions observed from the 1930s are particularly meaningful as they would likely reveal critical ideas about social changes behind the scenes. Thus, we have borrowed some theories from the fields of economics and culture studies during the Great Depression period, and aim to validate those findings and theories in the context of the most recent economic downturn.

### 2.2.1 Dominant Model: Dream World

One dominant model of Hollywood films of the mid to late 1930s was the “Dream World” model proposed by Cohen (2017), which offered “entertainment” that promised escape from the problems of the Great Depression. Cohen (2017) described some characteristics of those “Dream World” movies, such as featuring various glamorous international spots, portraying characters usually exist in upper-class environments far from any reference to the economic calamities of the day.

As Stokes (2017) described, “The romances are difficult to feel or understand emotionally, especially since the convoluted and preposterous plots keep placing var-

ious obstacles and epic misunderstandings in their path – instead of providing the blueprint for a believable, mutually supportive relationship.” Nonetheless, these were exactly the most popular movies during that period.

According to Sklar (2012), “most of the important moneymaking pictures … had little to do with contemporary life”. “Nothing”, Pauly (1974) argues, “could have been further from the bread lines and the deprivation photographed by Dorothea Lange than the social comedies of Lubitsch, the slapstick of the Marx brothers, and the polished dance routines of Fred Astaire and Ginger Rogers”.

### **2.2.2 Blockbusters: Realism**

Another popular topic of movies during the Great Depression period, according to Cohen (2017), is the Depression itself. Cohen (2017) claimed many musicals aired during the 1930s had directly and realistically engaged with the Depression, such as 1933 Warner Bros trio of *42nd Street*, *Gold Diggers of 1933* and *Footlight Parade*, which were featured as the Great Depression Musicals.

These musicals depicted the catastrophes the public were facing, provided inspiration and wisdom, and explored potential solutions to the depression. The characters usually triumphed in the end over adversity. These movies are also blockbusters in the Depression era.

### **2.2.3 Myself To Blame**

In cultural historian Levine (1985)’s assessment, Americans during the Great Depression tended not to blame outside forces for their economic plight, instead, they manifested a “tendency to internalize the responsibility for one’s position which often led to feelings of shame”. They blamed themselves for their misfortunes, often apologizing when forced by circumstances to seek economic aid. As Levine (1985) noted, this prevalent worldview, with its corollary insistence on “personal responsibility” and refusal to fail under dire circumstances, was a principal motif in many of the most popular cultural productions of the decade.

#### **2.2.4 I Need A Leader**

In the early years of the Great Depression, argues Christensen (1987), Hollywood produced a series of movies focused on the economic situation that were “questioning and pessimistic, torn between group solidarity and strong leadership as possible solutions to the crisis of the Depression”. However, the commercial performances of films appreciating cooperation and communism such as *Our Daily Bread* turned out to be tragic failures. It showed that the more welcomed plan and solution was strong and individual leadership. Thus, the society is looking for individual leadership that would bring them out of the predicament, and at the same time, collective cooperation was devalued.

#### **2.2.5 Independent Working Woman**

While the Great Depression ultimately reinforced rather than subverted gender roles in the nation at large, according to Smyth (2017), Hollywood was more effective than any other institution in portraying a positive image of the independent working woman both on and off screen.

#### **2.2.6 Carefree Children**

Whether focusing on Great Depression-related issues or offering escape from them, the Hollywood musicals of the 1930s focused on the adult world. According to Eldridge (2017), when films depicting children, the genre usually sought to reassure audiences that the Depression was not entirely destroying the innocence and happiness of the young. Children in films were shown “at play”, singing and dancing as they took on those responsibilities. This offered the ultimate reassurance that the nation’s young were still capable of having fun, despite the spirit testing dilemmas and sacrifices of the Depression decade.

### 2.2.7 Stronger Sexual Impulse

Movies in the Depression era usually used sexually explicit content to attract public attention. Cohen (2017) ascertained that film promoters tend to stress the sexier portions of the film in their marketing, with content often going beyond what the film and its plot featured.

## 3 Data

We have acquired all plot summaries from IMDb film archive, which is an open-source online archive that is also publicly available for access. Due to the size of data, we built a database of films using Database Management System (DBSM) tools in order to assist and facilitate our analysis. From the raw dataset, we chose to include a total of seven variables in our analysis, and Table 1 below presents all variables of interest together with detailed explanations of each.

**Table 1:** Variables of Interest

Variables	Explanations
ID	Unique film ID number used by IMDb online archive
Name	The name of the film
Year	Release year
Plot	Complete plot summaries of the film
Genre	A list of genres the film belongs to
Keywords	Keywords labeled and contributed by IMDb online users
Gross	Domestic gross box office

Note that the movies included here are American movies with plot summaries available on IMDb except short films. The reason we exclude movies without plot summaries is since IMDb is a user-collaborative movie encyclopedia website, movies without plot summaries are usually merely noticed and not aired in theaters, thus we choose to not include them here.

As mentioned earlier, in order to control the effect of natural preference and development of movie industry, and to take into consideration of the long-lasting

aftermath of the economic recession exerted on the market expectation, we decided to define Pre-Recession period to be year 2003 to 2007 and to define Post-Recession period to be year 2009 to 2013. Naturally, films with release year between 2003 to 2007 are assigned to the Pre-Recession group and films with release year between 2009 to 2013 are assigned to the Post-Recession group.

Table 2 presents the descriptive statistics of box office of all films. Comparing the box office of all films in Pre-Recession group and Post-Recession group, median differs the most, which is likely due to the total number of films in each group.

**Table 2:** Summary Statistics For All Films

Variables	Pre-Recession Movies (2003-2007)	Post-Recession Movies (2009-2013)
Total	6477	14654
Gross Mean	\$26,135,060	\$27,584,460
Gross Median	\$3,117,985	\$540,461
Gross Max	\$436,471,000	\$760,507,600
Gross >\$100,000,000	120 movies	156 movies
Gross >\$200,000,000	37 movies	51 movies

In order to detect consumption preferences and changes in tastes, we decided to also look at “popular” films from each group. We defined “popular” films to be films with gross box office to be greater than 30 million in Pre-Recession group and Post-Recession group. As presented in Table 3, this filtering criteria has nicely balanced the size of both groups, and we could directly observe that the number of successful films has greatly increased in Post-Recession period.

