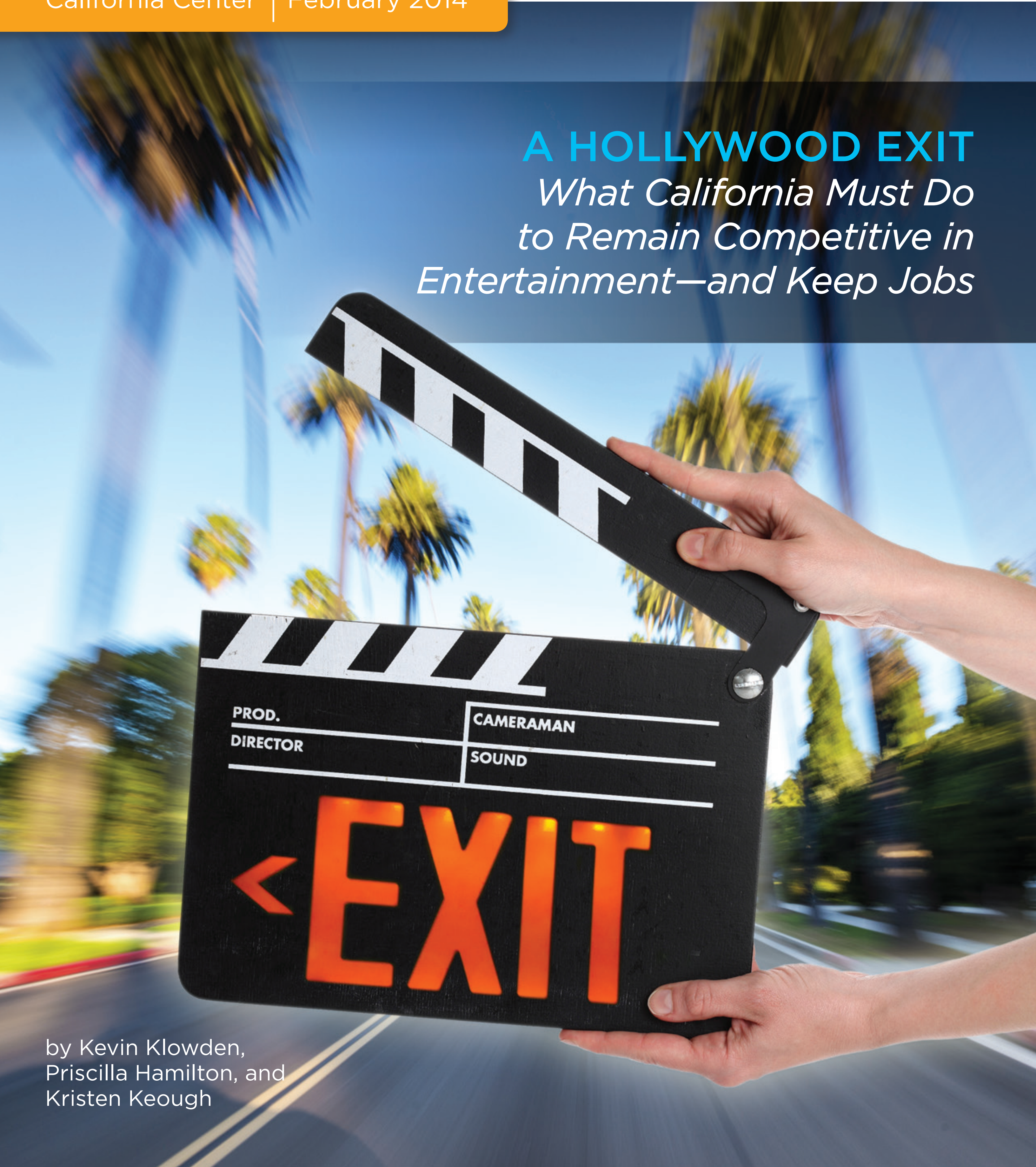
Milken Institute

California Center | February 2014

A HOLLYWOOD EXIT

What California Must Do to Remain Competitive in Entertainment—and Keep Jobs



by Kevin Klowden,
Priscilla Hamilton, and
Kristen Keough

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INTRODUCTION

For the past decade and a half, California has seen its position as the global center of the entertainment industry come under siege. Although past rivals such as Bollywood and Hong Kong have been prolific in serving their own markets, they have rarely had an impact on the economic underpinnings of Hollywood and, in particular, not on its filmed production workforce. California is losing production jobs by lending its workers to other states for films and television, which has resulted in a consistent erosion of the local workforce since its last peak in 2004.

Starting with the introduction of Canadian film incentives in 1997, California has seen its entertainment industry lured away by production credits and other tax breaks. Initially, the combination of international credits and a strong dollar led to a decline in production and employment that temporarily reversed itself between 2002 and 2004, when the U.S. dollar dropped in value in the aftermath of the tech bubble and 9/11. With the first wave of domestic film incentives taking hold in 2005, California suddenly found itself at a competitive disadvantage and wound up establishing the 2009 California Film and Television Production Tax Credit in response. Between 2004 and 2012, California's base in filmed production employment declined from 152,525 to 136,388 in absolute numbers—a loss of 16,137 jobs. At the same time, California's main rival, New York, added 10,675 jobs in film production, growth of nearly 25 percent over those eight years. In California, these are high-paying middle-class jobs, with wages that average $98,500 per person; in New York, they average $89,000 per person. These jobs contribute to state revenues and provide sustainable incomes that support significant local expenditures.

The goal of this study is to examine to what extent California's employment base in filmed entertainment is continuing to erode and, just as importantly, to examine how effective rival states have been in establishing sustainable entertainment bases of their own that are capable of surviving independently of large incentives. In most cases, and for most states and Canadian provinces, attracting film and television production provides economic benefits that last only for the duration of the production. These states do not capture the benefits of local income taxes, long-term housing expenditures, and large purchases, as the majority of their workers are imported from states such as California. This raises two significant questions: How effective have other states been in establishing permanent bases in production and employment, and how much have those efforts eroded California's workforce?

The state whose incentive and business model we analyze in depth is New York, which is not only California's greatest rival but also comparable in terms of having a large workforce, high cost of doing business, and just as significantly, a need to promote the benefits of filmed entertainment statewide and not just in the New York City metropolitan area. To understand the factors driving this change, we examine Hollywood's evolving business model, which is driven by an increasing dependence on blockbusters amid significant technological change.

Tax credit programs, like all incentives, have a clear cost to the state budget. In terms of impact, however, there are widely divergent views as to how much money is returned to state coffers. For a state with significantly higher incentives than California's, such as Louisiana, it is not always certain that incentives produce tangible results in local jobs and tax revenues. And even if the payoffs do approach the cost of the program, it is unclear if the filmed production base will survive after incentives are reduced or removed. We examine not only the shift in production but also the shifts in employment to determine how sustained the economic impact truly is. Of the states examined, only New York appears to be consistently creating and sustaining a viable production cluster, and only a few other states such as Louisiana and New Mexico appear to be creating local job growth and keeping it over a longer term.

The key question for California, and ultimately the key question for this study, is how much the state is willing to spend to preserve high-paying jobs and to give Californians who are still officially listed as working in the industry and residing in the state a chance to remain local. The economic impact of the incentives has been examined by sources such as UCLA and the Los Angeles Economic Development Corporation and questioned in turn by the California Legislative Analyst's Office.

As is discussed in this study, the areas not covered under the current incentive program—namely big-budget movies, hour-long network dramas, and visual effects—have been the fastest to flee California. What makes California, and by extension New York, different from states such as Louisiana and Georgia is that when the state keeps a production, it keeps almost the entire economic value of that production. It not only benefits from the spending and the indirect jobs created but also gets revenue from taxes on the salaries and personal purchases of the employees.

To determine what steps can and should be taken to make California more competitive, we examine the incentives implemented in New York and in some cases other countries and focus on what California can learn from them, particularly in the wake of the changing Hollywood business model and technological disruption. In particular, we examine the key steps taken by New York, which has established a thriving program and taken steps to provide an additional incentive for working outside the New York City metro area with efforts to boost postproduction upstate. The example of New York State allows us to demonstrate to California that if state policy is managed properly, a localized cluster of entertainment jobs can be leveraged to provide benefits statewide, not just around one city.

DATA ANALYSIS

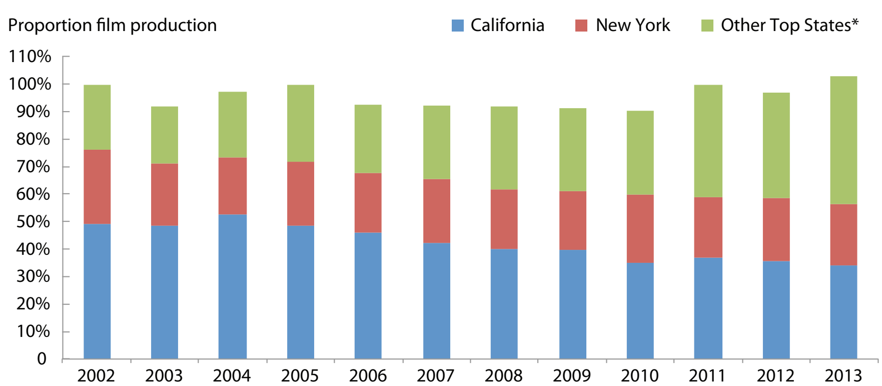
California is losing film and television productions to New York and other states. California's current tax incentive program is intended to keep shows and movies in the state, but the data show that other states are being more effective in using their incentives to bring in new productions and create jobs. Today, 43 states offer entertainment incentives, compared to only a handful in 2002. In 2010, states committed $1.5 billion to subsidizing film and TV production.[1] If it is to keep its entertainment employment base, California must create a distinctive incentive package that allows the entertainment industry to grow without engaging in a race to the bottom in a market that is saturated with subsidies.

