





MILKEN INSTITUTE

California Center | July 2010

Film Flight: Lost Production and Its Economic Impact on California

by Kevin Klowden, Anusuya Chatterjee,
and Candice Flor Hynek

ACKNOWLEDGMENTS

The authors gratefully acknowledge Armen Bedroussian and Perry Wong for their expert assistance in preparing this study. We also thank our editor, Lisa Renaud.

ABOUT THE MILKEN INSTITUTE

The Milken Institute is an independent economic think tank whose mission is to improve the lives and economic conditions of diverse populations in the United States and around the world by helping business and public policy leaders identify and implement innovative ideas for creating broad-based prosperity. We put research to work with the goal of revitalizing regions and finding new ways to generate capital for people with original ideas.

We focus on:

human capital: the talent, knowledge, and experience of people, and their value to organizations, economies, and society;

financial capital: innovations that allocate financial resources efficiently, especially to those who ordinarily would not have access to them, but who can best use them to build companies, create jobs, accelerate life-saving medical research, and solve long-standing social and economic problems; and

social capital: the bonds of society that underlie economic advancement, including schools, health care, cultural institutions, and government services.

By creating ways to spread the benefits of human, financial, and social capital to as many people as possible—by *democratizing* capital—we hope to contribute to prosperity and freedom in all corners of the globe.

We are nonprofit, nonpartisan, and publicly supported.

CONTENTS

Executive Summary	1
Introduction: California vs. the Competition.....	3
Part 1: The State of Film and Television Production in California	7
Part 2: Competition from Other States	13
Part 3: Canada as a Top Location for Film Production.....	17
Part 4: Additional Global Competition for Film Production.....	21
Part 5: Competition for Post-Production	23
Conclusion	27
Appendix: Incentive Programs by Location.....	29
Endnotes.....	35
About the Authors	40

EXECUTIVE SUMMARY

Hollywood has always been the heart of the entertainment industry, but today there are a host of competitors vying for new film and television productions—and the jobs that go along with them. Rival locations (especially Canada, New York, Georgia, Louisiana, North Carolina, and New Mexico) now offer an attractive combination of lower costs, technical talent, incentives, and infrastructure.

California no longer can afford to rest on its laurels or its storied entertainment industry pedigree. Especially in the current economy, it's imperative that policymakers understand what's at stake and take decisive steps to retain an industry that serves as a vital source of jobs and revenue. Leaders in the film industry will have to take an active role in effectively communicating this message.

Recent years have seen a dramatic decline in the number of feature films produced within California. Movie projects can move, and when they do, they take with them millions of dollars in lost local spending. In recent years, the number of movies either wholly or partially filmed in California has fallen sharply, from 272 in 2000 to 160 in 2008.¹

Employment in California's movie and video industry (encompassing production, post-production, and independent artists) reached its peak in 1997. But since then, the state's share of North American employment in the industry has declined from 40 percent in 1997 to 37.4 percent in 2008.

Our research shows that if California had managed to retain the 40 percent share of North American employment it once enjoyed, 10,600 jobs would have been preserved here in 2008. Furthermore, those direct jobs would have had broader economic impact, generating an *additional* 25,500 jobs after rippling through other sectors.

If the state had maintained its former level of dominance, a total of 36,000 jobs would have been saved. The wages and output associated with these jobs would have totaled \$2.4 billion and \$4.2 billion, respectively.

Estimated gains in broader economy if California had retained its 1997 share of North American employment

	Direct impact	Indirect impact	Total impact
Employment	10,606	25,487	36,093
Wages	\$970M	\$1.43B	\$2.4B
Real output	\$1.58B	\$2.63B	\$4.21B
Wages per employee	\$91,893	\$56,000	\$66,547
Real output per employee	\$148,782	\$103,100	\$116,524

Sources: U.S. Bureau of Labor Statistics (BLS), U.S. Bureau of Economic Analysis (BEA), Moody's Economy.com, Milken Institute.

After numerous failed attempts to pass legislation aimed at stemming runaway production, California finally passed a film incentive program in February 2009 (the measure was formally implemented in July of that year). Early data from FilmL.A., a not-for-profit organization that coordinates permits for on-location shooting, shows a strong increase in production days in Los Angeles for the first two quarters of 2010, which the group largely attributes to the new state incentives.² This could signal that film flight is finally slowing or reversing, though it is too soon to render a definitive verdict. While

Film Flight

this is an early positive sign, the battle isn't won yet. The existing incentives could be more effective if they were made permanent and expanded to apply to bigger-budget films.

