

**The Role of an Emerging Industry's Cultural Embeddedness and Social Salience in the Decline of an Incumbent Market\***

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October 19, 2021

\*We greatly appreciate feedback on earlier versions of the manuscript from Josh Bruce, Stanislav Dobrev, Melissa Graebner, Matt Kraatz, Hyeonsuh Lee, Cathy Lu, Geoff Love, Willie Ocasio, Sonali Shah, Olav Sorenson and Hui Sun; seminar participants at the University of Illinois at Urbana-Champaign and Universidad Carlos III de Madrid; and conference participants at the 2020 Nagymaros Conference, 2020 Institutions and Innovation Conference, 2021 EGOS colloquium, and 2021 Academy of Management Annual Meeting.

## **Abstract**

How can an emerging industry without initial obvious technical, ideological, or collective action advantages cause the decline of an established market? To answer this question, we need to identify mechanisms that shift consumer attention from the old to the new industry, even when the latter does not possess obvious advantages. In this paper, we develop two such mechanisms – cultural embeddedness and social salience – to explain how organizations in an emerging industry can help customers see their novel offerings as familiar as well as perceive these offerings as potential substitutes for incumbent products. We suggest that companies in an emerging market may achieve cultural embeddedness by immersing their novel offerings in cultural artifacts of an incumbent industry. Newcomers may also achieve higher social salience by reflecting public discourse in their offerings better than the incumbent industry. Cultural embeddedness and social salience prompt customers to shift their limited attention and resources from the established market to the emerging industry, causing the former to decline. We find empirical support for our theorizing in an event history analysis of how the incumbent industry of all single-screen movie theaters in the state of Illinois was negatively affected by the newcomer U.S. TV programming industry during 1944-1962.

## INTRODUCTION

Industrial history is rich with examples of emerging industries eroding or even displacing related incumbent markets, such as automobiles rendering carriages obsolete (Klepper, 2002), e-commerce threatening the viability of brick-and-mortar retailers (Raffaelli, 2020), sharing ride services reducing demand for taxicab companies (Garud, Kumaraswamy, Roberts, & Xu, 2020), and multiple others. The literature has found that emerging industries manage to disrupt established markets when newcomers possess technological advantage (defined as a significant price/performance improvement over existing technology) to which incumbents find it difficult to respond (Anderson & Tushman, 1990; Schumpeter, 1934). Yet many historical examples reveal that at earlier stages of market emergence, key audiences like consumers often have a difficult time comprehending and appreciating offerings that are unfamiliar to them (Rindova & Petkova, 2007; Rosa, Porac, Runser-Spanjol, & Saxon, 1999; Suarez, Grodal, & Gotsopoulos, 2015). Furthermore, the initial costs of producing offerings based on a new technology can be high, making it hard to lower the price (Benner, 2010; Tripsas, 1997). As a result, no matter how promising a new industry's future might look like, an average customer may either be unable to perceive its initial price/performance improvement or find it not appealing enough to shift her/his attention from incumbents to newcomers.

Consider, for example, the empirical setting of this paper. It is widely believed that the rise of the TV broadcasting industry eroded the single-screen movie theater market<sup>1</sup> during the 1940s-1960s because television enabled people to enjoy visual entertainment conveniently at home (Gil & Gutierrez-Navratil, 2017; Stokes, 2000; Takahashi, 2015). However, this novelty was accompanied by initial technological underdevelopment and high price, which weakened its appeal. Specifically, the TV broadcasting delivery method (based on unreliable antenna reception), screen technologies (small and fuzzy), and quality of programming<sup>2</sup> were all considered by the contemporary consumers as inferior to those in the movie

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<sup>1</sup> The first multi-screen cinema in the U.S. appeared in 1963. This study concerns single-screen theaters only and ends its observation window in 1962.

<sup>2</sup> TV broadcasters and movie theaters offered different types of "moving pictures." Television showed TV programs, whereas movie theaters showed movies. First-run movies were never available on TV during our observation period.

theater industry (Balio, 1990). Moreover, in the late 1940s, while a movie ticket cost 30-50 cents, a television set cost 350-700 dollars, when the median annual family income was about \$3,100. Although TV enthusiasts and families with significant disposable income might have purchased TV sets regardless, it is unclear how the nascent TV broadcasting industry managed to appeal to the mass audience that had been frequent goers to movie theaters.

Existing literature suggests that when the functional and economic value of novel offerings is ambiguous, organizations in a new industry can deploy socio-cultural strategies to generate favorable perceptions to win over audiences from established markets (Phillips & Owens, 2004; Ravasi, Rindova, & Dalpiaz, 2012). Specifically, newcomers can infuse their novel offerings with ideology that resonates with key audiences (Verhaal, Khessina, & Dobrev, 2015; Zelizer, 1978). For example, microbreweries reduced the demand for mass produced beer by upholding an anti-mass production ideology that appealed to audiences with anti-mass society sentiments (Carroll & Swaminathan, 2000). Another strategy that organizations in a new industry can undertake to win over audiences is to mobilize collective action both to explain novel offerings to consumers and alleviate consumer concerns about quality of these offerings (King & Pearce, 2010; Weber, Heinze, & DeSoucey, 2008). For example, the earliest automobile producers organized certification contests to demonstrate cars' reliable substitutability for carriages and bicycles (Rao, 1994). Yet, ideological appeal and collective action do not always apply. In our empirical setting, TV broadcasting organizations and market enthusiasts did not generate any profound ideological appeal; neither did they manage to mobilize collective action to promote this new market (Smoodin, 1982). Thus, how new industries like TV broadcasting manage to erode incumbent markets like movie theaters remains a puzzle.

In this paper, we aim to explain how a new industry may cause the decline of an incumbent market when the new industry's initial price/performance advantage is not obvious and appealing ideology and collective action are missing. Drawing on the institutional and cultural literature on embeddedness (Hargadon & Douglas, 2001; Zukin & DiMaggio, 1990), research on social cognition and attention (Fiske & Taylor, 1984; Simon, 1955) and socio-cognitive dynamics of markets (Pinch & Bijker,

1984; Rosa et al., 1999), we theorize about the mechanisms of cultural embeddedness and social salience to explain how a newcomer industry without initial obvious technical, ideological and collective action advantages may erode an established market by attracting and sustaining audience attention in inter-industry competition.

We propose that a new industry may contribute to the decline of an incumbent market when many organizations in the new industry (1) embed their offerings in cultural artifacts of this incumbent market, and/or (2) obtain social salience by reflecting public discourse in their offerings more closely than related incumbents. These two mechanisms of cultural embeddedness and social salience, respectively, not only help a new market attract audience attention by striking a balance between novelty and familiarity, but also generate the perception of commonality and, consequently, substitutability between the new and incumbent offerings. Perceived substitutability may motivate customers to shift their limited attention and resources from an established market to a more exciting new industry and cause the decline of the former as a result. The impact of cultural embeddedness and social salience should be especially powerful at the nascent stage of industry development and diminish as the new industry becomes taken for granted.

We find support for our theorizing in an event history analysis study of how the incumbent industry of all single-screen movie theaters in the state of Illinois was affected by the newcomer TV programming industry in 1944-1962. Our analyses show that both cultural embeddedness and social salience utilized by the TV programming industry reduced the survival chances of movie theaters. The impact of these two factors attenuated as the TV programming industry matured.

## **THEORETICAL ARGUMENTS AND HYPOTHESES**

### **The Role of Novelty and Familiarity in Attracting Customer Attention**

Novelty, defined as a new idea, technology, or practice, provides both the material and ideational foundations for the emergence of a new market (Cattani, Ferriani, & Lanza, 2017; Seidel & Greve, 2017). If audiences find an emerging market's novel offerings appealing, this new market has the potential to grow and erode related incumbent industries (Hargadon & Douglas, 2001). However, novelty by itself is not sufficient for a nascent market to secure audience support due to a fundamental tension between

novelty and uncertainty (Mueller, Melwani, & Goncalo, 2012; Rosenkopf & McGrath, 2011). On the one hand, novelty attracts the initial notice of audiences, because the abrupt appearance of a new perceptual object tends to capture human attention and stimulate curiosity (Franconeri, Hollingworth, & Simons, 2005; Zunino, Suarez, & Grodal, 2019). On the other hand, novelty comes with a high degree of uncertainty regarding its function, quality and future prospects, which makes it challenging for producers in a nascent industry to sustain the initial attention of audiences and persuade them to invest in novel offerings (Cattani, Falchetti, & Ferriani, 2019). Consequently, audiences tend to either overlook or discount novelty (Criscuolo, Dahlander, Grohsjean, & Salter, 2017). For example, although nanotechnology is novel and has great potential to set off a new industry, its inherent uncertainty leads many resource holders to shy away from investing into it (Granqvist, Grodal, & Woolley, 2013).

The history of the U.S. TV programming industry is a pertinent example of novelty and uncertainty being two sides of the same coin. Although the broadcasting technology enabled people to enjoy visual entertainment in a completely novel way by watching it at home, the fledgling industry's crude technology, underdeveloped infrastructure, low-quality offerings, and overall cognitive ambiguity made the benefits of engaging with this new market uncertain for customers. Specifically, people were unclear what a wooden cabinet with a tiny screen could offer: TV screen images were so fuzzy that "you can hardly see it"<sup>3</sup> and the antenna-based reception of TV broadcasting was highly unreliable. To make things worse, the tight budget<sup>4</sup> and shortage of talents for TV program production made the future improvement in TV show quality appear uncertain (Stuart, 1976). As a result, it was risky for an average consumer to invest in a TV set that cost from \$350 to \$700 when the median annual family income was only around \$3,100 (Boddy, 1985).

