

Falling Stars: Exports and Income Inequality in Golden Age Hollywood

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Abstract

Trade has been implicated in increasing inequality. This paper uses novel data sources to examine the link between exports and top incomes. These data match individual incomes with the attributes of the firms that paid them, including exports. I focus on the motion picture industry, which has hundreds of very high income earners and significant exports. I document that this industry shows income compression in the 1940s that is shared by executives and non-executives. These changes are driven by falling incomes at the very top. I find that exports and inequality are correlated. The data support theories emphasizing ability to find good ideas driving high pay. Top incomes fell as World War Two restricted access to important foreign markets, which made finding ideas less profitable.

JEL classification:

Keywords: Income inequality, superstars, motion pictures, intangible assets.

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1 Introduction

There is a large literature examining the link between trade and inequality. Most papers examine the degree to which import competition restrain incomes, especially those that lower end of the distribution¹. However, most recent treatments of inequality have emphasized the very top (Saez & Piketty 2003). This paper uses novel data sources to examine the other side of this question: Are exports and top incomes linked? Some have suggested as much, but this vein of the literature is comparatively light on empirical evidence. For example, Keller & Olney (2017) only has industry level data on exports and executive compensation.

This paper examines a data set that links individual incomes with the attributes of the firms that paid them, including measures of their global engagement (exports and foreign direct investment). While there are datasets that link exports and firms and those that link employees pay and firms, there are none (to my knowledge) that link all three. I utilize two new data sources of very high individual salaries covering the 1930s and 1940s. Combined with previously available sources, I have a panel of top incomes covering 1928 to 1951.

I focus on the motion picture industry (MPI). Despite being a small industry in the overall economy, motion pictures were responsible for a large portion of high incomes. There is typically over 200 salaries above \$75,000 in the movie business during the 1930s. Such earnings would place a person in the top 0.01 percent of incomes. Most of these are not executives, so this gives us a large number of very high non-executive incomes. I also have significant firm level data on both exports and foreign direct investment in this industry.

The movie business also looks more like the industries associated with recent trends in inequality, like internet companies. It was a new, dynamic industry where even the largest firms employed relatively few employees, average earners were paid more than the vast majority of workers and the major products are highly scalable intangible assets. Motion pictures represented an enormous leap entertainment productivity, allowing a single performance to reach

¹This literature is large, so a full treatment is impossible. Recent prominent examples include Autor, Dorn & Hanson (2013).

millions of viewers (Bakker 2012).

These data have major advantages over previous work. Even among executives, these data extend beyond the top three earners of publicly traded companies that is available from SEC disclosures. Individuals can be assigned to firms so we can measure income distributions within and across firms. These data also include private firms excluded from SEC disclosure.

These data also cover the period of significant change in inequality. The 1940s were the last time there was a long lasting decline in U.S. inequality, an event that Goldin & Margo (1992) call the Great Compression. The causes of the Great Compression remain an open question in large part due to data constraints, especially at the top end. There are few individual level data from this period as the major sources either top code out top earners—Census and Social Security – or only have aggregated data (Internal Revenue Service). The one major source—Securities and Exchange Commission (SEC) filings—only cover a few salaries of the highest earning officers for publicly traded companies (Frydman & Saks 2010).

Despite being an unusual industry, the MPI follows the trends for the overall economy. The share of the industries labor income earned by the top 0.01 drops in half during the 1940s, which is very similar to the top 0.01 percent share for the overall economy. The decline is driven by changes at the top. Average incomes were unchanged while the very top incomes fell in both real and nominal terms.

These patterns are shared by executives and non-executives. Executives typically had little oversight, with few or no outside directors and weak disclosure requirements while non-executives were subject to restrictive, nearly lifetime contracts. Yet the patterns of inequality are similar. This finding gives support to theories of executive compensation that emphasize non-executive specific factors.

Inequality and global engagement are correlated. I find that top earners are paid more at firms with higher export shares and more foreign affiliates. This correlation holds up controlling for firm size and instrumenting for exports. I further find that trade is correlated with inequality within the firm.

I find support for the idea that executives are highly compensated if they are good at finding projects or ideas (Frydman & Papanikolaou 2016). The highest paid executive was usually the Vice President in charge of production, the executive that selected movie projects and talent, not the President. The returns to ideas in superstar markets depend on the size of the market (Rosen 1981). The MPI is a classic example of a superstar market. Motion pictures allowed actors to entertain millions with a single performance, rather than hundreds (at best) on the stage (Bakker 2012). World War Two and currency restrictions after the war reduced the size of the market for ideas, making finding ideas less profitable. There is less support for stories that emphasize rent extraction, such as Piketty, Saez & Stantcheva (2014). I find that taxes, which reduce the pool of rents, are positively correlated with incomes.

This paper contributes to the literature that examines the changes in income inequality that include historical data. Goldin & Margo (1992) and Kopczuk, Saez & Song (2010) examine Census and Social Security data, respectively. Saez & Piketty (2003) and Alvaredo, Atkinson, Piketty & Saez (2013) examine aggregate tax data. Frydman & Saks (2010) and Frydman & Molloy (2012) look at executive compensation. Philippon & Reshef (2012) analyze the finance industry.

It also contributes to a small literature examining incomes in the motion picture industry during this period. Izquierdo Sanchez & Navarro Paniagua (2017) examine the gender wage gap. Chisholm (2004) and Hanssen & Raskovich (2015) examine actor's contracts. This paper expands the analysis to occupations beyond famous actors and top executives.

2 Data

The data covers firms involved in the production, distribution and exhibition of motion pictures. This definition includes the familiar Big Eight studios² as well as small studios (e.g. Monogram

²The Big Eight are Columbia, Loew's (parent of MGM), Paramount, RKO, 20th Century Fox, United Artists, Universal, and Warner Brothers.

and Republic Pictures), independent production companies (e.g. Walter Wanger Productions) and exhibitors. I exclude manufacturing firms, like Eastman Kodak and RCA, that made equipment and materials purchased by movie companies that are included in some of the sources.

2.1 Sources

The dataset draws from multiple data sources to obtain a panel of motion picture incomes from 1928 to 1951. To my knowledge, two of these sources have never been used in economics before: a National Recovery Administration (NRA) survey of motion picture salaries and Bureau of Internal Revenue (BIR, predecessor to the IRS) reporting of high salaries. I augment these with sources that have been used before: A Federal Trade Commission (FTC) study of large firm executive salaries covering 1928 to 1932 and Securities and Exchange Commission top incomes reporting that began in 1934. The major advantage of the new datasets is that they include non-executive salaries. Below I give background on these data sources, while the Data Appendix provides additional detail.

2.1.1 Bureau of Internal Revenue Data: 1934-1947

The main data source in this paper is drawn from BIR reporting of high salaries. The Revenue Act of 1934 required corporations to include in their tax returns any payments above \$15,000 for labor services. The reports listed the company making the payments, the names of those receiving it and the amount. The threshold was raised beginning with the 1938 tax year to \$75,000. The publicity requirement was terminated in 1949. (See Pomp (1993) for a history of such tax publicity measures.) Data exist for the years 1934 to 1947; there was about a year lag in reporting.

These lists provide a remarkably complete picture of top earners during a period of significant change. Unlike the executive compensation data drawn from SEC reports, the data are not limited to publicly traded companies or to a few top executives. Unlike tax data, it

is not subject to strict privacy controls and reports individual incomes rather than for “tax units”. We can follow individuals by name and do not need to aggregate or transform data to prevent disclosure.

There are limitations. The data only cover labor payments, so those with large incomes from capital holdings are excluded. For example, some very wealthy individuals such as John D. Rockefeller do not appear. Among those that do appear, their total income may be understated both since they may have income that is not covered by the reporting requirement: capital income, non-corporate income and corporate payments below the reporting threshold. They also do not include deductions for business expenses such as agents’ fees.

Concentrating on the motion picture industry mitigates these limitations. Salaries were the primary source for most people included on the list. Even top actors were not paid with equity. Salaries were very high even among the few executives that had significant equity stakes. Only the Warners and Cohns of Warner Brothers and Columbia respectively held equity stakes large enough to make dividend payments rival their labor income. They were still paid very high incomes, enough to be included in the sample in all years. Equity is not a first order form of compensation in the vast majority of cases, similar to other industries of the era (Gordon 1940).

These data need to be pulled together from disparate sources. They were released to the public, but were not released as public report. Initially, these reports were compiled by the Treasury Department and given to Congress where they could be inspected by newspapers. The newspaper would copy the names and print salary lists. Distaste for the requirement that people had to come to the offices of the House Ways and Means Committee led to a change in the 1939 Revenue Act that allowed the Treasury Department to issue the lists as press releases to newspapers, some of which are available³.

Since the reports were not initially published by the government, we are limited by what

³This annoyance can be seen in the headline “Rush to See Salary List Irks Doughton” *Washington Post* October 15, 1937, p. 2. Rep. Robert Lee Doughton was Chairman of the House Ways and Means Committee.

newspapers thought would be interesting. Since it was novel, the early data were exhaustively reported. Newspapers sent stenographers to work late into the night to transcribe the full list. (The *New York Times* devoted 3 full pages simply to report the 1937 list.) Over time, general interest papers scaled back their reporting to the very top - the top ten was reliably reported - and famous people.

The newspaper selection issue is not important for motion pictures since the Hollywood press continued to produce exhaustive lists of movie personnel throughout the period. We have the salaries of mid-level executives and behind the scenes talent that would not likely be known to the general public. (For example, the lists include art and music directors and sales managers, jobs that are unlikely to get one on the cover of *Variety*.) Issues of Hollywood publications that report these data, *Motion Picture Herald* and *Motion Picture Daily*, have been digitized by the Media History Digital Library. A front end application, called Lantern, includes a search feature that makes finding the listings relatively easy. (See Hoyt (2014) for a discussion.) The *Motion Picture Herald* also include information about individuals' occupations, information that is not included in the Treasury press releases.