Production Flight: Studio Systems and California Film Commission Data

Film production

For analyzing film production, we used the Studio Systems database. Studio Systems compiles data from a wide range of public and proprietary sources. It is considered an industry leader for accuracy and availability of entertainment information. The data were selected using keywords and dates in the Studio Systems advanced search feature. The advanced search used the keyword search for the intended filming state with release dates from January 1, 2002, through January 1, 2014. Movies currently filming in California or other states but not released by January 1, 2014, are not included in this data set. Some films are made in multiple locations, such as *Django Unchained*, which was filmed or underwent production work in Los Angeles and other locations in California, Grand Teton National Park in Wyoming, and New Orleans. *Django* is then counted for each location, although only counting as one in the U.S. total. This creates a film count higher than the actual number of films shot in the United States due to multiple counting of films per location. Also, not every state is accounted for, so often the data are less than 100 percent.

Figure 1: California losing dominance in film production



Source: Studio Systems. *Florida, Georgia, Illinois, Louisiana, Michigan, North Carolina, New Mexico, Nevada, Tennessee, Texas

Note: Proportion was created by dividing number of productions filmed in a specific state or the sum of a group of states divided by the total number of movies filmed in the United States. Some films were shot in multiple locations or were not filmed in a top incentive state. This is why the proportions are over and under 100 percent.

1 Tannenwald, R. (2010). "State film subsidies: Not much bang for too many bucks," Center on Budget and Policy Priorities, retrieved from http://www.cbpp.org/cms/index.cfm?fa=view&id=3326

California hit its production peak in 2004, and since then New York and other states have taken a large share of production. In 2005, almost every state began offering incentives in earnest, attempting to compete with California. In 2004, California was involved in 128 films, New York in 50 films, and the other top states offering incentives in 58 films. In 2012, the other states offering incentives were involved in 142 films, compared to California's 104. Despite the large annual fluctuations in entertainment that result from the industry's project-based operation, there was a notable difference in the average growth rates between California and other states. By using average growth rates from 2003 to 2013 and difference of means methodology, the growth rate of California versus the growth rate of other states resulted in a t-stat of minus 1.23. For difference of means this is just shy of being statistically significant at the 10 percent level despite project fluctuations.

FLIGHT OF THE BLOCKBUSTER

Iron Man 3: Released in 2013, this sequel differentiated itself from its predecessors in two major ways—a new director and different choice of filming location. The director of the first two films, Jon Favreau, has been an outspoken champion of fighting runaway production. Favreau pushed for filming the movies in Los Angeles.[2] (Fittingly, the principal scene for Favreau as an actor in *Iron Man 3* was the only major scene filmed in California.) With a change of director and the acquisition of Marvel Entertainment by Disney, the impetus for keeping the productions in California was replaced by a desire to take advantage of tax breaks in other states. Marvel even went so far as to vacate its Manhattan Beach, Calif., production facilities in 2012, space it had originally leased, intending to "take advantage 'of the best crews in the Los Angeles area.' "[3] The result was a sequel primarily filmed in North Carolina, which, unlike California, does not discriminate against films with budgets of more than $75 million. While the movie spent $19 million in hiring local "non-talent" labor that worked on the movie in various capacities, there were clear limits to the local labor pool, which resulted in expenditures of $33 million on non-resident non-talent labor needed to complete the film.[4]

Television production

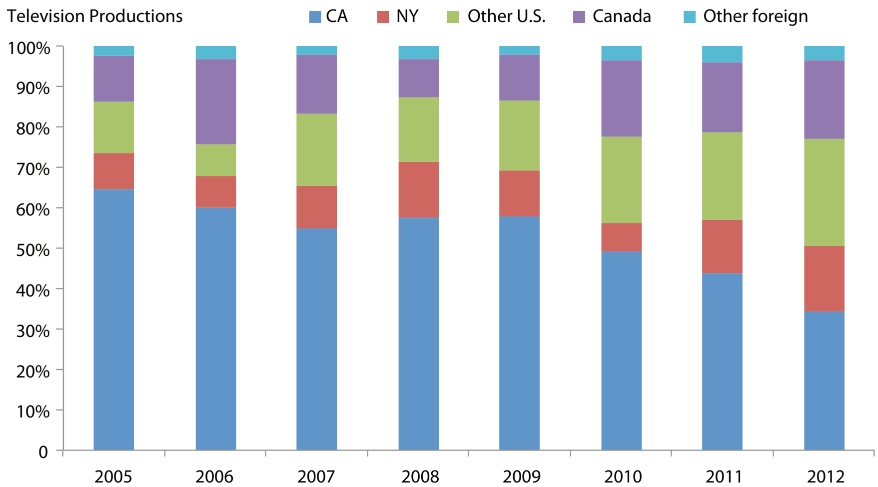
To analyze TV production flight, data were obtained from the California Film Commission, derived from its database of national television production, which was constructed from multiple sources. We were not allowed access to the raw data but did have a final breakdown of television production by year and location, starting in 2005, which was sorted by the California Film Commission and presented in the form used in this report.

2 Boucher, J. (2008, August 20), "Sticking up for L.A.," *Los Angeles Times*, retrieved from http://articles.latimes.com/2008/aug/20/entertainment/et-favreau20

3 Graser, M. (2012, September 19), "Marvel to relocate closer to Disney," *Variety*, retrieved from http://variety.com/2012/film/news/marvel-to-relocate-closer-to-disney-1118059449/

4 WWAY. (Submitted) (2013), "Report: 'Iron Man 3' generated $180m, 2,000 jobs in NC" [Television series episode], Southeastern North Carolina: ABC 3, retrieved from http://www.wwaytv3.com/2013/04/30/report-iron-man-3-generated-180m-2000-jobs-nc

Figure 2: California losing hour-long dramas



Source: California Film Commission.

In 2005, California was the location of 51 hour-long television dramas including basic cable, free TV/network, or pay TV productions. New York hosted only seven TV productions that year, and 10 were filmed in other states. By 2012, California had lost 11 productions, with 40 television shows filming in the state. In contrast, New York and other states more than doubled their productions during that interval, to 19 and 30, respectively. This means that California's number of productions has fallen by more than 20 percent, although it is still in the top spot.

In the past, television shows set in New York, such as *Seinfeld* and *Friends*, were filmed in California. California is still able to produce some shows that are set in New York, such as *Castle*, but as New York grows in prominence as a production center, this will happen less often. In the 2010-2011 season, a record of 22 cable and network pilots were filmed in New York City.[5] Not only is California likely to lose productions set in New York, but also fewer productions are being set in Los Angeles.

For hour-long dramas, the situation is bleaker. In 2012, less than 10 percent of new network dramas were set in Los Angeles, down from 50 percent in 2010 and almost 80 percent in 2005.[6] Just two of the 23 2011-2012 fall and midseason dramas were shot in Los Angeles County. Many productions took advantage of tax incentives and lower costs in New York, North Carolina, Georgia, and other states.[7] Los Angeles is still the location for most new half-hour comedies and reality shows, but dramas have bigger crews and larger budgets, leading to more spending in the local economy.[8]

Loss of productions leads to the loss of jobs

To determine the effect of lost production on employment, we used Moody's Analytics, which captures data from unbiased government sources, including the Labor Department's Bureau of Labor Statistics, the BLS's Current Employment Statistics, and the Commerce Department's Bureau of Economic Analysis. Total employment numbers by state are from the North American Industry Classification System (NAICS) code 5121. The industry group 5121 comprises establishments primarily engaged in producing and/or distributing motion pictures, videos, television programs, or commercials and those exhibiting motion pictures or providing postproduction and related services.

5 Applebaum et al.

6 Bilefsky, D. (2011). "New York is ready for its close-up". *New York Times*, retrieved from http://www.nytimes.com/2011/07/30/arts/television/more-movies-and-tv-shows-are-filming-in-new-york-city.html?_r=1&

7 Verrier, R. (2012). "Los Angeles losing the core of its TV production to other states." *Los Angeles Times*, retrieved from http://articles.latimes.com/2012/aug/15/business/la-fi-ct-runaway-tv-20120814

8 Ibid.

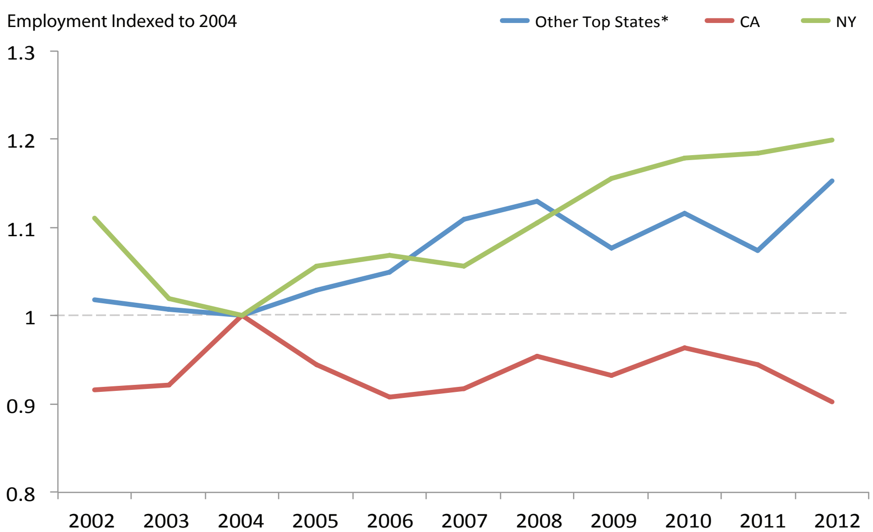
Table 1: Absolute employment in the entertainment industry

State	2004	2005	2006	2007	2008	2009	2010	2011	2012
California	152,525	146,678	143,448	146,061	150,069	137,817	140,902	139,902	136,388
New York	43,085	45,899	46,901	46,934	49,477	50,310	51,388	52,356	53,760
Texas	14,168	13,970	14,590	14,294	14,586	15,068	14,780	15,239	16,250
Florida	15,369	15,392	14,531	14,287	12,615	11,711	10,975	10,988	11,037
Georgia	6,306	6,169	6,059	6,233	6,253	6,855	6,285	6,205	6,519
Tennessee	6,714	6,656	6,704	6,858	7,110	6,473	6,604	5,914	6,032
Louisiana	3,768	4,081	3,499	4,345	5,155	3,090	4,174	3,777	5,378
North Carolina	3,392	3,923	3,803	3,635	3,406	3,545	3,265	4,018	4,054
New Mexico	1,445	1,978	2,721	3,209	3,335	2,897	3,103	2,536	3,176
Nevada	2,013	1,943	2,296	2,759	2,612	2,244	2,268	2,377	2,525

Sources: Moody's, BLS.