**Table 3:** Summary Statistics For Films with Box Office  $\geq \$30,000,000$

Variables	Pre-Recession Movies (2003-2007)	Post-Recession Movies (2009-2013)
Total	442	444
Gross Mean	\$87,476,670	\$102,754,400
Gross Median	\$60,575,840	\$71,394,570
Gross Max	\$436,471,000	\$760,507,600
Gross >\$300,000,000	12 movies	18 movies
Gross >\$400,000,000	2 movies	9 movies

The main variable of interest in our analysis is the complete set of plot summaries of all film and we would be conducting computational content analysis to extract insights and validate past findings and theories.

## 4 Methods

In this section, we would try to use techniques and methodologies from computational content analysis to assess and validate each findings or theories mentioned above in the [Literature](#) section. We would start with an exploratory text analysis to assess whether there are any detectable differences between Pre-Recession corpus and Post-Recession corpus before delving into theory validations.

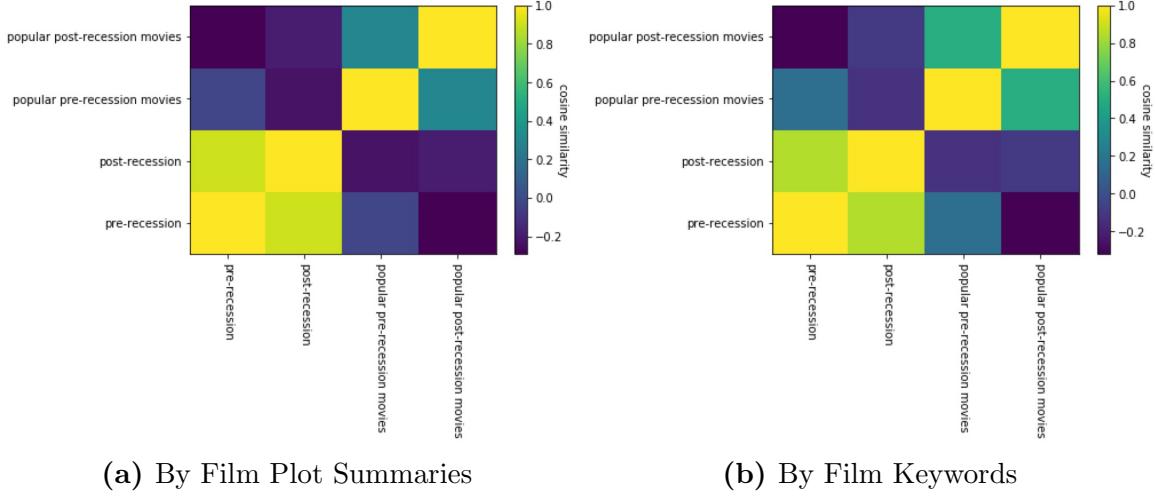
### 4.1 Is there any difference?

Although the Internet has provided people free pieces of entertainment and are thought to be a source for Hollywood's newfound susceptibility during an economic downturn, there are, nevertheless, more than twice as many movies released during the post-recession period as the pre-recession period.

Table [2](#) and Table [3](#) presented in the [Data](#) section have laid out the production differences before and after the Recession: the average box office grosses of post-recession movies are slightly higher than those of pre-recession movies, and the number of post-recession movies having box office grosses greater than \$100M, \$200M, \$300M, and \$400M thresholds are also larger in quantity.

For curiosity, the most popular and successful film during the pre-recession period is *Shrek 2*, with \$436,471,036 box office grosses, and the corresponding film during post-recession period is *Avatar*, with \$760,507,625 gross. Although affected by economic inflation, the box office performance implied that the film industry was booming during and even after the Great Recession period, thus proving the industry is indeed “Recession-proof” per se.

**Figure 1:** Semantic Similarities



#### 4.1.1 Semantic Differences

We built Doc2Vec models and compute the distances between all pre-recession movies and all post-recession movies, as well as their popular counterparts. According to Figure 1 where the matrices of semantic differences were generated by plot summaries as well as keywords, although post-recession movies were similar to pre-recession movies in the semantic space, popular post-recession movies are not similar to popular pre-recession movies. Moreover, the semantic distance between popular post-recession movies and post-recession movies was also larger than the distance between popular pre-recession films and pre-recession films.

Therefore, the semantics differences do exist between popular films and the whole dataset, and the popular post-recession films are a quite special subset of all post-recession films, which might indicate some special preferences of movie-goers in the post-recession period.

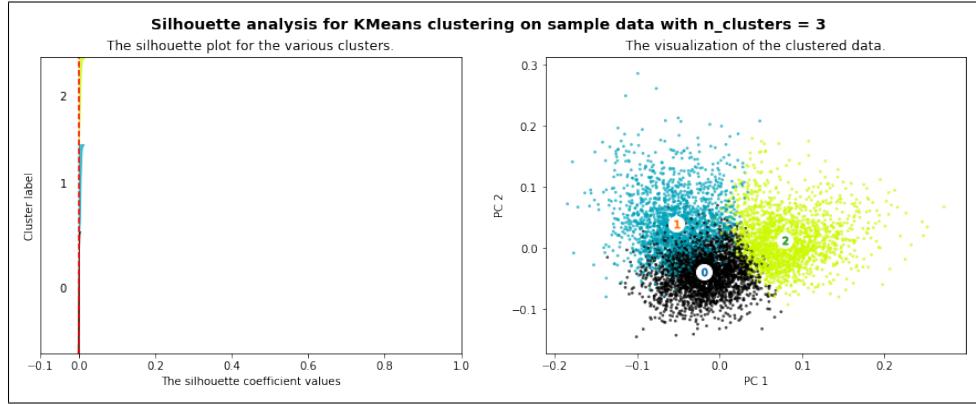
#### 4.1.2 Clustering

In order to further differentiate the differences between the pre-recession corpora and the post-recession corpora, K-Means Flat Clustering technique was implemented to detect possible clusters or topics. Due to the nature of our data, we have no way