2.1.2 National Recovery Administration Data: 1933

The second novel data set comes from a study done in support of formulating the National Recovery Administration's motion picture code. President Franklin Roosevelt instructed the NRA administrator of the motion picture code, Sol Rosenblatt, to obtain salary data on all people in the industry who made more than \$150 per week. (Weekly salaries were the industry standard.) The resulting report, Rosenblatt (1934), reported annual pay for 1933 for each such individual. The names and the firms they worked for are not reported. However each person's occupation and their salary's share of firm sales are reported, so we can back out the firm level sales despite not being to be able to identify individuals.

2.1.3 Executive Data

I augment these data sources with two that have been used before. Since the Securities and Exchange Act of 1934, publicly traded companies have been required to give information about the salaries of top earners. These data have been extensively used. These reports are not easily available in the early years, but the Hollywood press would reliably report top salaries of motion picture and related industries from SEC reports. I collect these data up to 1951 since this is when the Media History Digital Library coverage becomes spotty. Frydman & Saks (2010) and Frydman & Molloy (2012) cover the same period I do, but none of the firms in my sample are in theirs. Hollywood studios are too small to be included. Therefore, the data I collect augments their work.

For earlier data, I use a FTC study covering 1928-1932 of companies traded on the New York Stock or Curb Exchanges with assets above \$1 million⁴. The threshold includes all the publicly traded major studios. Only United Artists (UA) was privately held, so we have good coverage of the industry. I use press reports of this study from the *New York Times* and *Motion Picture Herald*. The FTC sample includes all salaries of corporation officers and directors, but the *New York Times* restricts its reporting to those who earned above \$50,000 in at least one year. The *Motion Picture Herald* has more coverage, though the only payments below \$50,000 are generally fees paid to members of the Board of Directors.

2.1.4 Firm Level Data

I use two measures of global engagement: export share and the number of countries with a foreign affiliate. Export share largely comes from archival firm specific sources which report film rentals by foreign and domestic sources. In some cases, public financial disclosures give this breakdown. While there is good coverage of the industry (all but Columbia of the Big Eight are represented), observations in the early part of the sample are sparser than at the end. (The data appendix gives the coverage and sources.) These data also slightly understate

⁴These data have been used in the past by Baker (1938) and Baker (1939*a*) and recently by Mas (2016).

exports since Canada was treated as a domestic market. Canada was a small market, so the quantitative impact is minor.

I also use the number of countries with a foreign affiliate from Bridgman (2017). These data only go up to 1935. Once the network of affiliates were built out in the 1920s, there is little annual change in affiliates. Therefore, the early sample numbers are good indicators of a firm's international presence.

I augment the salary data with typical firm and industry data. Firm level financial data from annual reports is collected in the 1951 edition of the *Film Daily Year Book*. UA was privately held so I obtain UA financial data from their corporate archive housed at the Wisconsin Historical Society. For industry level data, I use the BEA Industry Accounts.

2.2 Dataset Description

Combining the four data sources in a single dataset is straight forward. In three of the sources, both individuals and the firms making the payment are identified so records can be linked by name across the sources. In the NRA data, individuals are not identified but the source links them to firm attributes. For exercises that require identifying firms or individuals, we only lose one year (1933) by dropping these data.

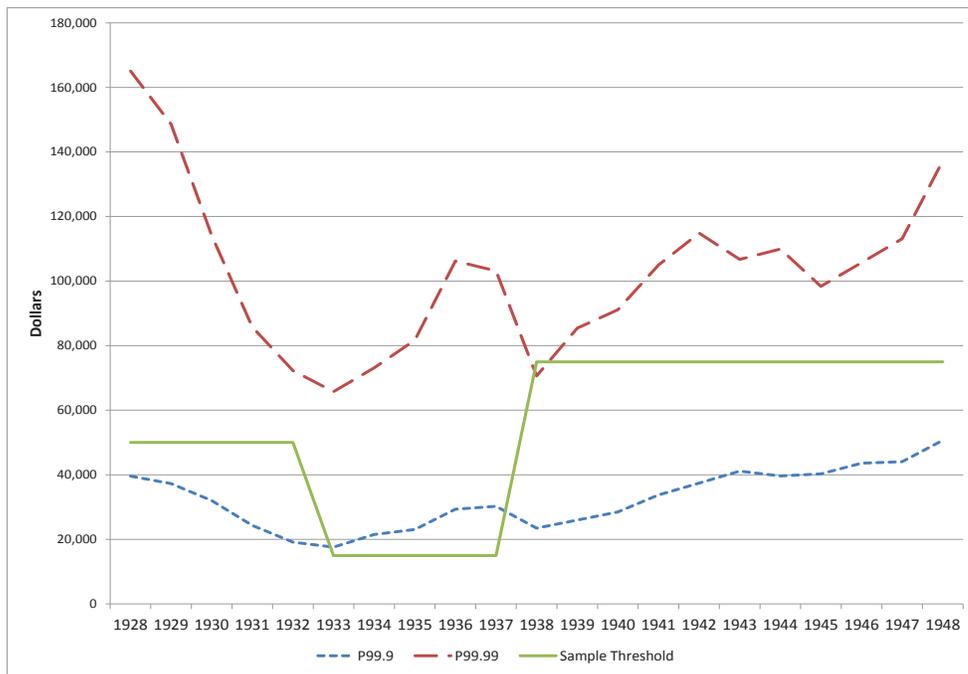
A more difficult issue is that the thresholds for inclusion change over time. The NRA data is \$150 per week. The BIR data starts at \$15,000 and is raised to \$75,000. The SEC data report the top few salaries. All these thresholds are in nominal terms during a period when prices change significantly.

I restrict the baseline analysis to a sub-sample to prevent the analysis from being driven by these shifts. I restrict the baseline sample to nominal wages above \$75,000, the highest threshold in the sample. To further reduce the impact of the nominal thresholds, I will often restrict the analysis to the very top where these thresholds do not bind.

Salaries in the dataset are among the very top at the time. Figure 1 shows the sample threshold in comparison to the top 0.1 and 0.01 percent nominal thresholds from Saez & Piketty

(2003). (I use \$50,000 for the FTC data since that was the threshold of reporting the *New York Times*.) Even the lowest threshold of \$15,000 dollars is well within the top 1 percent of earners. Thus the sample covers extraordinarily high labor incomes.

Figure 1: Sample and Top Income Thresholds



The sample includes the period (late 1930s and early 1940s) that remains the high water mark for the industry. This “Golden Age” was the period after sound was introduced and before widespread ownership of televisions. Movie tickets were the largest purchased leisure activity in the United States (Costa 1997). American films dominated most foreign markets, even in major producing countries like the UK (Sedgwick & Pokorny 2010).

By most measures the industry was small. The entire industry (including employees of

movie theaters) employed fewer than 200,000 people during the 1930s, not much more than the number employed at the Ford River Rouge Plant⁵. The portion that produced movies was a small fraction of that, about 20,000. Even with high earnings per person, it was only the 14th largest industry by sales in 1937 (Rosten 1941).

Despite its small size, motion pictures had a large share of very high income individuals. Within the BIR sample, the motion picture industry is always over-represented. Its employees make up a major portion of the top ten in every year. In most years, the highest earner is associated with the industry. By the 1940s, this industry makes up over half the top ten earners and a quarter of all earners in the sample.

Even with the extraordinarily high \$75,000 threshold, there are only fewer than 100 observations in one year BIR or NRA data are available (1934, the year missing three companies). Most years have more than 200. (The number of observations and other summary information are reported in the Data Appendix.) In 1933, a disastrous year for both the U.S. economy and movie industry, 111 people made more than \$75,000 and 712 made at least \$15,000.

Just as the Big Eight studios dominated the industry during this period, they dominate the data. The vast majority of observations come from these studios, though high incomes can be found among exhibitors and small production companies.

2.2.1 Data Quality

A concern with a new data source is how accurate they are. While the data are not perfect, they provide a nearly complete coverage of the highest incomes in most years. They are a significant improvement over any other sources for this time period.

The underlying data source is high quality. All the sources come from mandatory government collections. The BIR data was generated from income tax filings, where misreporting was subject to legal sanction. Reporting is generally complete and SEC reports can be used to fill most holes. Therefore, the coverage of executives and the very top incomes is nearly com-

⁵BEA industry data and <http://www.umich.edu/~econdev/riverrouge/>

plete. The Data Appendix reports the coverage of these two sources from 1934 to 1951. The only years with relatively poor reporting are 1934 and 1938. Since the reporting requirements were new, some companies never reported 1934 data or withheld it while they disputed the legality of publicizing incomes. The legality was upheld quickly, but we do not have BIR data for Warner Brothers, Loew's and Universal. Universal was a minor company at that point, but the other two were major studios. Loew's filed for a stock offering in 1935, so disclosed a number of executive salaries for 1934. We have no 1934 information on WB or Universal. There is no 1934 salary data for these companies in the Survey of American Listed Corporations (1939), indicating it is not available from government sources. 1938 marked the increase in the reporting threshold, so several companies do no report to the BIR. However, SEC data can be used to fill in the top earners.