A look at the net changes in entertainment employment reveals that California has lost more than 16,000 jobs since 2004.[9] In 2004, California employed 152,500 people in the measured aspects of entertainment, but by 2012 California had fallen to 136,000 jobs, an 11 percent decline. In 2004, New York employed 43,100 people in the filmed entertainment industry, but such employment increased in the state to 53,800 by 2012—a 25 percent increase. Looking at absolute numbers, it's clear that California is in a slow decline. California no longer has three times as many entertainment employees as New York, and the employment difference between the states is shrinking. All the other states except Florida and Tennessee also appear to have a small upward trend in filmed entertainment employment.

Figure 3: California shrinks since 2004 while competition grows



Source: Moody's, BLS. *Florida, Georgia, Illinois, Louisiana, Michigan, North Carolina, New Mexico, Nevada, Tennessee, Texas

9 Although the NAICS code 5121 includes movie theater employees, our using this four-digit NAICS code gives the most complete data set. Movie theater attendants are included for every state, so the comparison between states in overall entertainment industry employment is not likely be skewed because movie theater workers are taken into account at every level for every location.

Figure 3 has been indexed to 2004, which was a peak in entertainment employment in California. Indexing makes it easier to see growth rates from a specific period. There was an upward swing in employment in California from 2009 to 2010, when the incentive package began with a first-year cap of $200 million, falling to $100 million after the first year. The incentives and the ending of the writers' strike also created jobs during that time, but gains were lost by 2012.

BEHIND CALIFORNIA'S INCENTIVES

The Credit Lottery: Unlike most states, which operate based on individual applications, California requires productions that wish to qualify for tax credits to apply at the beginning of June for a drawing at the end of the month. These incentives are in high demand: In 2012, 27 projects out of 322 applicants received credits through the lottery. In 2013, the state received 380 applications. Because the demand for credits far outstrips supply, the lottery serves to maintain fairness by not favoring any particular kind of production over another. Pinched for revenues and lacking the necessary staff, the state does not assess candidates for incentives based on potential economic benefits.

The main drawback of a lottery is its lack of predictability. Production companies will often submit multiple films in the drawing in the hope that one will wind up a winner while also making backup plans to shoot in another state.[10] Further, when films and television shows are locked into a set schedule, they often cannot wait for the results of the lottery, choosing instead to relocate.

Hemingway and Gellhorn: A 2012 HBO movie, this film is notable particularly for how unusual it is and how it clearly should not be. Filmed largely on location in San Francisco, the film benefited significantly from the California Film Production Tax Credit, which provided $3 million in incentives, in addition to a separate location-specific incentive from the City of San Francisco at $600,000.[11] The production spent $12,745,000 in California, according to the California Film Commission, over two months in and around San Francisco.[12] This highlights not only that production can happen outside of the "30 Mile Zone" around Los Angeles, but also that location-specific incentives can make a difference, whether monetary or otherwise. However, filming in San Francisco has become rare. For a city that as recently as the mid-1990s was a popular center for filming, San Francisco is now seldom used,[13] with the recent film *Blue Jasmine* and the new HBO series *Looking* standing in direct contrast to shows such as *Nash Bridges* and *Alcatraz*, which were set in the city but chose to film in Los Angeles and Vancouver. This highlights the need for additional incentives for filming outside Los Angeles, matching practices already in place in New York, British Columbia, and elsewhere.

Justified: A highly regarded hour-long drama series airing on the cable network FX, *Justified* is a clear example of a television production that attracted and retained incentives under the auspices of the California Filmed Production Tax Credit. *Justified* has retained its credit throughout its entire run, which will end with an upcoming sixth season. Although the show is set in Kentucky, it has been filmed in California its entire duration and has been shot at Santa Clarita Studios, which touts as advantages its eligibility for California's incentives and its low filming fees relative to other locations in the 30 Mile Zone.[14] According to California Film Commission figures, $191 million in total spending is estimated for the show for seasons one through five, of which more than $68 million was spent on qualified below-the-line wages.[15]

10 Verrier, R. (2012, June 05). "California film tax credit lottery draws only a few lucky winners," *Los Angeles Times*, retrieved from http://articles.latimes.com/2012/jun/05/entertainment/la-et-ct-on-location-20120605.

11 Block, A. B. (2012, April 27)," California film commission explains how HBO swapped Spain for San Francisco," *The Hollywood Reporter*, retrieved from http://www.hollywoodreporter.com/news/california-film-commission-hbo-spain-san-francisco-317576

12 California Film Commission 2013 Film and Television Tax Credit Program Progress Report.

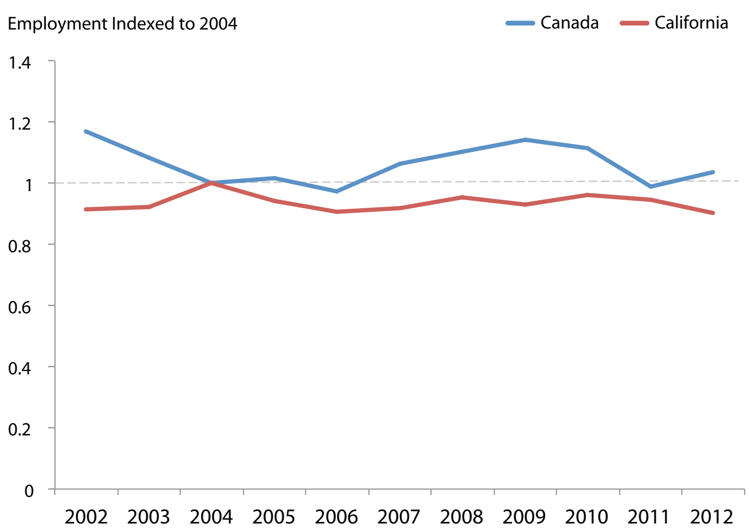
13 Hartlaub, P. (2013, November 18), " 'Looking,' new HBO show shot in S.F.," SFGate, retrieved from http://www.sfgate.com/tv/article/Looking-new-HBO-show-shot-in-S-F-4990026.php

14 Productions, M. (2010), Santa Clarita Studios, retrieved from http://www.santaclaritastudios.com/aboutus.html

15 California Film Commission 2013 Film and Television Tax Credit Program Progress Report.

New York is the state with the highest employment growth rate as well as the second-largest entertainment employment base. Like California, New York faces challenges to filming such as high wages, regulation, and high cost of doing business, but the state is still gaining jobs. The continuous high growth levels indicate that a strong base for filming is being built and is sustainable in New York. In years past, California lost jobs to international rivals such as Canada, but now it appears that domestic competition fueled by new incentive packages has become California's biggest challenge for retaining entertainment jobs and growth.

Figure 4: Canada employment consistent



Sources: CANSIM, BLS.

Table 2: Canada production table

Year	Number of movies shot in Canada
2002	54
2003	68
2004	63
2005	84
2006	106
2007	83
2008	47
2009	38
2010	64
2011	58
2012	47

Source: Studio Systems

Canada's employment in NAICS code 5121 has been fairly consistent since 2004, when many states were offering competitive incentive packages. The main changes in Canada's entertainment industry occurred after 1997, when Canada began to offer incentives, resulting in a significant expansion of employment in filmed production that has since tapered off. As is reflected in the chart on television filming locations, Canada has a strong base to continue to attract productions, especially in television. However, as television filming has increased, movie filming has declined, as shown earlier in the California Film Commission studio television chart. This shows that there is a maximum capacity for the number of productions done in Canada. Also, as Canada brings in more television shows and movies, most of the jobs will be filled by skilled workers from the United States because Canada does not have the workforce to staff a large influx of future projects. This could hamper Canada's efforts to develop local clusters of entertainment production if U.S. workers are reluctant to move to Canada, whether for citizenship/work permit reasons or otherwise.

Local factors contributing to job loss

In order to hold constant local factors, look specifically at the entertainment industry, and interpret the raw employment numbers, we performed a shift share analysis. Shift share analysis helps interpret raw employment data to understand what is occurring in the entertainment industry based on overall economic factors in the United States. The net change in entertainment employment is the number of jobs gained or lost from 2004 to 2012. This number is created only by taking the difference from the absolute employment in NAICS code 5121 in 2012 minus 2004 employment, much like the earlier analysis.

Table 3: Entertainment industry shift share (2004-2012)

State	Competitive ranking	Net change in jobs since 2004	Baseline economy	Jobs expected based on industry mix	Competitive share
New York	1	10,674	735	-1,600	11,600
Texas	2	1,631	249	-600	1,900
New Mexico	3	1,731	25	-100	1,800
Louisiana	4	1,611	64	-100	1,700
North Carolina	5	662	58	-100	700
Nevada	6	512	34	-100	600
Georgia	7	214	108	-200	300
Florida	8	-4,332	262	-600	-4,000
California	9	-16,137	2,603	-5,800	-12,900

Sources: Moody's, BLS, Milken Institute

The "baseline economy" would be the number of jobs created if California's entertainment industry employment grew at the same rate as total nonfarm employment at the national average. The baseline economy is an indicator of the overall strength of the U.S. economy at the time of the shift share analysis. Due to the recession, the U.S. posted only a small amount of overall job growth from 2004 to 2012. The "jobs expected based on industry mix" is the difference between the entertainment industry's growth and the overall U.S. growth. All of the industry mix numbers are negative, showing that the entertainment industry in the U.S. grew more slowly than the overall U.S. economy.

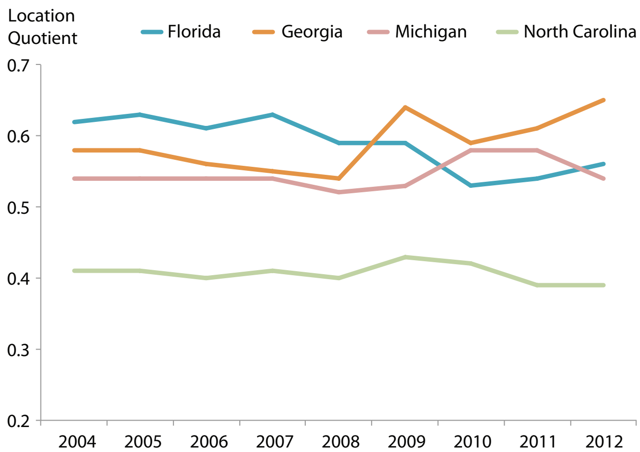
The "competitive share" uses baseline economy and industry mix to indicate how much job growth in the entertainment industry is due to local conditions. The competitive share looks at the net change from 2004 to 2012 and then subtracts the growth that occurs just from the baseline economy and adds the expected jobs based on industry mix. This holds the economic factors constant, making the competitive share an indicator of real employment change.