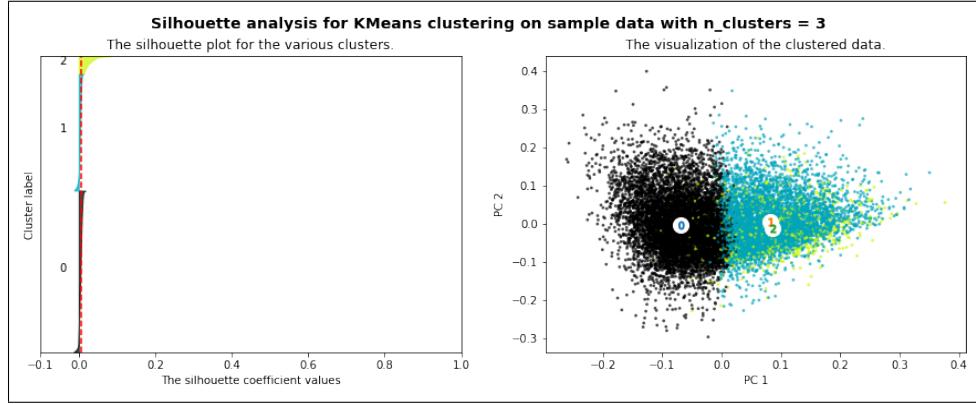
to know the exact number of labels in both corpora and thus parameter tuning on the feature matrices were necessary. Because we neither know the “ground truth” nor have the labeled data, we used the Silhouette method in an attempt to identify the “best” number of clusters in an unsupervised way.

To show the differences between the clustering patterns of pre-recession corpora and post-recession corpora, Figure 2 and Figure 3 are attached with the number of clusters set to be 3.

**Figure 2:** Clustering for Pre-Recession Corpora



**Figure 3:** Clustering for Post-Recession Corpora



We tried our best to fine-tune parameters so as to create representative and comprehensive feature matrix for each of our corpora before using Silhouette analysis to assess optimal cluster numbers. In order to do so, we created two computationally expensive for loops and ultimately limited our word vector to 1000 words with at

least 10 occurrences, which do not occur in more than 70% of the all film plots in each corpora.

Using these parameters and Silhouette analysis, we discovered the optimal number of clusters for pre-recession corpus to be 15 and for post-recession corpus to be 21. Looking at the top words of each cluster, we are able to identify 8 significant topics from the pre-recession corpus and 7 significant topics from the post-recession corpus. As shown in Table 4, we have an interesting finding that sports, which was a huge and popular topic before the recession, became no longer identifiable in the post-recession clusters.

**Table 4:** Identified Clusters

Pre-Recession Corpus (15 Clusters)	Post-Recession Corpus (21 Clusters)
School	School
New York City	New York City
Love & Relationship	Love & Relationship
Family	Family
Crime	Crime
War	War
Music	Music
Sports	?

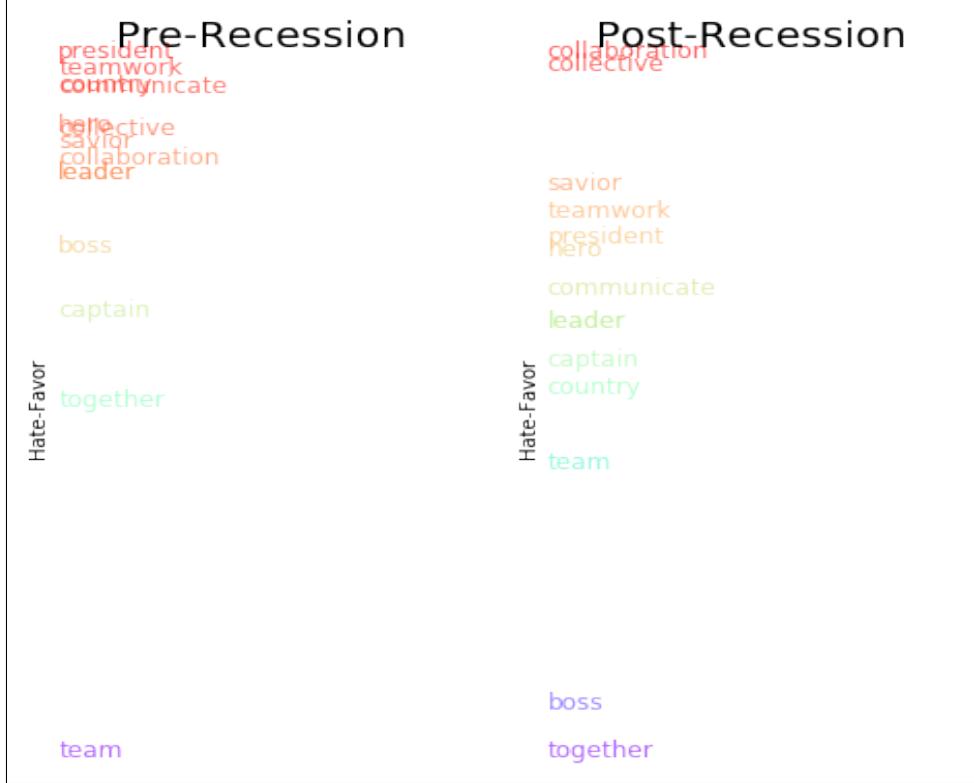
## 4.2 Save the world together

Recall Christensen (1987)'s finding back in the Great Depression period that Hollywood films promoted the social value that individual leadership is more effective than collaborative cooperation to bring the people and the society out of the predicament.

In order to validate Christensen (1987)'s finding, we projected a list of individual leaders and a list of cooperation words to a scale of favor and hate. In the list of individual leaders, we included words such as “president”, “savior”, “leader”, “captain”, “hero”, “boss”, “country”. Similarly, we included words such as “collaboration”, “together”, “collective”, “communicate”, “team”, “teamwork” into the list

of cooperation words. The result is presented in Figure 4 and we could see, surpris-

**Figure 4:** Projection: Sentiment toward Strong Leader and Cooperation



ingly, different from Christensen (1987)'s finding from the Great Depression period, the American people nowadays value collaboration and collective endeavor more than individual leadership. Nevertheless, we could not claim that individual leadership is no longer valued because words such as: “savior”, “hero”, and “president” are still among the favorable words in this projection.

