Vote for Hollywood: the Effects of US Indirect Propaganda on Italian Elections*

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Abstract

We document an unexplored medium affecting electoral choices: cinema. We study the effects of exposure to Hollywood movies on voting choices during the Cold War in Italy. We employ an instrumental variable approach, combining local access to cinema with time variation in the success of U.S. movies at the box office before elections. We find that greater exposure to U.S. movies before elections led to gains for the DC, the party endorsed by the U.S., and losses for the PCI, the communist party with ties with the Soviet Union. DC gains were obtained at the expense of PCI, with minimal effects on turnout. The effects are concentrated in rural areas.

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> "*Millions of people in this world know nothing of the United States except what they see in movies. Hollywood is the looking-glass in which is reflected the American way of life, its philosophy and ideology. [...] The incredibly high standard of living mirrored by our movies is a source of envy and incredulity in many lands. [People think that] in America even the tramps have cars.*"
>
> — New York Times, April 13, 1955

1 Introduction

Cinema is a main source of entertainment. Movies are an effective method of visual and emotional communication that impacts viewers' feelings and opinions. Totalitarian regimes recognized early on the persuasive powers of the medium and used it extensively as an instrument of propaganda.[1] However, movies can exercise significant cultural power also when their effects are unintended and unplanned. Film historians have long discussed about the cultural influence of American movies on foreign countries.[2] Yet, rigorous empirical evidence on how movies may influence people's beliefs and choices remains scant.

This paper addresses a far-reaching impact of cinema: its effects on electoral choices. In particular, we study the effects of Hollywood movies in influencing voters' choices during the Cold War in Italy. For people in foreign countries without direct contact with the U.S. and USSR, cinema had the power to model the public's perspective on the contemporary world. Two additional features make Italy during this period an ideal setting for our analysis. First, the highly polarized political context where the two dominating political parties were positioned on opposite sides of the US-USSR ideological divide for more than two decades

[1]The use of film for propaganda had been planned by the National Socialist German Workers Party (NSDAP - Hitler's party), as early as 1930, when the party first established a Film Department. Mussolini and Stalin also made use of cinema for propaganda purposes and had a Film Department in their cabinet. To this day, the Chinese government heavily regulates and controls imports of foreign movies, making the influence of movies on politics a contemporary question.

[2]See Wanger (1950), Gundle and Guani (1986), Brunetta (1993), Treveri Gennari (2009), Swann (1991). Sklar (1975) (p.217) writes about a particular model of American car becoming very popular in Brazil, with an increase in sales of around 35%, after it was publicized in a Hollywood film.

during the Cold War. The Italian Communist Party (PCI) was the largest communist party in Western Europe and had direct relations with the Soviet Union. On the opposite side, the Christian Democracy (DC) was directly backed by the United States and leaned ideologically towards a capitalistic model. Second, we can rule out any confounding from Soviet movies: Hollywood had a very important role in the Italian movie scene, while the penetration of Soviet movies was negligible. This context provides us with an ideal setting to answer the question: did exposure to Hollywood movies increase votes for the American-leaning party?

Studying the causal effects of Hollywood movies on voting choices presents various empirical challenges. Because detailed information on the movie industry for this time period are scarce and scattered, data availability is a potential limitation. We deal with this by drawing from multiple primary sources. Cross-sectional comparisons of voters' choices across locations with different exposure to American movies would give biased estimates because of joint determination. The panel structure of our data enables us to account for unobserved heterogeneity through location and election fixed-effects. The former remove possible concerns related to different underlying, time-invariant characteristics influencing political choices and movie-going decisions, e.g. different cultural traits or different amounts of investments received under the Marshall plan. The latter allows capturing nationwide yearly trends such as changing attitudes towards communists caused by historical events,[3] or overperformance of a party in an election for domestic policy reasons. The parameters of interest will be identified by the remaining variation, exploiting the fact that exposure varies over time within each location and at each point in time across locations.

Endogeneity concerns are also present. There are two main examples of what a sophisticated government might want to do: first, they could try to provide more (less) access to movies in places where movie-going has a positive (negative) effect for them; second, they could promote (discourage) the vision of movies that favor (disfavor) their positions. While

[3]For instance, 1956 was a particularly eventful year which had an impact on how communism was perceived in the Soviet Union's satellite states in Central and Eastern Europe but also in Western Europe. This year was marked by Khrushchev's denunciation of Stalin's atrocities and cult of personality, and by the 1956 Hungarian and Polish revolution which were highly debated in Italy.

the national government was in the hands of DC for the whole period of our analysis, the fact that both PCI and DC were involved in local administration makes the direction of the eventual bias ambiguous. To overcome the potential threat of involvement of the Italian government in the movie industry, access to cinema is instrumented by cinema availability in 1948, before manipulation was likely possible. At the same time, we instrument the success of U.S. movies in Italy with the success of U.S. movies in France, a similar country in terms of culture, economic development, history, institutions and size but a different electoral cycle. The use of instrumental variables will also alleviate measurement error problems. The main threat to identification we are left with is confounding time-varying omitted variables which may be correlated with the success of US movies and the evolution of voters' choices. We deal with this in two ways. First, we show that locations with different access to cinema did not evolve according to different trends for demographic and economic observable characteristics. Second, we control for observable economic and socio-demographic characteristics which could be influencing voting choice. In other words, in our preferred specification the exogeneity assumption has to be true conditional on controls.

We find positive effects of Hollywood movies on the vote share of the DC and negative on PCI. According to our preferred specification, a one standard deviation increase in exposure in the year before the elections leads to an increase (decrease) in vote share for the DC (PCI) of 2.45 (2.32) percentage points. These effects are economically sizable: when compared with the baseline mean of 39.8% for the DC and 24.98% for the PCI, this represents a 6.15 percentage increase for the DC, and a 9.2 percentage decrease for the PCI. The gains for the DC stemmed from a substitution effect: we do not find significant effects on turnout. The results are qualitatively robust to the use of different specifications and of an alternative measure of access to cinema.

We then investigate in which areas movies had the greatest persuasive powers and find considerable heterogeneity along the urban vs. rural dimension. Interestingly, the effect is insignificant for cities, and is quantitatively larger for rural areas. This is suggestive of an

information effect of movies that is strongest for those that have fewer sources to update their beliefs. The effects do not appear to differ geographically nor according to initial political orientation.

We also conduct a series of robustness exercises and two falsification tests. First, we replicate the estimation instrumenting the success of U.S. movies in Italy with the success of American films in the Netherlands rather than France. This yields very similar results. Second, we replicate the analysis using two-samples instrumental variables (IV), which allows us to exploit additional information in the first stage. The results are unchanged and the estimated effects are similar in magnitude. As a first falsification exercise, we conduct a simple permutation test: we obtain the distribution of coefficients under the assumption of zero effect by randomly allocating the success of movies for each year in our sample. We obtain a one-sided p-value below 5%, supporting a positive effect hypothesis. As a second falsification exercise, we test for the presence of spurious trends driving our results by modifying the year at which the main explanatory variable is measured, using success of U.S. movies at future elections. The estimated coefficients are considerably smaller in magnitude and generally not significantly different from zero.

Related Literature. Our paper contributes to the growing literature studying the causal effects of media on political and socio-economic outcomes. Starting with the seminal contributions of Strömberg (2004), Gentzkow (2006) and DellaVigna and Kaplan (2007), a burgeoning economics literature argues that exposure to different media and different content have effects on voting choices (Durante et al., 2019), consumption patterns (Bursztyn and Cantoni, 2016), fertility choices (Kearney and Levine, 2015) and divorce (Chong and la Ferrara, 2009). Hitherto, the literature has focused on the effects of newspapers (Besley and Burgess, 2002), the radio (Adena et al., 2015), the television (Enikolopov et al., 2011), the internet (Campante et al., 2018) and, more recently, social media (Enikolopov et al., 2020). This is, to the best of our knowledge, the first study to analyze the effects of cinema

in determining electoral outcomes[4]. As well as documenting an unexplored medium affecting voting choices, we rely on a novel identification strategy within this literature.

Our work is also related to the literature on cross-border effects of media. Within this literature, our paper is related to work examining the influence of foreign media on domestic citizens' behavior. Della Vigna et al. (2014) study whether exposure to foreign nationalistic content through Serbian radio in Croatia triggers nationalistic sentiments in Croatia. While its setting is plagued by an ethnic conflict, we analyze an environment where the tension is between two contraposing ideologies, capitalism vs. communism. Kern and Hainmueller (2009) and Bursztyn and Cantoni (2016) study foreign influence on the former East Germany through differential access to Western German television during the communist regime. Our analysis differs from theirs in at least two respects. The first is our focus on a democratic country as opposed to a dictatorship. The second is that we are interested in democratic vote outcomes instead of surveyed regime support or consumption patterns.

Our analysis of the impact of exposure to American movies in Italy links our study to others that also empirically examine the effects of the influence of the U.S. over foreign countries during the Cold War. This literature has focused on interventions with a clear and direct involvement by the U.S. government. Dube et al. (2011) examine the impact of U.S. backed coups on stock prices of U.S. companies in Iran, Guatemala, Cuba, and Chile. Berger et al. (2013) study the impact of CIA interventions during the Cold War on bilateral trade relations between the U.S. and foreign countries. In contrast, our analysis focuses on a subtle and undirected form of influence.

Outline. The paper proceeds as follows. In the next section we provide the relevant historical background. In Section 3 we describes the data. In Section 4 we explain our empirical strategy. Section 5 presents the results of our analysis. Section 6 concludes the paper.

[4]Dahl and Dellavigna (2009) study the short-run effects of movie violence on crime. Jacobsen (2011) shows that exposure to Al Gore's documentary, raising awareness on climate change, caused an increase in the purchase of voluntary carbon emissions.

2 Background

In this section we discuss the Cold War historical context and the political scenario in Italy in the period 1945-1973. We also provide a brief account of the movie industry in Italy and in the U.S.. The historical accounts provide credibility to the idea that, during this time, cinema did not only provide entertainment value to viewers in foreign countries but, it was also a salient way to learn about the two competing ideologies.

Historical Context. The hostility between the U.S. and the Soviet Union during the Cold War was not confined to these two nations. It was also a contest between the two superpowers trying to sell their ideologies to the world. The Soviets were intent on spreading communism worldwide by cultivating relationships and sometimes directly sustaining parties representing communists ideals in foreign countries. The U.S. government's aim was to promote capitalistic ideals and democratic values, and was alarmed by the threat of Soviet-influenced communist parties in the Western Europe democracies. It made direct attempts to attract countries under its sphere of influence using both open and covert operations. The aid provided under the Marshall Plan and the CIA interventions are perhaps the most striking examples of this strategy (Berger et al., 2013).

The U.S. government's interventions were not the only channel through which foreign countries were influenced. Hollywood, through its movies, was a clear testimony of the cultural and economic expansion of the US, exercising a significant influence worldwide. As the introductory quote by the New York Times indicates, American movies generated sentiments of admiration towards the U.S., the American way of life and the American model of democracy. Hollwood was showing a world filled with expensive consumer goods, large cars, luxurious interiors, modern offices and glamorous clothes. It depicted a wealthy society where opportunity to raise the social ladder was real and where everyone could enjoy a high standard of living, especially in comparison to European standards.

The conjecture of positive effects of U.S. movies on perceptions of America is reinforced by

the fact that politicians representing communists ideals were displeased by American cultural influence and were acknowledging the potential effects of U.S. movies. Pietro Secchia, a prominent member of the Italian Communist Party (PCI), writes in *L'Unitá*, the Italian Communist Party newspaper, on February 5, 1948:

> *"Americans not only send their spies, soldiers and saboteurs, but also flood our country with books and movies which confuse and lure our people."*

At the same time, according to other contemporary commentators, not all movies depicted the U.S. in positive terms. These observers focused on other parts of the message that U.S. movies could transmit: excessive materialism, inequality and violence. The National Archives in Washington DC contain various documents of U.S. embassy staff abroad trying to obtain the withdrawal of specific films from their country of assignment. They motivated these letters pointing to the harm that showing these movies overseas could do on perceptions of the U.S.. In 1953, William R. Auman, Public Affairs Officer in Oslo, declared that he was pleased that the Norwegian film censor had banned the Marlon Brando film, *"The Wild One"*:

> "[I was] thankful that the film will not be shown in Norway. *It presented practically all the standard misconceptions about America that our enemies stress such as claims that we are uncultured, rude, bombastic, impatient, lawless and addicted to mob violence. Films of this type when exported are harmful by presenting false or distorted impressions of American life as a whole."*

In light of the conflicting views presented, whether American movies favored or were harmful for parties representing capitalistic ideals remains a purely empirical question.