The BIR data have good coverage for most other years. Only RKO and UA have spotty coverage during World War Two and their exclusion is unlikely to be material in most of the analysis. They had few employees that qualify for inclusion in the dataset. UA was only a distributor, so did not have any artistic staff. Only one or two relatively low paid executives were included when they did report. Since they were privately held, we cannot use SEC reports to fill gaps. RKO had largely given up star driven films in the 1940s, so employed few high income players. There are only 11 entries in 1941, the last year RKO appears in the BIR data. At least two of the top salaries, Orson Welles and Ginger Rogers, left the studio in 1942.

Since we do not have access to the actual tax returns, but only press reports, there may be error from the process of transferring the tax information to the press. Newspapers may have transcription or printing errors. We generally have multiple reports, particularly for the highest incomes, so we can check for consistency. I do not find inconsistencies. Once the Treasury began to issue press releases for the 1938 data, the reports are uniform across media outlets. I have obtained the Treasury press releases for a couple years to check the newspaper listings⁶. Major errors were quickly picked up and corrected in the press. For example, Writer's

⁶I currently have releases for 1940 (covering 1938), 1943 (covering 1941) and 1946 (covering 1944). I thank

Guild attorney Sidney Fleisher was incorrectly listed as a top ten income in the country in 1942. The payments reflected royalties to multiple screenwriters that the union administered. This issue was quickly caught by the movie press and I delete that entry.

2.2.2 Executive vs Non-executives

I code individuals into executives and non-executives. The SEC and FTC data generally cover executives only⁷. To compare like employees for the longer time series that incorporates all four data sources, we need to identify who the executives are in the NRA and BIR data.

I also wish to investigate the importance of identifying ideas in compensation, as in Frydman & Papanikolaou (2016). Therefore, the principal for dividing executives from non-executives is whether the occupation was primarily engaged in artistic production or not. Non-executives work on creating potential projects and bringing selected projects to completion. While most non-executives are the expected occupations - actor, director, producer and screenwriter - there are less prominent occupations such as music and dance directors. Executives include occupations like president, vice president, supervisor, and district manager. Some managerial occupations, like treasurer and sales manager, that do not directly select projects but support that process. Below, I will investigate managerial occupations in more detail through the lens of idea selection.

For most individuals, assigning executive status is unambiguous. Jack Warner, a founding vice-president of Warner Brothers, is coded as an executive. Myrna Loy, an actress, is coded as a non-executive. Things are more ambiguous with dividing production executives, who selected what films were produced, and producers, who were responsible for getting those films made (assembling talent, overseeing schedules). I use the *Film Daily Year Book* listings of studio staff to distinguish between the two. If an individual is listed as having a supervisory

Matt McCormick for his assistance.

⁷The FTC data specified only executives. The SEC requirement was the top three regardless of occupation. Some movie studios had non-executives in their top three.

title (production supervisor, head of production), I code them as an executive. If they are not listed in the studio staff or are listed as a “producer” only, I code them as a non-executive.

Another source of ambiguity is the personal production companies that prominent stars set up. For example, actor Jimmy Cagney received payments from Cagney Productions as its president. I code these as non-executives under the assumption that these payments largely reflect the returns for appearing in or producing movies rather than managing the company.

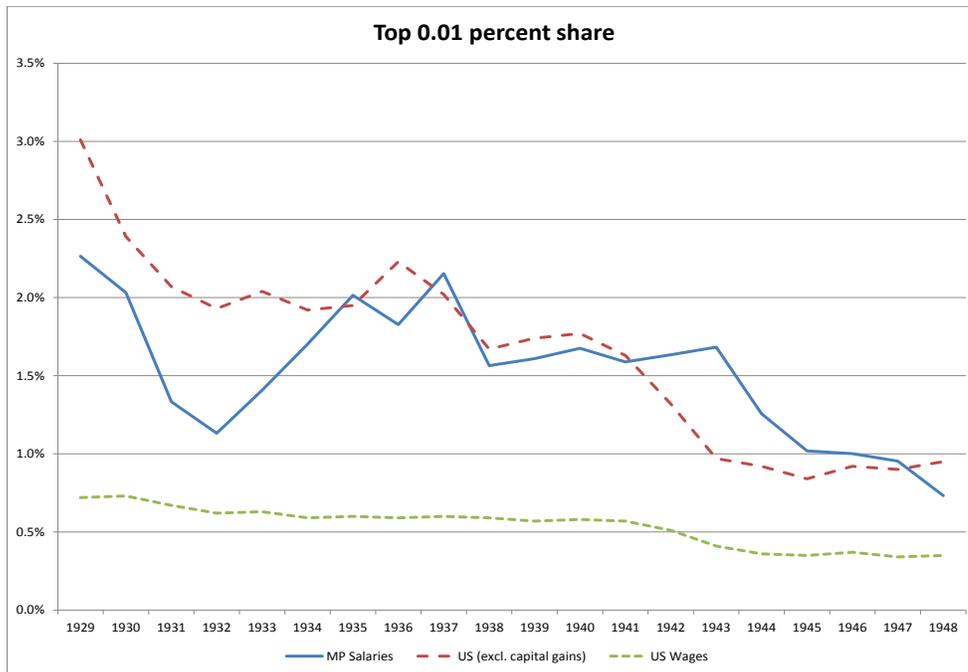
3 Inequality in Motion Picture Industry

In this section, I compare MPI inequality trends with those of the aggregate economy. Despite its obvious uniqueness, the MPI follows the aggregate trends in inequality. Inequality shows two distinct declines in both the MPI and aggregate data; one in the early 1930s and one in the early 1940s. This suggests that common forces led to these declines. I then examine changes in the underlying distribution of MPI incomes to understand how inequality fell. The upper tail of incomes fell back to the pack. Further, the distribution of real incomes shifted down as nominal incomes did not keep up with inflation. I then divide the data into executives and non-executives, and find that these patterns are similar across occupations.

I begin by looking at the share of industry incomes that goes to the very top earners: the top 0.1 and 0.01 percent. I begin with the 0.01 percent. Since it requires the fewest observations, I can calculate this share for most of the sample (1929-1947). Figure 2 compare this series to the aggregate U.S. wage share held by the top 0.01 percent from Saez & Piketty (2003).

The MPI is more concentrated than aggregate economy, with a 0.01 share of 1.5 percent during the 1930s versus 0.5 percent for the aggregate economy. This holds despite the high average wages in the industry: It paid about \$23,000 a year (in 2009 dollars) during the 1930s compared to \$15,000 in private business. MPI shares look more like the U.S. shares that include capital income, series “US (excl. capital gains)” in Figure 2. As we will see below, many of

Figure 2: Income Share of Top 0.01 Percent, 1929-1948

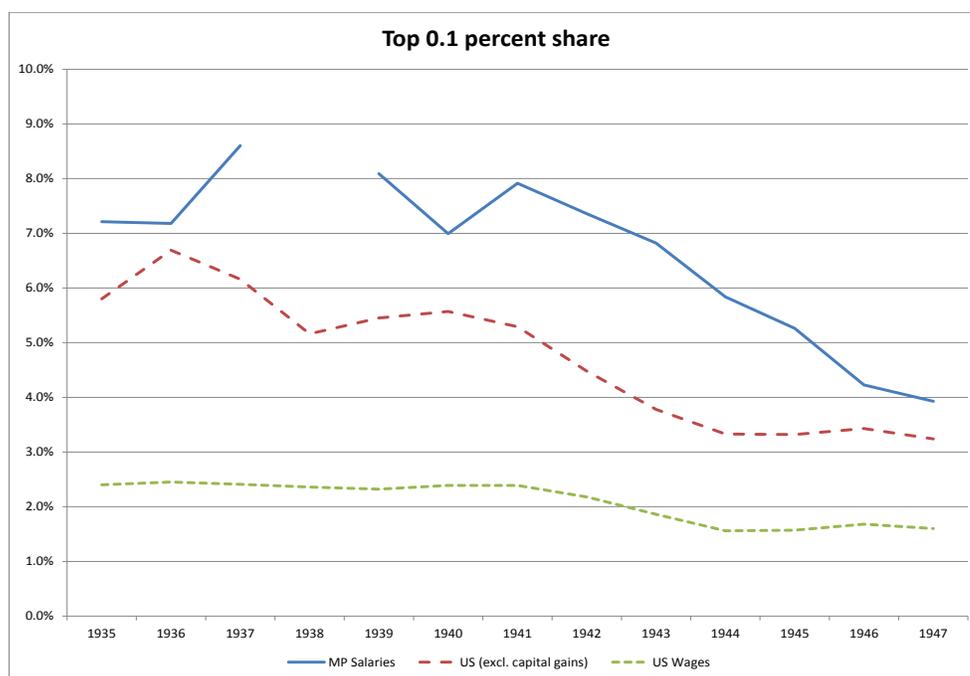


the very top earners' labor incomes were directly tied to firm performance, so acted more like a dividend rather than a payment for labor services. Therefore, the series that includes capital payments may be an apt comparison.

The time series of MPI top incomes generally follows the aggregate economy. There is a decline with onset of the Great Depression and in the early 1940s. However, there are two deviations. The MPI share recovers much, though not all, of the losses in the early Depression years while the overall economy shows no such recovery. The 1940s decline occurs two years later than the aggregate economy, but is of the same magnitude as the total income share.