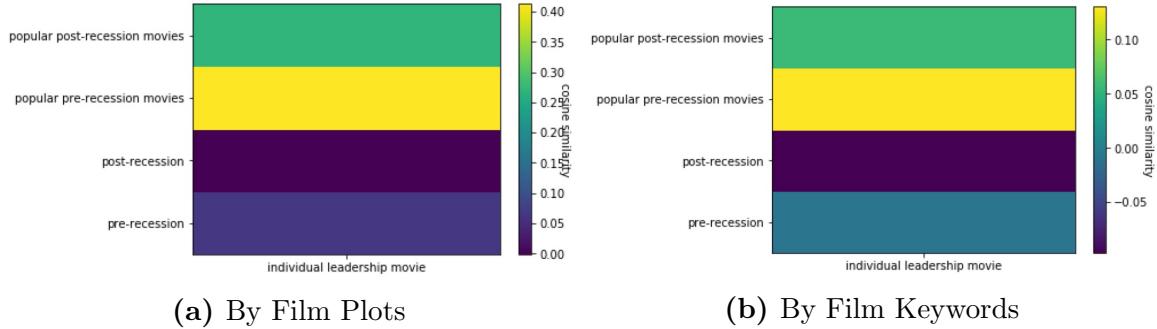
From another perspective, we also looked at the semantic equation showed in Equation 1. Using the pre-recession corpus, the semantic equation gave us words such as “conflict”, “terrifying”, and “concerning”, which are totally negative. On the other hand, using the post-recession corpus, the result gave us almost exclusively positive words such as “ ideologies”, “truth”, and “faith”, which suggested the projection we observed in Figure 4 is valid and could be trusted.

$$Individual + Leadership - Collective = ? \quad (1)$$

We also used semantic similarity to study movie-goers' preference over individual leadership or collective cooperation. The words we used to identify films favoring individual leader are: leader, leadership, hero, heroine, captain, individualism, anti-socialist, anti-communist, anti-communism, independence, team-captain. The words we used to identify films favoring cooperation are: communal-values, self-sacrifice, socialism, sacrifice, collectivism, collective, communism, communist, community, socialist, cooperation, cooperative, team.

The semantic similarities with films favoring individual leadership based on plot summaries and keywords presented in Figure 5 are quite consistent, showing that there are less films favoring leader in post-recession period than pre-recession period. We could see that although people like these films, they are less positive about individual leaders in the post-recession period than pre-recession period.

**Figure 5:** Semantic Similarities Featuring Individual Leadership Movies

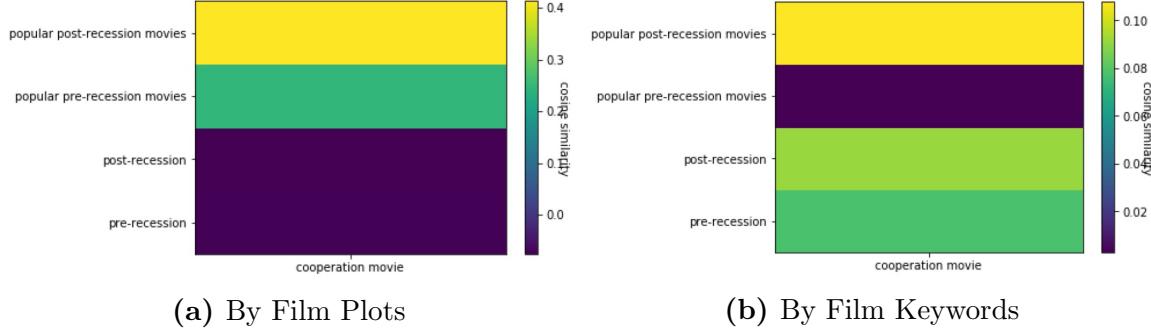


The semantic similarities with films favoring cooperation given by plot summaries and keywords presented in Figure 6 are a little different. One consistent observation is that cooperation is more accepted by people during the post-recession period than pre-recession period.

### 4.3 Does “Dream World” really dominant?

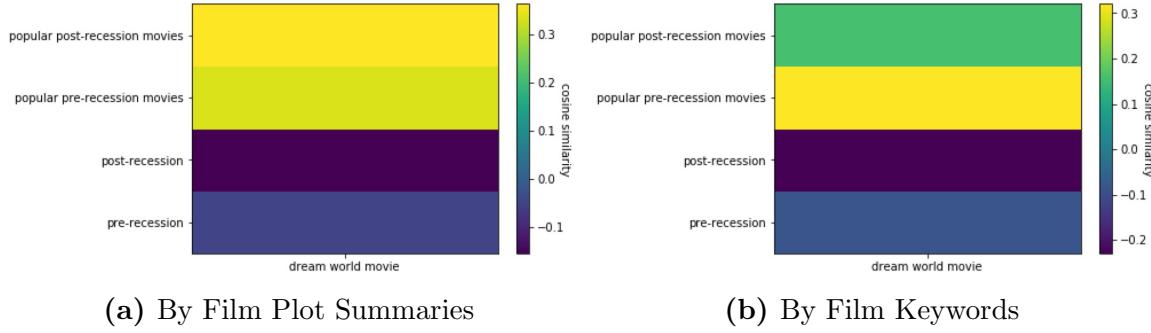
We used the following set of words as identifiers of “Dream World” films: surrealism, idealism, upper-class, upperclass, upper-class-family, upperclassman, blue-blood,

**Figure 6:** Semantic Similarities Featuring Collective Cooperation Movies



elite, maid, valet, horse, utopian, lord, duke, countess, lady, living-lavish, rich, patriarch, genteel, noble, aristocrat, economic-boom. Film plots include any of the above keywords are identified as “Dream World” films.

**Figure 7:** Semantic Similarities with “Dream World” Films



We compared the semantics of all films with “Dream World” films as shown in Figure 7. As we can observe, based on both plot summaries and keywords, post-recession movies are less similar to “Dream World” films than pre-recession films, and the popular films are much more similar to the “Dream World” films.