Italian Politics. After fascism and WWII ended, a provisional government, composed of

all major political parties,[5] was installed and monarchy was abolished by popular referendum in 1946. The new republican constitution went into effect on January 1, 1948 and the first free nationwide democratic election was held on April 18, 1948. Until 1994, the electoral law stipulated a unique electoral district assigning seats with a proportional rule. The electoral law prescribed elections to be held every five years, unless the Parliament chambers were dismissed earlier.[6]

The period we analyze is characterized by intense competition between Christian Democracy (DC) and the Italian Communist party (PCI). From 1946 to 1992, DC was always the leader of a ruling coalition with other small centrist parties and, from 1963, also with the Socialist Party. Since its creation, the DC made special appeal to family values, advocated programs ranging from land to social reform[7], and endorsed capitalistic ideals such as defense of free enterprise and private property. PCI was the largest and best organised Communist party in the Western hemisphere, and its political and social influence continued to grow during the post-war decades. DC and PCI were the dominant political actors, always attracting more than 60% of the total vote share combined with considerable distance from the third party in the period of study. Table A1 provides electoral results at the national level for all elections during the period characterized as First Republic (1946-1992). In 1973 the ideological divide between the two parties decreased after the so called *"Historic Compromise"*. Enrico Berlinguer, General Secretary of the PCI, proposed to set aside the hostility with the DC and started to distance himself from the Soviet Union. As part of this strategy, the DC came to govern with the external support of the PCI from 1976 to 1979. This motivates our choice to stop at the 1972 election.

[5]The parties composing the provisional government were: Christian Democracy (DC), the Italian Communist Party (PCI), the Italian Socialist Party (PSI), the Italian Liberal Party (PLI), the Italian Republican Party (PRI), the Action Party (Pd'A) and the Labour Democratic Party (PDL).

[6]Although Italy was characterized by high political instability of government, with 22 different government coalitions between 1953 and 1973, anticipated elections did not occur until 1972.

[7]Some of the most progressive measures enacted by the Christian Democrats have been reportedly pushed by the need to reduce social unrest of different strata of the population and contrary to the opinion of many party members, e.g. the 1950 land reform (Ginsborg, 2003).

Movie Industry: United States. After forming the first studio in 1911 and going through a consolidation in the 1920s, Hollywood has dominated the commercial film industry worldwide (De Zoysa and Newman, 2002). Throughout the last century, the U.S. government had no direct control over the movie industry and no involvement in movies' production, apart from a short parenthesis during World War II.[8] Even in the absence of direct government involvement, movie producers faced certain limitations during during the late 1940s and early '50s; film content was influenced by the fear of communism that pervaded the United States. The Hollywood blacklist, a witch hunt in the early years of the Cold War where actors and producers believed to be communists were blacklisted, imposed restrictions on the content of movies, meaning that they could not propagate communist values. Another type of indirect involvement happened through the Department of Defence (DoD). In fact, in order to produce some movies, film producers needed to collaborate with the DoD for logistical reasons and such collaboration could be denied if the content of the movie was not considered appropriate[9].

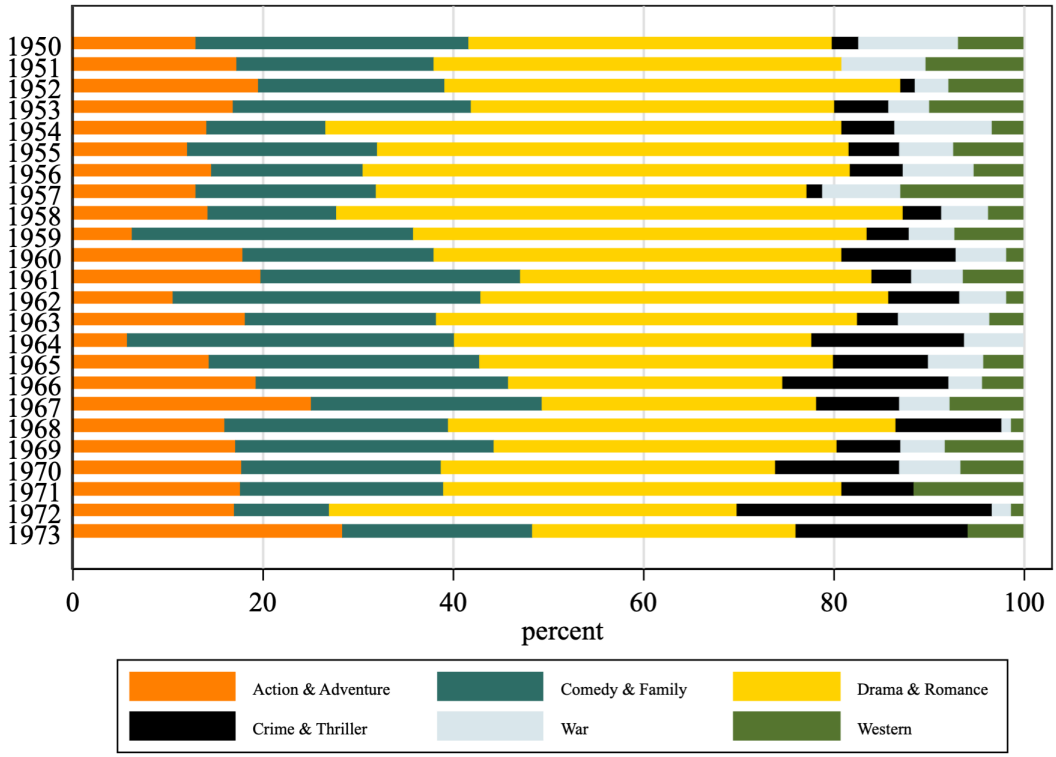
What movies did Hollywood produce during these years? Figure 1 displays the yearly composition of revenues for blockbusters (top 30 movies) at the U.S. Box Office by movie's genre. A visual inspection reveals that Drama & Romance were the most successful movies throughout the time period. Examples of such movies are blockbusters such as "The Graduate" (1968) and Love Story (1970). In contrast, Western movies ranged between 0 to 16% of total revenues. Crime & Thriller movies grew in importance over time while War movies decreased in their importance.

Movie Industry: Italy. The Italian movie industry was heavily protected and financed by the fascist state. The fascist government enacted the *"Alfieri Law"* in 1938 (regio decreto-legge del 4 settembre 1938, n. 1389), imposing an embargo on foreign movies. The major

[8]During WWII the Hollywood film industry cooperated with the government to build public support for the war. In June 1942, the White House created the Office of War Information to support its war-aims information campaign. A notable example is the *"Why We Fight"* series.

[9]This occurs, for example, for war movies, when special equipment such as a tanks or warplanes are required.

Figure 1: US Box Office Revenue composition



Sources: The Movies Database and Variey (various editions).

Hollywood film studios left the Italian market in the following year as the decree went into effect. The decree was strictly enforced: the number of American movies imported went from 162 in 1938 to 0 in 1940 (Brunetta, 1993). After WWII ended, the ban was lifted and distribution of foreign movies was allowed. At that time, the Italian film industry was in a state of considerable devastation. Many large film studios had been plundered by the fascists and the Germans; Cinecittá, the largest center for movie production in Europe before WWII, was used as a refugee camp until 1950 (Steimatsky, 2009). Italian studios were initially unable to compete with Hollywood. The industry was fragmented and unable to consolidate: in 1948, 87% of the Italian production was carried out by studios which only produced one movie and then disappeared from the market; in 1950 only three studios produced more than one movie (Brunetta, 1993). Given the difficulties and the fact that there was unsatisfied demand for American movies, Hollywood came to dominate the Italian

movie industry, unloading a six years reserve of unseen American movies on an eager Italian public. Italy has a strong tradition in dubbing so that American movies were shown without subtitles, allowing also illiterate people to watch Hollywood productions. During the 1950s Italy had the highest number of cinemas (11,641 compared to 5,806 of France and 6,885 of Germany) in Western Europe, making the medium the most popular form of entertainment for Italians (Treveri Gennari, 2009).

3 Data

We obtain information on cinema availability from unexplored records digitized by the *Italian Society of Authors and Publishers* (SIAE), the Italian monopolist for royalty collection. SIAE publishes every year the "Annuari dello Spettacolo", the most detailed quantitative representation of the conditions of the Italian entertainment industry from 1938 to 1987. From SIAE, we obtain yearly data on the number of movie theaters and number of tickets sold for all 92 major cities in Italy and their related province[10]. This is our unit of observation throughout the analysis.

In Table 1 we report statistics related to the evolution of cinema availability. We observe a decreasing pattern over-time in the number of tickets sold per capita, suggesting some crowding-out of TV consumption or a shift in preferences for leisure time. The mean number of cinemas, 1 every 4,000 inhabitants, is stable in the period 1948-1972. The variance of the distribution of movie theaters decreases over time, suggesting that differences in cinema availability were more pronounced in the aftermath of WWII and that a more homogenous access to cinema occured after reconstruction was completed. In Figure A5 we plot the share of expenditure at the national level for cinema, radio and television, sport activities and theater over total expenditure on entertainment. The centrality of cinema-going is clearly visible. Radio and television's expenditure reached 20% in 1959.

From SIAE we also obtain yearly box office revenues and number of movies displayed

[10]Trieste is missing until 1954 since it was under special administration

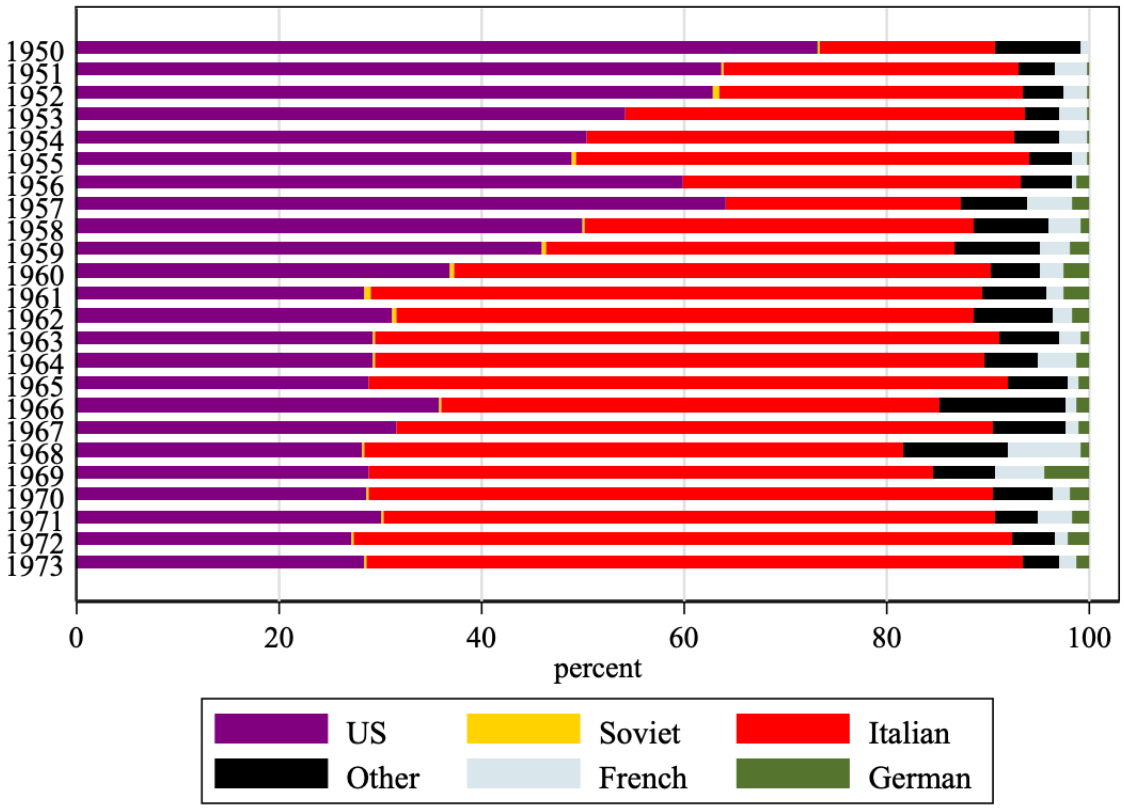
Table 1: Summary Statistics

	Median	Mean	Std. Dev	Min.	Max.	N
1948 Elections						
Tickets per capita	23.12	24.18	14.80	1.46	76.87	180
Cinemas per 1,000 inh.	0.24	0.25	0.15	0.03	0.81	180
1953 Elections						
Tickets per capita	28.70	28.97	14.89	3.68	62.72	182
Cinemas per 1,000 inh.	0.28	0.29	0.10	0.10	0.72	180
1958 Elections						
Tickets per capita	25.15	24.99	11.91	2.68	58.03	182
Cinemas per 1,000 inh.	0.29	0.32	0.10	0.09	0.62	182
1963 Elections						
Tickets per capita	22.40	21.71	8.52	4.31	42.70	182
Cinemas per 1,000 inh.	0.27	0.30	0.12	0.10	0.66	182
1968 Elections						
Tickets per capita	17.39	16.82	6.19	3.89	31.12	182
Cinemas per 1,000 inh.	0.25	0.27	0.11	0.10	0.63	182
1972 Elections						
Tickets per capita	15.80	16.02	6.21	3.36	32.59	182
Cinemas per 1,000 inh.	0.23	0.25	0.10	0.09	0.60	182

Source: SIAE and Italian Ministry of Interior.

in Italy at the national level per country of production. Figure 2 presents the box office composition of revenues of Italian movie theaters by country of production of the movie. The importance of the Hollywood movie industry, more pronounced in the early years, is clearly visible from the figure. Figure 2 also shows the negligible penetration of Soviet movies, removing potential confounding effects of mixed messages through the movie industry. This

Figure 2: Italian Box Office composition: yearly revenues by country of production



Source: SIAE.

is robust to a broader measure of Soviet movies, with the inclusion of countries part of the Warsaw Pact.[11]

Box office data for U.S. movies in other nations for the period 1951-1973 is obtained from Gyory and Glas (1992), the most complete source containing revenues of movies by country of production in each European country. To measure the success of U.S. movies in each year, we digitize and construct two variables measuring the yearly share of revenues of U.S. produced movies in movie theaters in France, US_t^{FR}, and the Netherlands, and US_t^{NL}. Our choice of France and Netherlands is not only driven by cultural considerations of similarity with Italy but also by data availability.[12] We cross-check the validity of the statistics reported

[11]The Warsaw pact was a mutual defense organization that put the Soviets in command of the armed forces of the member states. It included Albania, Bulgaria, Czechoslovakia, East Germany, Hungary, Poland and Romania.