Recent research has revealed that one way to alleviate the novelty-uncertainty problem is to present novelty to audiences in a familiar manner. When novelty is combined with familiar elements,

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<sup>3</sup> A quote from an interview of a contemporary consumer archived by Early Television Museum.

<sup>4</sup> While motion picture producers could invest about five to six million dollars in a single feature movie, TV program producers had only 30 to 40 thousand dollars to create most shows.

audiences' perception of uncertainty decreases. Audiences are more likely to engage with the emerging market and try its novel offerings out. For example, by embedding the design of electric lighting into the design of the incumbent system of gas lighting, Edison and his colleagues presented “the meaning and value of their innovations, including their novel features, in the language of existing institutions by giving them the appearance of familiar ideas” (Hargadon & Douglas, 2001: 478). As a result, the idea of installing electric lights in homes did not appear too foreign or uncertain to customers, and installation rates dramatically increased.

Following this insight, we propose that a nascent industry is more likely to attract sustainable audience attention and outcompete a related incumbent market when organizations in the emerging industry make their novelty appear familiar. We theorize about two mechanisms – cultural embeddedness and social salience – that can invoke a sense of familiarity in audiences. Specifically, a new industry achieves cultural embeddedness when its producers embed their novel offerings in existing cultural artifacts of an incumbent market. Cultural embeddedness helps audiences connect the two markets in their minds, and consequently prompts audiences to start using the incumbent industry's artifacts as a reference system to understand what the new industry offers. This process not only helps a new market attract audience attention by striking a balance between novelty and familiarity, but also generate the perception of substitutability between the new and incumbent offerings. As a result, audiences may redirect their attention and resources from the incumbent market to the new industry.

Audiences may also start seeing the new industry as less uncertain when its offerings closely reflect public discourse, making the new industry socially salient. Public discourse embodies the interest, attention, and expectations of audiences. Echoing public discourse can connect novel offerings with social contexts, making them appear familiar. If the new industry attracts more audience attention than the incumbent industry in this way, the incumbents may receive fewer resources and struggle. We explain each mechanism in detail next.

### **The Role of Cultural Embeddedness**

The concept of “embeddedness” refers to the contingent nature of economic behavior on

structures of social relations (Granovetter, 1985). While social networks researchers approach embeddedness mainly from a structural or relational perspective (Burt, Kilduff, & Tasselli, 2013), institutional thinkers utilize a broader definition of embeddedness (Baum & Oliver, 1992; Dacin, Ventresca, & Beal, 1999; Golden-Biddle & Rao, 1997). For example, Zukin and DiMaggio (1990) propose that in addition to social structure, embeddedness also exists with respect to cognition, culture, and political institutions. Among these different aspects, “cultural embeddedness,” which concerns “the role of shared collective understandings in shaping economic strategies and goals” (Zukin & DiMaggio, 1990: 17), is particularly important for an emerging industry that needs to establish shared understandings with key audiences like customers (Glynn & Navis, 2013; Phillips & Owens, 2004).

Customers perceive a new industry as culturally embedded when the new industry’s offerings embody preexisting cultural elements that are well familiar to audiences. One key source of preexisting cultural elements is artifacts of incumbent industries, such as categories, frames, styles, stories, norms, designs, and values (Giorgi, Lockwood, & Glynn, 2015; Godart & Galunic, 2019). As Hargadon and Douglas (2001) illustrate in the case of electric lights, embedding the design of electric lights within the gas lighting system was critical for consumers to cognitively understand the innovative lighting system. There are many more examples of cultural embeddedness, some of which are so subtle that consumers may take them for granted, such as how e-books emulate the texture and feel of paper-based books, how early automobiles resembled “horseless carriages” or “quadri-cycles,” how online music platforms keep the routine of releasing music by “albums,” and many others.

We argue that the more obviously the new market’s producers utilize the incumbents’ cultural artifacts, the more likely consumers perceive the novel offerings as familiar and less uncertain. Therefore, consumers are more willing to give attention to novel offerings, gather information about them, and try them out. During this process, companies in an emerging market generate the perception of commonality between the new and incumbent products, which may lead audiences to start seeing these two types of offerings as substitutable. Audience attention is a scarce resource. Once the two types of offerings are regarded as substitutable, they start directly competing for customer attention. Audiences are likely to find

the combination of novel and familiar elements in products offered by the new yet culturally embedded industry as an attractive substitute for familiar but conventional incumbent offerings. As a result, the incumbent market may lose the attention of customers and obtain fewer resources, leading to increasing mortality of organizations and the eventual decline of the overall industry.

To summarize, when a new industry is culturally embedded in the artifacts of an incumbent market, it not only draws the attention of consumers to itself, but also steers their attention away from the incumbent industry. As a result, the established industry declines. We consider next categories and stories as two common cultural artifacts that organizations in a new industry can exploit to obtain the benefits of cultural embeddedness and cause an incumbent industry to decline.

**Cultural embeddedness in incumbent categories.** Categories are taken-for-granted classification systems that define membership of entities, facilitate information processing, and legitimate judgments made in the context of high uncertainty (Hsu & Hannan, 2005; Zuckerman, 1999). Categorization helps audiences anchor the functionality of new offerings (Navis & Glynn, 2010; Rosa, Porac, Runser-Spanjol, & Saxon, 1999). For example, a telephone was introduced in the category of “wireless telegraph communication” to evoke its primary function of communication and its substitutability for the telegraph.

In cultural industries like TV programming, genres are the most common product categories (Cornea, 2017). Genres are critical cues for novel cultural products to be recognized. For example, when TV programming was emerging in the 1940s, assigning a TV series pilot a genre, comedy for example, would provide an immediate frame of reference for the new and unknown cultural product (Bielby & Bielby, 1994). In that earliest period, although the TV show industry aspired to supply consumers with a different type of moving pictures from those shown in movie theaters, producers of TV programs “borrowed” some elements from movies. Specifically, TV networks often used movie genres to develop TV programs in addition to creating new genres from scratch. The TV programs based on genres that preexisted in the movie industry were culturally embedded in the movie industry.

**Cultural embeddedness in incumbent stories.** Stories are linguistic constructions of a process

that describe relationships and shape interpretations (Giorgi et al., 2015; Lounsbury & Glynn, 2001). Stories are common in socio-organizational lives (Rosa et al., 1999). Studies have shown that adopting prevailing stories can help resource-seekers resonate with audiences and mitigate uncertainty concerns (Buhr, Funk, & Owen-Smith, 2021). For example, Reed Hastings, the founder of Netflix, passionately shared with the public a story about how he decided to found Netflix as a DVD-by-mail no-late-fee rental company after being fined \$40 at a Blockbuster store for being late to return a DVD copy. Many believed that this story was apocryphal, but Hastings exploited the story with which video fans resonated to demonstrate his novel business's substitutability for brick-and-mortar DVD stores.

In some industries, notably cultural and creative markets, stories themselves are the offerings. Screenwriters for films and TV programs, for example, develop scripts that involve characters, plot lines, and settings to attract audiences. Cultural producers often use familiar stories to alleviate perceptions of uncertainty (Thompson, 2003). The nascent TV show industry in the 1940s could either invent new stories independent of the film industry or develop TV programs based on stories already existing in the film industry, typically by adapting previous movies into a TV series format. TV shows that were based on storylines adapted from movies were culturally embedded offerings. For example, the TV show *The Adventures of Rin Tin Tin* released in 1954 was based on the storyline of the 1922 movie *The Man from Hell's River* and thus was culturally embedded.

To summarize, both categories and stories of incumbent industries are cultural artifacts in which a new industry's organizations can embed their novel offerings. Cultural embeddedness in incumbents' artifacts help audiences see the overlap between the emerging and incumbent markets, which creates a sense of familiarity for new offerings and highlights their functional substitutability for incumbent products. As a result, some audiences redirect their attention and resources from the established to the emerging market. Fewer resources are retained for the incumbent market, causing its organizations to struggle. We thus hypothesize:

**Hypothesis 1:** The more a new industry's offerings are embedded in an incumbent industry's cultural artifacts, the lower the survival chances of organizations in the incumbent industry.

## **The Role of Social Salience**

Being naturally limited by cognitive and economic constraints, attention is a scarce resource (Simon, 1955). However, if an entity gains salience, audiences are likely to direct attention to it (Fiske & Taylor, 1984). One way to gain social salience is by resonating with public discourse, because the timely and ongoing conversations shared by the general public embody what people care about (Fairclough, 1993; Hoffman & Ocasio, 2001). Mass media, such as newspapers, are a major conduit for public discourse (Perretti, Negro, & Lomi, 2008). Therefore, the more closely a new industry's offerings reflect topics currently covered in newspapers, the more audience attention they attract. With more attention, a new industry is more likely to obtain greater resources. Moreover, if the new industry reflects public discourse more closely than a related incumbent market, the new industry will win more customer attention, leading to the incumbent market's loss of resources and higher probability of decline.