California was by far the biggest loser due to local conditions, having lost 12,900 jobs from 2004 to 2012. While California was losing these jobs, New York, driven by a robust incentive structure at the state and local levels, as well as an established entertainment cluster, created more jobs in production than all other top incentive states included in the shift share analysis, based on local conditions only. Even in absolute numbers, New York's 10,000 jobs are more than the sum of the other top incentive states. Florida was the second-biggest loser, having lost 4,000 jobs due to local conditions. Texas, Louisiana, and New Mexico individually all created almost 2,000 jobs based on local conditions from 2004 to 2012.

Concentration of production in key states

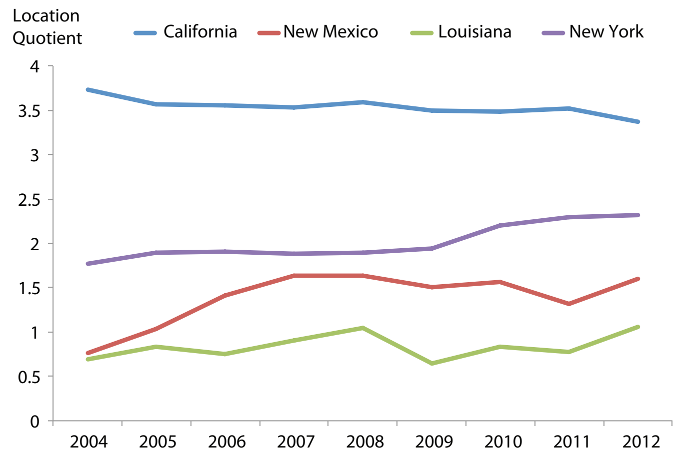
One of the most effective means for measuring how important an industry is to a state or metropolitan area—the concept of a "thick labor market"—is the location quotient (LQ). The LQ is a way of quantifying how a region compares to the national average in terms of the presence of a specified industry. If the LQ for a certain industry is 1 in a given state, then that state has the national average of concentration of workers in that industry. In other words, states with high location quotients in a given industry have economies that are dependent on that sector.

Figure 5: Slow growth or no growth



Source: BLS.

Figure 6: Big gainers and California



Source: BLS.

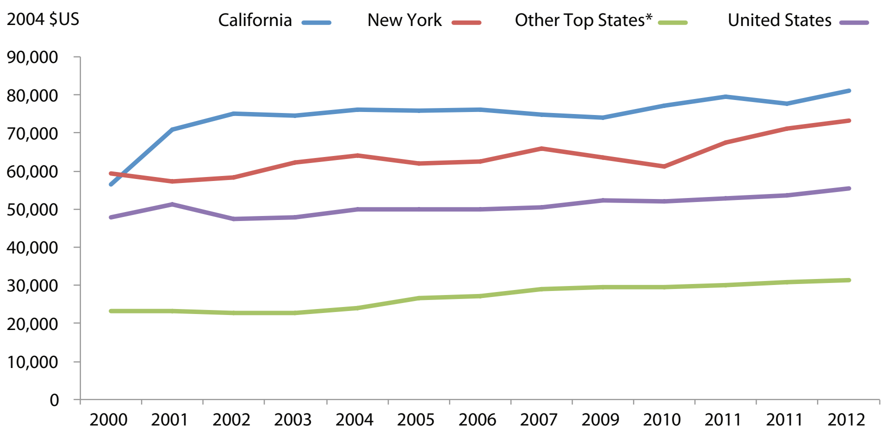
California has the most concentrated entertainment sector. California's LQ has dropped below 3.5, but is still much higher than that of any other state. New York has a fairly strong entertainment cluster, with an LQ ranging from under 2 to almost 2.5. Since 2004, Louisiana and New Mexico have become the only other states with an LQ greater than 1. Both states have almostdoubled their concentration of entertainment employment, although New Mexico ends at a higher level, suggesting thebeginning of an entertainment base. Georgia has had recent growth and is moving toward 1. Other states that offer incentiveshave shown no consistent change in LQ; this is likely the result of project fluctuation in the absence of base-building.

Comparative Wages

One of the most important factors in determining the contribution of film production to a state is how effectively the industry has established itself as a high-value contributor to the state's economy. One measure of this is overall wages per head and tracking changes in nominal and real wage-per-head dollars per year. The wage-per-head data can be considered an average annual salary in the state. "Wage per head" is calculated by dividing total wages in NAICS code 5121 by total employment in NAICS code 5121 for each year. Wage per head does contain actor/producer salaries, which are sometimes extraordinarily high, because it comes from a measure of total wages paid. States like California and New York consistently have high paid talent working in the state whereas high paid talent comes and goes from smaller states depending on the project. This is one reason there is such a wage spread among California, New York, and other states.

New York's wage per head in the entertainment industry is increasing faster than California's, and the wages may soon catch up in absolute terms. California has consistently paid the highest amount per head in wages since 2000, despite the fact that real wages are increasing in all locations in the industry according to the BLS. In 2004, California paid an average of $76,000, New York paid $64,000, the U.S. average was $50,000, and the average of other states offering top incentives was $24,000 annually per head, still taken by dividing total wages by total employment in NAICS code 5121.

Figure 7: California remains the most expensive



Sources: Moody's, BEA. *Florida, Georgia, Illinois, Louisiana, Michigan, North Carolina, New Mexico, Nevada, Tennessee, Texas

In 2012, using real 2004 dollars, California wages had a real increase to $81,000 (a $5,000 increase), New York increased the most (by almost $10,000) to $73,000, and the average of other top incentive states was $31,000 (a $7,000 increase). In 2012 dollars, California pays $98,500, New York pays $89,000, other top incentive states pay $38,000, and the U.S. average is $67,500. Even with the increase in wage cost, New York was able to add employment while California lost jobs. The fact that New York also grew employment faster than other less expensive states shows that high wage costs do not stop growth in the filmed entertainment industry.

Table 4: Wage per head

Year	California	Florida	Georgia	Illinois	Lousiana	North Carolina	New Mexico	New York	Tennessee	Texas
2004	76,004	25,315	24,591	30,276	15,934	20,101	13,851	64,005	35,533	29,648
2005	75,905	29,298	25,061	33,188	20,495	17,701	27,443	61,935	38,379	27,323
2006	76,117	28,796	27,397	33,276	22,419	18,516	25,955	62,504	42,105	26,300
2007	74,871	32,012	28,119	31,827	27,632	21,272	24,807	65,808	45,267	27,719
2008	74,016	35,351	28,481	32,812	26,174	24,320	30,707	63,448	39,179	27,202
2009	77,187	30,683	31,668	32,744	34,035	22,742	30,778	61,100	37,756	27,430
2010	79,647	27,871	31,359	32,547	38,096	26,229	29,472	67,488	38,962	27,289
2011	77,671	29,558	33,380	31,530	41,292	20,026	32,273	71,113	38,650	26,080
2012	81,061	30,495	35,283	32,096	41,129	20,740	32,925	73,131	39,946	26,851

*In 2004 dollars
Sources: Moody's, BLS, Milken Institute

In looking at the wages paid in real 2004 dollars, it is obvious that some states are not paying a living wage. The main reason is that people employed in those states are not working full time in the entertainment industry. So states like North Carolina and Texas that pay less than $27,000 a year are most likely providing seasonal and project-based short-term employment. A wage-per-head increase in a state shows that more people are collecting full-time pay in the industry. Louisiana has made the largest jump in creating a full-time employment base, paying only $16,000 per head in 2004 and increasing to $41,000 in 2012 (with inflation held constant). New Mexico has had a similar jump in wages from $14,000 in 2004 to $33,000 in 2012. Such wage growth is a sign of increased full-time employment and suggests that this level of activity is becoming more sustainable.

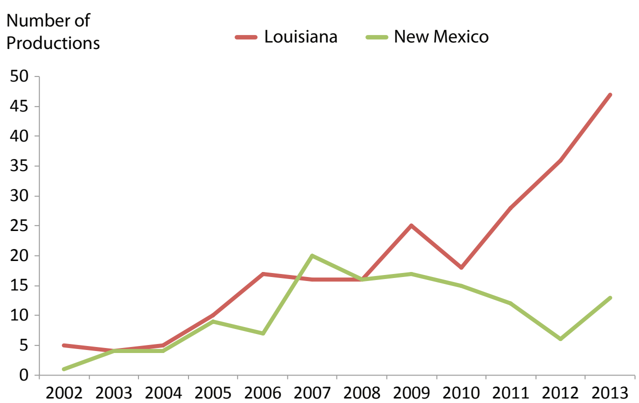
Easy Come, Easy Go?

Even though film incentives have been effective in luring production away from California and creating jobs in other states, many economists question whether these employment gains are likely to be permanent in states that lack a robust media cluster like those in New York and California.[16] Proponents of film subsidies contend that in time, states will acquire a solid base of skilled and experienced workers. Yet we view this as highly unlikely because of the project-based nature of the entertainment industry and fierce competition among states to lure productions.

When a movie or TV production wraps in any given location, skilled workers and the knowledge spillovers critical to base-building are lost if a thick labor market is not present. This represents what is known as the "temporary-permanent" dilemma in project-based industries.[17] Most states, despite the projects they attract with generous incentives, are not increasing employment in tandem with the type of capacity that signals a burgeoning media cluster.