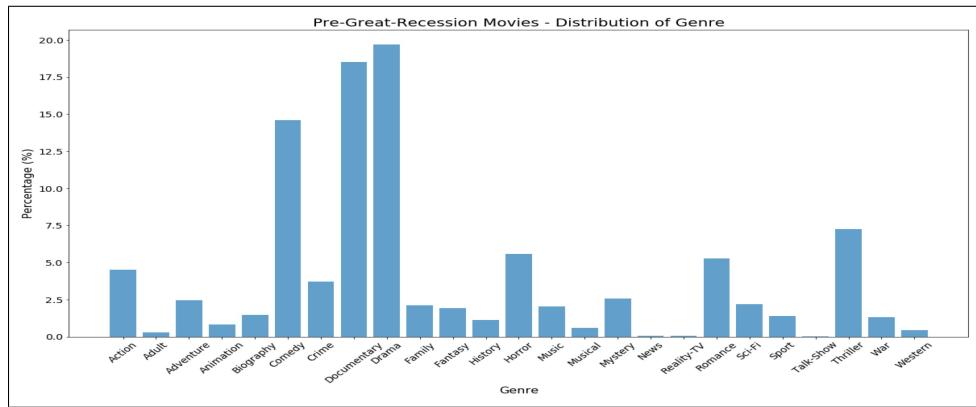
Semantic matrix based on plot summaries suggests that popular post-recession films are more similar to “Dream World” films, while semantic matrix based on keywords yields the contradictory result. Even so, we can still conclude that movie-goers tend to prefer “Dream World” films regardless of the time period or external economic performance, which indicates an interesting mismatch between film production and consumer preference.

Our finding about movie-goers' preference to "Dream World" films from the 2008 Great Recession aligns with the theories proposed during the Great Depression period in which consumers enjoy films about elite upper class out of their reach as it may provide them a sense of escapism. However, it is interesting to observe from analysis that film producers are no longer depicting "dream world" as often as it was before.

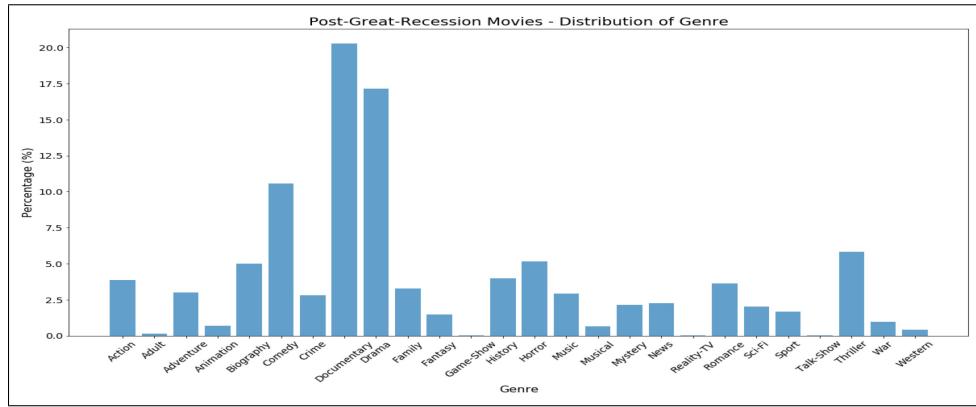
#### 4.4 Is realism still popular?

First we looked at the distributions of genres in each period, which are presented in Figure 10 and Figure 11

**Figure 8:** Distribution of Genre of All Films in Pre-Recession Period



**Figure 9:** Distribution of Genre of All Films in Post-Recession Period

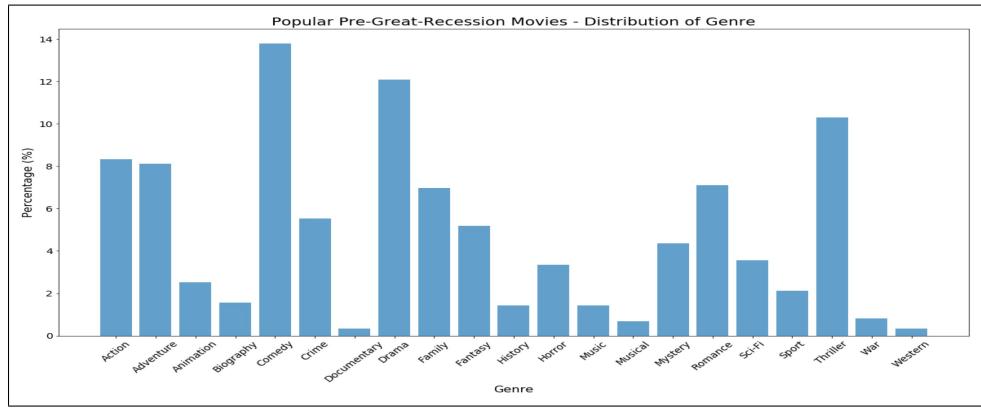


As we can see, the overall distribution of genres during the pre-recession period

and post-recession period are highly similar. However, we can still observe some differences. For example, there are more biography, documentary, family, history, music, news films, and less comedy, crime, drama, fantasy, horror, romance, thriller films in post-recession period. This is unexpected as the percentage of genres belong to the category of realism increased, while the percentage of some genres could not be categorized to realism but instead more dramatic decreased. It seems that the film producers no longer cheer people with ideal and lavish stories but present people with the reality.

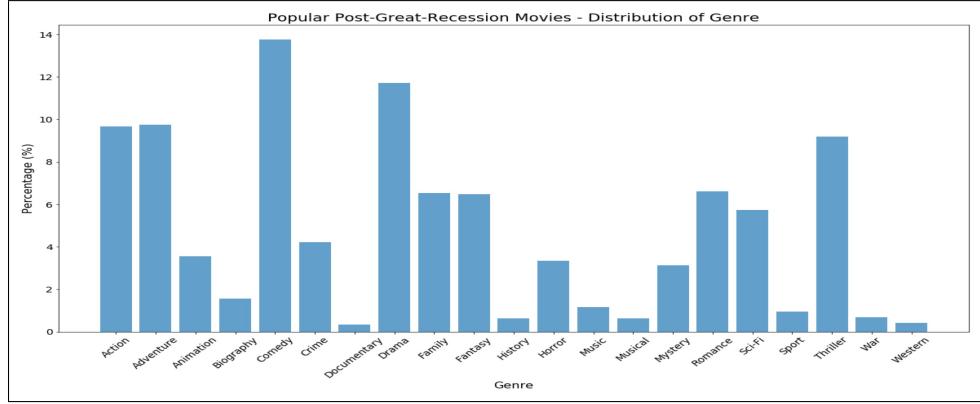
The distribution of genres among popular films in the two periods are also very similar. We can observe that in post-recession period, the percentage of action, adventure, animation, fantasy, and Sci-Fi films increased while the percentage of crime, history, mystery, sport, and thriller films decreased. It seems that although the number of potentially realistic movies increased, people still prefer the movies telling unrealistic and dramatic stories and dodge those films involving negative emotions such as depression, anxiety in thriller and crime films.