[12]These are the countries for which the information is most complete.

in Gyory (1992) for France and the Netherlands by comparing them with Guback (1968) and for Italy by comparing them with our SIAE data source.

Electoral data on national elections are obtained from the Italian Ministry of Home Affairs.[13] For each election, we observe the number of citizens eligible to vote, the number of citizens who cast a ballot and the number of votes for each party in each municipality. Our dependendent variables are the share of votes for the DC and the PCI, computed for each election as the number of votes gained in each location, divided by the total number of valid votes in that location. For provinces, we aggregate the variables at the provincial level using all municipalities in the province excluding the main city. Since new provinces are instituted between 1945 and 1972, we construct our unit of observations using 1951 borders[14]. We focus on the 5 elections for the lower chamber from 1953 to 1972. The choice to stop at the at 1972 election is driven by historical considerations, as explained in Section 2. We exclude the 1948 elections for data limitations.[15]

To control for observable characteristics which could be correlated with electoral outcomes and exposure to Hollywood movies, we use an extensive set of socio-demographic and economic variables obtained from official Italian Censuses (1921, 1936, 1951, 1961 and 1971). We also use these data to study the determinants of cinema availability and for data validation purposes.

Information on blockbuster movies is obtained through newly digitized data of revenues for top grossing movies from the weekly magazine *Variety*. Variety was the leading journal in the entertainment industry at the time and, each January, published revenues for movies produced in the previous year. Figure A4 shows an example of the yearly rankings. Since these rankings contain only the title and the gross revenues of each movie, we combine the information from Variety with data from the *The Movie Database* (TMDb), a user editable database for movies and TV shows. TMDb provides information such as country

[13] Available at www.elezionistorico.interno.gov.it.

[14] SISTAT (Sistema Informativo STorico delle Amministrazioni Territoriali) provides information on the composition of Italian provinces from 1861.

[15] The earliest available data for US_t^{FR} and US_t^{NL}, crucial for our identification strategy, is 1951.

of production, genre, popularity and revenue for movies since the 1920s. This allows us to exclude movies not produced in the United States, to learn the genre of each movie and the exact date in which the movie was released.

4 Empirical Strategy

In this section we present our identification strategy which combines the use of panel data with an instrumental variables approach.

Econometric Framework. Our goal is to estimate the effects of American movies on electoral choices in national elections in Italy during the Cold War. Ideally, we would like to estimate the following equation:

$$PartyShare_{i,t} = \beta ExposureUS_{i,t} + c\mathbf{X_{i,t}} + \theta_i + \alpha_t + \nu_{i,t} \tag{1}$$

where $PartyShare_{i,t}$ denotes the vote share of either DC or PCI; i indexes the cross-sectional dimension of the panel, i.e. main cities and respective provinces; and t indexes time, i.e. election years.[16] θ_i and α_t are location and election-year fixed effects respectively. $X_{i,t}$ is a set of economic and socio-demographic controls, including televisions per capita (measured at the regional level).[17] $ExposureUS_{i,t}$ indicates exposure to U.S. movies in location i in year t. We express it as $ExposureUS_{i,t} = US_{i,t} \times Cinema_{i,t}$ where $US_{i,t}$ represents the success of U.S. movies in location i in election-year t, and $Cinema_{i,t}$ quantifies access to cinema in location i between *t-1* and t proxied using the number of movie theaters per capita. As a robustness, in the Appendix we present results using an alternative measure of access to cinema, $Tickets_{i,t}$ which refers to the number of tickets sold per capita. The coefficient of interest is β, capturing the effect of differential exposure to American movies before elections

[16] As explained in section 2, we consider national elections in 1953, 1958, 1963, 1968 and 1972.

[17] We have 18 regions in our sample. We excluded Valle d'Aosta altogether because it is an autonomous region and had different party coalitions with respect to the rest of Italy. Abruzzi e Molise was a region until 1963 when it split into Abruzzo and Molise.

on the vote share of the two major parties. Hence, by focusing on the success of Hollywood movies in the year before elections, we capture a short-term effect of U.S. movies.

There are different empirical challenges in estimating equation (1): (i) we do not observe the exact programming of movie theaters at the local level; (ii) different degrees of access to cinema may be related to unobservable characteristics also correlated with voting choices or could be influenced by strategic considerations of a sophisticated DC government promoting movie theater activities in selected areas; (iii) endogeneity on the shock component of the regressor, $US_{i,t}$, may be a concern if the government decides to strategically delay or advertise the release of U.S. movies before elections; (iv) reverse causality could arise if construction of movie-theaters or cinema-going is related to political preferences. To deal with (i), we decompose $US_{i,t}$ as $US_{i,t} = US_t^{IT} + \widetilde{US}_{i,t}$ where the first component stands for the success of U.S. movies at the national level in year t, which is observable and we measure as the yearly share of U.S. box office revenues in Italy,[18] and the second is an idiosyncratic location-period component.[19] This introduces measurement error, biasing our estimates towards zero. To deal with (ii) and (iv), we use access to cinema at an initial time period when strategic considerations can be dismissed as an instrument for later access. As for (iii), we instrument nationwide success of U.S. movies in Italy with US_t^{FR}, i.e. success of U.S. movies in France. As a robustness exercise we also present results with US_t^{NL}.[20] This leads us to our 2SLS estimating equations:

$$[1^{st}Stage] \qquad US_t^{IT} \times Cinema_{i,t} = \gamma US_t^{FR} \times Cinema_{i,1948} + \theta_i + \alpha_t + a\mathbf{X_{i,t}} + \varepsilon_{i,t} \qquad (2)$$

$$[2^{nd}Stage] \qquad PartyShare_{i,t} = \beta_1 US_t^{IT} \widehat{\times Cinema}_{i,t} + \theta_i + \alpha_t + b\mathbf{X_{i,t}} + \eta_{i,t} \qquad (3)$$

[18] We use a lagged measure since elections were in the first months of the year (between February and May). This means that we will be using measures of access to cinema in the year before each election, i.e. 1952, 1957,1962, 1967, and 1971.

[19] This will require us to assume that conditional on observable characteristics and local access to cinema, local cinema programming is in expectation homogenous nationwide, i.e. $\mathbb{E}[\widetilde{US}_{i,t}\nu_{i,t}|Cinema_{i,t}, X_{i,t}] = 0$.

[20] Elections in France and the Netherlands were usually on different years with respect to Italian elections 1951, 1956, 1958, 1962, 1967, 1968 in France and 1952, 1956, 1959, 1963 and 1967 in the Netherlands.

In all regressions, standard errors are clustered at the local unit level, allowing for arbitrary dependence of the error terms within locations over time.

$Cinema_{i,1948}$ could still be influenced by the post WWII government which may have decided to promote movie theater activities in propaganda sensitive areas. However, we believe that this is unlikely to occur for two reasons. First, the Italian government leading up to 1948 was a large alliance composed by all parties and, before the Marshall plan (1948-1952), the reconstruction effort had not started yet (Bianchi and Giorcelli, 2019). Second, the Marshall Plan was signed into law by President Truman in April 1948, hence there had not been enough time to build cinema infrastructure in such a short period of time. Another potential violation of the exclusion restriction would occur if $Cinema_{i,1948}$ is related to local future trends also affecting voting choices. In the next subsection we present a test which attenuates this concern. As for US_t^{FR}, a violation of the exclusion restriction would occur if the success of the U.S. movies in France had a direct effect on Italian elections. This is unlikely to occur.

To sum up, our identifying assumption is that, conditional on location and time fixed effects, and on the time-varying controls X_{it}, the success of U.S. movies in France interacted with local access to cinema in 1948, has an effect on the vote share of the DC and the PCI in subsequent elections, only through the success of U.S. movies in Italy and local access to cinema.

Data Validation. A main threat to identification is that, if locations with different access to cinema in 1948 evolved according to different trends in subsequent decades, this would confound our relation of interest, leading to potentially spurious correlations. In order to assess the severity of this concern, we estimate the following equation:

$$X_{i,\Delta t} = \alpha_1 Cinema_{i,1948} + \alpha_2 X_{i,t-2} + \alpha_3 City_i + \alpha_4 \sum_{i=1}^{N} Area_i + \varepsilon_{i,t} \tag{4}$$

where $X_{i,\Delta t}$ is the change between Censuses on observable demographic and socioeconomic

Table 2: Trends Analysis - Number of cinema per capita

	1936-1951	1951-1961	1961-1971
Population	-3.99	-1.55	8.82**
	(5.46)	(3.66)	(4.35)
% Illiterate pop.	-0.52***	0.12	-0.067
	(0.20)	(0.077)	(0.050)
Employment rate	0.073	0.0045	0.48***
	(0.33)	(0.18)	(0.15)
% Agricultural sector	-0.83	-0.058	-0.25
	(0.53)	(0.29)	(0.20)
% Industrial sector	0.37	-0.30	0.36
	(0.42)	(0.31)	(0.26)
% Services sector	0.14	-0.26	-0.31*
	(0.29)	(0.24)	(0.16)
% Commerce sector	0.11	0.32**	-0.11
	(0.16)	(0.14)	(0.097)
Observations	182	182	182

Source: SIAE and Italian Censuses.

Significant at less than $***$ 1%, $**$ 5%, $*$ 10%.

characteristics of location i and $X_{i,t-2}$ is the lagged measure of the same characteristic, $City_i$ is a dummy indicating whether the unit is a city and $Area_i$ is a macro-region dummy.[21]

Table 2 shows the α_1 estimates from equation (4). Each entry in the table presents the results from a different regression for a given characteristic and a given time period. For instance, the first entry presents the result of regressing the change in population between 1936 and 1951 on the number of cinemas per capita in 1948, using 1921 as predetermined value, including a dummy for city and macro-region. Although some coefficients are significantly different from zero, no clear trend emerges in any of the observable characteristics. Only two out of 21 coefficients are significant at the 1% level, two at the 5% level and 1 at the 10% level. Moreover, the fact that coefficients have different signs over time, attenuates our concern regarding unobservable characteristics leading to spurious results. In Table A6 we conduct the same exercise using the alternative measure of access to cinema,

[21]Macro-regions are defined as Northern Italy, Central Italy and Southern Italy.

$Tickets_{i,1948}$. The results are in line with Table 2. The only systematic trend which emerges is a negative correlation between $Tickets_{i,1948}$ and employment changes in the industrial sector. Places with greater access to cinema in 1948, when proxied by tickets sold per capita, industrialized relatively less in subsequent decades. This red flag, combined with the fact that tickets sold may be measured with less precision than the number of cinema, led us to choose $Cinema_{i,1948}$ as our preferred measure of local access to cinema.[22]

A crucial part of our identifying strategy relies on the predetermined measure of cinema availability in 1948 to predict subsequent access to cinema. Hence, studying its determinants in 1948 and its evolution over time is of first order importance. We do this for both our preferred measure, $Cinema_{i,1948}$, and for $Tickets_{i,1948}$, to allow a comparison between the two variables. Table 3 summarizes the results of a cross-sectional regression, in which both measures of access to cinema in 1948 are regressed separately on macro-region dummies, a city dummy and two group of variables that jointly form our baseline of controls: economic and socio-demographic characteristics. Comparing the results from the two columns, it emerges that cinema consumption and access to cinema infrastructure had pronounced differences. For instance, while tickets per capita are significantly lower in the North of Italy, the opposite is true regarding presence of movie theaters per capita. As expected, local access to cinema is positively related to the employment rate, proxying for economic development but interestingly it is not related to sectorial composition of the labor force.