To retain and grow film and television production, California should take the following steps:

- design a balanced and sustainable two-tier film incentive program to maintain global competitiveness (with one set of benefits to engage big-budget studio films that are not covered under the current incentive program, and another set to attract smaller independent productions, including those intended for cable)
- expand the current tax credit for television production to encompass network and premium cable shows
- make tax incentive programs permanent, signaling long-term commitment
- consider implementing a new digital media tax credit to attract and retain developers of digital animation, visual effects, and video games
- more effectively track film production data, including how many days of production are spent within the state versus other locations along with the utilization rates of studio soundstages and similar facilities
- encourage long-term investments in infrastructure by implementing tax credits for building or upgrading studio or post-production space
- improve the ability of local film commissions to coordinate with local city authorities in expediting the film permitting process
- create proactive marketing and outreach strategies to communicate new incentives and initiatives
- establish cooperative relationships with civic and industry leaders beyond the state's borders to attract and better facilitate foreign-funded productions

One route to implementing several of these recommendations would be providing the California Film Commission (which is part of the state Business, Transportation & Housing Agency) with enhanced staffing and marketing resources. The commission could then take on the task of comprehensive data collection, establishing a clear mechanism for monitoring the health and development of a crucial industry and for gauging the effectiveness of policy. Industry data is currently inconsistent and often incomplete—a problem that needs to be corrected given the importance of film production to the state's economy.

In addition to measures implemented at the state level, some promising initial steps have recently been taken by the City of Los Angeles (see page 5). But L.A. could go further by better defining the film industry ombudsman position within City Hall. With one consistent person installed in City Hall and serving as a liaison with FilmL.A., there could be a better long-term strategy for cutting through the bureaucracy to obtain permits from various city and county agencies.

In order for California to reassert its former level of dominance, civic and business leaders need a greater understanding of the economic importance of film and television production, especially in the context of job creation. Complacency is not an option. The financial, geographic, and human capital advantages that put Hollywood on the map are no longer enough to sustain the industry's growth in the state.

A significant number of workers in film production continue to maintain permanent residence in the state, but they spend increasing amounts of time in other locations. If production losses continue, the workers themselves will relocate altogether, with increasing consequences for California's revenues and its pool of human capital. Industry professionals would prefer to work where they live. Local leaders must make that possible, or run the risk of losing this world-class concentration of talent. California needs its state and local officials, studio executives, and independent producers to act cooperatively with decisive measures to retain and develop one of its signature industries.

INTRODUCTION: CALIFORNIA vs. THE COMPETITION

Whether it's programming from studios in Burbank or cutting-edge special effects and animation conjured up by digital artists in the San Francisco Bay Area, film and television production is a significant part of the California economy—and a bedrock element of the state's identity and image. But past and present dominance is no guarantee of future prosperity.

Make no mistake: Motion picture and television production in California remains strong. Hollywood is still the clear leader in terms of economic output and innovation, and California's industry employment levels dramatically outpace the rest of North America. The state's robust infrastructure and critical mass of talent in all aspects of the industry, combined with strong allied industries, have contributed to maintaining its supremacy.

But California's mantle is slipping. Once upon a time, Hollywood's highly centralized studio system gave rise to such a concentration of infrastructure and talent that the state had a virtual lock on the majority of film production. But that structure is a thing of the past, and today production is highly mobile.

The high costs of living and doing business in California have prompted producers to look elsewhere. Producers are finding it more cost-effective to film in other locations, despite the fact that most of the industry talent still lives in California. Smaller films made for limited release are rarely, if ever, filmed in the state these days, and even large-budget films have relocated to other states or countries to realize significant savings. California has acknowledged this shortcoming, and in July 2009, introduced a tax credit for projects filmed in state with budgets of \$75 million or less.³

While this is a positive first step, it makes little sense for the program to specifically exclude the most lucrative big-budget films, which can generate greater local spending. This played out recently as filming got under way in spring 2010 for the latest installment of the *Transformers* franchise: Los Angeles did in fact capture much of the production, but yet it lost six weeks of shooting to Michigan and Illinois, with producers specifically citing the "very attractive rebates" those locations offered. Because of its \$200 million-plus budget, this film did not qualify for tax credits in California.⁴

An onerous permitting process and increased restrictions and city-imposed moratoriums resulting from resident complaints have further eroded California's appeal to filmmakers. Faced with rising costs, increased competition, lower profits, and, in the case of some publicly traded companies, pressure from shareholders, U.S. studio executives have been looking for ways to improve the bottom line.⁵ A growing number of other states and foreign countries are actively courting these producers with competitive tax breaks, even establishing offices in Los Angeles to market themselves. (See the Appendix, which compares the details of incentives offered by various locations.)

Successful states and countries offer unique and competitive incentives with less onerous qualification criteria. They have been able to adopt and implement innovative policies to:

- ensure the improvement and growth of their infrastructure and labor forces
- provide easy access to the production establishment
- support the provision of permits
- provide security
- gain the cooperation and support of local communities and businesses by offering incentives, education about local economic benefits, and addressing community concerns
- create agreements or partnerships with other countries

Film Flight

Forty-two states (including California), plus the District of Columbia, are currently vying for a piece of the \$57 billion⁶ U.S. film production industry by offering tax incentives.⁷ New York, North Carolina, Louisiana, and New Mexico have made significant inroads in attracting this commerce, and now Georgia has also emerged as a strong contender. Although other locations, including Michigan, have been aggressive in providing tax breaks and incentives to film locally, the five states mentioned above have now built a true critical mass of production and post-production activity that can sustain ongoing work rather than just landing one-shot individual projects. New York, in particular, has the built-in appeal of being a hub of the entertainment industry and a major cultural capital, with a strong concentration of television, radio, and theater talent.