**Figure 10:** Distribution of Genre of Popular Films in Pre-Recession Period



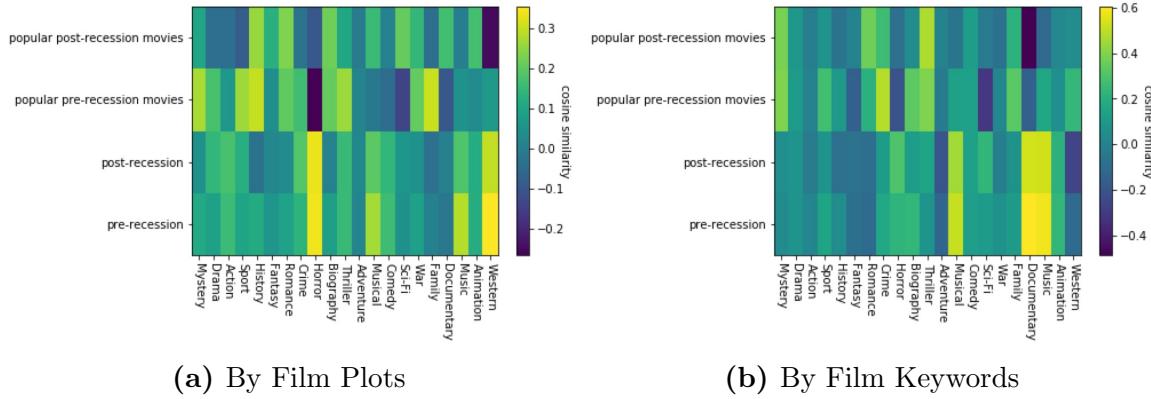
Then we compared all films with each genre shown in Figure 13. We could observe that the semantic similarity of the pre-recession and post-recession films with each genre are quite similar, and post-recession films are slightly less similar to history and biography films, but more similar to sci-fi genres, which might indicate that the post-recession films are actually more unrealistic than pre-recession films.

**Figure 11:** Distribution of Genre of Popular Films in Post-Recession Period



Based on both plot summaries and keywords, popular post-recession films are most similar to mystery, romance, thriller, and family films, which indicates that people prefer unrealistic films during this period. Compared with popular pre-recession films, we can see that sports films are no longer popular, which aligns with our clustering result in Section 4.1.2, while sci-fi films are much more popular.

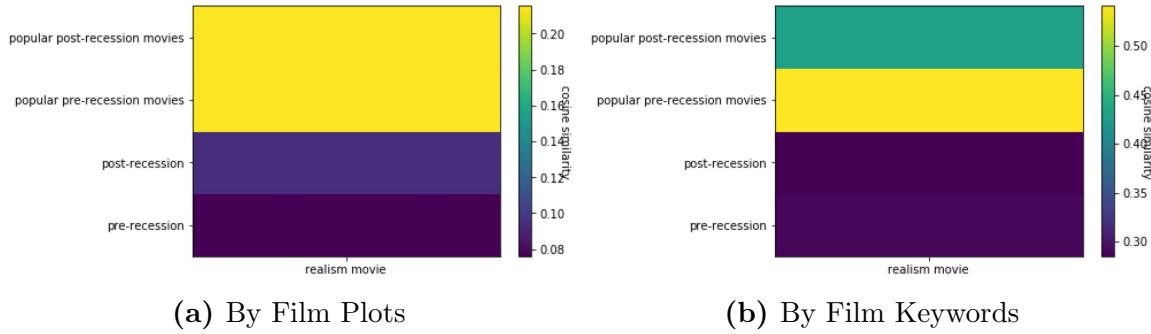
**Figure 12:** Semantic Similarities with Genres



We lastly defined the realism films and compare them with all films in both periods. Here is a list of words we used to identify Realism films: realism, reality, financial crisis, recession, economic-recession, great-recession, economic-crisis, economic-bust, economic-collapse, economic-problem, economic-hardship, economic-recovery, global-economic-crisis-of-2008, depression, great-depression, crisis, hardship, austerity, poverty.

The semantics based on plot summaries presented in 13 shows that the post-recession films tend to be more realistic while the semantic result based on keywords showed that the popular post-recession films are less realistic.

**Figure 13:** Semantic Similarities with Realism Movies



To sum up, our analysis studying the production and consumption of realistic movies in the 2008 Recession period agreed with the findings proposed during the Great Depression period that more films in post-crisis period are realistic. However, generally speaking according to our corpus and semantic similarity, people still prefer less realistic films.