While cultural embeddedness evokes a sense of familiarity by using cultural elements that are long established in an incumbent industry, social salience resonates with the current, fluid, and sometimes transient discussions of the general public. Social salience achieved by reflecting public discourse enables a new industry to be perceived as synchronous with people's social lives and thus to capture audience attention in real time. Such synchrony should benefit all types of industries, but it is particularly apt for cultural products because their main function is to offer aesthetic experiences that are time-sensitive and oftentimes associated with fads and fashion (Hirsch, 1972). For example, TV shows often echo what is currently happening by weaving a public topic in the script. A CBS legal drama *All Rise*, for instance, incorporated COVID-19 into its storyline shortly after the outbreak of the pandemic in 2020.

To summarize, a new industry can gain a relative advantage in social salience by reflecting public discourse more closely than a related incumbent market. Social salience helps situate a new industry in a fluid social context, making its novelty appear familiar to audiences in this way. As a result, the emerging industry may attract, in general, more audience attention, and in particular, more audience attention away from the incumbent market. These processes should suppress life chances of organizations in the incumbent market. We thus hypothesize:

**Hypothesis 2:** The more closely a new industry's offerings reflect public discourse than do a related incumbent industry's offerings, the lower the survival chances of organizations in the incumbent industry.

### **The Diminishing Impact of Cultural Embeddedness and Social Salience**

If an emerging industry manages to survive and grow, over time it will acquire cognitive legitimacy and institutional standing (Carroll & Hannan, 2000; Navis & Glynn, 2010). Audiences will start taking the industry's offerings for granted. The novelty around which the industry emerged will become itself a well-established cultural artifact, familiar and certain (Dobrev, Ozdemir, & Teo, 2006). Audiences will rely less on embeddedness in incumbent artifacts and the immediate social context to decide whether to interact with the newcomer market. Thus, the negative influence of cultural embeddedness and social salience on the incumbent market should dissipate as the new industry matures.

**Hypothesis 3:** As a new industry matures, the negative impact of its (a) cultural embeddedness in an incumbent market and (b) relative prominence in reflecting public discourse on the survival chances of organizations in the incumbent industry will attenuate.

## **EMPIRICAL DESIGN**

### **Illinois Movie Theaters and the U.S. Network TV Programming Industry**

We test our hypotheses using historical data on the single-screen movie theater market in the state of Illinois and the U.S. network TV programming industry from 1944 to 1962. This empirical setting is appropriate for testing our theory because the advent of TV broadcasting has been widely believed to cause the decline of single-screen movie theaters, yet the theoretical mechanisms of this decline remain unexplained. We chose to focus on movie theaters in the state of Illinois, because the movie theater industry has always consisted of localized markets (Takahashi, 2015), and the state of Illinois was an important region during our observation period. The principle city of Illinois, Chicago, was one of the largest markets of movie theaters (Schiecke, 2011) as well as one of the earliest cities with television broadcasting facilities (Balio, 1990). Each of the 102 counties in Illinois hosted at least one single-screen movie theater during our observation period.

The observation window starts in 1944 when NBC (National Broadcasting Company) introduced the first regular network program. Although prototypes of television tubes appeared as early as in the 1920s, the Great Depression delayed the development of the TV broadcasting infrastructure. In 1941, the first U.S. commercial television licenses were issued, but World War II delayed the development again until in 1944 NBC introduced the first regularly broadcast TV program, marking the beginning of commercial TV programming (Brooks & Marsh, 2009). The TV programming market was shared by four network companies. NBC, ABC, and CBS started as either subsidiaries or spin-offs of radio networks, and they last until today. DuMont, the fourth national network TV company, originated from a TV manufacturer and ceased operation in 1956.

We end our observation period in 1962, the year after which no new single-screen movie theater was ever founded in Illinois, marking the end of the single-screen theater era. Movie theaters emerged in the U.S. in 1905. At the market's peak in the 1930s, three out of four Americans attended a movie theater weekly (Balio, 1985). As the movie theater industry sensed the threat from TV programming in the 1950s, incumbent organizations developed stereophonic sound, invested in color cinematograph, and most importantly, presented pictures in spectacular fashion, using wide-screen and wide-film processes, such as CinemaScope, Todd-AO, and Panavision (Belton, 1990). However, these technological installments were expensive and did not offer a universal solution to struggling theaters.

During 1944-1962, the average TV penetration rate in Illinois counties increased from less than 1% to 96%, and 599 out of 1,064 movie theaters in Illinois went out of business. As Figure 1 shows, both movie attendance and the number of movie theaters dropped by half over the two decades since the introduction of commercial TV programming. After 1962, most of the remaining single-screen theaters eventually closed doors. The first multiplex movie theater in Illinois appeared in 1963 and over the next decade became and still represents the dominant organizational form of movie theater.

[Figure 1 about here]

## **Data Sources**

We obtained data on movie theaters from *Historic Movie Theatres in Illinois 1883-1960* by

Konrad Schiecke. This directory provides information on individual movie theaters, such as opening and closing dates, number of seats, street address, and other descriptions. Because we lagged all time-variant variables, the observations on theaters that closed in 1944 were dropped. Our final dataset consists of 1,058 theaters, 593 of which failed. There are 13,856 theater-year observations.

Data on the U.S. network TV program market came from *The Complete Directory to Prime Time Network and Cable TV Shows*, by Tim Brooks and Earle F. Marsh. The directory lists regular series carried on commercial TV networks between 6:00pm and 3:00am Eastern Standard Time (i.e., primetime plus early evening and late-night programs) which we refer to as *primetime plus*. The directory provides detailed information on each TV program, including a name, a genre, a broadcasting network, the dates a program started and stopped, its time slot, duration, content description, and so on. The data cover 1,488 TV shows broadcast in the 102 counties in Illinois from 1944 to 1962.

We collected county-year data on the TV penetration rate from *ICPSR22720: Introduction of Television to the United States Media Market, 1946-1960* by Gentzkow and Shapiro (2008); data about TV set prices from *Television Factbook, 1962*; data on movie genres and plot descriptions of all 6,076 movies released from 1944 to 1962 from IMDb. County-level demographic and socio-economic data came from the U.S. decennial census from 1940 to 1970. From ProQuest, we obtained 72,020 abstracts of all front-page articles published in *Chicago Tribune* (the most read daily newspaper in Illinois) from 1944 to 1962.

### **Operationalization of Variables**

**Dependent Variables.** Following previous research (Pautz, 2002; Stuart, 1976), we study the decline of the movie theater market by analyzing failure rates of movie theaters since the beginning of the TV programming market. Thus, our dependent variable measures a theater-specific instantaneous rate of ceasing operations. In our observation period, theaters' seating capacity was fixed, the price of movie tickets remained largely unchanged, and few new theaters were founded. Consequently, high failure rates of movie theaters indicated market decline.

**Independent Variables.** Several sets of independent variables test our predictions. All time-

variant variables are updated yearly and lagged by one year to avoid simultaneity concerns. Following previous research (Bielby & Bielby, 1994; Khessina & Reis, 2016), we treat each TV show as a product of the TV programming industry.

We measure the TV broadcasting market's cultural embeddedness in incumbent categories by the variable *density of TV shows with movie genres*, which is an annual number of TV shows with genres that had already existed in feature films prior to the emergence of the TV programming industry in 1944. Such genres include action, adventure, animation, biography, comedy, crime, documentary, drama, family, fantasy, history, horror, music, musical, mystery, romance, Sci-Fi, sport, thriller, war, and western<sup>5</sup>. TV shows with multiple genres are coded as having partial grade of membership (GoM). For example, if a show's genre includes both variety and comedy, we assign it a GoM of 0.5 for variety (a non-movie genre), and a GoM of 0.5 for comedy (a movie genre). Interestingly, at the start of the market, the TV networks broadcasted TV programs based exclusively on non-movie genres. As Figure 2.1 shows, they began using movie genres only in 1946.

Second, we created the variable *density of TV shows with movie stories*, which is an annual number of broadcast TV shows with storylines adapted from films previously exhibited in movie theaters. For example, *Mama* (1949), *The Adventures of Robin Hood* (1955), and *Casablanca* (1955) were TV shows based on storylines adapted from movies. As Figure 2.2 reveals, TV networks introduced TV programs based on movie stories only in 1949.

The third independent variable, *TV shows' relative prominence in reflecting public discourse*, measures social salience of TV shows relative to that of movies. To construct this variable, for each year, we calculated first the degree of content similarity between TV shows and news, and then the degree of content similarity between movies and news. Then we subtracted the latter from the former to measure how much more socially salient TV shows were in reflecting public discourse than movies.

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<sup>5</sup> We identified movie genres based on films produced between 1933 and 1943. In the year of 1933, the movie industry fully transitioned from the "silent area" to the "era of talkies." We excluded silent movies from consideration, because the meanings of genres for silent pictures and "talkies" are not comparable (Crafton, 1999).