Compared with other states' programs, California's tax credits have more stringent qualifications and are more attractive to independent films and television series than to big-budget studio productions. Even so, the program is a positive gesture toward the industry, signaling that California is willing to fight to keep production here.

A nonrefundable, transferable 20 percent tax credit applies to qualified local expenses of feature films, movies of the week (MOWs), and television series for basic cable. (Low-budget independent films may transfer or sell to an unrelated party; others may transfer only to affiliates.) The tax credit rises to 25 percent for independent films and television series relocating to California from outside the state. The credits cannot be applied until 2011 and will terminate in 2014. The California program's annual funding is \$100 million, with a minimum of \$10 million of that amount allocated for independent films.⁸ In acknowledgment of the high cost of living, California also offers sales tax and hotel occupancy tax relief. As in many other states, filming in state-owned properties is generally free with a proper permit.

Though it is still too early to know the real impacts of the California tax credit program, there are some encouraging signs. Since its inception, 75 projects have been approved to receive credits. These projects were estimated to spend more than \$1 billion in the state, generating \$500 million of wages for below-the-line staff.⁹

The Ones That Got Away

Here is just a sampling of recent and upcoming films that were filmed wholly or largely outside of California. Their primary shooting locations are listed in parentheses, though in many cases, portions were filmed elsewhere.

<i>Battle: Los Angeles</i> (Louisiana)	<i>Hall Pass</i> (Georgia)	<i>She's Out of My League</i> (Pennsylvania)
<i>The Blind Side</i> (Georgia)	<i>Harry Potter and the Half-Blood Prince</i> (England)	<i>Shutter Island</i> (Maine and Massachusetts)
<i>Captain America</i> (England)	<i>The Incredible Hulk</i> (Toronto)	<i>Take This Waltz</i> (Toronto)
<i>The Conspirator</i> (Georgia)	<i>The Informant!</i> (Illinois)	<i>Terminator Salvation</i> (New Mexico)
<i>Cowboys & Aliens</i> (New Mexico)	<i>Inglourious Basterds</i> (Germany)	<i>300</i> (Montreal)
<i>The Curious Case of Benjamin Button</i> (Louisiana)	<i>Juno</i> (Vancouver)	<i>Twilight Saga: New Moon</i> (Vancouver)
<i>The Dark Knight</i> (Chicago)	<i>Killers</i> (Georgia)	<i>Twilight Saga: Eclipse</i> (Vancouver)
<i>Fantastic Mr. Fox</i> (London)	<i>The Last Song</i> (Georgia)	<i>Up in the Air</i> (Missouri and elsewhere)
<i>Footloose</i> (upcoming remake; Georgia)	<i>Leatherheads</i> (North and South Carolina)	<i>Watchmen</i> (Vancouver)
<i>For Colored Girls Who Have Considered Suicide When the Rainbow Is Enuf</i> (New York and Georgia)	<i>Marley & Me</i> (Pennsylvania and Florida)	<i>Whip It</i> (Michigan)
<i>Gran Torino</i> (Michigan)	<i>Night at the Museum: Battle of the Smithsonian</i> (Vancouver)	<i>Why Did I Get Married Too</i> (Georgia)
<i>Green Lantern</i> (Louisiana)	<i>Paul Blart: Mall Cop</i> (Massachusetts)	<i>The Wrestler</i> (New Jersey)
	<i>Sanctum</i> (Australia)	

Los Angeles offers some local incentives but does not have its own tax credit program. The Los Angeles City Council recently passed film-friendly initiatives to “keep Hollywood home.” The program extended the free use of city-owned buildings, added more access to city-owned parking spaces, delegated the Department of Water and Power (DWP) to install energy nodes around the city to accommodate filming equipment and reduce energy-related costs to filmmakers, and assigned the Recreation and Parks Department to create a film coordinator position.

Los Angeles also has an entity that works to streamline the permitting process. FilmL.A. is not a government agency, but rather a private, nonprofit organization that is contracted by the City of Los Angeles and six other cities in the L.A. region, five school districts, and the Angeles National Forest. In 2010, FilmL.A.’s contract was extended for five years, with an option for three five-year extensions. In addition to providing film permitting coordination, it has been tasked with creating a marketing plan specifically for the Los Angeles film industry.¹⁰

Passing the current incentive package in 2009 was a crucial step toward getting California back in the game. Going forward, the key will be making additional policy adjustments that build on this momentum.

Competing does not necessarily mean matching the other states rate by rate (and in fact, questions have arisen about whether the generous programs offered by some of the most aggressive states will be sustainable). But it does mean making smart moves to properly target incentives and streamline assistance for producers.