Figure 3 provides the nationwide geographical distribution of the number of cinema per 1,000 inhabitants in 1948, $Cinema_{1948}$, per city (left panel) and province (right panel), where darker blue indicates greater access to cinema. Although the North and Center display higher cinema availability, there is variation within each macro-region. Some locations in the South and the Islands had relatively high access to cinema. Figure 4 shows the evolution of cinema per 1,000 inhabitants by macro-region (North, Center, South) and by location type (rural

[22]Misreporting of the number of tickets sold is arguably easier than hiding the presence of a movie theater altogether when answering to authorities in charge of royalty collection. Also the concerns of manipulation are more pronounced for tickets: by tampering with the price of tickets, cinema-going can be more easily influenced.

Table 3: Determinants of cinema availability in 1948

	Tickets per capita	Cinema per 1,000 inh
Population	-0.004	-0.000
	(0.004)	(0.000)
City	1.153	-0.082
	(5.419)	(0.044)
North	-8.718**	0.004
	(3.049)	(0.022)
South	1.194	-0.040
	(5.260)	(0.023)
% Illiterate	-0.320	-0.005**
	(0.262)	(0.002)
% College	0.834	-0.003
	(1.323)	(0.011)
Employment rate	0.439*	0.005**
	(0.172)	(0.002)
% Agriculture	-0.565	-0.003*
	(0.313)	(0.001)
% Industrial	-0.531	-0.003
	(0.318)	(0.002)
% Commerce	0.195	-0.005
	(0.484)	(0.003)
Observations	182	180
Mean Dep. Variable	24.674	0.252
R^2	0.638	0.411

Population expressed in thousand of inhabitants. City, North and South are dummies. The remaining variables are expressed in percentage points.

Significant at less than $***$ 1%, $**$ 5%, $*$ 10%.

vs city). In Figures A3 and A2 we plot the spatial distribution and the evolution by macro-region and location type of tickets per capita in 1948, $Tickets_{1948}$.

Figure 5 provides graphical evidence of relevance of our first stage separately for both components of the preferred instrument.[23] In the top panel of Figure 5 we graph the evolution of the number of cinema per capita across locations grouped by decile for each election. The

[23]Figure A1 shows the corresponding evidence when using the variable $Tickets_{i,t}$

Figure 3: 1948 # cinema per 1,000 inhabitants for main cities (left) and rest of province (right)

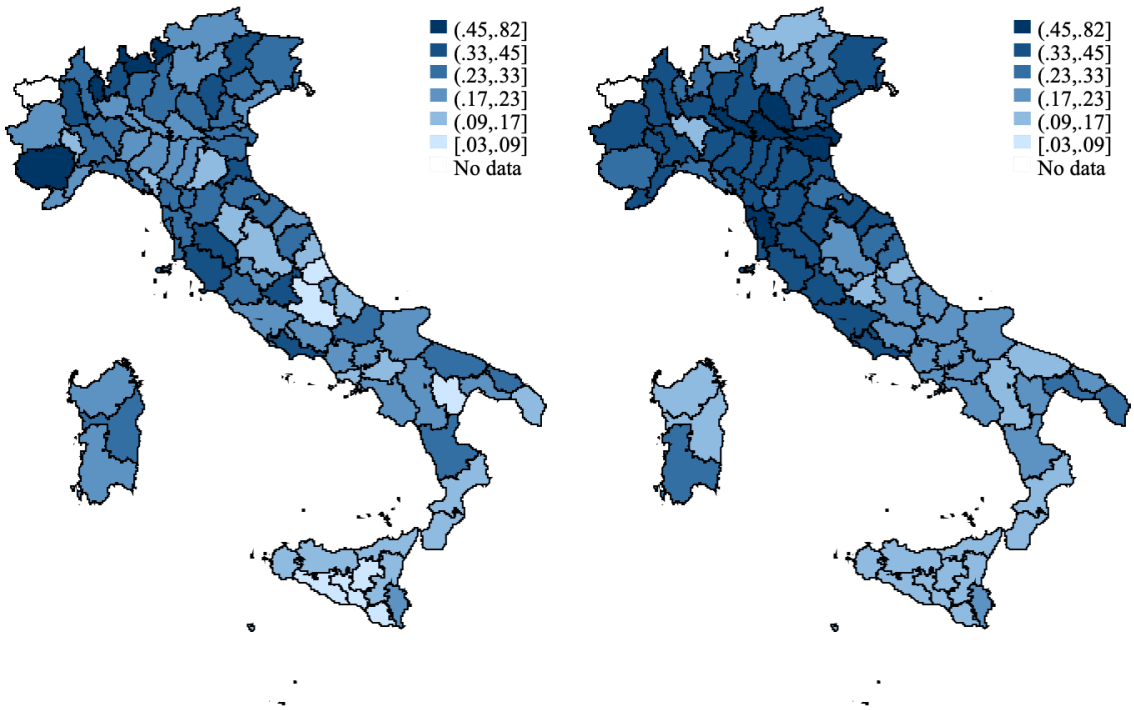
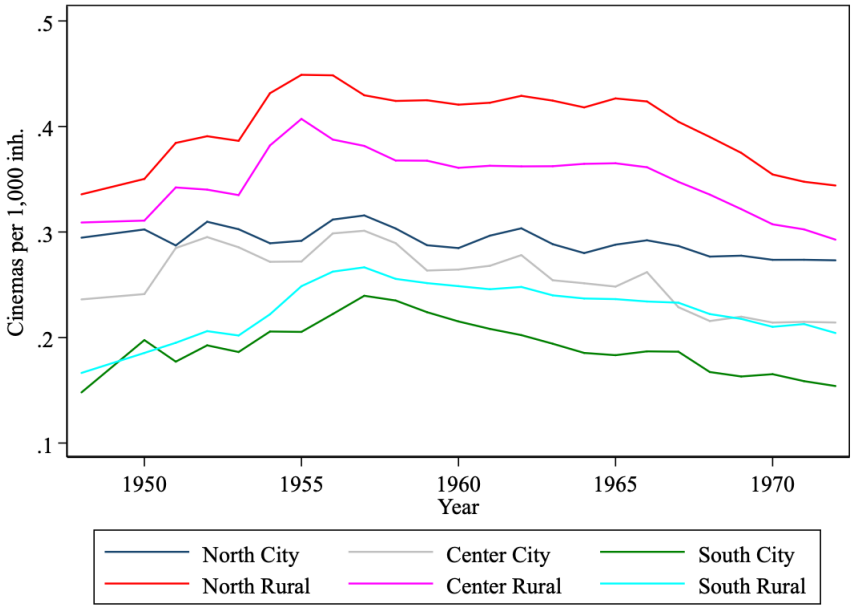
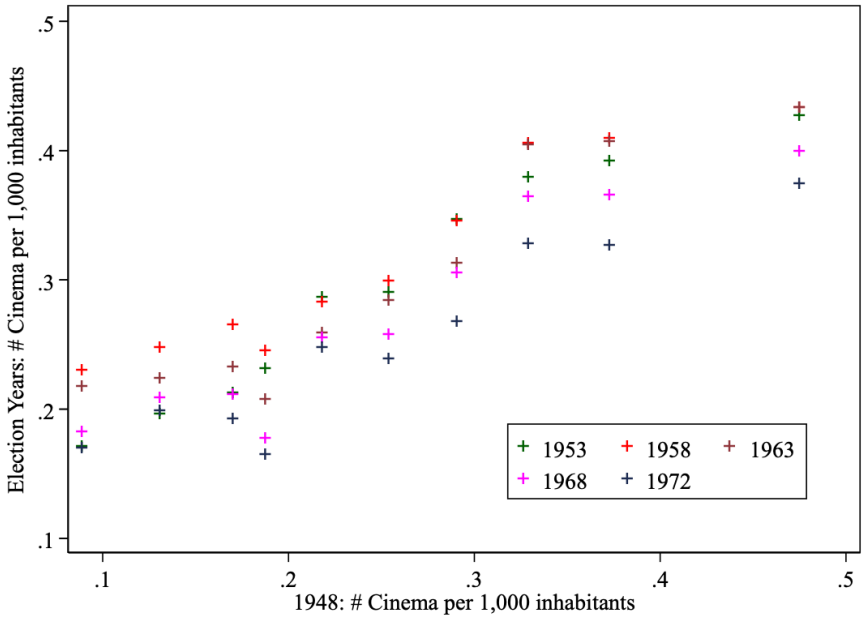


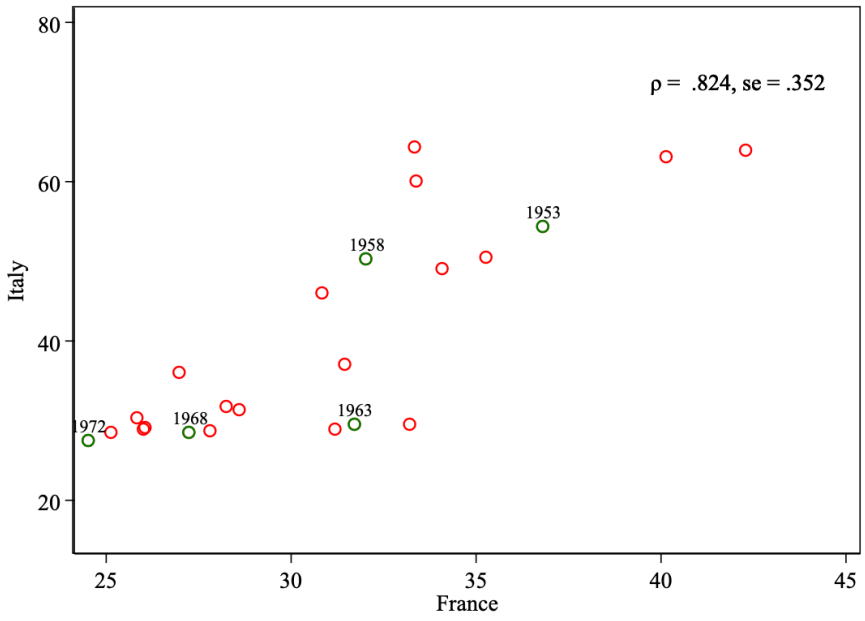
Figure 4: Evolution cinema per 1,000 inhabitants by macro-region and location type



instrument has a strong predictive power. The bottom panel of Figure 5 plots the relationship between US_t^{IT} and US_t^{FR}, that is the other component of the endogenous regressor and the

Figure 5: Partial First Stage of *#Cinema* (top) and Partial First Stage - French Box Office (bottom)



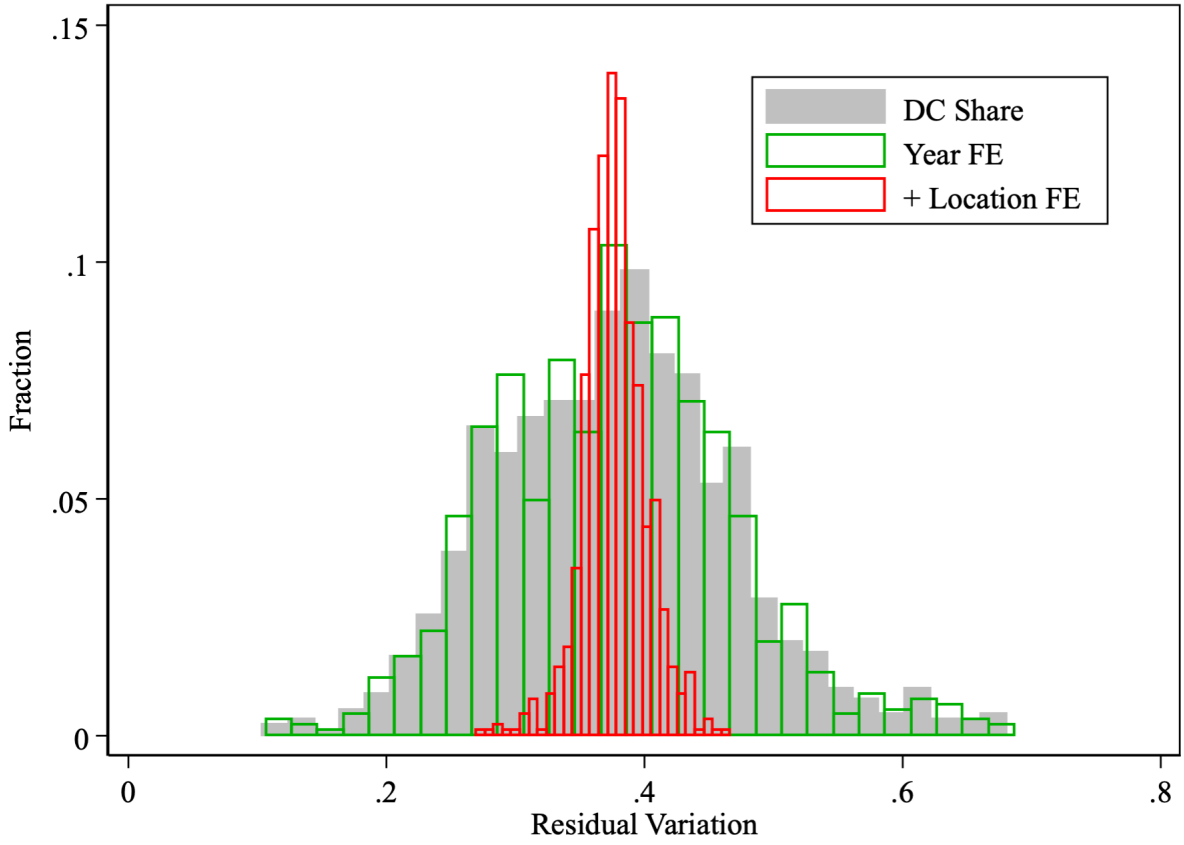


Source: SIAE.

instrument respectively. On the y-axis we plot the share of revenues from U.S. movies on the total box office revenues for Italy while on the x-axis we plot the same variable for France. A visual inspection of the graph confirms that there is a strong positive relationship between the two variables (t-stat = 2.34). The bottom panel of Figure A1 plots the same relationship

with Netherlands instead of France yielding similar results.