To calculate the degree of content similarity, we used the software SenseClusters (Pedersen, 2003). We extracted all bigrams from a corpus of all primetime plus TV shows<sup>6</sup> and all short abstracts of all front-page articles published in the *Chicago Tribune* newspaper, 1944-1962. Our data consists of show descriptions with an average of 114 words and news abstracts with an average of 33 words. We specified the cosine coefficient measures to calculate the degree of content similarity. Following Karypis (2003), we considered the contents of a TV show description and of a news abstract as similar (regardless of their actual length) if their corresponding vectors pointed in the same direction, i.e., they had roughly the same set of bigrams and in the same proportion. We calculated then the degree of content similarity based on co-occurrences of bigrams between all TV shows' descriptions and all *Chicago Tribune*'s front-page article abstracts that came out in the same year. For example, the TV show *Man with a Camera* (1958) has three bigrams in its description: "world war," "insurance companies," and "private detective." For each news article published in 1958 that shared one (or two or three) of the bigrams with this TV show, SenseClusters assigned a score of 1/3 (or 2/3 or 1) to this show-news dyad. Next, we calculated this TV show's degree of content similarity in 1958 by dividing the sum of scores this TV show had in all show-news dyads in 1958 by the number of news articles to which this TV show was similar in 1958. Considering that many TV shows consisted of multiple episodes that repeatedly and on a regular basis conveyed their socially resonant content to audiences, we weighted the TV show's degree of content similarity with news by the number of the TV show's episodes aired in a given year. As the last step, we calculated the degree of content similarity between all TV shows and all news articles in 1958 by calculating the mean similarity score for all TV shows broadcast in that year. We calculated the degree of content similarity between movies and news articles in the same way by using movie plot descriptions collected from IMDb. Figure 2.3 shows the social salience trend in the TV programming industry.

[Figures 2.1, 2.2, and 2.3 about here]

To test the diminishing impact of cultural embeddedness and social salience, we interact cultural

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<sup>6</sup> Because TV shows that were news programs (e.g., *ABC News*) had an inherently high content overlap with newspaper content, we excluded all the news programs from constructing our measure to make it more conservative.

embeddedness variables and the social salience variable with the variable *TV penetration rate*. TV penetration rate measures the proportion of households that had at least one TV set in a county in a given year. The higher the TV penetration rate, the more established the TV programming industry in a county.

**Control Variables.** We control for several factors at the theater, county, and industry levels that may affect life chances of movie theaters. All time-variant variables are updated yearly and lagged by one year to avoid simultaneity concerns. All variables collected from the decennial census are linearly interpolated for non-decennial years.

A theater's characteristics may affect its survival chances. Because newly founded theaters tended to have state-of-art facilities at the time of opening, we control for their survival advantage by dummy variable *theater is new* that takes the value of one for the first three years of a theater's existence. *Theater age*, measured as the number of years since a theater was founded, controls for survival differences among theaters of various age (Hannan, 1998). *Theater size*, measured as the number of a theater's seats, controls for the survival advantage of large firms (Carroll & Hannan, 2000). As it is typical with size variables, we log it to correct for skewness. Dummy variable *circuit theater* takes the value of one for years a theater was affiliated with a circuit (i.e., was a part of a chain) to control for the survival advantage of organizations that can rely on their parent company support (Ingram & Baum, 1997). To account for higher survival chances of renovated theaters (e.g., theaters that renovated buildings, updated screen/sound technology, or improved the comfort of seating), we construct *theater remodel* variable. It is assigned the value of zero for any year before a theater's first renovation during the TV era. It is assigned the value of one for each year following the theater's renovation, but this value is discounted by 10% per year after the first year as a remodeled theater (to account for the natural aging of renovations). We sum remodeling values for theaters that made more than one renovation. For example, a theater that was remodeled in 1950 for the first time in the TV era would have the value of 1 in 1950, the value of 0.9 in 1951, the value of 0.81 in 1952 and so on. If this theater was renovated again in 1952, it would have the value of 1.81 ( $1+0.81$ ) in 1952, the value of 1.63 in 1953 and so on. Next, to take into account that movie palaces (a high end form of movie theater with very large seating capacity and lavish

architectural designs and services) were the most negatively impacted in the TV era (Herzog, 1981), we created dummy variable *movie palace*. Finally, we control for a theater's location in a city, town, or village by a set of corresponding dummy variables (with *city location* as the reference category).

We control for county-level demographic and socio-economic characteristics, namely, *county human population density*<sup>7</sup> (measured by dividing county human population by county area in square miles), *county median family income* (measured in thousand dollars), and *percentage of county population with college degree*, to account for the market's carrying capacity in a county in a given year.

To control for diffuse competition between movie theaters, *county theater density* variable counts the number of movie theaters in a county in a given year. To control for direct competition between the TV show market and movie theater market, the *TV penetration rate* variable measures the percentage of households with at least one TV set in a county in a year. Furthermore, we created the variable *content overlap between TV shows and movies* to measure the extent to which contemporaneous TV shows and movies covered the same topics. It is important to emphasize two major theoretical and empirical differences between this variable and the variable *density of TV shows with movie stories*. First, the variable *content overlap between TV shows and movies* is constructed by comparing content across movies and TV shows that were released in the same year, so the higher the content similarity, the more direct the competition between TV shows and movies. By contrast, *density of TV shows with movie stories* is based on movie stories that existed before the emergence of the TV industry and thus became a cultural artifact. Second, movies and TV shows may have overlapping content even when they are based on different storylines. For example, the TV show *Armchair Detective* and the movie *Flamingo Road* are based on different storylines but have overlapping content (both cover the topic of state legislature).

*Density of all TV shows*, measured as the total number of TV shows broadcast in a year, controls for the overall effect of TV offerings. *Density of TV shows with non-movie genres* counts the annual

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<sup>7</sup> We use human population density rather than the raw count of residents because Illinois counties greatly vary in their area size. Movie theater attendance depends more on a local area's residential density rather than on its absolute population size.

number of shows based on genres that were not created in the movie industry including anthology, animals, art, auction, quiz show, variety show, talk show, interview, commentary, cooking, hypnosis, circus, book reading, children’s show, debate, discussion, education, game show, news, opinion poll, public affairs, talent, wildlife, and others. *Density of TV shows with non-movie stories* counts the number of shows based on stories that were not used in feature films. *The Lucy Show* and *The Millionaire*, for instance, were shows with scripts not related to movies.

The variable *TV set price*, measured as the total value of factory production divided by the number of TV sets produced in factories each year, controls for affordability of TV sets. Finally, *Paramount Decree* variable controls for an anti-trust law passed in 1948 that required major movie studios to divest movie theaters they previously owned. To measure this variable, years before 1948 were assigned the value of 0, year 1949 was assigned the value of one, year 1950 was assigned the value of two and so on.

### Model Specification

We use a continuous-time event history analysis to estimate the movie theater closing (i.e., failure) rates in all Illinois counties. We treat a theater as the unit at risk, and the ‘dependent variable’ is the instantaneous rate of a theater’s closing defined as:

$$r(t) = \lim_{\Delta t \rightarrow 0} \frac{P[t < T < t + \Delta t \mid T > t]}{\Delta t},$$

where  $T$  is a random variable for the time of the event of interest,  $t$  is the time that a theater has been open for business either since (a) 1944 (if founded before 1944) or (b) its founding year (if founded after 1944). In our dataset, 103 out of 1,058 (~10%) theaters were founded after 1944.  $P(\cdot)$  is the conditional probability of the theater’s closing over the period  $[t, t + \Delta t]$  given that the theater was still open at time  $t$ . We use a *piecewise exponential* function to represent variation in the timing of a theater’s closing to allow a flexible specification of theater tenure-dependence (Carroll & Hannan, 2000: 136–138). After examining life tables and exploring estimates of a variety of choices of breakpoints, we broke the duration scale in years at 1, 8, and 9, generating four timepieces  $[0,1)$ ,  $[1,8)$ ,  $[8,9)$ , and  $[9+)$ . We estimate event

history models using the method of maximum likelihood as implemented with a user-defined routine in STATA (Sørensen, 1999). To estimate models with time-varying covariates, we constructed a split-spell data file breaking observed durations in year-long periods with the values of covariates updated every year. Since observations within theaters are not necessarily independent, we calculated robust standard errors using the Huber/White/sandwich estimator of variance clustered on theaters (Williams, 2000).

## **FINDINGS**

Table 1 provides descriptive statistics for the theater-year split-spell file. Tables 2 and 3 test our hypotheses. Table 2 reports effects of the TV show industry's cultural embeddedness in the movie theater market's categories and stories on movie theaters' failure rates. Model 2.1 is a baseline model. Control variables exhibit common effects. As expected, density of all TV shows has a harmful impact on the movie theater survival rate.

[Tables 1 and 2 about here]

In Model 2.2, we separate the variable density of all TV shows into *density of shows with non-movie genres* and *density of shows with movie genres*. Only density of shows with movie genres has a significant positive (i.e., harmful) impact on the theater mortality rates, supporting Hypothesis 1. When the value of density of shows with movie genres increases from its mean to mean+1sd, the failure rate of movie theaters increases by 359.8 percent.

Model 2.3 adds the interaction between *density of shows with movie genres* and *TV penetration rate*. Its effect is significant and in the predicted negative direction. To ease the interpretation of the interaction, Figure 3.1 illustrates the effects of density of shows with movie genres, TV penetration rate, and their interaction on the theater failure rate. We plot the multiplier rate of theater failure over the observed range of TV penetration rate at the mean and mean+1sd values of density of shows with movie genres, using the mean value as the baseline (multiplier rate=1). Figure 3.1 shows that at low levels of TV penetration, higher density of shows with movie genres (mean+1sd) increases theater mortality rate almost eleven times more than the baseline density (mean). As TV penetration rate increases, the difference in the power of impact between different levels of density of shows with movie genres

diminishes and eventually disappears, confirming that the harmful effect of cultural embeddedness in movie genres on theater mortality attenuates as the new industry matures<sup>8</sup>. Hypothesis 3 is corroborated.