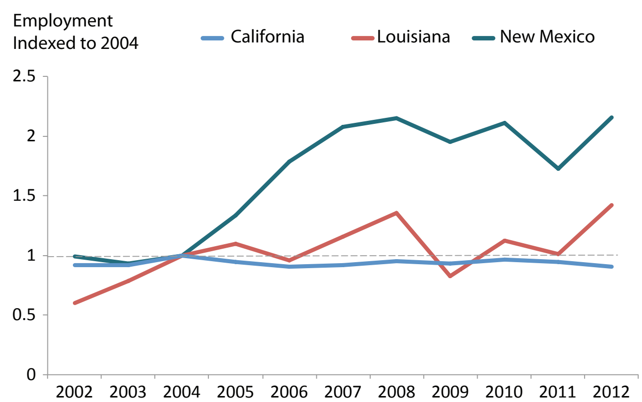
To illustrate this point, consider employment gains and the number of films shot in Louisiana and New Mexico. Both states are good examples, because they have been offering substantial film incentives for the longest period, since 2002.

Figure 8: Small states, big changes



Source: Studio Systems.

Figure 9: Rising fortunes of Louisiana and New Mexico



Sources: Moody's, BLS.

Since their incentive programs began, New Mexico and Louisiana have increased their competitive share of employment in the entertainment industry. New Mexico has clearly seen a greater increase than Louisiana, with its concentration of industry workers doubling from 0.8 in 2004 to 1.6 in 2012, as shown in the location quotient graph earlier. Despite offering the most generous incentive in the nation[18] and expanding infrastructure by building soundstages, Louisiana has not kept pace with New Mexico, which suggests that Louisiana is still importing its talent. Employment growth in New Mexico is likely

16 Tannenwald, "State Film Subsidies."

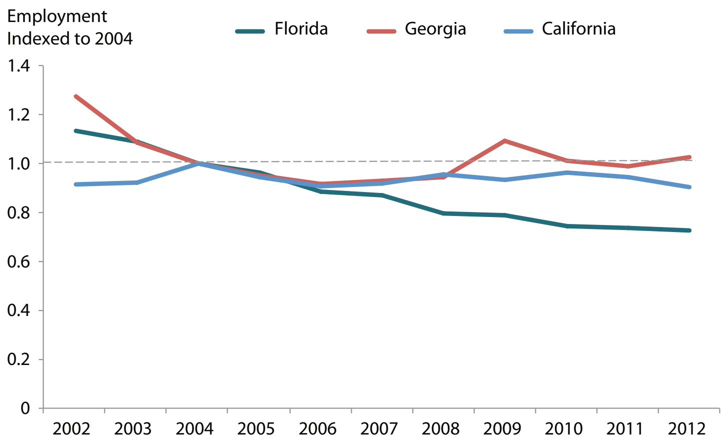
17 Peter Doeringer, Pacey Foster, Stephan Manning, and David Terkla. (2013). "Project-Based Industries and Craft-like Production: Structure, Location, and Performance", in Frank Giarratani, Geoffrey Hewings, and Philip McCann (Eds.), *Handbook of Economic Geography and Industry Studies*. Cheltenham: Edward Elgar.

18 See Appendix.

the result of projects that, even though temporary, provide longer-term employment and higher wages: the hour-long drama *Breaking Bad* and big-budget films like Marvel's *Thor* and *The Avengers*. Since 2004, both Louisiana and New Mexico have added more than 1,000 entertainment jobs. This is just a larger change for New Mexico because it started with a smaller base.

Questions remain about whether states with clear growth like New Mexico can support and retain projects, especially when states like Louisiana can so easily steal productions away. For example, while the television show *Breaking Bad* was filming in New Mexico from 2008 to 2012, the number of films shot in the state declined while it grew in Louisiana. From 2008 to 2012, New Mexico was involved in 66 films while Louisiana was involved in 123 films. In addition, New Mexico's resources were tied up by playing host to large productions such as *Thor* and *The Avengers*. This suggests that states without a large media cluster and a supporting population can quickly reach capacity in the number of projects they can support and retain in the face of competition from other states. This is further reinforced by the failed effort of Sony Pictures Imageworks to establish a visual effects operation in the New Mexico. Even with strong incentives, it proved difficult to attract and develop enough local talent to make the project viable.[19]

Figure 10: Florida declines while Georgia improves



Sources: Moody's, BLS.

We see the same sort of interstate rivalry in Florida and Georgia. Florida, which previously had a clear advantage in productions due to facilities at the Orlando resorts of Disney and Universal, saw its actual production employment base decline significantly since 2004, especially when Georgia entered the incentives game in 2008. Again, hour-long dramas like *The Walking Dead*, blockbuster films like *Anchorman 2*, and reality-based series like *The Real Housewives of Atlanta* have increased employment in Georgia.

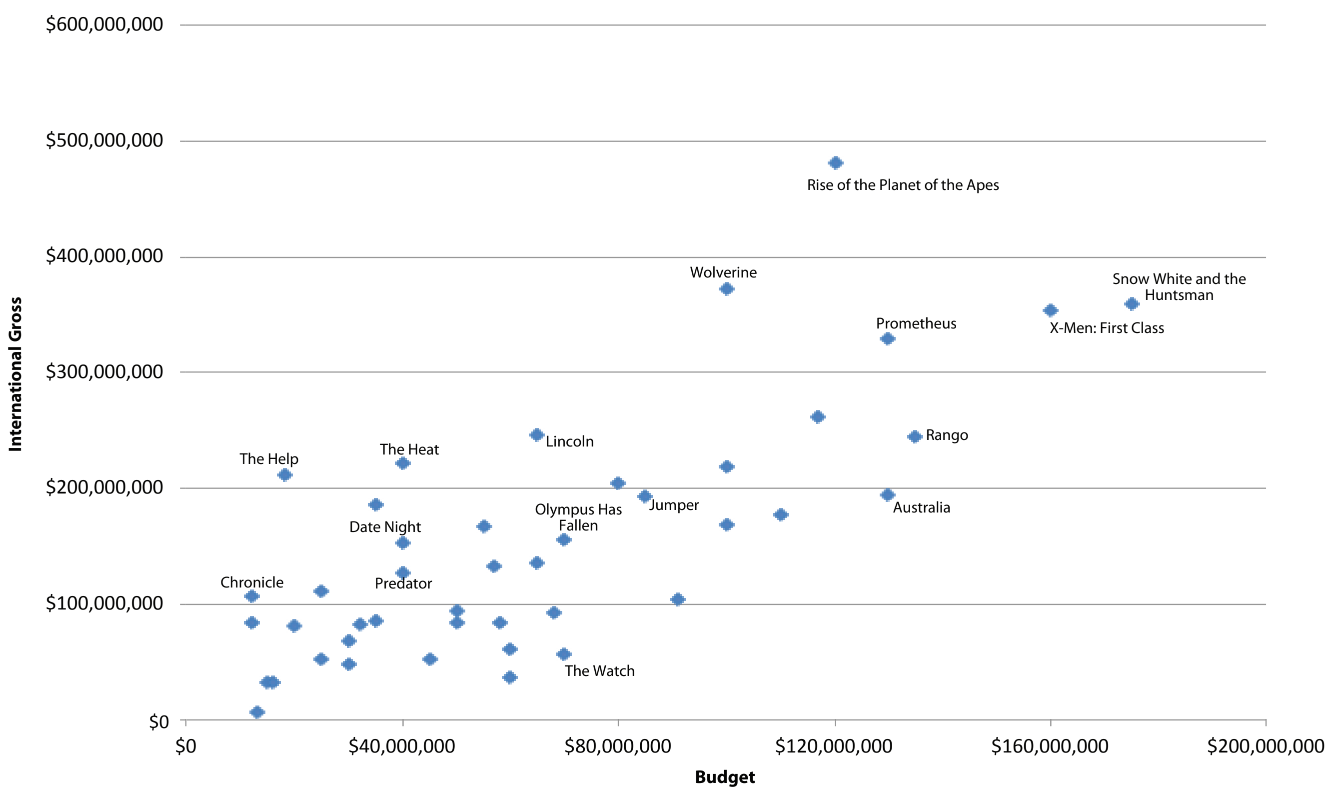
The Blockbuster Strategy

Another obstacle to states hoping to build a permanent base in the industry is how the big studios make their money: the "blockbuster strategy."[20] Big studios such as Warner Brothers and 20th Century Fox hedge their risk by focusing almost exclusively on big-budget films expected to perform well at the box office. These are usually action-packed sequels or films with heavy visual effects that will attract a wide audience. For example, consider the portfolio of the second-largest studio over the past five years:

19 Kamerick, M. (2012). "Sony Pictures Imageworks to Leave New Mexico." *Albuquerque Business First*, retrieved from http://www.bizjournals.com/albuquerque/news/2012/02/29/sony-pictures-imageworks-to-leave-nm.html?page=all

20 Elberse, A. (2013). *Blockbusters: Hit-making, Risk-taking, and the Big Business of Entertainment*. New York: Henry Holt and Company.

Figure 11: Expensive projects for big returns at 20th Century Fox



Source: Studio Systems

Note: Avatar was removed from our data as an outlier. Released in 2009, Avatar had a budget of $190 million and earned $2.7 billion at the box office worldwide, making it the top-grossing movie of all time.

It's clear from this graph that big-budget films offer the biggest returns. This strategy isn't just a hedge against the fickleness of consumers. It is also a response to technological change, which has been a double-edged sword to the industry.

The advances in information technology and consequent rise of peer-to-peer sharing networks have up-ended revenue streams in film and television.[21] In the past, big studios such as Warner Bros. and Fox have depended on box-office revenues and DVD sales, but the rise in broadband combined with a saturation of the marketplace with cheap DVDs has broken this model. Streaming and piracy also hurt revenues for television networks affiliated with these studios. Networks have traditionally made their money from commercials and from fees paid by cable and satellite companies to distribute their programs.[22] Yet, the rise in streaming video from competitors such as Netflix and Amazon is drawing eyeballs away and taking revenues with them.