Figure 6: Residual Variation - DC



In Figures 6 and A6, we plot the residual variation of the outcome variables of interest, that is the vote share of the DC and PCI. The grey shaded area plots the empirical distribution of the DC and PCI share respectively. The green shaded bars indicate that election fixed effect do not have a great impact in explaining vote shares. However, including location specific characteristics (red shaded bars), removes a considerable amount of variation. The remaining variation has a range of about 18 percentage points. This is the object of interest in the subsequent estimation.

5 Empirical Results

In this section we present the empirical results. We start by discussing the results from OLS estimation. We then present our main result using the two-stages least squares estimation strategy followed by a number of heterogeneity exercises. We then move to present a series of robustness exercises and falsification tests.

OLS Results. Table 4 presents the OLS results from estimating equation (1). In columns 1 to 3 the dependent variable is the vote share for the DC, while in columns 4 to 6 it is the vote share of the PCI. Separate columns refer to different specifications. In column 1 (4), we regress DC Share (PCI Share) on $Cinema_{i,t} \times US_t$ and on a set of location and year dummies, without including any other control. The coefficient of interest, capturing the effect of differential exposure to U.S. movies in the year before elections on the vote share of DC and PCI, is 0.0132 (-0.0101) and it is significantly different from zero at the 1% level. In columns 2 (5), we control for local economic characteristics and for access to TV at the region level. Columns 3 and 6 contain our favorite specifications, where we also include socio-demographic controls. In Table A2 we repeat the exercise using $Tickets_{i,t}$. In all specifications, with exception of column 4 in Table A2, the sign of the estimated coefficients is in line with the hypothesis that U.S. movies generated sentiments of admiration towards a capitalistic view of the world and feelings of resentment towards communism.[24] However, these coefficients cannot be interpreted causally due to the potential endogeneity concerns discussed in section 4. In Table A3 we report the results where we include $Cinema_{i,t}$ uninteracted in the regression, as well as its interaction with the success of U.S. movies. The results are qualitatively and quantitatively similar.

2SLS Results. In Table 5 we show the results from our 2SLS estimation, which constitute the main results of the paper. Column 1 confirms the previous graphical evidence regard-

[24] We interpret the discrepancy in column 4 between the two panels as coming from the spurious relation between tickets sold and industry composition as shown in Table A6. In fact, we observe that coefficients in the two panels align as soon as the relevant controls are included.

Table 4: OLS results

Dependent Variable:	DC Share			PCI Share		
	(1)	(2)	(3)	(4)	(5)	(6)
$US_{i,t} \times$ $Cinema_{i,t}$	0.0132***	0.00943**	0.00661*	-0.0101***	-0.00524*	-0.00306
	(0.00348)	(0.00311)	(0.00309)	(0.00254)	(0.00251)	(0.00267)
Socio-demographic controls			✓			✓
TV		✓	✓		✓	✓
Economic controls		✓	✓		✓	✓
Year FE	✓	✓	✓	✓	✓	✓
Location FE	✓	✓	✓	✓	✓	✓
N	908	908	908	908	908	908
Locations	182	182	182	182	182	182

Notes: The table reports OLS estimates. Standard errors clustered at the location level are in parentheses. Year FE for each election (1953, 1958, 1963, 1968 and 1972). Economic controls include the employment rate, the labor force participation and the labor force composition (agricultural, industrial, commerce and service sector) in each location. Socio-demographic controls include population size, the number of children less than 6 years old, average family size, share of illiterates and the share of people with a college degree. Significant at less than $***$ 1%, $**$ 5%, $*$ 10%.

ing the strength of the first stage. The F-statistic confirms that the instrument is clearly relevant.[25] Columns 2 to 4 and 5 to 7 contain results of regressions where the dependent variables are the vote share of the DC and PCI, respectively.

The 2SLS estimates confirm the pattern of OLS findings: greater exposure to U.S. movies has a positive effect on the DC and a negative on the PC in terms of vote shares. The coefficients of interest are significant across all specifications of the model. The observed increase in magnitude of the estimated coefficients is consistent with the presence of measurement error in the OLS estimates causing attenuation bias. Presence of endogeneity favoring PCI (downward bias for $DCshare$ and upward for $PCIshare$) is possible but arguably less likely, given the historical context.

To summarize, our favored specification, including the whole set of controls, shows that a one standard deviation higher exposure to American movies in the year preceding elections has increased significantly the vote share for the DC and decreased it significantly for the PCI. The two effects are approximately symmetrical, with estimates of 2.45% and -2.32%,

[25]We judge instrument strength based on the effective F-statistic of Olea and Pflueger (2013) as recommended in Andrews et al. (2019).

Table 5: Standard IV

	1^{st} Stage	DC Share			PCI Share		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Instrument	1.056***						
	(0.144)						
Cinema × US_t		0.0420***	0.0297***	0.0245**	-0.0389***	-0.0230**	-0.0232**
		(0.00948)	(0.0110)	(0.0107)	(0.00768)	(0.00999)	(0.0103)
F statistic	53.54						
Socio-demographic controls	✓			✓			✓
TV	✓		✓	✓		✓	✓
Economic controls	✓		✓	✓		✓	✓
Year FE	✓	✓	✓	✓	✓	✓	✓
Location FE	✓	✓	✓	✓	✓	✓	✓
Locations	182	182	182	182	182	182	182
N	908	908	908	908	908	908	908

Notes: The table reports IV estimates from equations (2) and (3). Standard errors clustered at the location level are in parentheses. Year FE for each election (1953, 1958, 1963, 1968 and 1972). Economic controls include the employment rate, the labor force participation and the labor force composition (agricultural, industrial, commerce and service sector) in each location. Socio-demographic controls include population size, the number of children less than 6 years old, average family size, share of illiterates and the share of people with a college degree. Significant at less than $***$ 1%, $**$ 5%, $*$ 10%.

respectively. In Table A4 we repeat the exercise using $Tickets_{i,t}$.

We will now move to analyzing the effect that our measure of movie exposure has had on turnout and on the vote share of the other competing parties. This helps us understand more about the underlying mechanisms at play. In Table 6 we analyze in detail the vote composition: we estimate equation (3) using as dependent variable turnout (column 1) and the vote share of all parties participating in elections (columns 2 to 6). Columns 7 and 8 reports the same results as in Table 5 for DC and PCI for comparison.

We observe a negative but small and statistically insignificant effect on turnout. This is in contrast with the majority of studies which documented a strong negative relationship between different media and turnout (Falck et al. 2014, Gentzkow 2006). Compared to the radio, the TV and the Internet, cinema does not appear to have a strong crowding-out effect. With regard to the effect on other parties, the estimated parameters have a relevant magnitude and significant estimates only for the MSI (Movimento Sociale Italiano). MSI

Table 6: 2SLS: turnout and other parties

	Turnout (1)	MSI (2)	PLI (3)	PRI (4)	PSI (5)	Monarchists (6)	DC (7)	PCI (8)
Cinema × US_t	-0.00833	-0.0138**	0.00482	-0.00307	0.0211	-0.0237	0.0245**	-0.0232**
	(0.00847)	(0.00684)	(0.00516)	(0.00520)	(0.0145)	(0.0151)	(0.0107)	(0.0103)
Socio-demographic controls	✓	✓	✓	✓	✓	✓	✓	✓
TV	✓	✓	✓	✓	✓	✓	✓	✓
Economic controls	✓	✓	✓	✓	✓	✓	✓	✓
Year FE	✓	✓	✓	✓	✓	✓	✓	✓
Location FE	✓	✓	✓	✓	✓	✓	✓	✓
Locations	182	182	182	182	182	182	182	182
N	908	908	908	908	908	718	908	908

was a far-right party with clear neofascist inspiration and unenthusiastic views of the United States (Ignazi and Colette, 1992): we interpret the negative coefficient as a sign of a shift away from extremist positions and towards more moderate positions of the DC. Table A5 reports the result using the alternative measure of local access to cinema, $Tickets_{i,t}$, and obtain similar results.

The results presented document an increase in the vote share of the DC and a decrease in the vote share of the PCI as a consequence of different exposure to Hollywood movies. A full investigation of the mechanisms through which this occurs is limited by data availability at this stage. It is, however, interesting to question which type of movies had greatest persuasive powers. To study the effects of which movie genre had effects in influencing voting choice, we estimate the following reduced form equation:

$$PartyShare_{i,t} = \sum_{g=1}^{G} \beta_g LocalExposure_{i,1948} * GenreShare_{g,t} + \theta_i + \alpha_t + \nu_{i,t}$$

Table A11 reports the results where the omitted category is "Drama & Romance". The exercise appears to be ultimately inconclusive given that the results are not consistent across the two chosen measures of exposure.

Heterogeneity. We next analyze the possibility that the effects of exposure to U.S.

movies before elections may be heterogeneous along different dimensions. In Table 7 we split the sample into main cities and rest of province. We only report results according to our most stringent specification, that is with socio-demographic and economic controls and controlling for owned TV sets.[26] Interestingly, the effect is not significant when we look at main cities (the F-statistics are also lower), but it is entirely driven by rural areas. This is robust to both measures of local access to cinema. This finding is consistent with cinema and exposure to U.S. movies being more important in areas which presumably knew less about the two superpowers and where exposure to movies could impact the most the people's opinions. Differently from cities, where there was a greater competition for leisure time and more widely available information, cinema was the main attraction and one of the few sources of information for rural areas. This is relevant from a policy perspective because it suggests that areas with less access to information and lower education will be the most likely to be influenced by the available media.

In Table 8, we split our sample between "DC areas" and "PCI areas" according to the votes received by the two parties in the 1948 elections.[27] We observe that the magnitude of the effects is largest in DC areas and smaller in PCI areas, suggesting that predisposition to the ideals represented in the movies might be more likely to translate into voting decisions. We stress again that, as in the previous exercise, splitting the sample leads to important reductions in the size of the F-statistics, reducing the precision and credibility of the estimates.

Tables A7 and A8 report heterogeneity analysis by geographical areas and industrialization levels, respectively. No clear pattern of significance or magnitude appears when dividing observation by geographical areas. More industrialized areas display stronger effects, however it should be noted that estimation is much noisier for lesser industrialized areas. For both tables, F-statistics have substantial decreases.

[26]Results are similar for different controls' combinations and are available upon request.

[27]We define "DC areas" as areas where the ratio of DC votes over the sum of DC votes and PCI votes is above the sample median in 1948, and "PCI areas" the remaining half.

Table 7: Heterogeneity: City vs Rural

	Main City			Rest of Province		
	1^{st} Stage	DC	PCI	1^{st} Stage	DC	PCI
Instrument	0.782***			0.941***		
	(0.210)			(0.225)		
Cinema × $US_{success}$		0.0206	-0.00842		0.0305**	-0.0501***
		(0.0152)	(0.0154)		(0.0151)	(0.0138)
F statistic	7.623			23.15		
Socio-demographic controls	✓	✓	✓	✓	✓	✓
TV	✓	✓	✓	✓	✓	✓
Economic controls	✓	✓	✓	✓	✓	✓
Year FE	✓	✓	✓	✓	✓	✓
Location FE	✓	✓	✓	✓	✓	✓
Locations	91	91	91	91	91	91
N	454	454	454	454	454	454

Table 8: Heterogeneity: DC vs PCI Areas

	DC Areas			PCI Areas		
	1^{st} Stage	DC	PCI	1^{st} Stage	DC	PCI
Instrument	0.688***			0.911***		
	(0.209)			(0.224)		
Cinema × $US_{success}$		0.0439*	-0.0389***		0.0113	-0.0127
		(0.0223)	(0.0144)		(0.0124)	(0.0148)
F statistic	7.566			12.95		
Socio-demographic controls	✓	✓	✓	✓	✓	✓
TV	✓	✓	✓	✓	✓	✓
Economic controls	✓	✓	✓	✓	✓	✓
Year FE	✓	✓	✓	✓	✓	✓
Location FE	✓	✓	✓	✓	✓	✓
Locations	89	89	89	89	89	89
N	445	445	445	445	445	445

Robustness. As a robustness check we perform an alternative two sample 2SLS estimation strategy which has been used recently by Chodorow-Reich and Wieland (2019).[28] The logic behind the use this approach originates from the observation that, in our setting, although elections are held every five years, we have information on cinema availability and success of U.S. movies with a yearly frequency. Hence, we include all available information when estimating equation (2), the first stage. Estimation of the second stage, instead, only uses data from election years.[29] We cluster bootstrap standard errors at the local unit level,

[28]The appendix includes a longer explanation for the implementation in our specific case.