We build Model 2.4 based on Model 2.1 by separating the variable density of all TV shows into *density of shows with non-movie stories* and *density of shows with movie stories*. The effect of *density of shows with movie stories* is in the predicted direction, but not statistically significant. However, when we add the interaction between *density of shows with movie stories* and *TV penetration rate* to Model 2.5, the main effect becomes significant and positive, and the interaction is significant and negative. Considered together, Models 2.4-2.5 suggest that density of shows with movie stories harms theater survival, as predicted, but only at certain levels of TV penetration. To better understand this effect, we plot the multiplier rate of theater failure in Figure 3.2. It reveals that when TV penetration rate is low, higher density of shows with movie stories (mean+1sd) has a greater harmful impact on theater mortality relative to its mean baseline level. But this effect quickly attenuates with increasing TV penetration rate<sup>9</sup>. Thus, Hypothesis 3 is further corroborated.

It is interesting to note that the embeddedness in movie genres affects theater mortality over a much wider range of TV penetration rate than the embeddedness in movie stories. These findings suggest that cultural embeddedness may have an impact of different power and reach depending on what type of cultural artefacts producers in an emerging industry embed their offerings in.

Table 3 tests for the impact of the social salience mechanism. Model 3.1 includes the variables *content similarity between TV shows and news* and *content similarity between movies and news*. It shows that the more similar the content between TV shows and news, the higher the failure rate of movie theaters. Movie theaters' failure rates are not affected by the similar content between movies and news.

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<sup>8</sup> The multiplier rate plots do not allow to include confidence intervals for interaction effects. To address this limitation, we reran all our models using a Probit specification (all results held) and plotted marginal effects of interactions with 95% confidence intervals. A graph of marginal effects based on a Probit model equivalent to the reported Model 2.3 revealed that the harmful impact of *density of shows with movie genres* on movie theater failure attenuated with increasing TV penetration and became insignificant when TV penetration rate reached about 65%.

<sup>9</sup> A graph of marginal effects based on a Probit model equivalent to the reported Model 2.5 revealed that the harmful impact of *density of shows with movie stories* on movie theater failure attenuated with increasing TV penetration and became insignificant when TV penetration rate reached about 20%.

Model 3.2 reveals the positive significant effect of *TV shows' relative prominence in reflecting public discourse*. The closer TV programs reflect public discourse than movies, the higher the movie theater failure rate. As the difference in reflecting public discourse between TV shows and movies increase from the mean value to mean+1sd, the theater failure rate increases by 102 percent. Hypothesis 2 is corroborated. The negative and significant interaction between *TV shows' relative prominence in reflecting public discourse* and *TV penetration rate* in Model 3.3 shows that the effect of social salience attenuates as the TV industry matures. Figure 3.3 provides a visual illustration of this result<sup>10</sup>, and further supports Hypothesis 3.

[Table 3 about here]

### **Supplementary Analyses**

To increase confidence in our findings, we conduct supplementary analyses in which we test several possible extensions from our theory. We theorized earlier that cultural embeddedness hurts the incumbent industry because it creates a perception of substitutability between offerings of the emerging and incumbent markets. We now test this argument more directly by looking at both organizational (Table 4a) and environmental factors (Table 4b) that can either amplify or mitigate the substitutability hazard created by cultural embeddedness. First, we predict that movie palaces, i.e., theaters with high fixed costs and large seating capacity to fill to break even, would be more vulnerable to substitutability peril. The significant positive interactions between the cultural embeddedness variables and *movie palace* variable in Models 4.1-4.2 reveal that indeed cultural embeddedness harmed movie palaces more than other movie theaters. Second, as we mentioned earlier, some movie theaters tried to reduce the substitutability threat from the TV broadcasting industry by installing better visual and sound equipment or providing more comfortable seating. However, historians believe that these remodeling efforts were insufficient to help theaters regain their market share (Belton, 1990). Insignificant negative interaction effects between the

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<sup>10</sup> A graph of marginal effects based on a Probit model equivalent to the reported Model 3.3 revealed that the harmful impact of *TV shows' relative prominence in reflecting public discourse* on movie theater failure attenuated with increasing TV penetration and became insignificant when TV penetration rate reached about 35%.

independent variables and *theater remodel* variable in Models 4.3-4.4 suggest that remodeling could not overcome the harmful impact of cultural embeddedness, and thus support historians' inference<sup>11</sup>.

Next, we predict that harmful effects of cultural embeddedness will be attenuated in regions with more affluent consumers. Such customers were less likely to be stuck in an either-or-situation where they had to choose between consuming movies and buying TV sets to watch TV programs. Indeed, Models 4.5-4.6 show that theaters in counties with higher *medium family income* were significantly less likely to be driven out of business by cultural embeddedness. Finally, we theorize that people with greater education are more likely to consume a variety of cultural products, because they tend to have broader tastes (Hahl, Zuckerman, & Kim, 2017). Therefore, even if cultural embeddedness led average consumers to believe that movies and TV shows were substitutable, individuals with higher education were more discernable and thus less likely influenced. Models 4.7-4.8 show that indeed theaters in counties with a *greater proportion of population with college degree* were significantly less harmed by cultural embeddedness. To save space, Tables 4a and 4b report only interaction terms. Full tables are available upon request.

[Tables 4a and 4b about here]

### **Robustness Checks**

We ran a fully saturated model on cultural embeddedness by including the genre-related cultural embeddedness and story-related cultural embeddedness variables as well as their interactions with TV penetration rate in the same model. All results on embeddedness in movie genres held but results on embeddedness in movie stories became insignificant. The loss of significance in the effect of embeddedness in movie stories may be caused by multicollinearity created by including too many density variables in the fully saturated model. At the same time, this result is consistent with our earlier findings

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<sup>11</sup> It was the innovation in organizational design – the invention of multi-screen cinema – that allowed movie theaters to exploit economies of scale to survive the competition with TV broadcasters. However, when the first multi-screen cinema in the U.S. opened in 1963, the TV market was already well established, e.g., the TV penetration rate in most counties in Illinois reached over 90%. Thus, we cannot test how the “emerging” TV market affected the multi-screen cinema.

that embeddedness in different types of cultural artefacts has different power. The greater robustness of the impact of embeddedness in movie genres on theater failure rates once again suggests that embeddedness in movie genres is more powerful than embeddedness in movie stories.

When we calculated the variable *content similarity between TV shows and news*, we weighted a TV show's content similarity with news by the number of the show's annual episodes. As a robustness check, we reran our models without this weight. All results held.

We chose an event history analysis to estimate theater survival rates because it allowed us to account for censored cases. As a robustness check, we reran all the models using a Probit specification. All results held. All robustness models are available upon request.

## **DISCUSSION**

We started this paper with a question of how an established market can be negatively affected by an emerging industry without initial obvious technical, ideological, or collective action advantages. We suggested that organizations in the nascent market can leverage the mechanisms of cultural embeddedness and social salience to redirect audience attention from the incumbent industry to the new market and, as a result, harm the incumbent industry. Specifically, companies in emerging markets can create a perception of both familiarity and substitutability between novel and incumbent offerings by embedding their novel offerings in cultural artifacts of the incumbent market, such as categories and stories. Furthermore, organizations in emergent markets can achieve greater social salience with customers by reflecting public discourse in their novel offerings more closely than a related incumbent industry. We predicted that as firms in an emerging industry produce a greater number of culturally embedded offerings or/and offerings that reflect public discourse more closely than an incumbent industry, the failure rates of organizations in the incumbent market will increase. We further suggested that the harmful impact of these mechanisms on the established industry will attenuate as the new industry matures, because audiences stop relying on cultural artifacts and social salience for inter-industry comparison when they start taking the new market for granted.

We found empirical support for our theory by analyzing how the U.S. network TV programming

industry that emerged in 1944 affected the fate of the incumbent market of movie theaters in the next 19 years in the state of Illinois. Specifically, we found that as the number of TV shows embedded in movie genres (i.e., incumbent categories) and in movie storylines (i.e., incumbent stories) increased, and as the content between TV shows and news covered in the major regional newspaper, *Chicago Tribune*, became more similar than the content between movies and news, the failure rates of movie theaters increased. As the new industry matured, the harmful influence of cultural embeddedness and social salience attenuated.

When generalizing these findings, one should keep in mind limitations specific to the nature of our empirical setting. First, we tested our theory on the movie theater market located in the USA. Second, the movie theater industry is a cultural market. Thus, our theory should generalize to American cultural markets. However, anecdotal evidence suggests that our theory's generalizability should not be limited by type of markets or national boundaries. The story about how Edison embedded his first electric inventions into artifacts of the gas lighting industry and by doing so paved a way to the eventual demise of the incumbent gas lighting market in many different countries, shows that cultural embeddedness can play an important role in the decline of manufacturing (i.e., non-cultural) industries and is not limited by national boundaries. A recent trend in Western Europe for fine dining chefs to sell their services for cooking dishes in a customer's home in response to COVID-19 threat, suggests that social salience can potentially serve as a mechanism for challenging incumbent markets in the food service sector across several countries. Future studies on non-cultural industries and in different countries could systematically test for our theory's generalizability and uncover whether the mechanisms of cultural embeddedness and social salience play out differently both across national boundaries and across different types of markets.