I repeat this analysis with the top 0.1 percent of earners. The sample is shorter (1935-

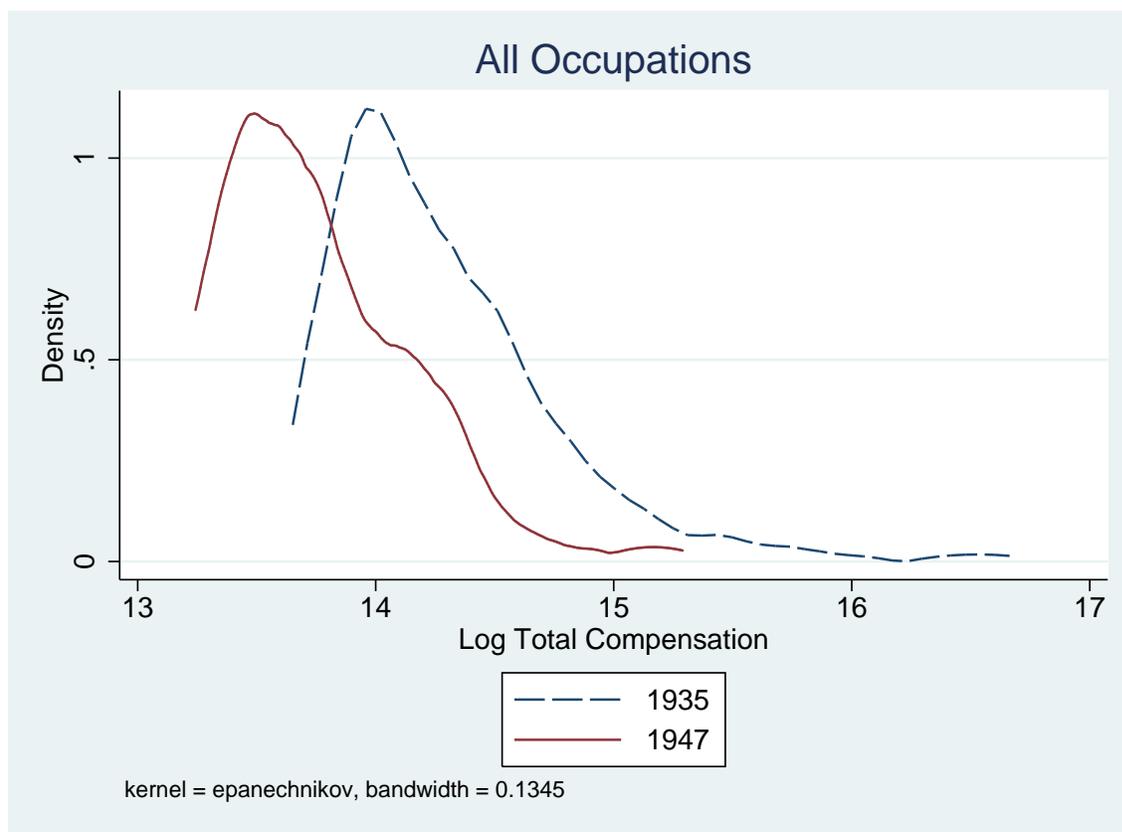
Figure 3: Income Share of Top 0.1 Percent, 1935-1947



1947) since I only have the required number of observations for the BIR sample years. (Recall the 1934 data are incomplete. For that reason, I also omit 1938.) Like the top 0.01 percent figure, the MPI is more concentrated than the aggregate economy. The time series also follows rather closely. The early 1940s decline begins at the same time for all series (1941), though the MPI decline is more gradual. (The shorter sample means we no longer have the early 1930s.)

Overall, the MPI tracks the aggregate movements, which indicates that this industry is a reasonable laboratory to examine overall changes in inequality. In the rest of this section, I use the fine detail in top earners to examine how the income distribution changed in this industry. This analysis helps evaluate which theories are best able to explain the Great Compression.

Figure 4: Kernel Density of Industry Incomes, 1935 and 1947

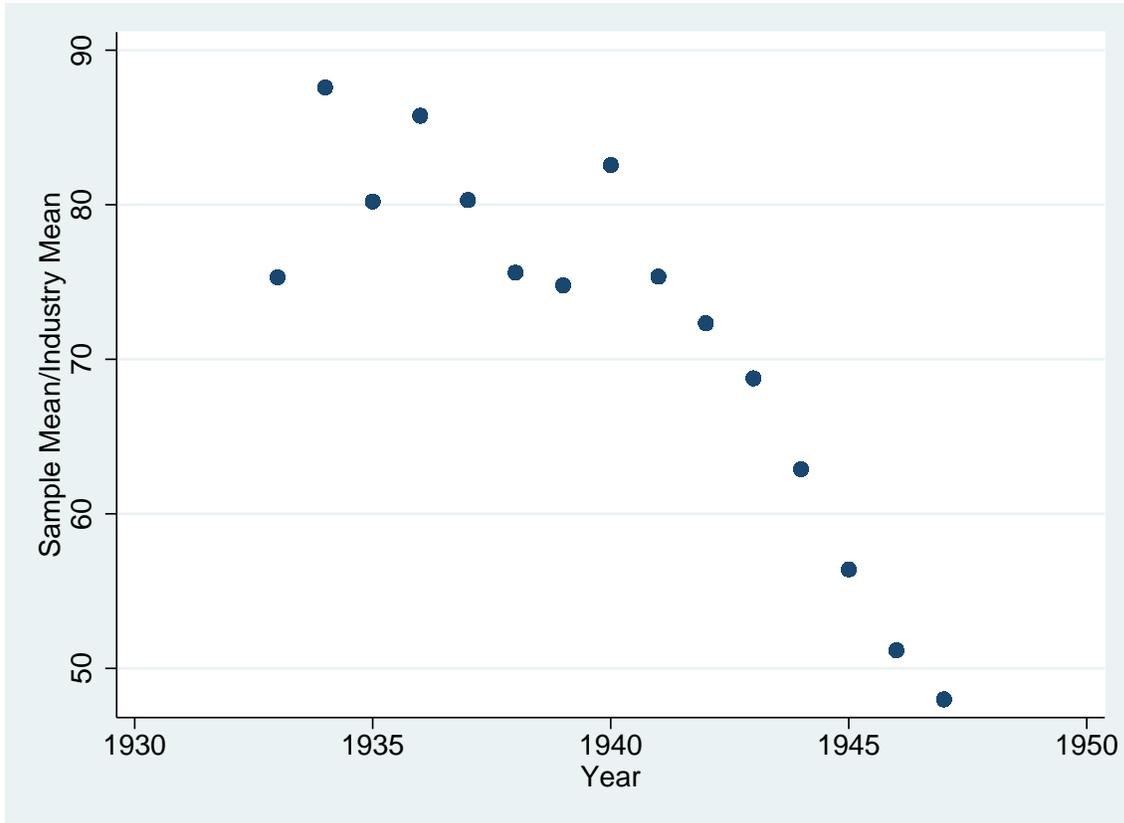


To see how the top of the distribution changes, Figure 4 reports the kernel densities for 1935 and 1947, the first and last years of nearly complete BIR data. (Recall the 1934 data are incomplete). The top tail is also much shorter in 1947, as the very top incomes fall closer to the pack. This decline is not simply due to inflation. Nominal incomes for the very top fall during the 1940s. This finding fits with the declining share of top earners in overall income.

The kernel densities also reveal an additional force reducing inequality. The distribution shifts in, as salaries do not keep pace with inflation. Recall that this distribution is only the very top of the industry. Overall real average annual income in the industry is flat during this period. Therefore, it is not just the very top of the distribution that is falling back to the rest

of the industry. The salaries of the all the actors and executives that are in the sample are getting closer to the typical worker's income.

Figure 5: Ratio of Sample to Industry Mean Annual Income, 1933-1947



A way to see this change is to examine the ratio of top earners to the average annual income of workers in the motion picture industry. As reported in Figure 5, shows the ratio of the average of earnings in the sample over the industry average. It is enormous with the average individual in the sample (not just company presidents or top stars) making 80 to 90 times the average annual income in the 1930s. This ratio falls to 50 over the 1940s. Again, these movements are largely driven by the top since average annual income for all workers does not change much over the period.

3.1 Executives and Non-Executives

I now break out the data by executive and non-executive occupations. The labor markets for these occupations were very different. Executives were much less constrained in negotiating their salaries compared to artistic talent. The motion picture industry was very young, so top executives were often founders with significant voting rights (e.g. the three Warner brothers). Boards had few (sometimes zero) outside directors, so there were few voices imposing external discipline on executives. Studios were frequently criticized and sued for inside dealing and excessive executive salaries by outsider shareholders⁸.

This distinction also allows us to compare movie executives to findings on executives in the literature. Most individual level work on top incomes for this period, such as Frydman & Molloy (2012), concentrates on executives due to data constraints.

In contrast, artistic talent was typically bound by long-term contracts that gave the studio control over what projects they were to work on. They were usually signed early in an artist's career, when they had little bargaining power. Until the *de Havilland* ruling in 1944, studios could manipulate contracts so that they were de facto binding for life (Hanssen & Raskovich 2015). Most artists were signed to stock contracts where pay would increase at a set schedule. If the artist became very popular, the studio would collect large rents. If not, he or she could be released. The very top stars were able to demand new contracts, but bargaining clearly favored the studios.

The aggregate movements are seen in both executives and non-executives. Figure 7 reports the mean real income for all executive salaries and those of the top 10 salaries. Figure 6 reports them for non-executives. In both cases, top incomes fall during the 1940s. The timing is slightly different, with top executive salaries falling toward the end of World War Two and non-executives in the beginning. The similarity in these patterns is notable given the very

⁸For example, shareholders sued (unsuccessfully) Columbia Pictures in 1940 for excessive salaries (Davis v. Cohn, 23 N.Y.S.2d 104). Lawsuits and attempts at salary regulation did not (directly) constrain executive incomes since an operable definition of excessive pay could not be settled on (Wells 2010).