Continuing to cultivate California’s entertainment industry is more important than ever, since the competition does not arise just from other states. The arena is now global. Many countries have long had highly successful local film industries, but thanks to Hollywood’s vast reach and superior filmmaking technology, most film-based revenue has historically been captured by the United States.¹¹ But the size of the pie that’s up for grabs has prompted several countries to intensify their effort to lure American productions to augment local activity. Countries vying for a piece of the U.S.-based industry include Canada, Australia, New Zealand, the United Kingdom, Germany, and India, among others. With a combination of incentives and enhancements to the infrastructure already established for their own national movie and television industries, these countries have become increasingly successful in landing U.S. production projects.

Canada, where film production is a leading industry, is the most striking example. Film production contributed nearly US\$8 billion to Canada’s economy in 2008.¹² Vancouver, Montreal, and Toronto are now considered top locations for filming, approaching the caliber of Los Angeles and New York.

Although Canada had been home to sporadic film and television production in the 1970s and 1980s, the industry really took off following the introduction of incentives by the Canadian government in 1998. Canada’s initial concerted push also coincided with a period of favorable exchange rates against the U.S. dollar, a trend that peaked in 2002 and helped officials build immediate momentum. The key to Canada’s ongoing success has been a potent combination of federal and provincial incentives, lower labor costs, skilled English-speaking workers, and proximity to the U.S.

After 2002, Canada found itself faced with increased competition from multiple U.S. states that adopted film tax incentives and launched aggressive marketing campaigns. But its provinces responded by introducing their own incentives and bolstering their local infrastructure. Vancouver’s capabilities are now so sophisticated that the city has become the main center for television filming in North America outside of Los Angeles and New York.

After the Cameras Stop Rolling: The Competition for Jobs Continues

Digital special effects and animation are big business in California. Silicon Valley, in particular, is on the cutting edge of high-tech wizardry for big-budget films. In 2008, employment in post-production stood at almost 9,600 jobs in California, which constitutes 60 percent of all U.S. jobs in this category. But the state is losing lower-end post-production jobs to locations with lower costs and greater incentives. From 2003 to 2008, the compound annual growth rate for post-production services in California was an anemic 1.9 percent.¹³ As costs escalate for film production, and visual effects become increasingly important, producers are seeking more affordable alternatives to the traditional sources of this work.

Because California is such a dominant high-tech leader, the state has long represented the gold standard for innovative post-production work. But ironically, advances in technology are now the very factor that is compromising California's corner on the special-effects market. Why? Because work that used to be performed exclusively in California can now be farmed out beyond its borders and returned to studios, digitally, overnight. Successful operations of this type include Weta Digital in New Zealand and U.S. companies with foreign subsidiaries, including Sony Pictures Imageworks and Rhythm & Hues in India.

In addition, the development of 3-D video games with cinematic effects is growing, and studios are being built expressly for this purpose. Video game development requires much of the same software and hardware used by effects houses—and the skill sets involved are comparable and transferable to actual feature films. If the trend of developer studios handling post-production work for films continues to grow, this may be another area in which California stands to lose jobs. Although many video game production companies do business in California, an increasing number are based in lower-cost locations such as Seattle and Austin, Texas. Many states foster the animation and video game industries with incentives, and California may have to consider doing the same.

PART 1: THE STATE OF FILM AND TELEVISION PRODUCTION IN CALIFORNIA

The entertainment industry is a point of pride for California. Hollywood movies have created thousands of jobs in California for decades, contributing significantly to the state's economic growth and prosperity. Motion picture and television production employs not only actors, producers, writers, and directors, but a host of ancillary services, such as hairdressers and make-up artists, lighting and camera crews, set designers, caterers, drivers, and, above all, post-production professionals (who edit, finalize the sound, and add any visual effects). The industry also supports accountants, business analysts, real estate activity, and tourism.

This profound economic impact was highlighted when the Writers Guild of America staged a three-month strike in 2007–2008: The result of this temporary halt in production was an estimated \$2.1 billion of lost output for California from the fourth quarter of 2007 through the end of 2008.¹⁴

This section examines the economic effects of the state's gradual and ongoing loss of film and television production. Independent artists, writers, and performers (classified as a separate job category by the Bureau of Labor Statistics) constitute important elements of this industry, so trends in those professions are examined as well.

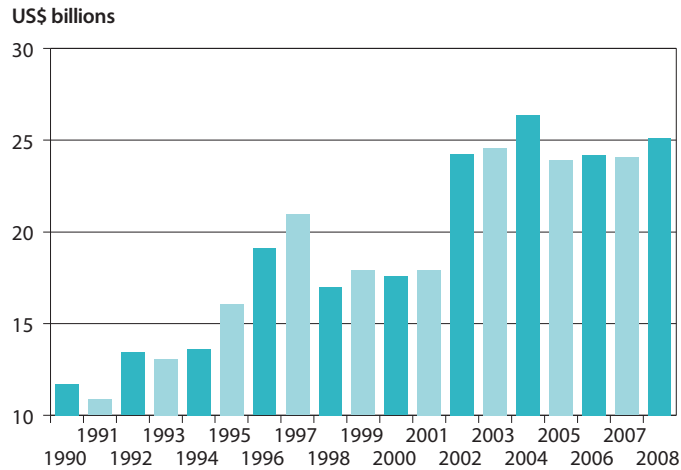
In 2008, 160 movies and 320 television programs were filmed in California.¹⁵ In that year alone, the two employment categories that make up the broader film industry (the motion picture and video industry, plus independent artists, writers, and performers) together generated \$25 billion in output and created 167,000 jobs in more than 14,000 establishments.¹⁶ Although the total number of productions (480) was down from 529 in 2007 (due in part to the financial crisis), California still outpaced all U.S. states, followed by New York. No doubt, the state remains the leader, with its sophisticated infrastructure, critical mass of talent, and strong allied industries.