This paper makes contributions to several literatures. First, we add to research on decline of established industries (Karniouchina, Carson, Short, & Ketchen, 2013; Klepper, 1996), specifically to research that focuses on the role of newcomer industries in the decline of incumbent markets (Schumpeter, 1934; Tushman & Anderson, 1986). Past studies have suggested that existing markets may diminish as a result of losing competition to newcomer industries that are based on innovation with a substantial price/performance improvement (Anderson & Tushman, 1990), more appealing ideology

(Hiatt, Sine, & Tolbert, 2009), or/and powerful collective action (Rao, 2008). We suggest that our mechanisms of cultural embeddedness and social salience can be two additional factors that explain how some incumbent industries lose their competitive advantage to emergent markets, especially when the latter do not possess initial obvious technological, ideological and collection action advantages.

Second, our study adds to research on coevolution of related markets. While the literature has established that a fledgling industry may benefit from borrowing familiar elements (Hargadon & Douglas, 2001) and cognitive legitimacy transfer (Dobrev et al., 2006) from related incumbent markets, it has not studied how these borrowing processes affect the incumbent markets. We complement and contribute to this research stream by offering a theory explaining how newcomers' borrowing from established markets (in the form of cultural embeddedness and social salience) negatively impacts the fate of these markets.

Next, our paper adds to the literature on technology and innovation, specifically to research on competition between new and incumbent markets (Adner & Kapoor, 2016; Anderson & Tushman, 1990). Many scholars agree that when customers of emerging and established industries value the same performance dimensions, an industry with obvious price/performance superiority is likely to win (Foster, 1986; Utterback, 1994). Yet, innovations often give rise to markets where new performance metrics become possible (Christensen, 1997; Sood & Tellis, 2005). In such cases, the new technology often underperforms relative to the incumbent technology on multiple existing performance parameters (e.g., the first TV programs were of much lower quality both in content and delivery than feature movies shown in theaters). Nevertheless, some customers may value the new performance parameters (e.g., even at the very outset of TV programming, some customers valued having visual entertainment from the comfort of their homes despite its low quality) and try out the new technology, giving it a short lifeline to improve (Tripsas, 2008). If and as the technology improves, more customers may switch to the new market harming the incumbent market (Christensen, 1997). Our mechanisms of cultural embeddedness and social salience add to this literature by explaining how organizations in an emerging industry manage to attract enough customers to survive the initial uncertain period when their offerings' value is ambiguous, and the technology underlying these offerings still needs improvement to effectively compete with incumbents.

Finally, this study has managerial implications. Although whether TV network companies strategically pursued cultural embeddedness and social salience is beyond the scope of this study, our findings suggest that organizations in an emerging industry can strategically embed their novel offerings in familiar cultural categories and stories, and/or contextualize their offerings by reflecting public discourse to gain a competitive advantage over incumbent competitors.

Future research could explore how cultural embeddedness and social salience interact with other mechanisms of inter-industry competition established by the literature, such as social movements and technological superiority. It would be also interesting to examine whether and how producers in incumbent markets can counteract the threat created by cultural embeddedness and social salience pursued by newcomers. Scholars can also explore embedding in which types of cultural artefacts have the most powerful impact on the decline of incumbent markets.

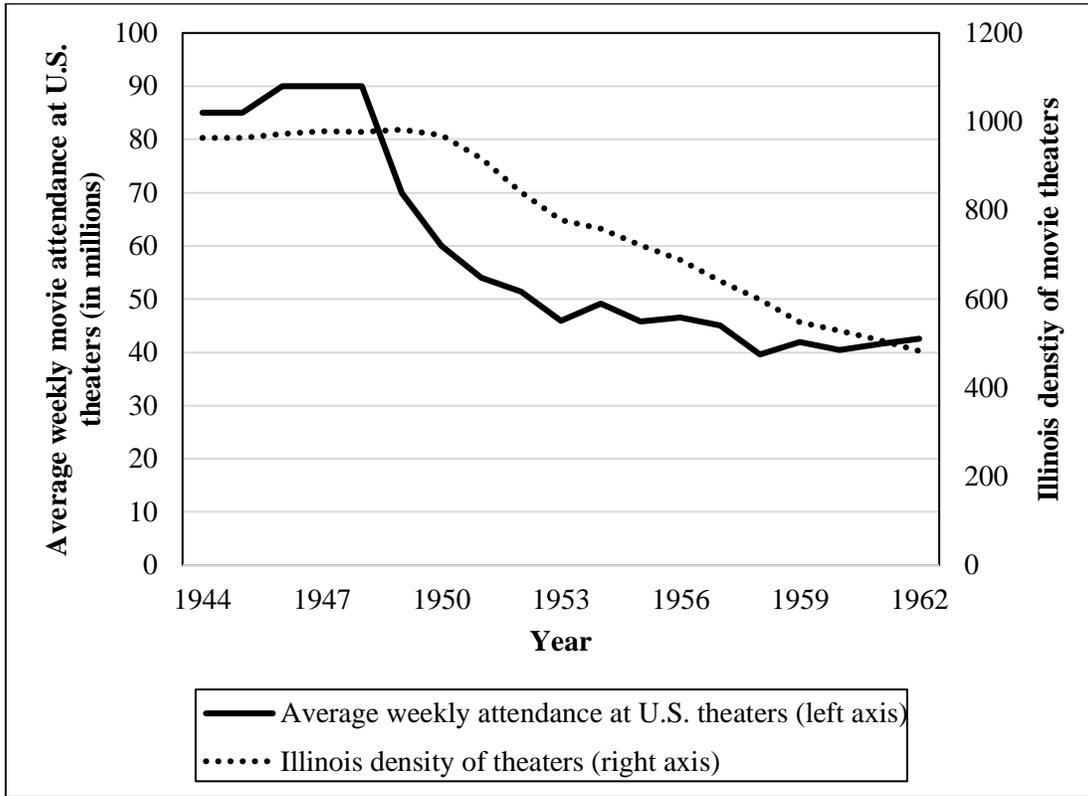
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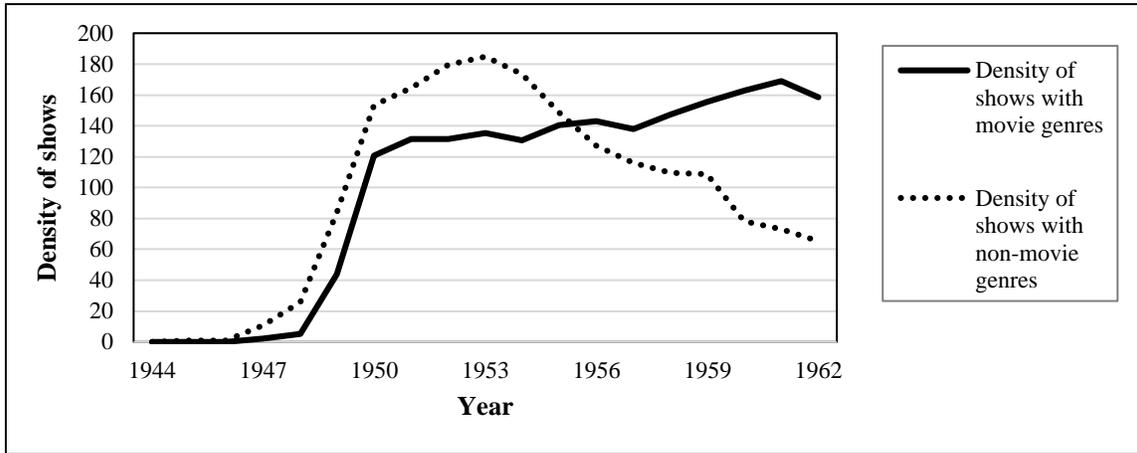
**Figure 1: Average Weekly Attendance at U.S. Movie Theaters and Density of Illinois Movie Theaters, 1944-1962**



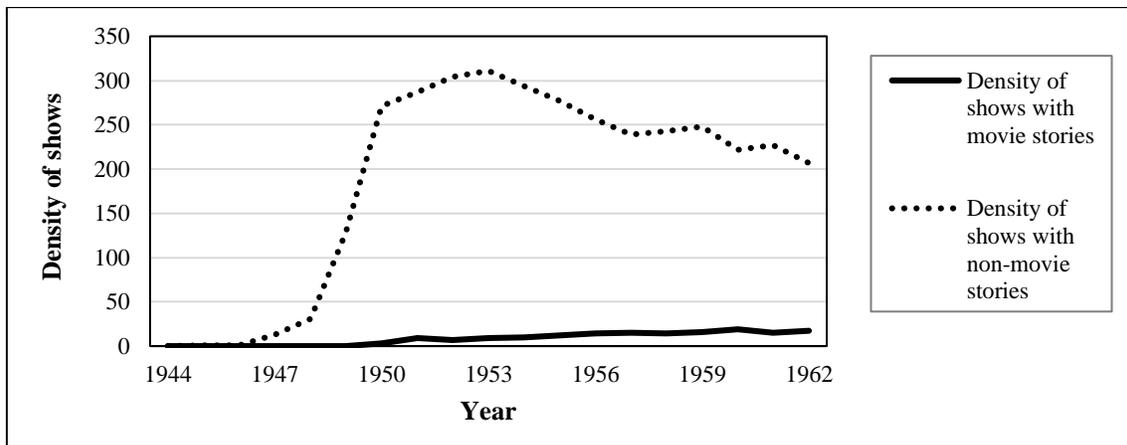
Sources: (1) The Film Daily Year Book of Motion Pictures; (2) Historic Movie Theatres in Illinois, 1883-1960.