Figure 6: Average Non-Executive Income, Top 10 and Sample

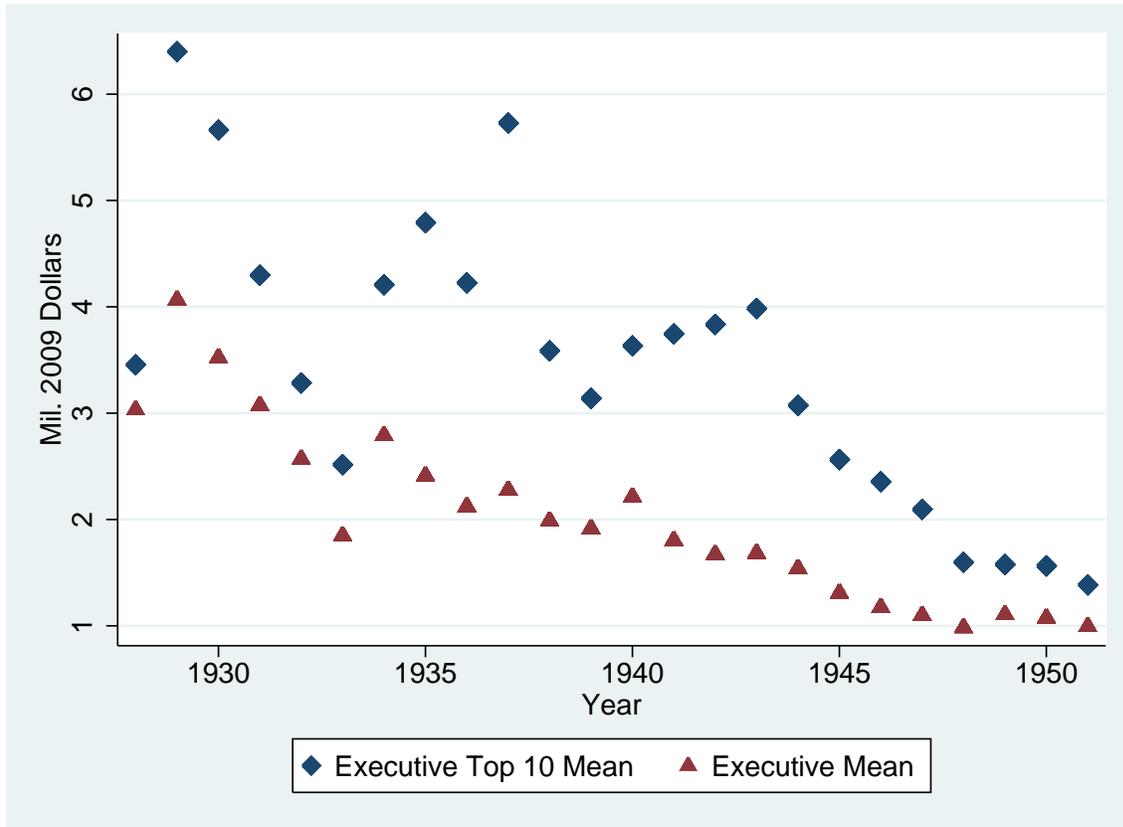


different labor market institutions across the types of occupations. This suggests a common shock to the industry is responsible rather than an executive specific explanation such as greater regulation of executives by the SEC.

The executive data provide a longer time series than the non-executives. Executive pay follows the aggregate pattern. U.S. income inequality rises in the late 1920s, falls with the onset of the Great Depression and falls again in the 1940s (Saez & Piketty 2003). Motion pictures were slower to be hit by the Depression. Sound films were introduced in 1927, so demand remained strong for longer than for other industries.

I also do this exercise for the kernel densities. Figures 8 and 9 report the kernel densities

Figure 7: Average Executive Income, Top 10 and Sample

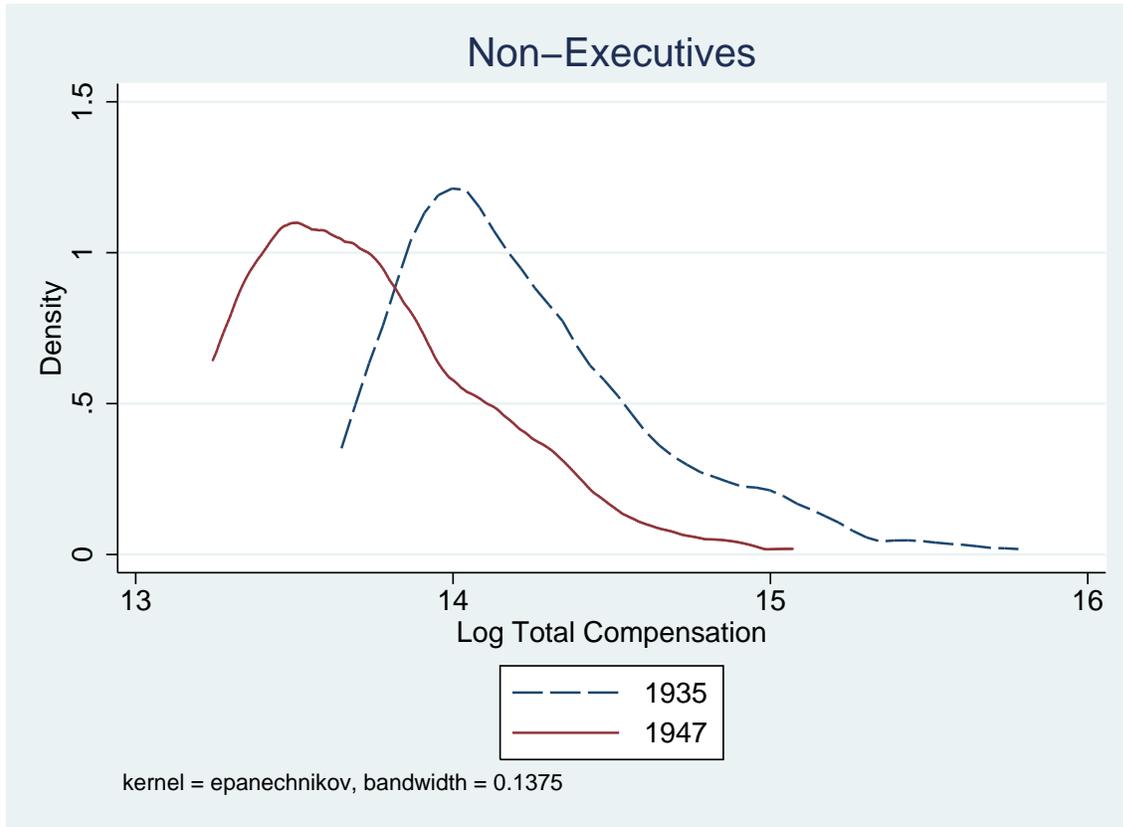


by occupation type. Both executives and non-executives show the aggregate trends, but they are more pronounced for executives. The right tail shrinks more radically for executives.

4 Inequality and Global Markets

Since we have documented a change in top incomes, a natural question is what determines compensation? I examine the role in foreign trade in inequality. The motion picture was a major exporter during during the sample period. The sample period is also a time of significant changes in access to foreign markets.

Figure 8: Kernel Density of Industry Incomes, 1935 and 1947

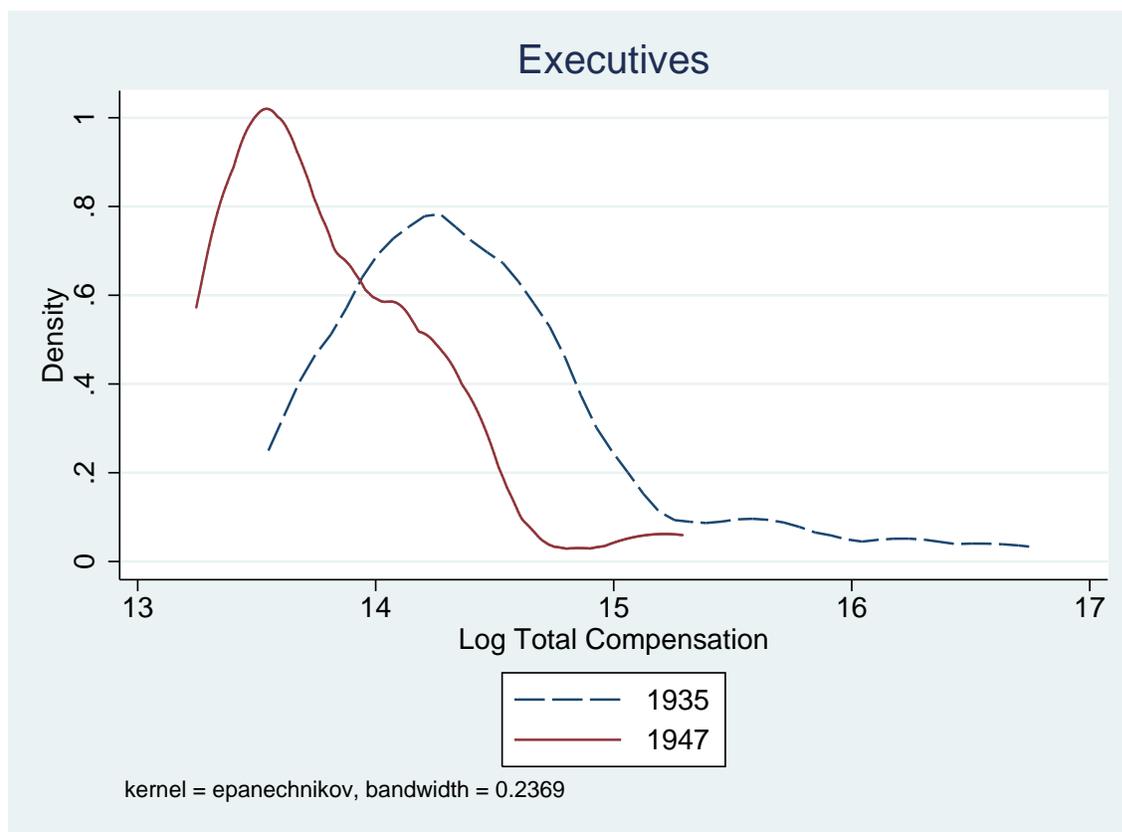


At the industry level, exports and inequality are correlated. Figure 10 compares the MPI top 0.01 percent income share with the share of movie grosses that were earned overseas for the four major studios for which we have data series that span the period⁹. The movements of the two series are similar. Both increase as overseas markets recover after the onset of the Depression and fall as the impact of World War Two restricted access to European and Asian markets.