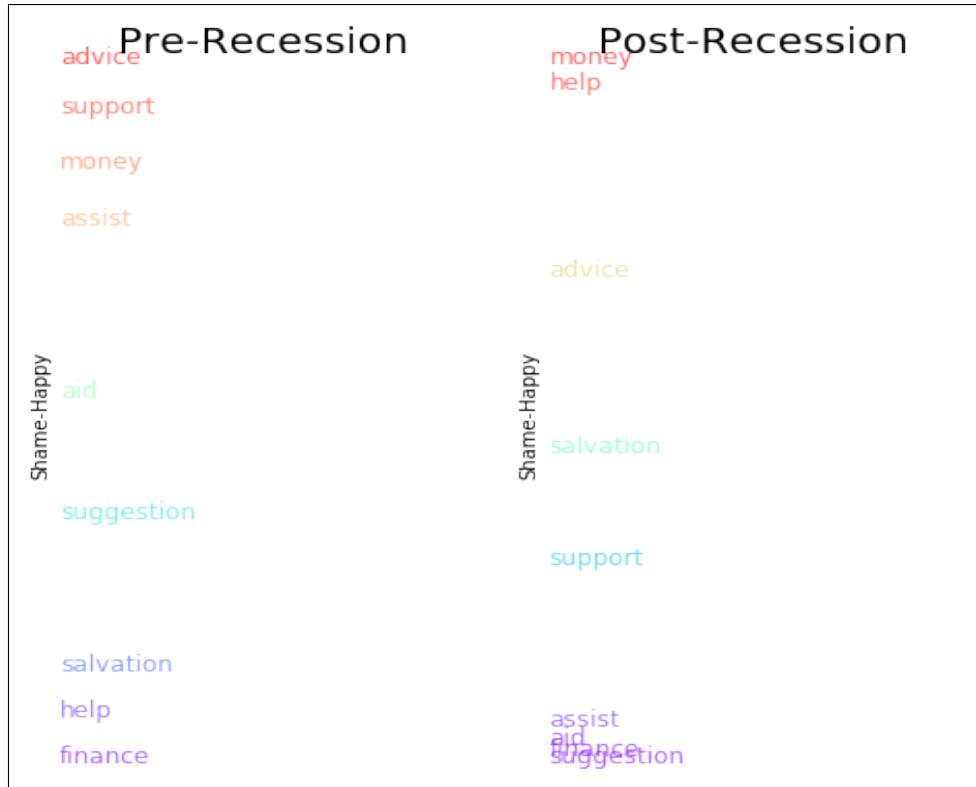
## 4.5 Not my fault

Recall Levine (1985)'s theory that Americans during the Great Depression tended not to blame outside forces for their economic plight, instead, they manifested a “tendency to internalize the responsibility for one's position which often led to feelings of shame”. In order to validate Levine's theory and to assess whether the American people still think it is virtuous to internalize the responsibilities of personal well-being and feel shameful to receive economic aid from outside sources, we decided to use projection techniques to validate the existence of this particular social values during the Great Recession.

In order to train our model, we used words such as, “happy”, “appreciate” , “grateful”, “nice”, “excited”, “great”, “good” as positive sentiment while words such

as “shame”, “humiliated”, “scandal”, “guilty”, “hate”, “stigma” to train the feeling of shame. The projection we obtained is presented in Figure 14.

**Figure 14:** Projection: Sentiment toward receiving help



As we can see in Figure 14, contradictory to Levine (1985)'s theory that the American people tend to internalize the responsibilities of one's own well-being, in modern days, or in the post-recession period, American people's attitude toward receiving monetary aid or help has now become extremely positive.

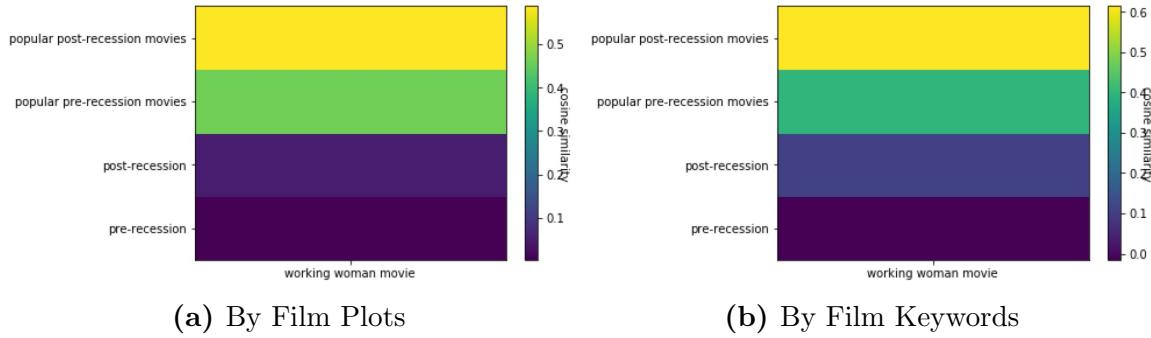
## 4.6 Women got power

The words we used to label films depicting independent working woman are: female-doctor, female-lead, female-boss, female-hero, strong-female, female-judge, female-leader, policewoman, working-woman, career-woman, female-lawyer.

The results given by plot summaries and keywords are quite consistent, which is presented in Figure 15. There are more films depicting independent working women

in post-recession period than in the pre-recession period. People love these films and their preference to these films is more obvious in post-recession period. This again agrees with the findings in the Great Depression period that films in the recession period tend to depict an independent working image for woman.

**Figure 15:** Semantic Similarities of Movies Featuring Independent Working Women



From another perspective, we also tested how business or industry related words project on the scale of gender. In Figure 16, we can see words are very bipolar in the pre-recession period, and then become more evenly distributed along the scale. Noticeably, we could see the most feminine word in post-recession period is Independent, which has proved this theory remains true in the Great Recession period.

## 4.7 Children are the future

In order to validate Eldridge (2017)'s finding during the period of Great Depression that the nation's young were still capable of having fun, despite the spirit testing dilemmas and sacrifices of the Depression decade, we used Word Embedding techniques and try to find what is the best match of the semantic equation presented in Equation 2.

$$Children/Kid + Happy - Parents = ? \quad (2)$$

The words that we get from the equation using pre-recession corpus are a list of positive adjectives such as dramatic, inspirational, amazing, extraordinary/ordinary, modern, exciting, exploring, urban, contemporary. On the other hand, the words

**Figure 16:** Projection: Sentiment toward independent working women



that we get from the equation using post-recession corpus are a list of negative adjectives such as: different, fruition, changed, ordinary, collide, pitch, fortune, skater, misadventure, tough, bargain.

In conclusion, we could safely assume Eldridge (2017)'s finding remains true in the post-recession period.

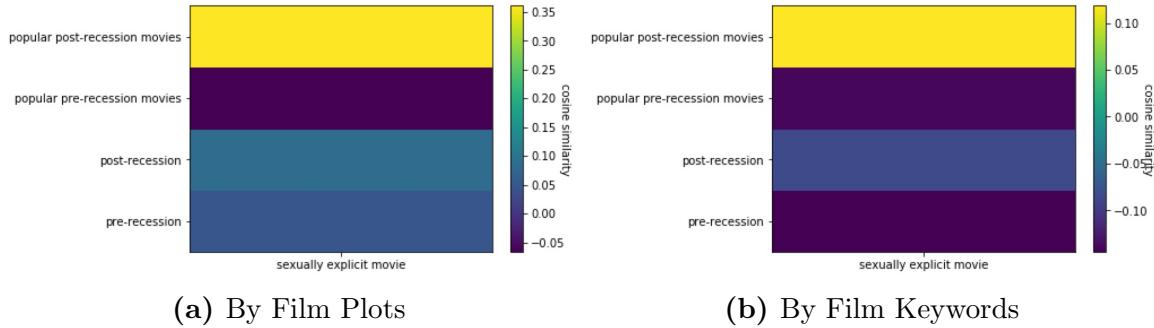
## 4.8 Sexiness

The words we used to identify films with sexually explicit content are: sex, sex-scene, sex-on-couch, sex-in-bed, oral-sex, sex-standing-up, female-nudity, male-nudity, female-frontal-nudity, female-rear-nudity, bdsm, loss-of-virginity, sexual-fantasy, sexuality, passionate-kiss, undressing-someone, bare-chested-male, man-undressing-a-woman, two-in-a-bath, sexual-submissiveness, sex-toy, unsimulated-sex, hand-job, blow-job, sperm, penis, explicit-sex, breast, nipple.