[29]In the standard 2SLS case we use only election years for both first and second stage.

so that the structure of the data is preserved.[30] Table A10 reports the results of this exercise, which yields very similar estimates both in sign and in magnitude as the standard case presented in Table 5.

Table A9 reports results using the yearly measure of the box office share of U.S. movies for the Netherlands, in place of the same measure for France. The results of this exercise are qualitatively the same and quantitatively similar to the result shown in table 5. The estimated effects are slightly stronger for the positive effects on DC and slightly less significant for PCI.

Finally, we conduct two falsification tests. First, we perform a permutation test based on the null hypothesis of no effect of cinema. To do this, we create 10,000 surrogate datasets in which the year of success of U.S. movies from our entire sample (1952-1973) is randomly imputed to election years. We then reestimate our most favorite specification for each dataset and store the estimates. Figure 7 displays the distribution of the estimated coefficients for DC (top panel) and PCI vote shares (bottom panel). The distribution of the estimated coefficients on the placebo variable is centered around zero, as expected, and our estimates from Table 5 (Panel A, columns 4 and 7), clearly lie in the extreme parts of the respective distributions.[31]

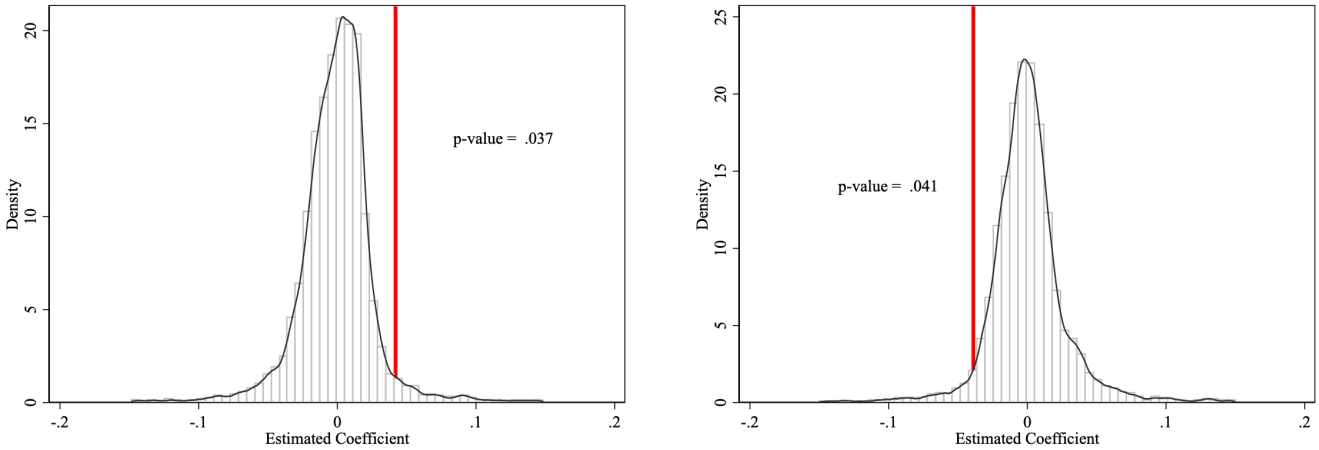
In Table 9 we present an additional falsification test. In this exercise we modify the year at which the explanatory variable, $Cinema \times US_t$, is measured, by imputing to each election-year the success of movies of future elections. We would then expect no effects if there are not spurious trends confounding the relationship between electoral choices and movie success. We repeat this exercise by translating the sample across 4 elections. Although the sign is generally in line with the main finding of the paper, the estimated coefficients are considerably smaller in magnitude and the results are not significant in most cases.

Taken together, the results in Figure 7 and Table 9 increase our confidence in the presented findings.

[30] Intuitively, this preserves the correlation between voting outcomes in the same location.

[31] One sided p-values are reported in the figures for convenience.

Figure 7: Falsification Test



Both Figures show a histogram of estimated coefficients from equation (3), based on 10,000 randomly shuffled years. The vertical line indicates the point estimate in the original data.

Table 9: Falsification Test: shift success U.S. movies

	DC Share				PCI Share			
	+1 E	+2 E	+3 E	+4 E	+1 E	+2 E	+3 E	+4 E
Cinema × US_t	0.00960	0.0189	0.0214*	0.00624	-0.0140	-0.0227**	-0.00918	0.00738
	(0.0110)	(0.0115)	(0.0119)	(0.0107)	(0.00877)	(0.00878)	(0.00745)	(0.00592)
Locations	180	180	180	180	180	180	180	180
N	900	900	900	900	900	900	900	900
+1 E: 1958^{true}	$\Longrightarrow$	1953	.....	1976^{true}	$\Longrightarrow$	1972		
+2 E: 1963^{true}	$\Longrightarrow$	1953	.....	1979^{true}	$\Longrightarrow$	1972		
+3 E: 1968^{true}	$\Longrightarrow$	1953	.....	1983^{true}	$\Longrightarrow$	1972		
+4 E: 1963^{true}	$\Longrightarrow$	1953	.....	1979^{true}	$\Longrightarrow$	1972		

6 Conclusion

In this paper we have documented the influence of cinema on electoral outcomes in a highly polarized political context. Our analysis draws on the historical experience of a country where cinema-going was remarkably widespread and cut across social classes, and where Hollywood movies were extremely successful.

The main historical contribution is the estimation of the impact of U.S. movies in influencing voting choices in Italy during the Cold War. We find that Hollywood movies had an effect on the vote share of parties at the two extremes of the ideological divide which marked the Cold War. Specifically, greater exposure to U.S. movies before elections led to gains for the DC, the party representing capitalistic values, and losses for the PCI, the communist

party closely connected to the Soviet Union. The estimated coefficients are large. We believe that these constitute an upper bound in today's societies where cinema represents a smaller share of media consumption.

Another contribution is related to the economic literature on the effects of media. One usual challenge in these contexts is finding exogenous variation to estimate unbiased coefficients. We propose an instrument that, to the best of our knowledge, has not been used before in this specific literature, exploiting time variation in the penetration of Hollywood movies combined with local access to cinema.

The estimated effects, leveraging on success of U.S. movies in the year leading up to the election, are short-term effects. An interesting avenue for future research would be to estimate longer term effects of exposure to movies, possibly at different ages.

We perform several robustness exercises to validate our findings. We explore some dimensions of heterogeneity to understand possible mechanisms mediating the newly discovered effects. We find that DC gains were obtained at the expense of PCI, with minimal effects on turnout. This contrast other studies documenting a negative relationship between turnout and internet (Falck et al. 2014), and television (Gentzkow 2006). We also find that the effect is stronger for rural areas. This is consistent with the idea that cinema and exposure to U.S. movies were more influential in areas with less access to information and lower education. We can also expect movies to have heterogenous effects according to the age dimension.

More research is required to understand the deep mechanisms at work, hopefully shedding light on current day phenomena such as polarization and on the decisions of dictatorships about limiting access to foreign media. Our results call for an investigation of the persuasive power of different movies. This was not feasible in our context because of data limitations.

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Appendix

Additional Tables and Figures

Table A1: National Elections

Election	Christian Democracy	Italian Communist Party	3rd Party
1948	48.5	31.0*	7.1[a]
1953	40.1	22.6	12.7[b]
1958	42.4	22.7	14.2[b]
1963	38.3	25.2	13.8[b]
1968	39.1	26.9	14.5[c]
1972	38.7	27.2	9.6[b]
1976	38.7	34.4	9.6[b]
1979	38.3	30.4	9.8[b]
1983	32.9	29.9	11.4[b]
1987	34.3	26.6	14.3[b]

* The party running was a coalition formed by socialists and communists.
[b] Italian Socialist Party
[c] Unified Socialist Party

Table A2: OLS results

Dependent Variable:	DC Share			PCI Share		
	(1)	(2)	(3)	(4)	(5)	(6)
Tickets × US_t	0.00233	0.00618	0.00857**	0.00841***	-0.00117	-0.000209
	(0.00376)	(0.00408)	(0.00399)	(0.00268)	(0.00292)	(0.00283)
Socio-demographic controls			✓			✓
TV		✓	✓		✓	✓
Economic controls		✓	✓		✓	✓
Year FE	✓	✓	✓	✓	✓	✓
Location FE	✓	✓	✓	✓	✓	✓
N	908	908	908	908	908	908
Locations	182	182	182	182	182	182

The table reports OLS estimates. Standard errors clustered at the location level are in parentheses. Year FE for each election (1953, 1958, 1963, 1968 and 1972). Economic controls include the employment rate, the labor force participation and the labor force composition (agricultural, industrial, commerce and service sector) in each location. Socio-demographic controls include population size, the number of children less than 6 years old, average family size, share of illiterates and the share of people with a college degree. Significant at less than $***$ 1%, $**$ 5%, $*$ 10%.

Table A3: OLS with contemporaneous measure of access to cinema

	DC Share			PCI Share		
	(1)	(2)	(3)	(4)	(5)	(6)
Cinema × US_t	0.0343***	0.0283***	0.0258***	-0.0227***	-0.00511	-0.00264
	(0.00671)	(0.00712)	(0.00712)	(0.00488)	(0.00558)	(0.00611)
Cinema	-0.194***	-0.157**	-0.154**	0.116**	-0.00109	-0.00336
	(0.0474)	(0.0516)	(0.0494)	(0.0384)	(0.0413)	(0.0432)
Socio-demographic controls			✓			✓
TV		✓	✓		✓	✓
Economic controls		✓	✓		✓	✓
Year FE	✓	✓	✓	✓	✓	✓
Location FE	✓	✓	✓	✓	✓	✓
N	908	908	908	908	908	908
Locations	182	182	182	182	182	182

Table A4: IV Results

	1^{st} Stage	DC Share			PCI Share		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Instrument	2.081***						
	(0.322)						
Tickets × US_t		0.00140	-0.00245	0.00393	0.00485	-0.00417	-0.00520
		(0.00465)	(0.00661)	(0.00741)	(0.00362)	(0.00532)	(0.00583)
F statistic	41.73						
Socio-demographic controls	✓			✓			✓
TV	✓		✓	✓		✓	✓
Economic controls	✓		✓	✓		✓	✓
Year FE	✓	✓	✓	✓	✓	✓	✓
Location FE	✓	✓	✓	✓	✓	✓	✓
Locations	182	182	182	182	182	182	182
N	908	908	908	908	908	908	908

Table A5: 2SLS: turnout and other parties

	Turnout	MSI	PLI	PRI	PSI	Monarchists	DC	PCI
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Tickets × US_t	-0.00385	0.00119	0.00190	-0.00362	0.00181	-0.00239	0.00393	-0.00520
	(0.00463)	(0.00883)	(0.00386)	(0.00361)	(0.0100)	(0.0162)	(0.00741)	(0.00583)
Socio-demographic controls	✓	✓	✓	✓	✓	✓	✓	✓
TV	✓	✓	✓	✓	✓	✓	✓	✓
Economic controls	✓	✓	✓	✓	✓	✓	✓	✓
Year FE	✓	✓	✓	✓	✓	✓	✓	✓
Location FE	✓	✓	✓	✓	✓	✓	✓	✓
Locations	182	182	182	182	182	182	182	182
N	908	908	908	908	908	718	908	908

Table A6: Trends Analysis: Tickets

	1936-1951	1951-1961	1961-1971	1971-1981
Population	2.78	7.76	9.95*	2.96
	(7.13)	(4.76)	(5.71)	(3.56)
% Illiterate pop.	-0.077	-0.032	-0.10*	0.055
	(0.24)	(0.093)	(0.058)	(0.039)
Employment rate	-0.43	0.34	0.15	0.17
	(0.40)	(0.22)	(0.19)	(0.28)
% Agricultural sector	-0.36	0.37	0.041	0.24
	(0.71)	(0.38)	(0.26)	(0.18)
% Industrial sector	-1.14**	-0.66*	-1.00***	-0.34
	(0.54)	(0.39)	(0.33)	(0.29)
% Services sector	0.78*	-0.34	0.26	-0.41*
	(0.41)	(0.33)	(0.23)	(0.22)
% Commerce sector	0.83***	-0.23	-0.048	-0.20
	(0.20)	(0.18)	(0.13)	(0.12)
Observations	182	182	182	182