This section begins by examining the impact of trade on individual high incomes. I find that more globally engaged firms pay higher salaries to their top earners. I then examine

⁹The studios are MGM, Warner Brothers, United Artists, and RKO. See the appendix for sources.

Figure 9: Kernel Density of Industry Incomes, 1935 and 1947

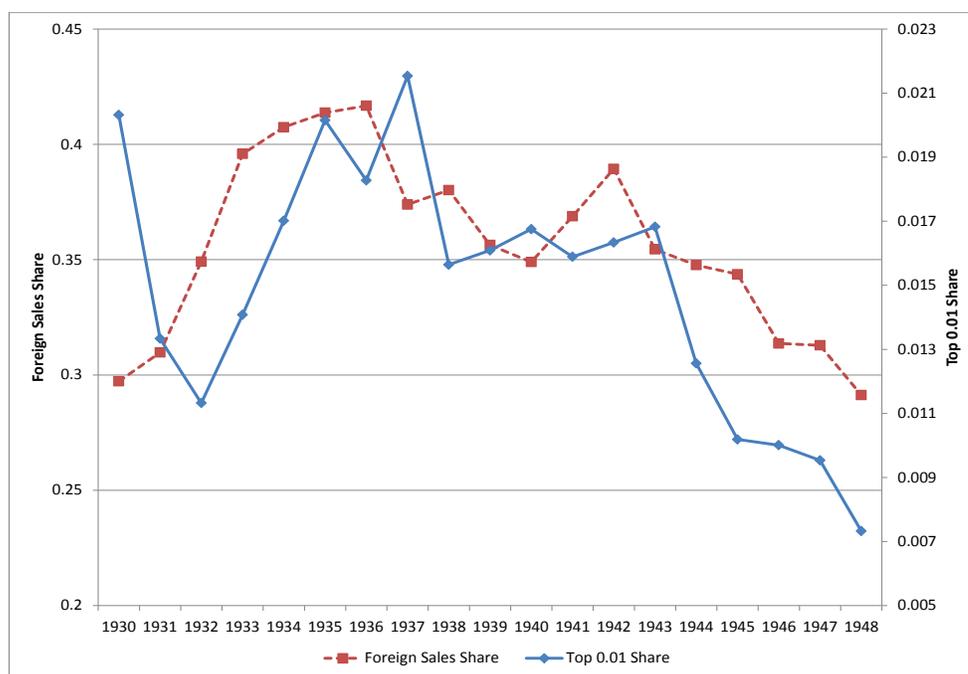


the impact of trade on firm inequality. I conclude by looking at what the data can tell us about what causes this correlation. I find support for the theory that access to more markets increases the returns to ideas, causing those able to identify ideas to be paid more. I find less support for theories that emphasize rent extraction.

4.1 Exports and Individual Incomes

As seen above, changes in MPI inequality are due mostly to movements in the very top incomes. Since we have salary payments linked to the firm that made it, we can directly analyze the

Figure 10: MPI Foreign Sales Share vs. Inequality, 1930-1948



degree to which the firm’s global engagement is correlated with top incomes. This sample is restricted compared to the above analysis since I only have the required data for the larger studios: the Big Eight plus the minors Monogram and Republic.

I examine the correlation of log total compensation with the two measures of global engagement discussed above: export share and the number of countries with a foreign affiliate. I control for measures of size and profitability. I use log gross income of the firm and profit rate. Profit rate is calculated as net income over gross income. Table 1 reports the results of compensation regressions¹⁰.

¹⁰I cluster errors at the firm level and use year fixed effects.

Table 1: Compensation Trade Regressions, 1935-1947

	(1)	(2)	(3)	(4)	(5)	(6)
Variable	Full	Exec	Non-Exec	Full	Exec	Non-Exec
Log Gross Sales	0.0581** (0.0255)	0.193*** (0.0463)	-0.0440 (0.0314)	0.0473*** (0.0181)	0.111*** (0.0336)	-0.00240 (0.0217)
Profit Rate	0.533 (0.398)	1.225 (0.927)	0.473 (0.425)	-0.180 (0.313)	-0.114 (0.702)	-0.286 (0.342)
Executive	0.164*** (0.0247)			0.132*** (0.0201)		
Export Share	1.313*** (0.366)	2.768*** (0.745)	0.324 (0.421)			
For. Offices 1929				0.00333*** (0.000834)	0.00727*** (0.00176)	0.00199** (0.000929)
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
N	1,595	423	1,172	2,305	590	1,715
Adj.- R^2	0.23	0.26	0.23	0.21	0.25	0.21

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

As seen in column (1), export share is correlated with compensation. Breaking the sample out by executives and non-executives (columns 2 and 3) shows a stronger relationship for executives. While the coefficient on exports is significant at the 1 percent level for executives, it is not significant for non-executives. In fact, no firm attribute is significant for non-executives.

I find similar results using the number of countries with affiliates in 1929 (columns 4-6). The only difference is that the coefficient on foreign presence is significant at the 5 percent level for non-executives. This may reflect the larger sample size for the offices indicator giving more precise estimates.

Executive contracts often explicitly linked pay to firm outcomes. Bonus plans, where

top executives were given large bonuses based on profits, were popular in the 1920s. The motion picture industry had many such contracts. As part of Loew's acquisition of Mayer Pictures which formed Metro-Goldwyn-Mayer, three founding Mayer executives (including namesake Louis B. Mayer) were contractually given 20 percent of Loew's net profits. These bonuses were expanded to additional Loew's executives over time and generated enormous bonuses that made Loew's executives among the richest men in America. Louis B. Mayer was the highest paid person in the BIR sample in most years. The 1935 Annual Report for United Artists reports that President Al Lichtman's contract granted him 5 percent of worldwide net profits in addition to his weekly salary. Such contracts were common in the industry. They acted in a similar way to stock grants, but with the payments being recorded as labor income rather than dividends.

Most non-executives did not get a bonus that depended on performance. Pay for some artistic staff could be linked directly to the profitability of the projects they worked on. For example, Leo McCarey was paid over \$3 million (2009) dollars in 1945 since he participated in the earnings of his hit film "Going My Way," enough to put him in the top 10 earners that year and make him the highest paid Paramount employee that year¹¹. Studios had many projects during the year (20 to 60 feature releases, depending on the studio) so the overall profitability of the firm was not important to an individual producer or director's income.

The 1940s saw the removal or capping of many bonus plans. Louis B. Mayer's bonus was capped at \$500,000 in 1945, which was binding¹². He had made over \$700,000 in 1944. The use of bonus plans, which were common in the 1920s, declined in many other industries during the 1930s (Baker 1939*b*).

¹¹This case was unusual. McCarey, an established but not a major director, traded his usual salary for participation in earnings to get the film made. He served as writer, producer and director. It won the Academy Award for Best Picture and was a major hit on a modest budget. *Motion Picture Herald*, September 2, 1944, p. 29.

¹²*Showmen's Trade Review*, April 22, 1944.

4.2 Exports and Firm Inequality

Several papers have attributed an important role for interfirm inequality for the recent increase in overall inequality (Barth, Bryson, Davis & Freeman 2016, Song, Price, Guvenen, Bloom & von Wachter 2016, Mueller, Ouimet & Simintzi 2017, Autor, Dorn, Katz, Patterson & Reenen. 2016). The small literature on firm level inequality during the Great Compression finds a small role for firm attributes, but the data for this period has been quite limited.

To examine the role of the firm in inequality, I examine the correlation of intrafirm inequality with the measures of global engagement. I use measure inequality as the coefficient of variation within the sample. As reported in Table 2, export share is correlated with firm inequality but the number of foreign affiliates is not. This is consistent with the previous results that exports are only correlated executive incomes while affiliate count is correlated with all incomes.

Table 2: Firm Coefficient of Variation Regressions, 1935-47

Variable	(1)	(2)
Log Gross Sales	0.00965*** (0.00278)	0.00944*** (0.00314)
Profit Rate	0.0282 (0.0428)	0.0365 (0.0233)
Export Share	0.110*** (0.0373)	
For. Offices 1929		-5.26e-05 (0.000218)
Year FE	Yes	Yes
N	55	90
Adj.- R^2	0.42	0.23

4.3 Global Market for Ideas

Why are top incomes and exports linked? The evidence supports theory that emphasizes the importance of market size on the return to ideas. The data indicate that executives that were engaged in finding and implementing ideas were highly paid, the channel suggested by Frydman & Papanikolaou (2016). Typically, the highest paid executive was the vice-president in charge of production. Executives that were nominally the highest in the hierarchy, presidents or chairmen, were paid less unless they also held the production job, like Columbia's Jack Cohn. In the second and third regressions in Table 1, I divide the sample into executive and non-executive. The findings hold for the executive only sample, but not the non-executive sample.