As a result, studios have been looking to recoup costs wherever they can, and the shift from analog to digital has made it easy to make big-budget films in less expensive states.[23] California has lost its share of blockbusters: In 2013, only two films with budgets over $100 million were filmed in Los Angeles.[24] In addition, California's share of the 100 top-grossing films has declined from 57 in 1997 to just 23 in 2012. By contrast, Georgia had three in 1997 and 13 in 2012.[25]

21 PricewaterhouseCoopers.

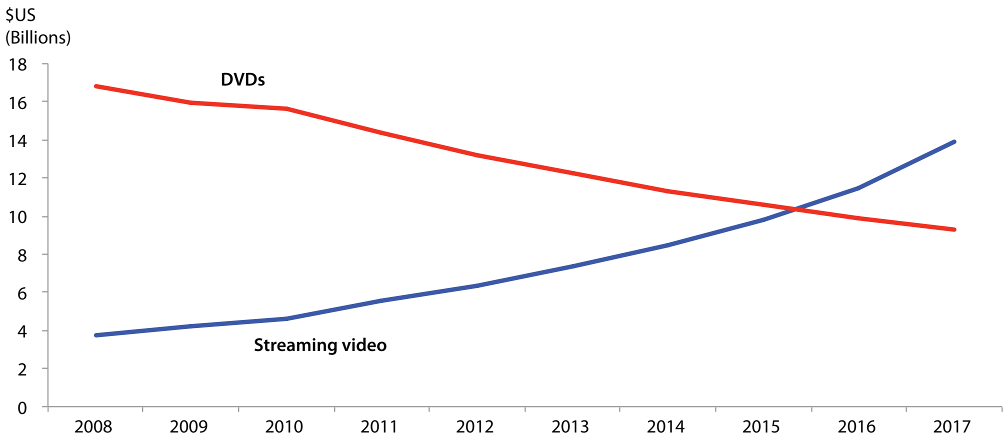
22 (2013). "Split Screens: A Tale of Two Tinseltowns." *The Economist*, Retrieved from http://www.economist.com/news/business/21572218-tale-two-tinseltowns-split-screens

23 Ibid.

24 Pattern, D., and Yamato, J. (2014). "L.A. TV, film production hit hard by rival incentives over two-decade span: Film LA," retrieved from http://www.deadline.com/2014/01/la-tv-film-production-tax-incentives-2013-filmla/.

25 Verrier, R. (2013). "Hollywood's new financiers make deals with state tax credits," *Los Angeles Times*, retrieved from http://articles.latimes.com/2013/dec/26/entertainment/la-et-ct-hollywood-financiers-20131226

Figure 12: Technology eliminates the need for DVDs



Source: PWC.

Film incentives have also made it easier for networks and cable companies to offer more reality-based programming to attract viewers, explaining the 16 percent increase in what's dubbed "lower-value" programming from 2008 to 2012. As a result, the share of TV pilots filming in L.A. fell from 83 percent in 2008 to 52 percent in 2012.[26]

Despite this, it is important to remember that film incentives are subject to political whims and may not last forever. Studios will continue to send productions where the best deal can be found, so the ability of other states to build a permanent employment base in the industry continues to be questionable.

What's not questionable, however, is that postproduction costs are rising. Blockbusters require earth-shattering visual effects, and the switch from analog to digital has increased the time and money spent in postproduction.[27]

The Strange Case of Visual Effects

Canada has achieved considerable success in attracting and retaining visual effects projects. The country's highly aggressive incentive structure, in a concerted effort to develop digital clusters in Vancouver, Montreal, and Toronto, has succeeded in luring significant elements of visual effects production and other digital software content. Although permanent visual effects employment cannot be captured, the impact incentives have had on visual effects companies is clear. For example, Digital Domain rather publicly declared bankruptcy in 2012 after attempting to develop a new animation and effects center in Florida, spurred by local incentives that proved insufficient to ensure the financial viability of the project.[28] California effects companies face rising costs, increased underbidding for services, and pressure from non-California incentives on their overall bottom line.

The main argument for the success of overseas visual effect locations is their ability to create and develop local clusters of employment, which U.S. states outside of California have only limited success in developing. Vancouver in particular has been aggressive in attracting operations from firms such as Digital Domain and Microsoft and in working to establish a cluster to provide a long-term base.[29] However, even with that effort, competition from rival Canadian cities and

26 Pattern, D., and Yamato, J. (2014).

27 (2013). "Split Screens."

28 Verrier, R. (2012). "Digital domain closes Florida studio, CEO resigns." *Los Angeles Times*, retrieved from http://articles.latimes.com/2012/sep/07/entertainment/la-et-ct-digital-domain-20120907

29 Brodsky, K. (2012). "Vancouver vfx studios building community," *Variety*, retrieved from http://variety.com/2012/digital/news/vancouver-vfx-studios-building-community-1118062484/

London is fierce. The United Kingdom has determined that the visual effects industry is a key component of its overall entertainment industry and is assertively targeting it. The U.K. has not only included visual effects in its newly raised 25 percent film credit but has also set aside £15 million for innovative digital media content creation in order to stay at the forefront of the industry.[30] Overall, California retains a comparative advantage in effects, but the high level of incentives combined with ease of outsourcing is turning the in-state sector into a hollow shell. It is in the area of digital postproduction that foreign locations pose the greatest threat to California. With the threat from New York also on the rise, it is clear this sector is under greater pressure than perhaps any other in filmed entertainment.

30 (2013). "Visual effects: providing further support to the industry summary of responses." HM Treasury, retrieved from https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/264920/PU1603_Visual_effects_summary_of_responses.pdf

POLICY ANALYSIS: NEW YORK, NY

Competitive Advantages: Crew Depth and Rapid Growth

To understand why New York is a threat to California, it's important to consider what they have in common. First, both states are home to cities that boast sophisticated media clusters capable of attracting artistic talent from around the globe. Looking at location quotients again by city and occupation, California has almost eight times more media and communications workers than the national average and a huge advantage in most areas. New York leads in terms of editors, yet is not far behind Los Angeles in many entertainment occupations, with concentrations well above the national average. As a result, both Los Angeles and New York have a thick labor market: highly centralized networks of elite talent and crews with the ability to work on a variety of media, film, and television projects.

Table 5: Concentration of media, film, and TV production occupations[31]
May 2012

Occupation	Los Angeles	New York City
Sound Engineering Technicians	4.8	3.1
Film and Video Editors	5.6	2.9
Broadcast Technicians	3.3	2.1
Producers and Directors	5.7	2.8
Audio and Video Equipment Technicians	2.1	1.9
Set and Exhibit Designers	4.4	1.4
Makeup Artists, Theatrical and Performance	5.9	3.1
Editors	1.2	3.3
Media and Communications Workers, All Other	7.5	1.4
Camera Operators, Television, Video, and Motion Picture	2.7	1.9

Source: BLS

Policy Advantages

Like other states competing with California, New York offers a generous incentive that has attracted productions. With an annual cap of $420 million, the Empire State offers productions shot within New York City a 30 percent refundable tax credit and those shot outside the city a 35 percent refundable tax credit.[32] Yet New York City is an even more expensive place to film than Los Angeles, and like the City of Angels, the Big Apple is not immune to production flight. When incentives ran out in 2009 due to overwhelming demand, only four pilots were filmed in New York, 16 fewer than in 2008.[33] After the incentives were renewed in 2010 (with increased funding), 22 pilots were shot in New York for the 2010-2011 season.[34]

31 Currid, E. (2006). "New York as a global creative hub: A competitive analysis of four theories on world cities," *Economic Development Quarterly*, (20): 330.

32 Cast & Crew.

33 Applebaum et al.

34 Ibid.

NEW YORK'S TV EMPIRE

The Good Wife: A critical and ratings success since debuting in 2009, this television series is a clear example of a network drama that once filmed almost exclusively in Los Angeles but has shown significant mobility to other states, specifically New York. What is striking about *The Good Wife* is that it is set in Chicago. This makes it unlike many other shows whose decision to film in New York is driven as much by a desire to capture the feel of the city as simple economics. While the incentives play a large role in the filming location, the high level of local talent is also a significant factor and makes New York that much more compelling.[35] While a half-hour Chicago-set comedy such as *The Crazy Ones* might still choose to film in L.A., gone are the days when a Chicago-based drama such as *ER* would unquestioningly choose to stay in California.

Fringe: In contrast to *The Good Wife*, this show's history illustrates how even a strong talent base in New York can fail to retain a production if incentive money is cut off. A combination of incentives and talent lured *Fringe* to New York, despite the series pilot being filmed in Toronto. But when New York's incentive fund ran out of money in 2009, the show made the decision to relocate to Vancouver, where it could benefit from stable incentives.[36] Once the production left New York, it never returned, although New York did learn from the experience and adjusted its incentives soon afterward.

One of the biggest policy advantages in New York is its postproduction credit, which now matches the state's production credit. In 2012, Governor Andrew Cuomo signed legislation that raised the postproduction credit from 10 percent to 30 percent in the New York City area and the surrounding commuter region (see appendix for details).[37] Additionally, the tax credit was raised to 35 percent for postproduction work completed in upstate New York. [38]

The governor went a step further in 2013 by extending the postproduction credit until 2019, lowering the threshold for visual effects and animation from 75 percent to 20 percent of the total special effects budget, or $3 million (lesser of two). This means that large films or animations can do a portion of postproduction visual effects in New York even if the state does not have the current capacity to do the full project.[39] New York is also allowing productions shot outside the state to qualify for the postproduction credit. In January of this year, the governor announced a $4.5 million grant to Daemen College and Empire Visual Effects to create 150 new postproduction and visual effects jobs in Buffalo, hoping to grow the state's overall postproduction capacity.[40]

This aggressive policy approach tips the scales in New York's favor in a big way by bolstering its ability to compete domestically and internationally. Most big-budget films are shot outside of California and seek postproduction incentives in places like New Zealand or Vancouver because effects companies are not covered under the state's filmed production incentive.[41] By lowering the threshold for visual effects postproduction budgets and by allowing productions filmed elsewhere to qualify, New York is poised to pull in blockbuster films and other lucrative projects.

35 Cheney, A. (2011, December 6), "For 'The Good Wife', shooting New York and faking Chicago," *The Wall Street Journal*, retrieved from http://blogs.wsj.com/speakeasy/2011/12/06/for-the-good-wife-shooting-new-york-and-faking-chicago/

36 Soll, L. (2009, February 21). " 'Fringe' moves production to Canada," *Entertainment Weekly*, retrieved from http://insidetv.ew.com/2009/02/21/fringe-fox/

37 Governor's Office, (2013). "Governor Cuomo announces empire visual effects and Daemen College to bring visual effects/post-production hub and 150 new jobs to Buffalo." Retrieved from website: http://www.governor.ny.gov/press/07112013-new-jobs-to-buffalo

38 Ibid.

39 Marchant, 2013.

40 "Governor Cuomo announces."