There's no denying, however, that California is also an expensive place to live and do business. Independent producers and major studios alike are finding it more cost-effective to film elsewhere even though most of the top talent lives in the state. And post-production, once flourishing in the Bay Area, is being lost to competitors in other countries. This phenomenon will be examined further in Part 5 of this report.

In both of the charts that follow, we have defined the broader movie and video industry to be comprised of two major BLS employment categories: the motion picture and video industry (encompassing subcategories for production and post-production), which is assigned NAICS code 5121; plus independent artists, writers, and performers, which is NAICS code 7115. We will discuss the most relevant subcategories in detail.

Figure 1 shows that the economic contribution of the broader industry in California was mostly on a rising trajectory until 1997, when it reached \$21 billion in output, then dropped. A significant recovery occurred in 2002, peaking in 2004 at more than \$26 billion in output, before leveling off.

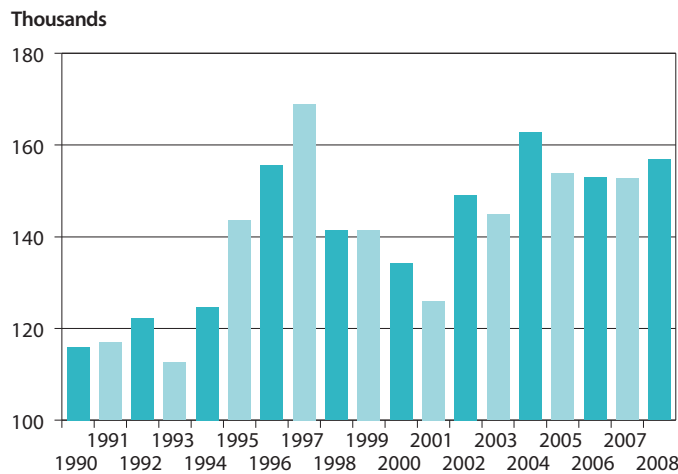
Figure 1. Output in California’s movie and video industry
 Primary establishments and independent production



Sources: California Employment Development Department, Moody’s Economy.com.

Employment in the broader industry increased through much of the 1990s, eventually peaking in 1997 at 174,000 jobs, as seen in this figure. However, 1998 brought a sharp fall that impacted both GDP and employment. Although a recovery occurred in 2004, the 1997 employment level has yet to be recaptured.

Figure 2. California’s movie and video industry employment
 Primary establishments and independent production

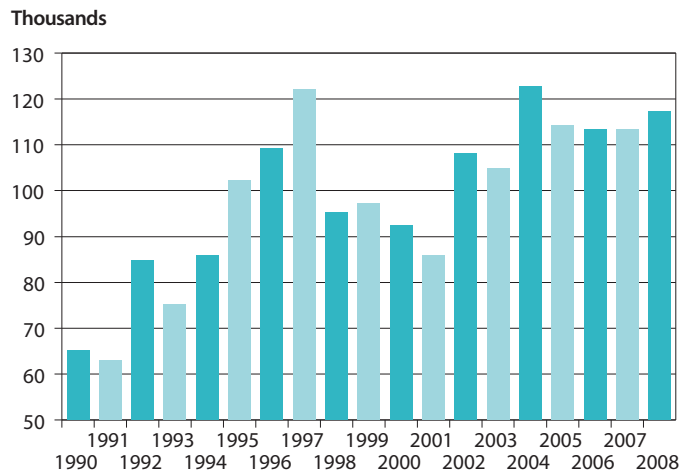


Sources: California Employment Development Department, Moody’s Economy.com.

Production Trends

Mirroring the broader trends discussed in the preceding section, the specific production side of the industry¹⁷ experienced positive growth for much of the 1990s before it peaked in 1997 and subsequently declined. It took until 2004 to regain the levels enjoyed in 1997, but that brief growth spurt was followed by a modest decline. By 2008, it accounted for more than 117,000 jobs in California, resulting in total wages of \$10.4 billion—a strong showing, but with employment still failing to match the 1997 and 2004 peaks.

Figure 3. Employment: movie and video production
Primary establishments, California



Sources: California Employment Development Department, Moody's Economy.com.

The falloff in the late 1990s coincides with a push by Canada, the United Kingdom, and Eastern Europe to build production facilities and cultivate local talent. These locations began offering incentives for film production, and the enticements worked. One study estimated that the total U.S. expenditure lost to runaway production was \$2.8 billion in 1998.¹⁸ This study also confirmed that most out-of-country production went to Canada, which lured film and television producers with NAFTA-exempt production incentives, including substantial tax rebates. The Canadian production tax subsidy was passed in 1998, and within just a few years, the effect in California was notable.