The foreign share in the postwar years may overstate the extent of the market, since many foreign earnings could not be repatriated due to significant currency controls in most major markets. The enormous UK market restricted convertibility of film rentals during the war and imposed a ban as well as a 75 percent tax on film earnings in 1947, which had a major impact on studio earnings (Bank of England 1967). Convertibility problems affected other large markets, like Indonesia and Australia. Blocked funds were worth less to U.S. studios since they would only be used in those markets. Studios generally had few expenses overseas, so convertibility constraints were binding.

As further evidence, Hollywood's overseas expansion during the 1920s is also correlated with rising MPI incomes. In 1920, no U.S. studio had an overseas office. By 1929, only RKO had affiliates in fewer than 29 countries. About a third of major studio earnings came from overseas (Miskell 2009, Sedgwick & Pokorny 2010). RKO was still in 14 countries, including huge markets like the UK (Bridgman 2017). In the early 1920s, when the U.S. studios were beginning to expand into foreign markets, there were few very highly paid film stars. Marcin (2014) finds few entertainers in his sample of very high incomes in 1924. Unlike in this paper's sample, where top incomes are filled with MPI employees, Hollywood is sparsely represented by only the very top stars and executives in the mid-1920s. Marcin (2014) notes that even top stars made about as much as a successful New York City lawyer in the 1920s. In contrast,

Hollywood dominated the very top incomes in the 1940s.

There is evidence that changes in market access in superstar markets is responsible for the recent increase in income inequality. The basic economics of the MPI have not changed. Stars are very highly compensated while average actors are not. Kaplan & Rauh (2013) argue such forces are important for the post-1980 increase in inequality in the finance industry. Other industries associated with increasing inequality, like internet companies, share features of the MPI. Their value is in intangible assets that are easily scaled up to international markets. The ability to screen for high quality may also matter for goods markets. Helpman, Itskhoki & Redding (2010) argue the increasing returns to selecting the right employees drives the link between inequality and exports in manufacturing.

4.4 Rent Extraction

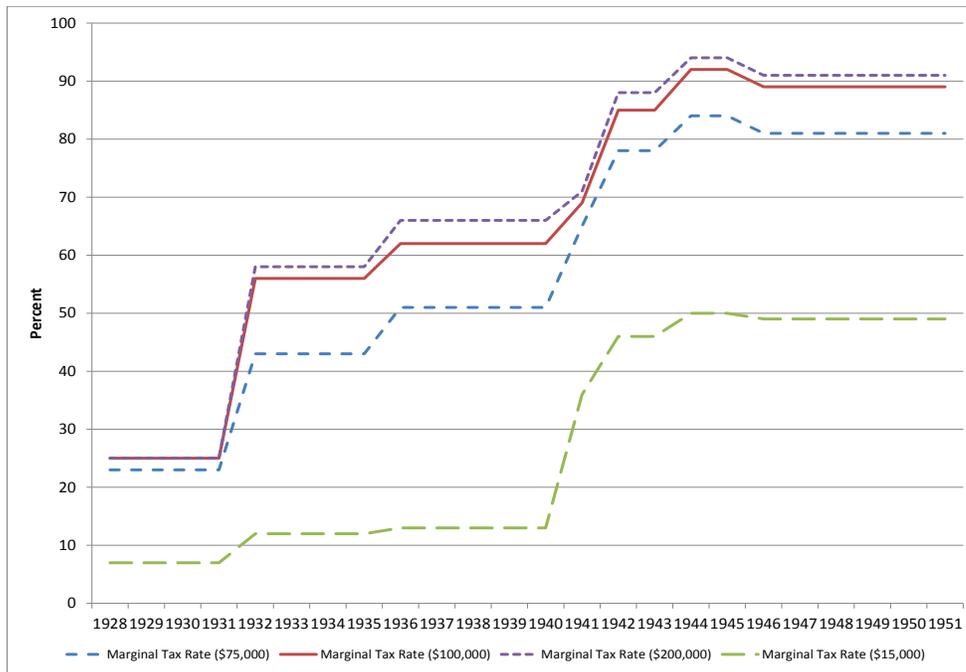
An alternative interpretation is that high incomes are due to rents and the size of the market determines how many rents there are (Keller & Olney 2017). The sample period covers time of major changes in both tax policy and trade. My sample includes two major increases in marginal tax rates on the very high incomes, taking effect in the 1932 and 1941 tax years. The range of rates is large. As reported in Figure 11, the marginal rate for high earners went from 25 percent to over 90 percent¹³.

I reran the regressions in Table 1 including the marginal tax rate of person earning \$100,000. There is relatively little progressivity with the very high income bracket that my sample covers. This level of income is a reasonable indicator of the tax rates faced by top earners¹⁴. In all cases, the results are unchanged and tax rates are positively and significantly associated with incomes. This counterintuitive result may reflect the fact that tax policy is endogenous and correlated with other significant changes in the economy. For example, New

¹³Data taken from the Tax Foundation's Federal Individual Rate History, https://files.taxfoundation.org/legacy/docs/fed_individual_rate_history_nominal.pdf

¹⁴Since I only have gross labor payments, I cannot match a person's income tax rate.

Figure 11: U.S. Federal Marginal Tax Rates, 1928-1951



Deal taxes were implemented as the economy was recovering from the worst of the Depression. The result is consistent with the findings of Frydman & Molloy (2011), who find little impact of taxes on executive pay during this period.

The evidence does not support the idea that higher taxes caused high earners stop negotiating aggressively for raises, the mechanism suggested by Piketty et al. (2014). The very top earners, whose contracts are public record, often react to large tax increases with demands for large raises. For example, the bonus program at MGM was widened to include 14 top executives in 1935, soon after the tax rates on those incomes more than doubled. The Cohn brothers at Columbia, asked for and received a 33 percent increase in 1943, soon after marginal

rates were raised to nearly 100 percent and during the height of World War Two. There may have been an incentive to be more aggressive with negotiations, as bigger raises were required to obtain the same take home pay.

This theory does not have implications about which occupations among top earners should get the rents. While it could be a coincidence that production executives were the ones who got the rents, Hollywood believed that these executives were important. For example, MGM's post war decline led to the firing of production chief Louis B. Meyer, not President Nicholas Schenck. Whether or not the high incomes were earned or not, the basic mechanism is the same: more market access drives up top incomes.

Hoyt (2010) identifies tax avoidance strategies in the MPI from archival sources. One is that high taxes could have induced artistic talent to make fewer films during the year. There is some suggestive evidence of this effect. Most employees were paid on a weekly basis, so cutting weeks of work was a margin for adjusting income. Hoyt (2010) finds evidence that some top actors cut the number of films they did in a year, from four to three. Hanssen & Raskovich (2015) find that annual roles per actor fell beginning in the 1940s. However, this may just reflect other wartime disruptions and changes in industry structure. The regressions suggest that the typical employee did not cut their incomes in this way. The relatively short careers of most talent may have dulled the incentives to cut their work schedules by too much.

Another strategy is that executives and producers could convert some labor income into capital income since capital gains were taxed at a lower rate. It has been suggested that the proliferation of individual production companies was driven by tax avoidance. The sample does include the labor payments from such companies. Such companies allowed for more margins to manipulate income, such as paying family members as employees or deferring compensation to future (lower earning) years. Again, the regressions suggest that the typical employee did not use these avoidance methods even if a few stars did.

4.5 Other Explanations

This section examines some other common explanations for falling inequality: wartime controls and unions. I find little evidence these were major factors in the MPI during the sample period.

During the war, the salaries were controlled. Wages could only be increased with government approval. These controls had less impact on the movie industry since raises specified by existing contracts were allowed. If anything, these controls may have been a force for inequality. Low paid workers did not have contracts, so needed to have each raise approved¹⁵. The highest paid did have contracts, so they continued to receive their specified bonuses and raises.

Like many industries, the motion picture industry unionized significantly in 1937 due to legislative changes that made unionization easier. Portions of the industry, particularly building trades, were already unionized prior to 1930s. Unions did not have a significant impact on inequality. The highest paid union members - the artistic talent - were paid many times the minimum scale. These unions were unable to undo the biggest restraint to their incomes, the standard contracts. That required the *de Havilland* ruling.

Bargaining power was weak for tradesmen. The casual nature of motion picture work combined with a large pool of potential workers, particularly in the weak labor markets of the Depression, made it difficult for unions to push wages up. Even the building trades, who had a long history with unions, had little power to push up wages. Some of this was the result of a lack of worker unity. Several unions were in jurisdictional fights over which union would represent which workers, which led unions to spend effort against other unions rather than extracting concessions from employers (Dawson 1948).

¹⁵The United Artists archives at the Wisconsin Historical Society has dozens of applications for raises of frontline employees during the war. Most appear to have been allowed, but the additional regulatory burden likely slowed them.

5 Conclusion

Trade has been implicated in increasing inequality but data constraints have led empirical work to focus on income restraining impact of import competition. This paper uses novel data sources that allow us to link exports and top incomes. I focus on the motion picture industry, which has hundreds of very high income earners, most of whom are not executives. I document that this industry shows a compression in the 1940s that is shared by executives and non-executives. I find evidence that the loss of foreign markets due to war and currency restrictions contributed to these changes. This suggests that trade may have a role in increasing inequality, not by reducing wages of import competing industries but by driving up top incomes of exporting industries.

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6 Data Documentation

Much of the data are culled from the Hollywood press. The main sources are *Motion Picture Herald* (*MPH*) and *Motion Picture Daily* (*MPD*). I augment these with the *New York Times* (*NYT*), *Los Angeles Times* (*LAT*) and *Variety*.

6.1 Bureau of Internal Revenue Data

1934 *MPH*, January 18 (p. 56) and March 28, 1936. Mayer group bonuses from *NYT*, Dec 12, 1934 p. 35. Checked against *LAT*.