41 Verrier, R. (2012). "California visual effects artists fight foreign film tax credits." *Los Angeles Times*, retrieved from http://articles.latimes.com/2012/dec/21/business/la-fi-ct-visual-effects-protest-20121221.

Even more than for motion pictures, New York is structured to attract television. With significant recent attention being paid to New York City's "recapturing" of NBC's *The Tonight Show*, the city and the surrounding area have demonstrated that they have enough concentration of local talent to attract and retain hour-long dramas and many other kinds of productions.

LOCAL TALENT

Pinewood Atlanta Studios: The Pinewood-Shepperton company is one of the most prominent independent studio and soundstage operators in the world. It has developed a reputation not only for attracting productions to its facilities outside London but also for engaging in joint ventures to operate soundstages in other key locations for the purpose of attracting films. These include facilities in the Dominican Republic, Malaysia, Germany, and Canada (Toronto). The company's decision to build a new facility outside Atlanta represents a clear success for Georgia's efforts to market itself as a viable, long-term filming location. Pinewood directly cited the Georgia incentives and the accessible central location as two key factors in its decision.[42] Although the facility is not yet operating, it is intended to follow the Pinewood model of attracting large-budget films, as the London facility did with *Gravity* and *World War Z*.

For Atlanta, the suburban facility marks an effort to restore the entertainment cluster that was on the rise in the 1980s and 1990s and stalled after the vast Turner empire merged with Time-Warner in 1996. Pinewood has said the region has a "great crew base," and the facility is expected to create up to 3,400 ongoing jobs.[43] That being said, Georgia does not have enough local production employees to fully staff Pinewood and supply the other demands in the area. In the short term, production companies will have to borrow talent from other centers such as New York or Florida. If facilities such as Pinewood allow Atlanta to become a fully realized cluster, then the benefits will be clear, and the results may outlast the current incentives.

Disney's Golden Oak Ranch: The decision by Disney to seek approval for the development of new soundstages and filming locations on its long-held ranch in Santa Clarita (which served as the site for *Old Yeller*) seems to stand in stark contrast to the company's recent history of sending productions out of California at a rapid rate. The move should be considered a strong vote of confidence in the future of Los Angeles as a center of production. In fact, the studio endured four years of applications for the permit to develop the site, and the project is expected to take a few more years to be fully completed.[44]

There is no doubt about the importance of the facility, which is projected to employ 2,854 workers when in full operation. The question is why Disney decided to develop the studio space amid the departure of so many productions from California. The development at Golden Oak Ranch appears to be driven by a few key factors. First, Disney Studios has one of the smallest lots in Los Angeles, with a limited number of soundstages. Second, the Disney Channel's thriving series of productions remains eligible for California's incentives even in their current format. And third, although Disney has sent the bulk of its productions out of state, a number of its television shows, such as ABC's *Castle*, remain local and could fill the space. Disney has made it clear it will adjust the size and scope of the project to match "current market conditions."[45]

42 Pinewood Atlanta Studios. (n.d.). Retrieved from http://www.pinewoodgroup.com/our-studios/usa/pinewood-atlanta-studios/about-us

43 Doughty, L. (2013, October 23). "Pinewood Atlanta to transform Georgia film industry," ReelGA, retrieved from http://www.reelga.com/2013/10/pinewood-atlanta-to-transform-georgia.html

44 Bond, P. (2013, August 28), New Disney facility in Santa Clarita faces hurdles, *The Hollywood Reporter*, retrieved from http://www.hollywoodreporter.com/news/new-disney-facility-santa-clarita-616692

45 Disney/ABC Studios at the Ranch. (n.d.). Retrieved from http://www.studiosattheranch.com/studios

RECOMMENDATIONS

In our prior publications, the Milken Institute has issued a number of key recommendations for how the state of California could and should improve its incentive program. As the competition outside the state evolves, California needs to steer its incentive program toward job creation and retention by allowing the selection of productions based on viability, fairness, and economic impact—productions that can best maintain the local economy. This does not mean, however, that state leaders should write a blank check that is politically and fiscally unsustainable.

In examining how the incentive program should be revised, it is essential to remember that unlike other states, California only pays out the promised funds once a production is complete and the producers file their receipts. This is a clear advantage for California's fiscal process, and we do not advocate altering this element. Our goal in making these recommendations is not to advocate a higher credit level for individual productions but instead to advise structuring the incentives to provide a greater overall impact on jobs and the state economy—and to encourage that impact to be more effectively spread throughout the state as a whole.

Reduce the uncertainty involved in the filmed production credit

- Raise the total amount of available annual funds in the state's filmed production credit to a level that allows for the elimination of the annual lottery and for the awarding of credits on a rolling basis throughout the year rather than at one arbitrary point tied to the state's fiscal calendar. This level should be high enough to eliminate the need for the lottery but should also have a clear annual ceiling to avoid creating unpredictability for the state's general fund. The newly raised level of funding should also be divided into specific allocations to maximize the impact across the economy and allow for productions not eligible for the current incentives to be covered.

- California legislators should eliminate the sunset date of film production incentives in favor of a periodic review process, similar to that used by New York, to allow the state to make adjustments to the total pool of money (based on economic conditions and competition) that will take effect after two years. By establishing certainty in the incentives as well as a review process that can make rational adjustments, the state would encourage studios and film companies to make larger commitments to the local infrastructure and can avoid the pitfalls of sudden policy reversals seen in states such as Michigan.

Ensure a smooth evaluation process

- Establish an application fee for productions over $3 million that will be dedicated to providing new employees at the California Film Commission who will handle the evaluation process. The fee can be weighted to the size of the application, with a minimum application fee for smaller productions scaled up somewhat for larger productions. This funding would be dedicated to the hiring of evaluation staff at the California Film Commission and could be diverted to the state general fund.

Restructure the credit to align with television schedules

- Dedicate a portion of the fund to hour-long dramatic television, including miniseries, and ensure that network television is explicitly included. Establish a rolling allocation in order to align the fund availability with television filming schedules, particularly in the period when networks determine their fall schedules. Strongly consider emphasizing new productions and eliminating the provision for relocating ones, while continuing to offer coverage to existing television shows as long as they are renewed on a timely basis. In addition, a dedicated pool of money separate from television funding should be established for films, as well as movies of the week and other non-recurring productions.

Capture blockbuster productions

- Movies with budgets over $75 million should become eligible for filmed production incentives. Total credits for larger productions can be capped to ensure that no one film takes a disproportionate share. Big-budget films could remain eligible for the incentives provided they spend a to-be-determined minimum in the state. This will encourage productions to shift a significant portion of high-value filming to California, and by including visual effects as recommended below, the state can more readily meet a threshold for a total percent of the budget spent in the state.

Encourage production across the state

- Productions outside the union-designated 30 Mile Zone around Los Angeles suffer a clear cost disadvantage. These projects are exposed to higher costs for on-location filming or higher union travel rates. To mitigate this expense, productions that film outside of the zone should be eligible for an additional 5 percent credit. This has been implemented to clearly positive effect in New York to encourage productions outside the immediate vicinity of New York City. This will stimulate productions in formerly busy locations such as San Francisco and encourage scouting of diverse locales throughout the entire state.

Embrace digital effects and innovation

- Digital visual effects and animation expenditures should be made explicitly eligible for filmed production incentives at the 20 percent rate. This would offset a cost disadvantage faced by local visual effects companies—particularly those in the San Francisco Bay area that do not qualify for the current incentives—and encourage additional expenditures in the state.

- Establish a digital infrastructure investment credit that is part of the state's research and development tax credit rather than the filmed production incentive. As California works to encourage investment in the filmed production infrastructure, it can also provide a research and development credit to production companies intended to create in-state research to keep California at the cutting edge of digital entertainment.

CONCLUSION

California's position as the global center of film production has been established through a century of economic development and comparative advantages. Even with the advent of digital technology, California retains its comparative advantage over other states and countries due to its thick market. With film production showing itself to be increasingly mobile, California should not attempt to capture or keep productions that are looking for the highest possible incentives—that's a game it can't win. Instead, the state must facilitate the preservation of the core employment base and production infrastructure, as well as help local filmmakers restructure and adapt to the new age of digital production and distribution.

The primary purpose of any filmed production or digital media incentive must be to create and retain jobs. The purpose of this study has been to demonstrate direct erosion of jobs in the filmed entertainment industry in California and the consequent rise that is occurring to various degrees in other states. The relatively small size and scope of permanent employment in the sector in most competing states hinder them from providing a fully sustainable entertainment cluster as yet, with the notable and clear exception of New York. Even states that show signs of being effective rivals, such as Louisiana and Georgia, lack either the population base or the effective concentration to be a full threat. Only New York has both in its favor, but it is burdened with costs higher than those of California. Ultimately, the main losers in the outflow of productions are local workers, who are forced to make a choice between abandoning the entertainment industry as a primary source of employment, moving to other states, or attempting to keep their homes in California while working on projects elsewhere. Currently, workers appear to favor the last option, but this clearly not sustainable over the long term, especially when options such as New York exist.

Ultimately, the goal for California must be to leverage its strategic advantages—namely, serving as the headquarters of most studios, distributors, and producers; its role as home to the largest concentration of entertainment talent in North America; and its strong existing infrastructure. California should ensure enough incentives to balance out its higher costs and the increasing aggressiveness of other states without sacrificing its future.

APPENDIX

Database Analysis

Data for the entertainment industry is scattered among many sources, only some of which make their information public. Most entertainment data from large production studios is private and not available for public use. Methodologies and the data available concerning number of television shows, number of movie productions, budgets, and employment based on location and project differ depending on the source. There may be some inherent biases in the data due to the sources, whether information comes from Cast & Crew (a payroll service), California Film Commission (a state commission), or Studio Systems (an entertainment database). To reduce bias, we used employment and wage data from national government sources pulled at the state level.

Interpreting entertainment data for any researcher is a difficult task. Large production companies want to keep their information private, and independent films vary in how they report their spending and employment. The types of films made each year and where they are made oscillate depending on the project, state, or incentive package. For these reasons, in our analysis we used four different data sets from three different sources. To encompass trends in film production we used Studio Systems, and for television production we used data from the California Film Commission along with employment and wage figures from Moody's Analytics based on the NAICS code 5121 (which encompasses the motion picture and video industries, including television).