Semantics based on both plot summaries and keywords show that there are not

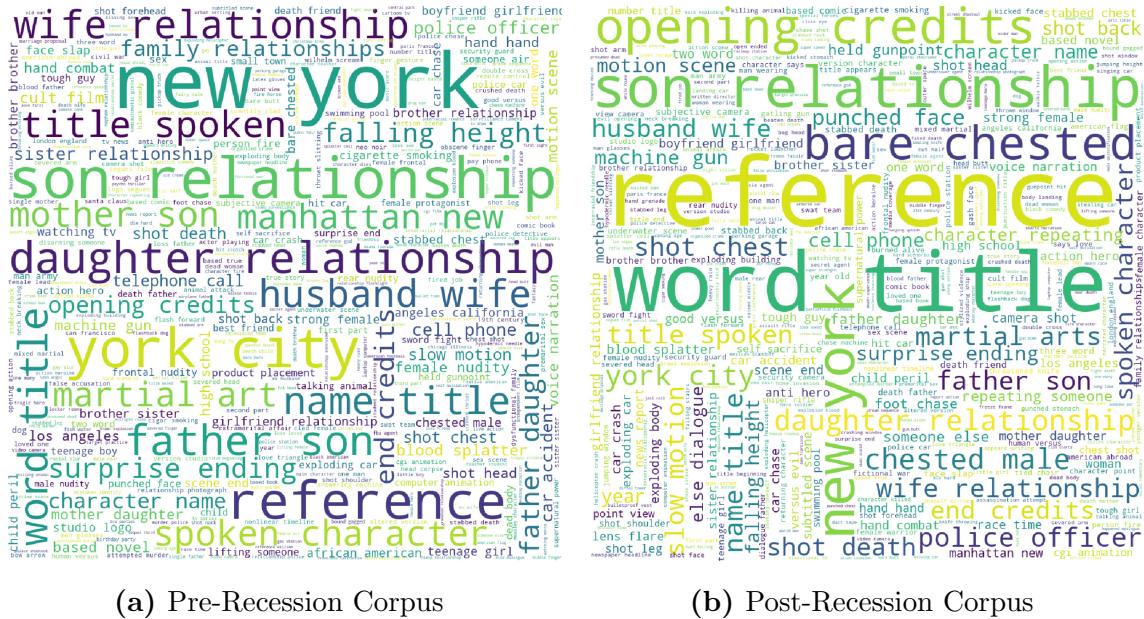
much films with sexually explicit content. However, as it could be seen in Figure 17, we detected an obvious and significant trend that people in post-recession period extremely love these films.

**Figure 17: Semantic Similarities Featuring Sexually Explicit Content**



We also used the methodologies of corpus linguistics to draw the word clouds using keywords of popular films in both periods, which is presented in Figure 18. We can observe that in post-recession period, there appears several keywords related to sex with large size, such as “bare chested”, “cheated male”, “shot chest”, “sex”. All of

**Figure 18: Word Clouds**



these findings agree with the theory during the Great Depression period that people

are more fond of films with sexually explicit content.

## 5 Conclusion

In this study, we have borrowed some findings and theories proposed by scholars who extensively studied the dynamics of the culture industry during the Great Depression period in the 1930s and have attempted to see whether those findings and theories would remain and hold true during the most recent economic downturn.

We explored the semantic space of pre-recession films and post-recession films in the recent economic downturn of the 21st century. Unsurprisingly, we have discovered theories that remain true about the film industry from the Great Depression period and vice versa.

Here is the summary of our major findings and validations: 1). people still love unrealistic “Dream World” films in the post-crisis period while producers choose to produce more realistic films reminding people of the reality; 2). films depicting “independent working woman” would become more popular in post-crisis period by producers; 3). although people still respect and expect individual leadership during crisis, the American people now favor collaborative cooperation to solve challenging problems. 4). film producers are no longer depicting “Dream World” as often as it used to do; 5). the American people’s attitude toward receiving monetary aid or help has now become extremely positive and welcoming; 6). people start to prefer cooperation to individual leader to bring them out of the predicament; and 7) nation’s young are always capable of having fun while all predicaments and dilemmas would be on the shoulders of adults.

Some limitations about our study include the reliability of our data source. In IMDb online film archive, some of the film plots are contributed by online users, and other IMDb website visitors would vote for the best plot summary from their perspectives. Although in our study, we choose to conduct our analysis on the most top-rated plot summary, it would still have great potential to be biased and confounded. Thus in future studies, scholars could consider to analyze actual film scripts instead of only

plot summary as film scripts are not only more detailed but also more comprehensive.

## References

- Christensen, Terry**, “Reel politics: American political movies from Birth of a Nation to Platoon,” *Blackwell*, 1987.
- Cohen, Harvey G.**, *Hollywood and the Great Depression: American Film, Politics and Society in the 1930s*, Edinburgh University Press,
- Eldridge, David**, *Hollywood and the Great Depression: American Film, Politics and Society in the 1930s*, Edinburgh University Press,
- Kohut, Andrew**, “Resurgent public optimism on the economy? Don’t hold your breath,” *Fact Tank*, 2015.
- Levine, Lawrence W.**, “American Culture And The Great Depression,” *Yale Review*, 1985, 74 (2), 196–223.
- Morgan, David**, “Most Americans say U.S. in recession despite data: poll,” *Reuters.com*, 2011.
- Pauly, Thomas H.**, “Gone With the Wind and The Grapes of Wrath as Hollywood Histories of the Depression,” *Journal of Popular Film*, 1974.
- Sklar, Robert**, *Movie-made America: A cultural history of American movies*, Vintage, 2012.
- Smyth, Jennifer**, *Hollywood and the Great Depression: American Film, Politics and Society in the 1930s*, Edinburgh University Press,
- Stokes, Melvyn**, *Hollywood and the Great Depression: American Film, Politics and Society in the 1930s*, Edinburgh University Press,