Many productions returned to the United States after the turn of the millennium, as the euro and the Canadian dollar gained strength. But not all the repatriating productions returned to Hollywood. Other U.S. states had begun providing incentives and became viable competitors for movie production. Looking at BLS numbers from 2003 to 2008, compound growth in employment for California's industry was 2.3 percent, compared with a massive 45.8 percent jump in New Mexico and 24.8 percent growth in Louisiana.

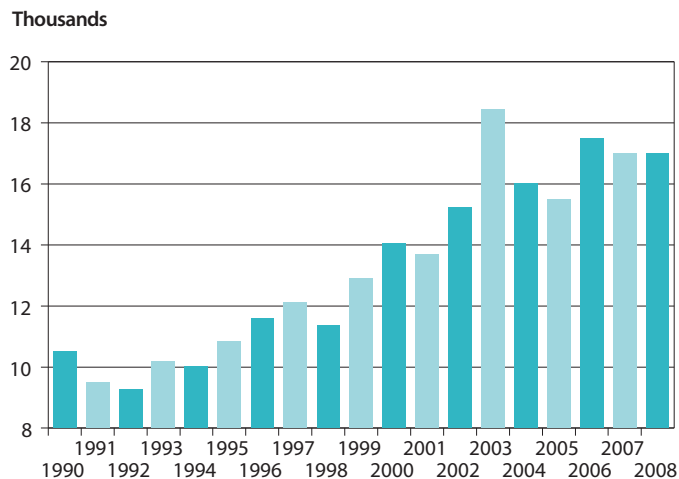
The writers' strike of 2007–2008 sharpened California's substantial loss of film and television production. When production resumed after the stoppage, television viewership lagged and industry uncertainty remained. Despite these factors, the industry showed positive growth in 2008. This was attributed primarily to completing a backlog of productions that had been suspended during the writers' strike.

Independent Artists, Writers, and Performers

The bar graph below shows that more than 9,500 jobs existed in California for independent artists, writers, and performers (NAICS code 7115)¹⁹ in 1991. The sector showed mostly positive job growth until 2003, when the industry comprised more than 18,400 jobs in more than 6,000 establishments.

After that point, however, these independent professionals became more mobile and California continued to grow increasingly expensive. As improved telecommunications facilitated global commerce, they exercised the flexibility to live anywhere and still work for Hollywood productions. From 2003 to 2008, compound growth for independent artists, writers, and performers in California was negative 1.6 percent while their counterparts in New York registered a 5.7 percent increase in jobs, and North Carolina tallied a 7.1 percent increase.

Figure 4. Independent artists, writers, and performers
Employment, California



Sources: California Employment Development Department.

From the fourth quarter of 2008 through the first quarter of 2009, however, production employment declined by 12 percent and employment of independent artists registered a 15 percent decline.²⁰ Multiple factors were at work during this time period, including the global financial crisis, which made it difficult for film projects to obtain financing. The convergence of economic events makes it difficult to isolate and quantify the impact of any single trend, but it is clear that the long-term structural erosion in California’s industry dominance has not fully abated.

Quantifying What California Has Lost

California is still the industry leader, but as investment flows elsewhere and jobs are lost, the ripple effects are enormous. Our research examined the gains California could have realized if the state had maintained the share of North American employment it enjoyed in its peak year of 1997.

The state’s share of North American employment in the movie and video industry (encompassing production, post-production, and independent artists) has declined from 40 percent in 1997 to 37.4 percent in 2008.

If California had managed to retain the 40 percent share of North American employment it once enjoyed, 10,600 jobs would have been preserved in the state—more than 6 percent of the 2008 industry base. (In 2008, the state actually had 166,775 jobs in this industry. In the hypothetical scenario with its share maintained, it would have had 177,380 jobs.)

While the loss of 10,600 potential direct jobs is significant, the ripple effects would have extended far wider. The secondary impacts encompass many regional suppliers, including independent contractors. In addition, supply-chain activity generates income for the region’s residents, who further cycle it back into the economy. For example, in addition to consumer spending by producers, actors, screen writers, and other specialized personnel employed by the film production industry, we should consider spending by the business professionals, truckers, restaurant workers, retail clerks, real estate agents, and others they impact. These consumption effects are referred to as induced economic impacts.

Using the RIMS II multipliers from the Bureau of Economic Analysis, we can determine the incremental jobs, earnings, and output that would have been created had the state maintained the employment share it held in 1997. The model takes into account the indirect effects of service-sector suppliers and the induced economic impacts of all workers’ spending.

The 10,600 jobs that would have been retained in this scenario would have in turn generated an additional 25,500 jobs after rippling through other sectors, for a total impact of 36,000 jobs.