1935 *MPH*, January 16 (p. 44), January 23 (p. 64) and February 6 (p. 61) 1937. Occupation is not listed for January listings. Executive and producer status found in *Film Daily Year Book* 1935 issue. Mayer group bonuses from *MPD*, Feb. 4, 1936.

1936 *MPH*, January 15, 1938 (p. 56) and April 15, 1939 (p.46). Executive and producer status found in *Film Daily Year Book* 1936 issue. Mayer group bonuses from *MPH*, January 8, 1938. MGM, WB salaries augmented with *NYT* April 8, 1939. Harry Cohn (Columbia) salary from Survey of American Listed Corporations (1939). Firm match/occupation augmented with *NYT* January 9, 1938 p. 44.

1937 *MPH*, April 15, 1939. Occupation from *NYT* April 8, 1939. Universal augmented with SEC data, *MPH* May 14, 1938, p. 36.

1938 *MPH*, January 27 (p.44) and July 6 (p. 26) 1940. Occupation is not listed for January 27 listings. Executive and producer status found in *International Motion Picture Almanac* 1937-38 issue.

- 1939** *MPH*, August 9 (p. 31) 1941.
- 1940** *MPH*, September 19 (p. 24) 1942. RKO executives, SEC: *MPH* June 21, 1941.
- 1941** *MPH*, September 19 (p. 24) 1942.
- 1942** *MPH*, October 16, 1943 (p.21): Loews, Columbia, WB 1942; RKO, Paramount, 20th 1941. Executive and producer status found in *Film Daily Year Book* 1943 issue.
- 1943** *MPH*, October 21, 1944 (p.24): Universal, Loews, Columbia 1943; August 22, 1944 (p. 25): Paramount, 20th, WB 1943, UA 1942. Executive and producer status found in *Film Daily Year Book* 1943 issue.
- 1944** *MPH*, December 15, 1945 (p.44): Universal, Loews, Columbia, WB 1944; UA 1943. June 30, 1946 (p.46): Paramount, 20th, WB 1944. Executive and producer status found in *Film Daily Year Book* 1944 issue.
- 1945** *MPH*, August 30, 1947 (p.22) and *MPD*, February 20, 1948 (pp. 1, 4): Loews 1945; WB and Universal 1946. Occupation is not listed for February 20. Executive and producer status found in *Film Daily Year Book* 1946 issue.
- 1946** *MPD*, July 7, 1948. Executive and producer status found in *Film Daily Year Book* 1946 issue.
- 1947** *MPD*, June 13, 1949 and *MPD*, February 20, 1948 (pp. 1, 4): Loews 1945; WB and Universal 1946. Occupation is not listed for February 20. Executive and producer status found in *Film Daily Year Book* 1946 issue.

6.2 NRA Data

- 1933** Incomes above \$15,000 for producer-distributors, distributors and producers (Appendices B, C, and D), Rosenblatt (1934).

6.3 Federal Trade Commission Data

1928-1933 *Report of the Federal Trade Commission on compensation of officers and directors of certain corporations, 1928-1932*, as reported in the *New York Times*, February 27, 1934, p. 10. Supplemented with MPD, March 1, 1934 p.6; MPH, March 3, 1934 p. 11; and MPH, March 10, 1934 p. 27. Mayer group bonus allocation reported in Crowther (1960), p. 129.

6.4 Securities and Exchange Commission Data

1934 Loew's: *NYT* Dec 12, 1934 p. 35.

1935 Columbia: *MPH* January 18, 1936 p. 56. Universal: *MPH* April 17, 1937 p. 54.

1938 Loews: *MPH* March 11, 1939, p. 25. Columbia: *NYT* Feb 24, 1939, p. 9. WB: *MPH* Jan. 7, 1939 p. 8. Universal: *NYT* March 19, 1939, p. 45.

1940 WB: *Variety* January 8, 1941 p. 13.

1942 RKO: *Variety* June 30, 1942 p. 2.

1943 RKO: *MPD* March 8, 1944 p. 14.

1944 RKO: *MPD* May 25, 1945 p. 6.

1945 RKO, Universal: *Variety* Jan 5, 1947 p. 3.

1946 Loew's: *Variety* Jan 5, 1947 p. 3. Columbia: *Variety* Jan 19, 1947 p. 4. RKO: *Variety* March 31, 1948 p. 17.

1947 Loew's: *MPD* January 2, 1948. RKO: *Variety* June 9, 1948 p. 17. Monogram: *MPD* October 13, 1948.

- 1948** RKO, Paramount: *Variety* March 16, 1949 p. 18. Columbia: *Variety* Jan 12, 1949 p. 4. WB: *MPD* February 15, 1949, p. 2. Universal: *MPD* January 14, 1949. Loew's: *MPD* February 24, 1949 p.4. 20th: *MPD* April 26, 1949 p.5.
- 1949** Columbia, Walt Disney, Republic, WB, Universal: *LAT* May 11, 1950 p. 7. Loew's: *MPD* February 17, 1950 p.4. 20th: *MPD* April 24, 1950.
- 1950** Loew's: *MPD* January 3, 1951. WB: *MPD* January 4, 1951. Universal: *MPD* January 30, 1951. Republic: *MPD* March 5, 1951. RKO: *MPD* November 19, 1951, p. 12. Paramount: *MPD* May 4, 1951. Columbia: *MPD* November 12, 1950. 20th: *MPD* April 27, 1951.
- 1951** 20th and Paramount: *MPD* April 30, 1952. Loew's and WB: *MPD* January 4, 1952. Universal: *MPD* March 4, 1952. Columbia: *MPD* October 30, 1952. RKO: *MPD* May 8, 1952 p. 12.

6.5 Export Data

MGM 1928-49: Glancy (1992),

Warner Brothers 1928-51:Glancy (1995)

United Artists 1920-50: Walsh (2008)

RKO 1930-51: Jewell (1994).

Universal 1936, 1938-50: *MPH*, various issues.

Paramount 1945-47, 1950-1: Conant (1960), Table 30, p. 121.

20th Century-Fox 1945-51: Conant (1960), Table 30, p. 121.

Walter Wanger 1937-47: Miskell (2016).

Monogram 1945, 1947-1950: Conant (1960), Table 35, p. 128.

6.6 Firm Data

Motion picture firm revenue, net profit 1919-1944: Film Daily Year Book, 1945. 1945-1962: 1963 Film Daily Year Book of Motion Pictures. RKO and Monogram augmented with 1951 Film Daily Year Book.

United Artists revenue, net profit 1935-1947 Wisconsin Historical Society Archives, United Artists Corporation Records (U.S. Mss 99AN) Series 4C: Balance Sheets and Associated Papers, 1919-1951. See Bridgman (2017).

7 Data Coverage

Chart 12 reports the coverage and sources for the 1934-1951 data. An “X” indicates data from the BIR dataset. “SEC” is data from SEC filings, such as a 10-K or proxy statement.

8 Summary Statistics

Table 3 reports summary statistics for the merged baseline sample’s nominal total compensation variable. To be included, nominal compensation must be above \$75,000.

Figure 12: Big Eight Data Inventory

Company	Paramount	RKO	UA	Universal	Columbia	WB	Loews	20th Century Fox
1934	X	X	X		X		SEC	X
1935	X	X	X	X	SEC	X	X	X
1936	X	X	X	X	X	X	X	X
1937	X	X	X	X	X	X	X	X
1938	X	X	X	SEC	SEC	SEC	SEC	X
1939	X	X	X	X	X	X	X	X
1940	X	X	X	X	X	X	X	X
1941	X	X		X	X	X	X	X
1942	X	SEC	X	X	X	X	X	X
1943	X	SEC	X	X	X	X	X	X
1944	X	SEC		X	X	X	X	X
1945	X	SEC	X	SEC	X	X	X	X
1946	X	SEC	X	X	SEC	X	SEC	X
1947	X	SEC	X	X	X	X	SEC	X
1948	SEC	SEC		SEC	SEC	SEC	SEC	SEC
1949				SEC	SEC	SEC	SEC	SEC
1950	SEC	SEC		SEC	SEC	SEC	SEC	SEC
1951	SEC	SEC		SEC	SEC	SEC	SEC	SEC

Table 3: Baseline Sample Total Compensation Summary Statistics

Variable	Obs	Mean	Std Dev	Min	Max
1928	12	300647.3	168677.8	78000	692249.4
1929	18	403219.7	328757.6	78000	1060533
1930	20	334554.0	297036.9	76740	1302831
1931	16	260691.9	266071.5	77490	1056856
1932	15	192238.5	148148.2	76359	613359.7
1933	111	128538.2	54256.96	75000	315000
1934	68	150745.0	125675.1	75000	961738
1935	143	142257.9	116563.6	75000	1164558
1936	149	152723.5	88744.46	75000	726203.3
1937	222	149789.0	114262.8	75000	1296503
1938	124	145804.7	93558.15	75200	893300
1939	227	138331.4	67904.32	75000	688369
1940	164	150517.4	78813.75	75150	697048
1941	217	142558.2	72549.47	75166	704425
1942	230	141927.1	83268.78	75250	949765
1943	225	144622.9	103204.6	75350	1138992
1944	220	140900.0	72856.16	75000	752069.9
1945	222	135806.1	60313.74	75264	568143
1946	209	142184.6	68946.32	75000	500000
1947	207	136391.8	69426.02	75166	581900
1948	45	156461.6	83108.13	75000	417263
1949	25	154673.9	79565.58	78180	454262
1950	33	152043.7	54822.79	78000	299999
1951	29	150060.4	56071.66	78000	300000