**Figure 2: Cultural Embeddedness and Social Salience of TV Shows, 1944-1962**

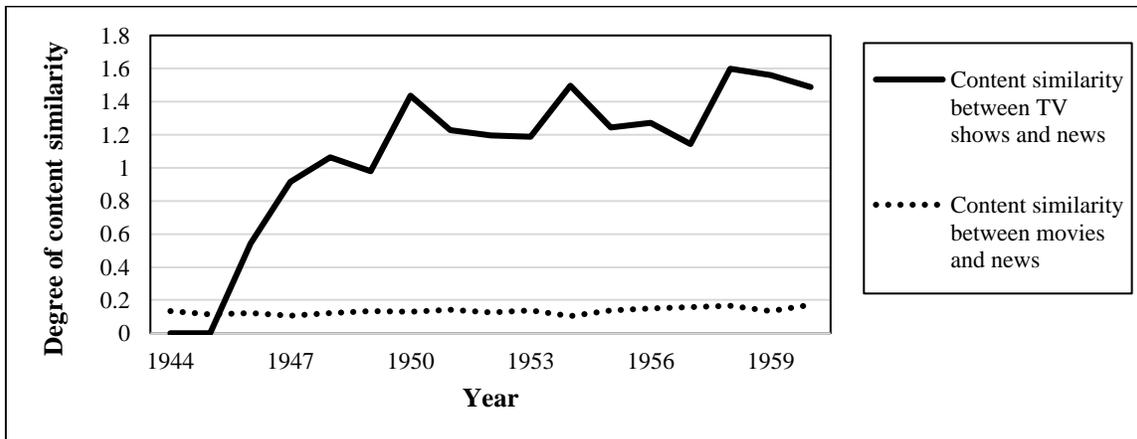
**Figure 2.1.** Density of TV Shows with Movie Genres and Non-Movie Genres by Year



**Figure 2.2.** Density of TV Shows with Movie Stories and Non-Movie Stories by Year

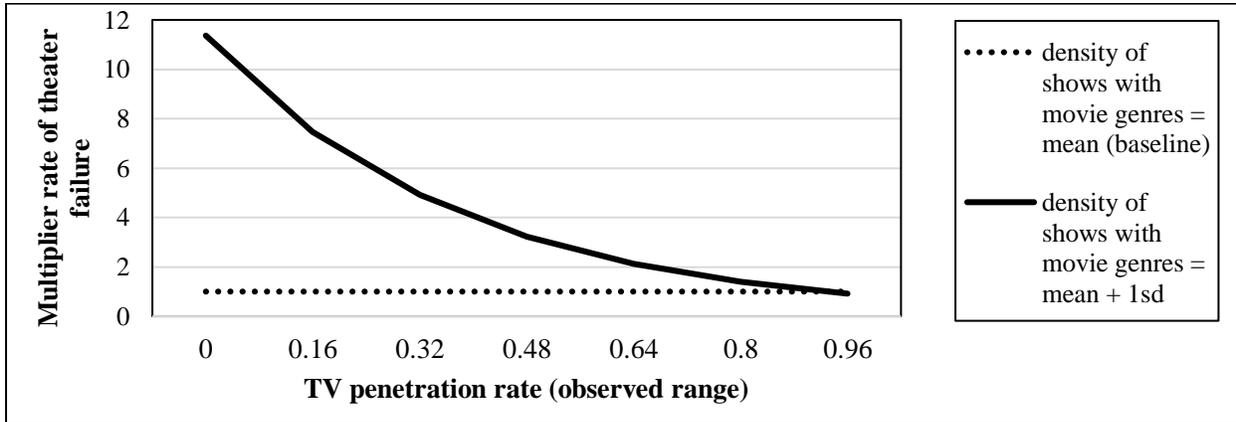


**Figure 2.3.** Content Similarity between TV Shows, Movies, and News by Year

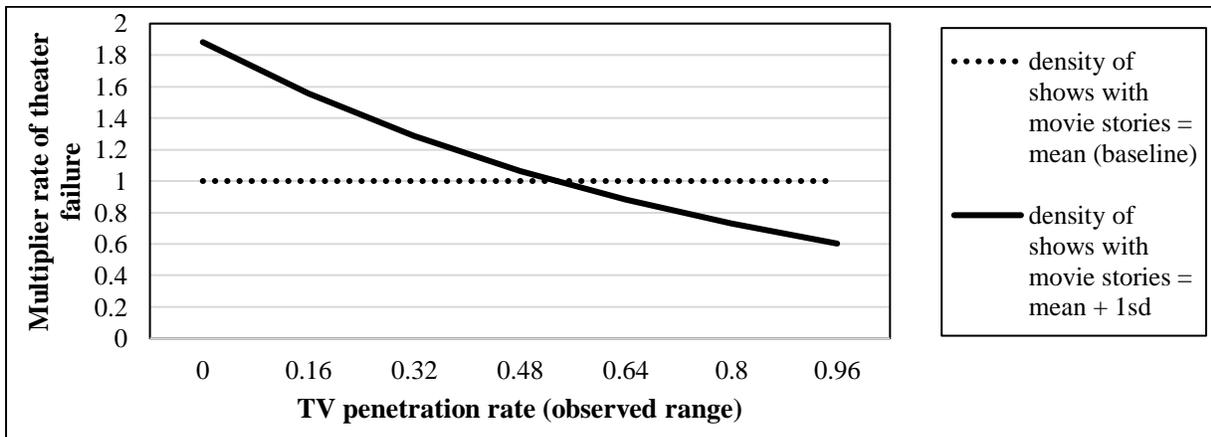


**Figure 3: Effects of Cultural Embeddedness and Social Saliency on Movie Theater Failure over the Observed Range of TV Penetration**

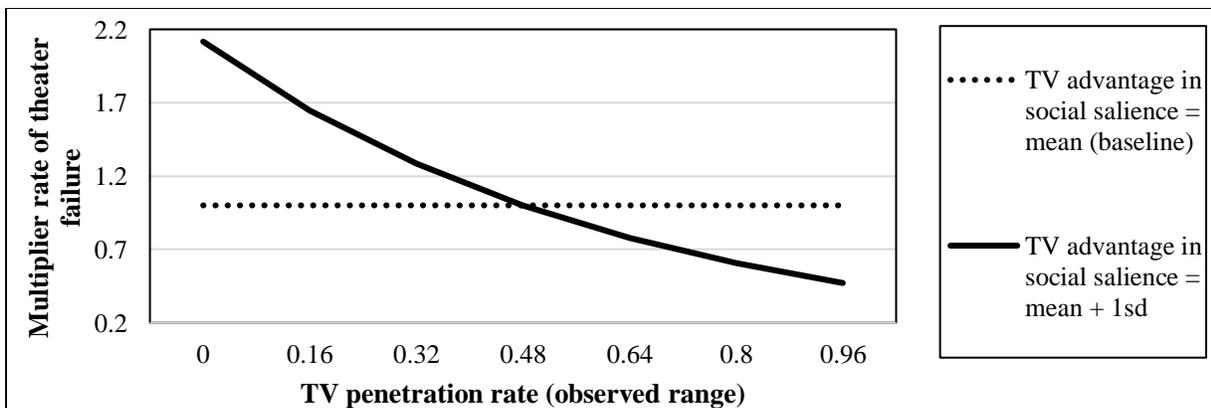
**Figure 3.1.** Effect of Embeddedness in Movie Genres on Movie Theater Failure



**Figure 3.2.** Effect of Embeddedness in Movie Stories on Movie Theater Failure



**Figure 3.3.** Effect of Social Saliency on Movie Theater Failure



**Table 1:** Descriptive Statistics, 1944-1962: Split-spell File

<b>Variable</b>	<b>Mean</b>	<b>S.D.</b>	<b>Min</b>	<b>Max</b>
Theater exit rate (t)	0.04	0.20	0	1
Theater is new = 1 (t)	0.03	0.17	0	1
Theater age (t)	26.53	13.11	0	89
Theater size: Ln[number of seats] (t-1)	6.46	0.68	3.91	8.85
Circuit theater = 1 (t-1)	0.44	0.50	0	1
Theater remodel (t-1)	0.01	0.08	0	1
Movie palace = 1	0.04	0.19	0	1
Theater location: Town = 1	0.01	0.10	0	1
Theater location: Village = 1	0.19	0.39	0	1
County human population density /1000 (t-1)	1.87	2.29	0.01	5.47
County median family income (t-1)	40.64	11.98	6.86	80.91
County population with college degree % (t-1)	0.12	0.04	0.04	0.31
County theater density (t-1)	119.43	153.71	1	382
Paramount Decree (t-1)	4.73	4.48	0	14
Content overlap between TV shows and movies (t-1)	0.02	0.01	0	0.04
TV set price (t-1)	167.11	50.14	66.34	279.33
TV penetration rate (t-1)	0.37	0.38	0	0.96
Density of all TV shows (t-1)	192.21	121.28	1	320
Density of shows with movie genres (t-1)	94.74	63.96	0	169
Density of shows with non-movie genres (t-1)	97.48	64.43	1	184.83
Density of shows with movie stories (t-1)	7.4	6.52	0	19
Density of shows with non-movie stories (t-1)	184.79	116.62	1	311
Content similarity between movies and news (t-1)	0.13	0.02	0.10	0.17
Content similarity between TV shows and news (t-1)	1.02	0.49	0.000	1.60
TV shows' relative prominence in reflecting public discourse (t-1)	0.89	0.48	-0.13	1.44