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table A7: Heterogeneity: Geographical Areas

	North			Center			South		
	1^{st} Stage	DC	PCI	1^{st} Stage	DC	PCI	1^{st} Stage	DC	PCI
Instrument	0.479*			1.367***			1.375***		
	(0.251)			(0.169)			(0.298)		
Cinema × $US_{success}$		-0.0123	-0.0252		0.0191**	-0.00289		0.0327	-0.0568**
		(0.0135)	(0.0209)		(0.00926)	(0.0101)		(0.0301)	(0.0220)
F statistic	7.522			10.97			5.208		
Socio-demographic controls	✓	✓	✓	✓	✓	✓	✓	✓	✓
TV	✓	✓	✓	✓	✓	✓	✓	✓	✓
Economic controls	✓	✓	✓	✓	✓	✓	✓	✓	✓
Year FE	✓	✓	✓	✓	✓	✓	✓	✓	✓
Location FE	✓	✓	✓	✓	✓	✓	✓	✓	✓
Locations	62	62	62	66	66	66	54	54	54
N	308	308	308	330	330	330	270	270	270

Table A8: Heterogeneity: Industrialization Patterns

	Deindustrializing Areas			Industrializing Areas		
	1^{st} Stage	DC	PCI	1^{st} Stage	DC	PCI
Instrument	0.780**			0.824***		
	(0.313)			(0.274)		
Cinema × $US_{success}$		0.0173	-0.0234		0.0318**	-0.0242*
		(0.0212)	(0.0150)		(0.0156)	(0.0138)
F statistic	5.584			13.55		
Socio-demographic controls	✓	✓	✓	✓	✓	✓
TV	✓	✓	✓	✓	✓	✓
Economic controls	✓	✓	✓	✓	✓	✓
Year FE	✓	✓	✓	✓	✓	✓
Location FE	✓	✓	✓	✓	✓	✓
Locations	108	108	108	108	108	108
N	433	433	433	433	433	433

Table A9: Robustness: IV Netherlands

	1^{st} Stage	DC Share			PCI Share		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Instrument	0.779***						
	(0.0989)						
Cinema × US_t		0.0472***	0.0414***	0.0409***	-0.0243***	-0.0117	-0.00941
		(0.00971)	(0.0107)	(0.0116)	(0.00724)	(0.00773)	(0.00851)
F statistic	61.96						
Socio-demographic controls	✓			✓			✓
TV	✓		✓	✓		✓	✓
Economic controls	✓		✓	✓		✓	✓
Year FE	✓	✓	✓	✓	✓	✓	✓
Location FE	✓	✓	✓	✓	✓	✓	✓
Locations	182	182	182	182	182	182	182
N	908	908	908	908	908	908	908

Table A10: Two samples 2SLS

	1^{st} Stage	DC Share			PCI Share		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Instrument	1.129***						
	(0.148)						
Cinema × US_t		0.0393***	0.0270**	0.0230*	-0.0364***	-0.0209**	-0.0218*
		(0.0101)	(0.0119)	(0.0120)	(0.00796)	(0.0105)	(0.0114)
F statistic	58.34						
Socio-demographic controls	✓			✓			✓
TV	✓		✓	✓		✓	✓
Economic controls	✓		✓	✓		✓	✓
Year FE	✓	✓	✓	✓	✓	✓	✓
Location FE	✓	✓	✓	✓	✓	✓	✓
Locations	182	182	182	182	182	182	182
N	3820	908	908	908	908	908	908

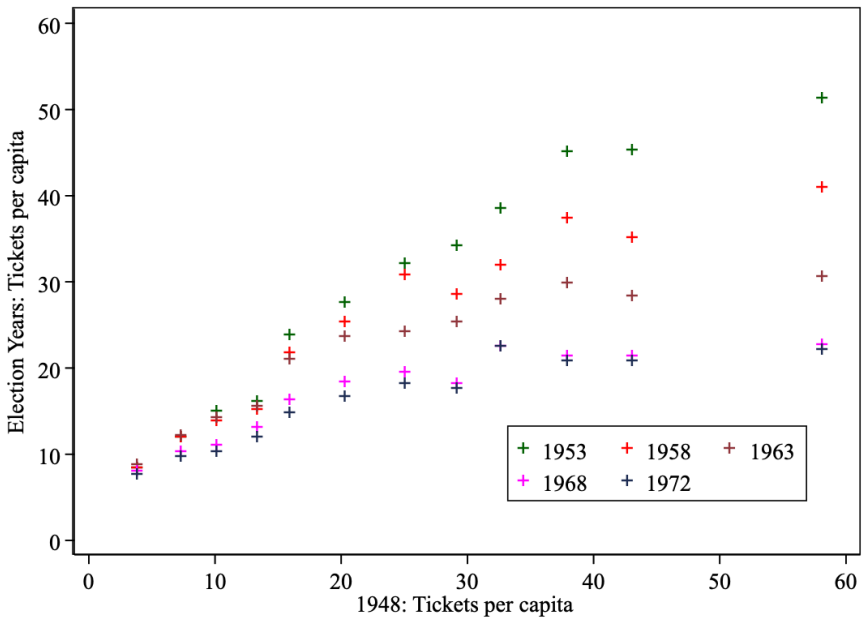
Table A11: Movies' Genre - Drama & Romance is the omitted category

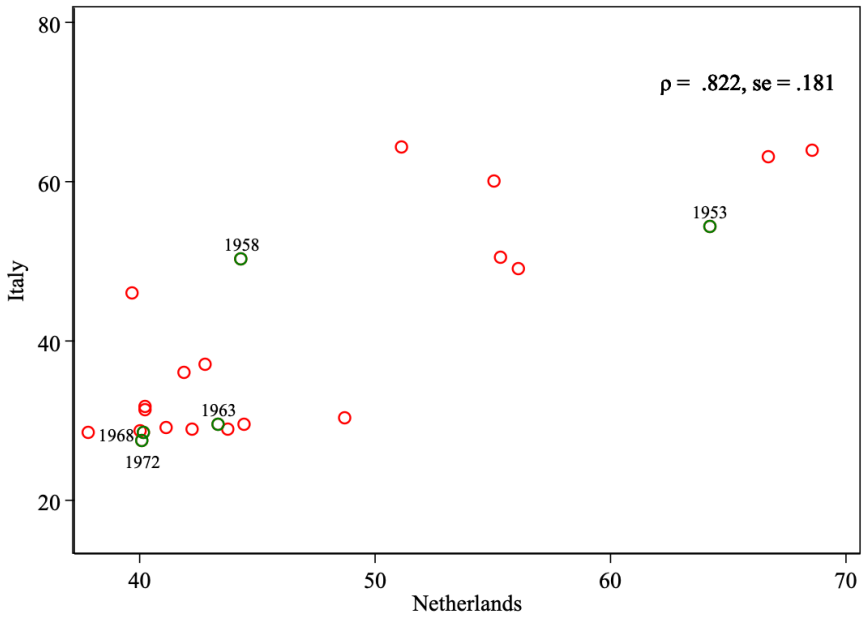
	Tickets		Cinema	
	DC voti	PCI voti	DC voti	PCI voti
Action & Adventure	-0.00134	0.00618*	-510.0	-763.7**
	(0.00347)	(0.00314)	(452.0)	(312.4)
Comedy & Family	0.000174	-0.00143	42.17	381.5***
	(0.00152)	(0.00149)	(199.1)	(134.9)
Crime & Thriller	0.000649	-0.00236	75.47	431.6***
	(0.00143)	(0.00146)	(180.6)	(131.4)
War	-0.00195	-0.00610**	222.1	409.3*
	(0.00303)	(0.00266)	(350.1)	(242.1)
Western	0.00328	0.000560	1453.4***	-514.0***
	(0.00333)	(0.00233)	(252.4)	(156.4)
N	908	908	908	908

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Figure A1: Partial First Stage of *Tickets_Sold* (top) and Partial First Stage of Dutch Box Office (bottom)





The share of box office revenues of US movies on total yearly revenues are plotted in the graph. The y-axis indicates Italy and the x-axis the Netherlands. The green circles indicate election years.
Sources: Gyory (1992) and SIAE.

Figure A2: Evolution tickets per capita by macro-region and location type

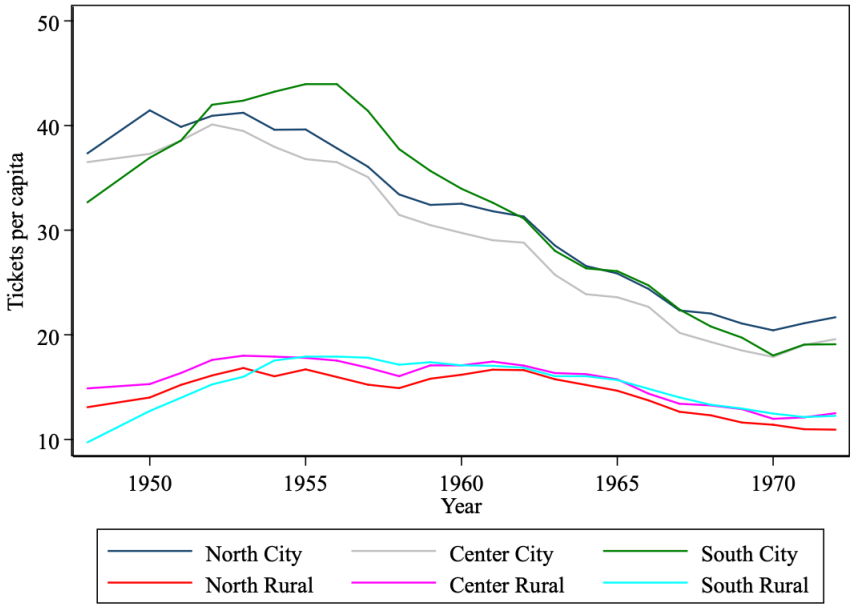


Figure A3: 1948 tickets per capita for main cities (left) and rest of province (right)