Estimated gains in broader economy if California had retained its 1997 share of North American employment

	Direct impact	Indirect impact	Total impact
Employment	10,606	25,487	36,093
Wages	\$970M	\$1.43B	\$2.4B
Real output	\$1.58B	\$2.63B	\$4.21B
Wages per employee	\$91,893	\$56,000	\$66,547
Real output per employee	\$148,782	\$103,100	\$116,524

Sources: U.S. Bureau of Labor Statistics (BLS), U.S. Bureau of Economic Analysis (BEA), Moody’s Economy.com, Milken Institute.

This suggests that California’s film industry employment multiplier is nearly 3.5—that is, for every job created in California’s film sector, another 2.5 jobs are created in other sectors. Similarly, the preserved wages and output would have totaled \$2.4 billion and \$4.2 billion, respectively, after rippling through other sectors.

The 10,600 jobs that would have been retained under our hypothetical scenario would have paid nearly \$92,000 annually on average, with the additional indirect jobs yielding an average annual wage of \$56,000. The output per employee associated with the direct jobs in the industry would have averaged nearly \$149,000.

PART 2: COMPETITION FROM OTHER STATES

Given the prevailing high cost of doing business in California, increased local restrictions and moratoriums, and the array of aggressive tax breaks and incentives offered by competing locations, it's no wonder that industry decision-makers are expanding their production horizons. Some studio executives are responding to shareholder pressure for greater profits by looking beyond California to cut costs. Competitors may not have everything the Golden State can offer, but they are able to adapt quickly to global changes and implement innovative policies.

Many producers have found that film-friendly countries, most notably Canada, enable their U.S. dollars to go further, especially since incentives, and in some cases even funding, sweeten the deal. Domestically, a growing number of competing U.S. states also court producers with tax breaks, and have even established marketing offices in Los Angeles. Forty-two states (including California), plus the District of Columbia, beckon the industry with film incentives, and 28 of them provide tax credits.²¹ (See the Appendix for full details on the programs offered in various locations.)

While it's important to stay on top of what these other locations are offering, it would be unrealistic for California to match these competitors on a rate-by-rate basis. In fact, some locations that have been extremely aggressive with tax breaks may be forced to scale back due to fiscal concerns and viability. The real contenders, however, are states that are combining strong incentives with a push to build infrastructure and a pool of talent for the long term. In those cases, even if tax incentives are eventually scaled back, these states will have a critical mass of facilities in place and will be able to compete with California solely on a cost basis.

This section will assess six key domestic competitors: New York, Georgia, Louisiana, New Mexico, North Carolina, and Michigan. In Parts 3 and 4 of this report, we will examine Canada, Australia, Germany, and the United Kingdom to determine their competitive edge in attracting film industry business.

New York

New York is second only to California when it comes to movie and television production, boasting an average of 250 feature films a year.²² Most of the state's production is concentrated in New York City, where the industry infrastructure and labor force are quite large (and where writers love to set stories).²³ Although it is already a leader, New York recognized viable and increasing competition from other states, and moved to implement measures designed to protect its industry.

Job losses in the film industry in New York might have escalated due to the flood of incentives offered by other states and Canada, but the inception of New York's tax credit in 2004 had its desired effect, and by 2007, 7,031 direct jobs were added.²⁴ From the time the tax credit was further increased in April 2008 through December 2008, film projects in the state increased to 100 applications, rising by 67 percent compared with the same period in 2007. Local direct spending from these 100 projects totaled \$1.8 billion, an increase of more than 91 percent from the previous year.²⁵

Law & Order: New York's Loss Is L.A.'s Gain

In spring 2010, New York City took a hit with the news that NBC was pulling the plug on the original *Law & Order*, the second-longest-running network series of all time. Roving *Law & Order* shoots had become a familiar sight on the streets of New York over the show's 20-year run, and guest spots had long been a mainstay for Broadway actors looking to supplement their income between theater gigs. In addition to the fond obituaries, the media took notice of the show's impressive economic impact over the years: According to the Mayor's Office of Film, Theater, and Broadcasting, the show provided jobs to about 4,000 people every year, including one-day acting roles. Its spending totaled about \$79 million annually, and its total economic impact over the years amounted to a whopping \$1 billion or more. In addition, Dick Wolf, the show's producer, was instrumental in lobbying for the tax breaks that eventually lured other productions to New York.²⁶

All is not lost for the venerable franchise, however—and production is moving to the West Coast. Los Angeles can only hope that the forthcoming *Law & Order: Los Angeles* (already dubbed "LOLA" and set to debut in fall 2010)²⁷ becomes the same kind of economic engine for Southern California that "the mothership" was for the Big Apple.

In 2008, New York State increased the fully refundable tax credit for qualified expenses incurred while filming in the state from 10 percent to 30 percent. In addition, New York City offers a 5 percent refundable tax credit, increasing the potential total tax credit to 35 percent. Other incentives include exemption from state and local sales and use tax, up to a 5 percent tax credit on investment in construction and upgrades of film production facilities, and an employment incentive tax credit.²⁸

New York City's "Made in NY" incentive program includes the tax credit cited above, as well as a marketing credit (1 percent of the production cost for projects with at least 75 percent of production work completed in New York City).²⁹ It also established the Mayor's Office of Film, Theatre and Broadcasting, which offers concierge-style service—a comprehensive support system that reflects the city's cooperation and willingness to cultivate the industry. Some of its services include a one-stop shop for obtaining permits, location scouting, discounts from local vendors, exclusive free assistance and protection from the NYPD Movie and TV Unit, and informational resources on the film office's website. Although many elements of this convenient, streamlined service are in place through FilmL.A., New York's approach provides a useful model for Los Angeles to study, given its speed and effectiveness.