Private Data Sources

IMDB-Pro and Studio Systems

There are two leading entertainment databases that contain movie production data and information, IMDB-Pro and Studio Systems. Both databases have incomplete information, but Studio Systems has a more advanced search feature enabling data to be pulled in larger groups using a more specified search criteria. IMDB-Pro allows any user to contribute new material and edit existing entries. Information is checked before going live, but the system has been open to abuse, and occasional errors are acknowledged. Studio Systems compiles data from a wide range of public and proprietary sources, offering the most reliable option because those using and adding to the site must be paying members. We did not ignore IMDB as a source, however, and used it to double check locations for specific films and television shows against large amounts of data gathered in Studio Systems. It's important to note that television shows or movies that have been out for a longer time have more accurate data because they have been viewed and corrected more times than newer releases.

We created the scatter plot concerning films' worldwide box office earnings over film budget for 20th Century Fox using Studio Systems data. It was based on an example provided in Anita Elberse's book *Blockbusters: Hit-Making, Risk-Taking, and the Big Business of Entertainment*. Elberse used Warner Brothers as an example, because it was the studio that created this strategy and motivated other studios to follow suit. To illustrate this point we chose to analyze the second-largest studio, 20th Century Fox. The worldwide box office earnings were created by summing international box office and U.S. box office totals. We took the data concerning budget from Studio Systems, although budget data from Studio Systems tend to come from secondary sources like the *Hollywood Reporter* or *Variety*. As large production companies attempt to keep their budget information private, our data are limited to these secondary sources.

California Film Commission

The California Film Commission is a government service that provides information on the state's film and television tax credits, offers online permits for filming on state property, maintains an online location database via CinemaScout, and gives the those in the film industry access to California's statewide network of more than 60 regional film offices. The California Film Commission supplied the filming location data for this project in the final form. Only total numbers of hour-long television dramas by location and year were given and not data such as which programs are shot where and which networks were moving productions.

PriceWaterhouseCoopers Global Entertainment and Media Outlook

The data concerning DVD sales versus streaming television and movies came from PriceWaterhouseCoopers. The graph was created using the variables and "physical sell through" and "electronic home video, over-the-top (OTT)/streaming" for the U.S. in millions of dollars. "Physical sell through" includes rentals and purchases. "Electronic home video and OTT/Streaming" comprises entertainment viewed on TVs, computers, or other devices and streamed over the Internet (like Netflix) rather than through traditional channels like TV subscription.

Public Data Sources

Moody's Analytics and Bureau of Labor Statistics (BLS)

Wage and employment data were available through Moody's Analytics, which collected the data from government services including the U.S. Bureau of Labor Statistics (BLS) and U.S. Bureau of Economic Analysis (BEA) utilizing Current Employment Statistics (CES), Quarterly Census of Employment and Wages (QCEW), and Moody's Analytics (ECCA) estimates.

The data for the location quotient were taken from and calculated directly by the U.S. Bureau of Labor Statistics. The BLS recently added the Location Quotient Calculator as a tool for labor market analysis. The calculator generates location quotients to compare the industrial activity levels among different areas of the country. The new BLS location quotient calculator uses the Quarterly Census of Employment and Wages (QCEW). The location quotient represents the ratio of an occupation's share of employment in a given area to that occupation's share of employment in the U.S. as a whole. For example, an occupation that makes up 15 percent of employment in a specific metropolitan area compared with 3 percent of U.S. employment would have a location quotient of 5 for the area in question. The BLS only creates location quotients for the state and Metropolitan Statistical Area (MSA) estimates.

Occupations selected for inclusion in Media, Film, and TV Production were based on analysis conducted by Elizabeth Currid in "New York as a Global Creative Hub: A Competitive Analysis of Four Theories on World Cities." Updates to this framework were made from the BLS Occupational Employment Survey (OES). The data were broken down by MSA for New York and Los Angeles. Although we reviewed figures for Albuquerque and New Orleans, the data were not robust and were omitted from analysis. The Canadian employment data were available directly from Statistics Canada. The data were collected using CANSIM, Canada's key socioeconomic database. CANSIM is updated daily and provides fast and easy access to a large range of the latest statistics available in Canada.

Data Not Utilized

Cast & Crew Data

We attempted analysis of other data but found there was no new information or the results were not conclusive. Cast & Crew Employment Services offered payroll data by production companies and types of productions and were very cooperative in allowing us access to their data. Founded in 1976, Cast & Crew began as a small business that provided payroll services to the commercial and the music business. Today, Cast & Crew provides these same industries with its highly regarded PSL production accounting software.

Cast & Crew provided data with more than 60,000 different observations ranging from 2002 until 2012. The layout and the variables such as hours worked, days worked, number employed, and gross wages were not consistent because an individual could be paid multiple times throughout the year and be counted in different locations without an identifying number to know which individuals were just receiving a consistent payroll check. Pay in the entertainment industry varies greatly due to projects, royalties, and other compensation methods created through intricate contracts. The payroll data from Cast & Crew are disaggregated data. Data are provided by each individual production company whenever they pay their employees throughout a project. That means that the data could not be used to see trends over time or track project-specific trends by state due to the variation in the observations depending on the pay periods. Cast & Crew has grown since 2002, changing the number of observations and what data are reported throughout time. The data the company provided was abundant but not suitable for a state-by-state time series analysis.

We also attempted to create a regression analysis using the Cast & Crew data and the NAICS code employment data. Due to fluctuations, there was no way to see a statistically significant trend in the data. The regression attempts included differencing and logging the data, using moving averages, ordinary least squares, and ARIMA (autoregressive integrated moving average) models. We even attempted to use difference in mean on most of the data sets, yet the only one that was close to having statistical significance was the change in movie productions between other states and California, which we included. The large project movements year to year and state to state create too many outliers that skew the data.

Despite these shortcomings in the data, Cast & Crew did provide instrumental incentive information.

IPUMS

In an attempt to see how employment was affected outside the entertainment industry, such as in the food industry, janitorial services, or legal services, we attempted to use Integrated Public Use Micro Sample (IPUMS) data. IPUMS allows comparisons between NAICS employment numbers data and Standard Occupational Classification (SOC) data. This is an opportunity to look at how indirectly related employment is affected by entertainment productions. This idea was proposed by Currid & Stolarick, who stated, "Although not exactly the same occupation and industry definitions are reported in the PUMS, the census does provide a 'crosswalk' or bridge that generally links census occupation codes to SOC occupation codes and another bridge that links census industry codes to NAICS industry codes." The results for NAICS code 5121 fluctuated randomly when analyzed, without lending any usable new information for the report.

Table 6: Film incentive comparisons

State	Number of TV and film productions, 2010-2011	Type of incentive program	Annual funding (millions)	Project budget cap (millions)	Maximum benefit	Transferability	Refundability	Sunset/ Review	Notes
Domestic									
California	1,117	Tax credit	$100	$75 feature films; $10 for indie films	20% of qualifying local spending; 25% for relocating TV series and indie films	No (except for indie films)	No	6/30/17	
New York	470	Tax credit for production and post-production	$420	No	30-35% of qualifying local spending when in the metropolitan commuter area/elsewhere in the state; 30-35% of qualifying postproduction spending when at facility in metropolitan commuter area/elsewhere in the state; 4-5% of eligible investment credit base; additional 10% credit for below-the-line wages in specific upstate counties	No	Yes (both production and postproduction)	12/31/19	Effective 2015, postproduction allocation will increase from $7 to $25
Louisiana	125	Tax credit	No cap	No	30% of qualifying local spending; 5% of resident payroll less than or equal to $1 million	Yes	Yes (partially)	None	
Texas	86	Cash rebate (grant)	$95 for biennium, ending 8/31/2014	No	5%-20% of qualifying local spending	N/A	N/A	None	
Georgia	103	Tax credit	No cap	No	20% of the base investment in the state; extra 10% if the qualified production activities include a qualified Georgia promotion	Yes	No	None	
Florida	52	Tax credit	$296 through 6/30/2016	$8 film; $500K Comm/Music	20% qualifying spending; 5% bonuses for off-season projects; 5% bonus for family-friendly projects (30% maximum)	Yes	No	6/30/16	
New Mexico	44	Tax credit	$50M per fiscal year (7/1-6/30)	No cap	25% refundable tax credit plus 5% for qualified TV series or 5% for resident labor crew expenses (includes fringes) for non-qualified TV series (30% maximum)	No	Yes*	None	

* Credits of $2 million or more may be paid out in multiple equal installments over one or two years.

State	Number of TV and film productions, 2010-2011	Type of incentive program	Annual funding (millions)	Project budget cap (millions)	Maximum benefit	Transferability	Refundability	Sunset/ Review	Notes
International									
Canada	N/A	Tax credit	No cap	No cap	16% of qualifying local spending; federal tax incentive is stackable with the provincial tax credits in Canada	No	Yes	None	
British Columbia	N/A	Tax credit	No cap	No cap	33% of qualifying local spending; Digital Animation or Visual Effects (DAVE) credit bonus: 17.5% additional credit on qualifying labor; Regional Tax Credit bonus of 6% for qualifying "regional" and qualifying "distant" labor	No	Yes	None	
Ontario	N/A	Tax credit	No cap	No cap	25% of qualifying local spending; 20% of qualifying local digital animation and special effects labor	No	Yes	None	
Quebec	N/A	Tax credit	No cap	No cap	25% of qualifying local spending; 20% of qualifying local digital animation and special effects labor	No	Yes	None	
New Zealand	N/A	Grant	No cap	The additional LBSP grant is capped at NZ$9.75M per project	15% of qualifying local spending for large budget films and visual effects work; an additional grant totaling 15% of the qualifying additional expenditures for large-budget films	No	Yes	None	
United Kingdom	N/A	Tax credit	No cap	No cap	Up to 25% of qualifying local spending; for films with budgets greater than £20M, up to 20% of qualifying local spending; 25% of qualifying local spending for TV/animation	No	Yes	12/31/15	

Sources: Cast & Crew, Entertainment Partners, Motion Picture Association of America, Milken Institute

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