N of theater-years = 13,856

**Table 2:** Piecewise Exponential Regressions: Effects of Cultural Embeddedness on Theater Failure Rates

	Model (2.1)	Model (2.2)	Model (2.3)	Model (2.4)	Model (2.5)
Theater is new = 1 (t)	-0.936+ (0.487)	-0.927+ (0.490)	-0.900+ (0.490)	-0.927+ (0.487)	-0.915+ (0.486)
Theater age (t)	0.009* (0.004)	0.008+ (0.004)	0.009+ (0.004)	0.009* (0.004)	0.010* (0.004)
Theater size: Ln[number of seats] (t-1)	-1.205*** (0.105)	-1.205*** (0.105)	-1.209*** (0.106)	-1.206*** (0.105)	-1.206*** (0.105)
Circuit theater = 1 (t-1)	-0.174 (0.114)	-0.175 (0.114)	-0.169 (0.114)	-0.173 (0.114)	-0.172 (0.114)
Theater remodel (t-1)	-1.818* (0.860)	-1.810* (0.862)	-1.820* (0.857)	-1.822* (0.858)	-1.845* (0.851)
Movie palace = 1	0.368 (0.369)	0.357 (0.369)	0.364 (0.369)	0.369 (0.369)	0.379 (0.369)
Theater location: Town = 1	0.639* (0.282)	0.631* (0.282)	0.636* (0.281)	0.639* (0.282)	0.651* (0.283)
Theater location: Village = 1	-0.053 (0.123)	-0.051 (0.123)	-0.054 (0.123)	-0.053 (0.123)	-0.054 (0.124)
County human population density (t-1)	8.086*** (1.337)	7.752*** (1.359)	7.965*** (1.399)	8.027*** (1.345)	8.366*** (1.362)
County median family income (t-1)	-0.043 (0.046)	-0.043 (0.046)	-0.027 (0.049)	-0.043 (0.047)	-0.039 (0.049)
County population with college degree % (t-1)	-45.193* (17.548)	-43.650* (17.342)	-46.515* (18.080)	-45.597** (17.678)	-47.365** (18.222)
County theater density (t-1)	0.028*** (0.004)	0.026*** (0.004)	0.026*** (0.004)	0.027*** (0.004)	0.027*** (0.004)
Paramount Decree (t-1)	0.047 (0.063)	-0.043 (0.090)	-0.014 (0.094)	0.023 (0.067)	0.005 (0.075)
Content overlap between TV shows and movies (t-1)	16.157* (8.145)	16.592* (8.231)	16.163* (7.873)	13.742 (8.395)	10.757 (8.130)
TV set price (t-1)	0.000 (0.002)	0.001 (0.002)	0.004* (0.002)	0.001 (0.002)	0.001 (0.002)
TV penetration rate (t-1)	1.733*** (0.349)	1.769*** (0.356)	2.890 (2.077)	1.612*** (0.359)	6.023* (2.567)
Density of all TV shows (t-1)	0.005*** (0.001)				
Density of shows with non-movie genres (t-1)		0.000 (0.003)	-0.022** (0.007)		
<b>Density of shows with movie genres (t-1)</b>		<b>0.012*</b> <b>(0.005)</b>	<b>0.038***</b> <b>(0.009)</b>		
<b>Density of shows with movie genres (t-1)</b> * TV penetration rate (t-1)			<b>-0.041**</b> <b>(0.014)</b>		
Density of shows with non-movie genres (t-1) * TV penetration rate (t-1)			0.025** (0.009)		
Density of shows with non-movie stories (t-1)				0.004*** (0.001)	0.003** (0.001)
<b>Density of shows with movie stories (t-1)</b>				<b>0.037</b> <b>(0.029)</b>	<b>0.097*</b> <b>(0.038)</b>
<b>Density of shows with movie stories (t-1)</b> * TV penetration rate (t-1)					<b>-0.182*</b> <b>(0.072)</b>
Density of shows with non-movie stories (t-1) * TV penetration rate (t-1)					-0.008 (0.007)
County dummies	Yes	Yes	Yes	Yes	Yes
Time pieces	Yes	Yes	Yes	Yes	Yes
Number of theater-years	13,856	13,856	13,856	13,856	13,856
Number of theaters	1,058	1,058	1,058	1,058	1,058
Number of theater failures	593	593	593	593	593
Pseudo log-likelihood (d.f.)	-845.2 (122)	-844.2 (123)	-837.6 (125)	-844.6 (123)	-841.3 (125)

Note: Robust standard errors in parentheses. \*\*\* p<0.001, \*\* p<0.01, \* p<0.05, + p<0.1. Two-tailed tests.

**Table 3: Piecewise Exponential Regressions: Effects of Social Salience on Theater Failure Rates**

	Model (3.1)	Model (3.2)	Model (3.3)
Theater is new = 1 (t)	-0.860+ (0.487)	-0.850+ (0.488)	-0.907+ (0.488)
Theater age (t)	0.008+ (0.004)	0.008+ (0.004)	0.009* (0.004)
Theater size: Ln[number of seats] (t-1)	-1.208*** (0.105)	-1.208*** (0.105)	-1.207*** (0.105)
Circuit theater = 1 (t-1)	-0.173 (0.114)	-0.172 (0.114)	-0.171 (0.114)
Theater remodel (t-1)	-1.787* (0.848)	-1.789* (0.849)	-1.834* (0.850)
Movie palace = 1	0.353 (0.370)	0.355 (0.370)	0.370 (0.369)
Theater location: Town = 1	0.629* (0.276)	0.630* (0.277)	0.648* (0.275)
Theater location: Village = 1	-0.055 (0.123)	-0.056 (0.123)	-0.053 (0.124)
County human population density (t-1)	7.307*** (1.320)	7.491*** (1.304)	8.220*** (1.388)
County median family income (t-1)	-0.014 (0.043)	-0.014 (0.043)	-0.039 (0.048)
County population with college degree % (t-1)	-40.115* (16.086)	-40.700* (16.132)	-46.215* (18.057)
County theater density (t-1)	0.027*** (0.004)	0.027*** (0.004)	0.028*** (0.004)
Paramount Decree (t-1)	-0.078 (0.061)	-0.058 (0.057)	0.037 (0.063)
Content overlap between TV shows and movies (t-1)	30.722*** (7.263)	34.906*** (6.765)	19.735** (7.074)
TV set price (t-1)	-0.005** (0.001)	-0.005** (0.001)	-0.006*** (0.002)
TV penetration rate (t-1)	1.493*** (0.352)	1.524*** (0.349)	4.986*** (0.664)
<b>Content similarity between TV shows and news (t-1)</b>	<b>0.972***</b> <b>(0.226)</b>		
<b>Content similarity between movies and news (t-1)</b>	<b>3.904</b> <b>(3.850)</b>		
<b>TV shows' relative prominence in reflecting public discourse (t-1)</b>		<b>0.828***</b> <b>(0.205)</b>	<b>1.565***</b> <b>(0.254)</b>
<b>TV shows' relative prominence in reflecting public discourse (t-1)</b> <b>* TV penetration rate (t-1)</b>			<b>-3.269***</b> <b>(0.574)</b>
County dummies		Yes	Yes
Time pieces		Yes	Yes
Number of theater-years	13,856	13,856	13,856
Number of theaters	1,058	1,058	1,058
Number of theater failures	593	593	593
Pseudo log-likelihood	-857.8	-858.5	-841.3
(d.f.)	(123)	(122)	(123)

Note: Robust standard errors in parentheses. \*\*\* p<0.001, \*\* p<0.01, \* p<0.05, + p<0.1. Two-tailed tests.

**Table 4a:** Piecewise Exponential Regressions: Effects of Organizational Characteristics on the Power of Cultural Embeddedness Effects on Movies Theater Failure Rates

	Model (4.1)	Model (4.2)	Model (4.3)	Model (4.4)
Density of shows with movie genres (t-1)	0.013***			
* Movie palace	(0.003)			
Density of shows with movie stories (t-1)		0.127***		
* Movie palace		(0.036)		
Density of shows with movie genres (t-1)			-0.006	
* Theater remodel (t-1)			(0.018)	
Density of shows with movie stories (t-1)				-0.178
* Theater remodel (t-1)				(0.206)
<i>Control variables</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>
Pseudo log-likelihood	-843.6	-843.1	-843.8	-844
(d.f.)	(125)	(124)	(125)	(125)

Note: Robust standard errors in parentheses. \*\*\* p<0.001, \*\* p<0.01, \* p<0.05, + p<0.1. Two-tailed tests.

**Table 4b:** Piecewise Exponential Regressions: Effects of County Characteristics on the Power of Cultural Embeddedness Effects on Movies Theater Failure Rates

	Model (4.5)	Model (4.6)	Model (4.7)	Model (4.8)
Density of shows with movie genres (t-1)	-0.001***			
* County median family income (t-1)	(0.000)			
Density of shows with movie stories (t-1)		-0.006***		
* County median family income (t-1)		(0.002)		
Density of shows with movie genres (t-1)			-0.111**	
* County population with college degree (t-1)			(0.054)	
Density of shows with movie stories (t-1)				-0.649+
* County population with college degree (t-1)				(0.370)
<i>Control variables</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>
Pseudo log-likelihood	-836.1	-837.4	-841.8	-843
(d.f.)	(125)	(125)	(125)	(125)

Note: Robust standard errors in parentheses. \*\*\* p<0.001, \*\* p<0.01, \* p<0.05, + p<0.1. Two-tailed tests.