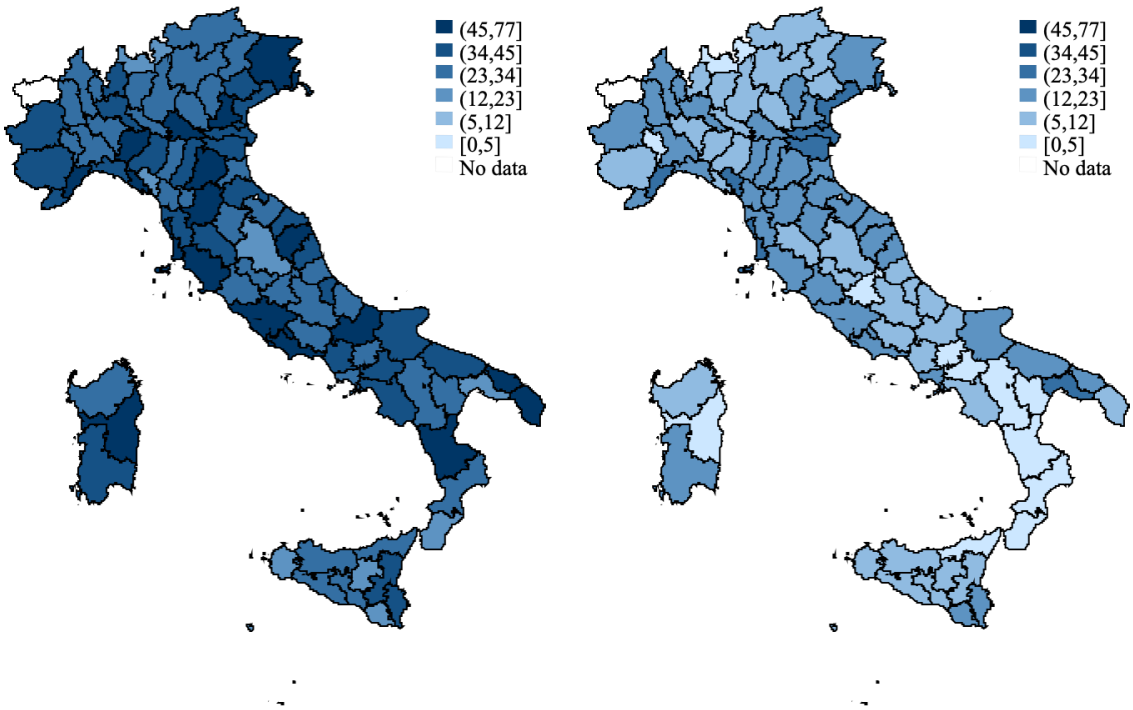
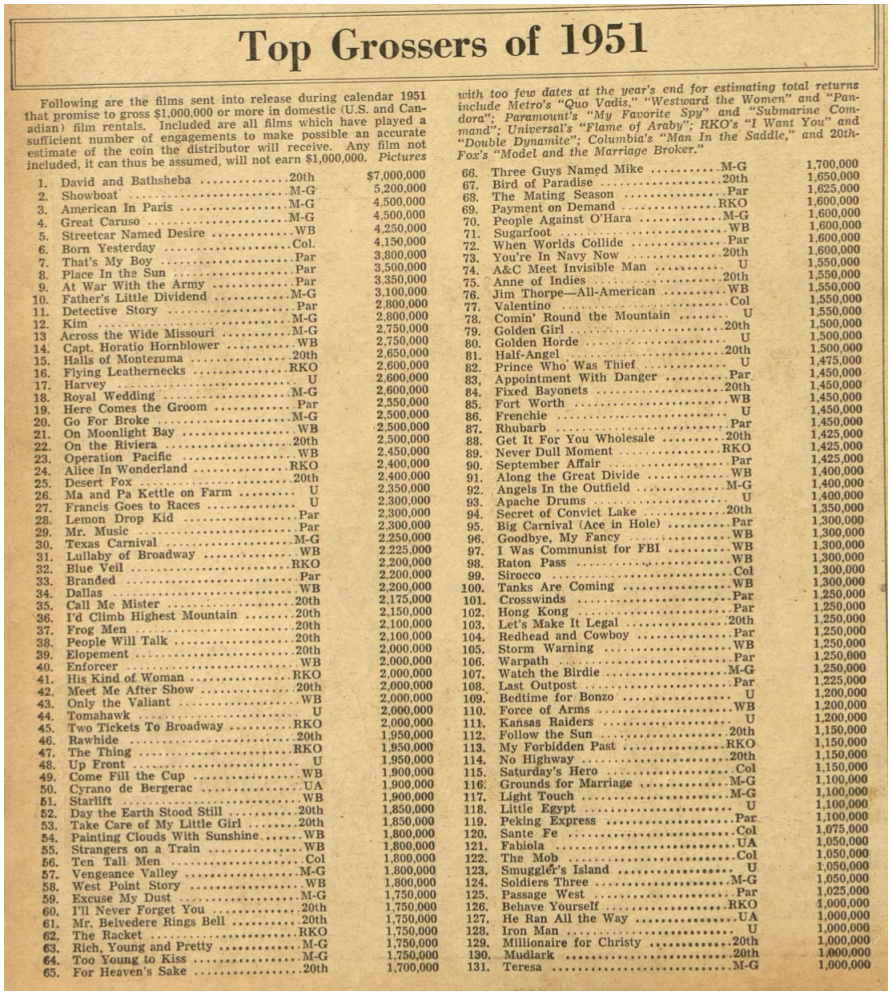


Figure A4: Top grossing movies for 1951

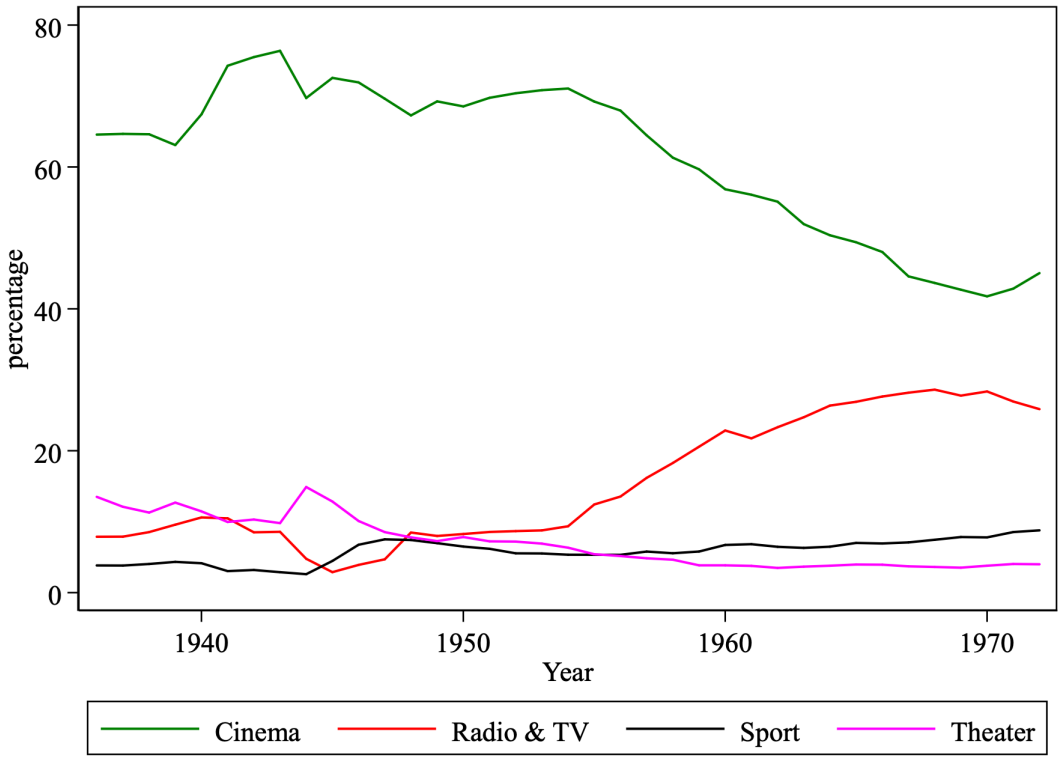


Top Grossers of 1951

Following are the films sent into release during calendar 1951 that promise to gross $1,000,000 or more in domestic (U.S. and Canadian) film rentals. Included are all films which have played a sufficient number of engagements to make possible an accurate estimate of the coin the distributor will receive. Any film not included, it can thus be assumed, will not earn $1,000,000. *Pictures with too few dates at the year's end for estimating total returns include Metro's "Quo Vadis," "Westward the Women" and "Pandora"; Paramount's "My Favorite Spy" and "Submarine Command"; Universal's "Flame of Araby"; RKO's "I Want You" and "Double Dynamite"; Columbia's "Man In the Saddle," and 20th-Fox's "Model and the Marriage Broker."*

1.	David and Bathsheba	20th	$7,000,000
2.	Showboat	M-G	5,200,000
3.	American In Paris	M-G	4,500,000
4.	Great Caruso	M-G	4,500,000
5.	Streetcar Named Desire	WB	4,250,000
6.	Born Yesterday	Col.	4,150,000
7.	That's My Boy	Par	3,800,000
8.	Place In the Sun	Par	3,500,000
9.	At War With the Army	Par	3,350,000
10.	Father's Little Dividend	M-G	3,100,000
11.	Detective Story	Par	2,800,000
12.	Kim	M-G	2,800,000
13	Across the Wide Missouri	M-G	2,750,000
14.	Capt. Horatio Hornblower	WB	2,750,000
15.	Halls of Montezuma	20th	2,650,000
16.	Flying Leathernecks	RKO	2,600,000
17.	Harvey	U	2,600,000
18.	Royal Wedding	M-G	2,600,000
19.	Here Comes the Groom	Par	2,550,000
20.	Go For Broke	M-G	2,500,000
21.	On Moonlight Bay	WB	2,500,000
22.	On the Riviera	20th	2,500,000
23.	Operation Pacific	WB	2,450,000
24.	Alice In Wonderland	RKO	2,400,000
25.	Desert Fox	20th	2,400,000
26.	Ma and Pa Kettle on Farm	U	2,350,000
27.	Francis Goes to Races	U	2,300,000
28.	Lemon Drop Kid	Par	2,300,000
29.	Mr. Music	Par	2,300,000
30.	Texas Carnival	M-G	2,250,000
31.	Lullaby of Broadway	WB	2,225,000
32.	Blue Veil	RKO	2,200,000
33.	Branded	Par	2,200,000
34.	Dallas	WB	2,200,000
35.	Call Me Mister	20th	2,175,000
36.	I'd Climb Highest Mountain	20th	2,150,000
37.	Frog Men	20th	2,100,000
38.	People Will Talk	20th	2,100,000
39.	Elopement	WB	2,000,000
40.	Enforcer	WB	2,000,000
41.	His Kind of Woman	RKO	2,000,000
42.	Meet Me After Show	20th	2,000,000
43.	Only the Valiant	WB	2,000,000
44.	Tomahawk	U	2,000,000
45.	Two Tickets To Broadway	RKO	2,000,000
46.	Rawhide	20th	1,950,000
47.	The Thing	RKO	1,950,000
48.	Up Front	U	1,950,000
49.	Come Fill the Cup	WB	1,900,000
50.	Cyrano de Bergerac	UA	1,900,000
51.	Starlift	WB	1,900,000
52.	Day the Earth Stood Still	20th	1,850,000
53.	Take Care of My Little Girl	20th	1,850,000
54.	Painting Clouds With Sunshine	WB	1,800,000
55.	Strangers on a Train	WB	1,800,000
56.	Ten Tall Men	Col	1,800,000
57.	Vengeance Valley	M-G	1,800,000
58.	West Point Story	WB	1,800,000
59.	Excuse My Dust	M-G	1,750,000
60.	I'll Never Forget You	20th	1,750,000
61.	Mr. Belvedere Rings Bell	20th	1,750,000
62.	The Racket	RKO	1,750,000
63.	Rich, Young and Pretty	M-G	1,750,000
64.	Too Young to Kiss	M-G	1,750,000
65.	For Heaven's Sake	20th	1,700,000
66.	Three Guys Named Mike	M-G	1,700,000
67.	Bird of Paradise	20th	1,650,000
68.	The Mating Season	Par	1,625,000
69.	Payment on Demand	RKO	1,600,000
70.	People Against O'Hara	M-G	1,600,000
71.	Sugarfoot	WB	1,600,000
72.	When Worlds Collide	Par	1,600,000
73.	You're In Navy Now	20th	1,600,000
74.	A&C Meet Invisible Man	U	1,550,000
75.	Anne of Indies	20th	1,550,000
76.	Jim Thorpe—All-American	WB	1,550,000
77.	Valentino	Col	1,550,000
78.	Comin' Round the Mountain	U	1,550,000
79.	Golden Girl	20th	1,500,000
80.	Golden Horde	U	1,500,000
81.	Half-Angel	20th	1,500,000
82.	Prince Who Was Thief	U	1,475,000
83.	Appointment With Danger	Par	1,450,000
84.	Fixed Bayonets	20th	1,450,000
85.	Fort Worth	WB	1,450,000
86.	Frenchie	U	1,450,000
87.	Rhubarb	Par	1,450,000
88.	Get It For You Wholesale	20th	1,425,000
89.	Never Dull Moment	RKO	1,425,000
90.	September Affair	Par	1,425,000
91.	Along the Great Divide	WB	1,400,000
92.	Angels In the Outfield	M-G	1,400,000
93.	Apache Drums	U	1,400,000
94.	Secret of Convict Lake	20th	1,350,000
95.	Big Carnival (Ace in Hole)	Par	1,300,000
96.	Goodbye, My Fancy	WB	1,300,000
97.	I Was Communist for FBI	WB	1,300,000
98.	Raton Pass	WB	1,300,000
99.	Sirocco	Col	1,300,000
100.	Tanks Are Coming	WB	1,300,000
101.	Crosswinds	Par	1,250,000
102.	Hong Kong	Par	1,250,000
103.	Let's Make It Legal	20th	1,250,000
104.	Redhead and Cowboy	Par	1,250,000
105.	Storm Warning	WB	1,250,000
106.	Warpath	Par	1,250,000
107.	Watch the Birdie	M-G	1,250,000
108.	Last Outpost	Par	1,225,000
109.	Bedtime for Bonzo	U	1,200,000
110.	Force of Arms	WB	1,200,000
111.	Kansas Raiders	U	1,200,000
112.	Follow the Sun	20th	1,150,000
113.	My Forbidden Past	RKO	1,150,000
114.	No Highway	20th	1,150,000
115.	Saturday's Hero	Col	1,150,000
116.	Grounds for Marriage	M-G	1,100,000
117.	Light Touch	M-G	1,100,000
118.	Little Egypt	U	1,100,000
119.	Peking Express	Par	1,100,000
120.	Santa Fe	Col	1,075,000
121.	Fabiola	UA	1,050,000
122.	The Mob	Col	1,050,000
123.	Smuggler's Island	U	1,050,000
124.	Soldiers Three	M-G	1,050,000
125.	Passage West	Par	1,025,000
126.	Behave Yourself	RKO	1,000,000
127.	He Ran All the Way	UA	1,000,000
128.	Iron Man	U	1,000,000
129.	Millionaire for Christy	20th	1,000,000
130.	Mudlark	20th	1,000,000
131.	Teresa	M-G	1,000,000

Figure A5: Yearly expenditure by type of entertainment in Italy



Source: SIAE.

Figure A6: Residual Variation - PCI