It is worth noting that New York City, struggling with its finances like most U.S. cities and states, recently implemented a fee of \$3,200 to film in municipal buildings.³⁰ It will be interesting to observe whether this is a sign of things to come, and whether some of California's most aggressive competitors can sustain their incentive programs in the face of growing fiscal pressures.

Georgia

Georgia's film business is booming these days, thanks to attractive and broad-based tax incentives and simplified criteria for qualification. In May 2008, the state made a bold increase in its tax credit, going from a potential total of 17 percent all the way up to an eye-catching 30 percent on all qualified film-related spending in Georgia. The current tax credit includes a 20 percent base credit for filming, post-production work, and video game development and animation with a minimum expenditure of \$500,000 in a single year. An additional 10 percent credit called the Georgia Entertainment Promotion is available if filmmakers include a Georgia logo or similar placement in the final project.³¹

Georgia's development as a media hub has been under way for quite some time. It has been long been home to the Turner empire, which includes CNN headquarters, TNT, and the Cartoon Network. Atlanta has also emerged as a major center for hip-hop music and, more recently, for video game developers.

Despite these advantages, Georgia took a back seat for many years to states such as Louisiana when it came to film production. The adoption of a tax credit in 2005 finally began to change that picture. It quickly produced a \$475 million economic impact to the local economy, an increase of 283 percent from 2004.³² Stiff competition soon prompted Georgia to go even further, and in 2008, the state instituted the aggressive increase described above.

The results were swift: Since then, production spending in Georgia has increased by more than 150 percent.³³ Thirteen feature films were filmed in the state in 2009, including *The Blind Side*, which snagged multiple Oscar nominations. (Broderick Johnson, one of the film's producers, was quoted in *Variety* as saying, "The magnitude of Georgia's tax break is one of the best, if not the best, in the country . . . [I]t has such a mature crew base you can hire almost everyone locally, so the value of the credit is bigger."³⁴) In addition, 20 television specials and series were filmed that same year, including the CW's *Vampire Diaries*.

The state's infrastructure is expanding to keep pace. In addition to the prolific 200,000-square-foot Tyler Perry Studios, launched in 2008,³⁵ a new 30-acre facility will open on the site of the old Lakewood Fairgrounds in 2011. It will include 100,000 square feet of soundstages and office space, as well as a set construction shop and lighting and grip facilities. A representative of EUE/Screen Gems said that the company was investing in the project since producers, directors, and studios are increasingly drawn to Atlanta by generous incentives and are looking for expanded infrastructure.³⁶

Louisiana

Louisiana is one of the most popular alternative locations for film production. It offers a refundable, transferable, and permanent 30 percent film tax credit on expenses incurred while filming in state, regardless of the cast and crew's state of residency. An additional 5 percent labor tax credit is available if a Louisiana resident is hired.³⁷ It also offers more liberal qualification criteria.

Some years back, state leaders realized that when the Canadian dollar climbed sufficiently, a number of film productions would return to the U.S. They therefore positioned Louisiana to compete for that business. When the loonie began to appreciate against the U.S. dollar in 2002,³⁸ Louisiana implemented its film tax credit.

Only one feature film was shot in Louisiana in 2002, and no television series. In 2003, seven features and six television series (including MOWs) were shot. By the end of 2009, 51 feature films and 11 television series were produced in Louisiana.³⁹ Although these numbers were meager compared with California's total, Louisiana's demonstrable success⁴⁰ proves that there are domestic options to Canada for quality low-cost filming.

Two critically acclaimed HBO series are filmed in New Orleans (*Treme* and portions of *True Blood*, which also shoots in Southern California). The state has also landed the upcoming superhero blockbuster *The Green Lantern* among a growing list of other features.⁴¹ And in a painful piece of irony that should make California officials sit up and take notice, Louisiana actually managed to snag production of Sony Pictures' upcoming *Battle: Los Angeles*, with Shreveport standing in for Santa Monica.⁴²

Increased production and labor tax credits have enabled Louisiana to expand its infrastructure and labor force. The permanent status of the tax credits signals to filmmakers that there is stability in the state's film policy.

New Mexico

New Mexico, like Louisiana, is a leading candidate for film production thanks to attractive tax incentives and relatively streamlined criteria for qualification. The state offers a tax rebate of 25 percent on all qualified direct film-related spending in New Mexico. It has a zero percent interest (with back-end participation) film investment loan program for up to \$15 million per project, a feature with great appeal to independent filmmakers, who often face limited financing options.⁴³

New Mexico's film tax rebate program started in 2002. Like Louisiana, the state was quick to recognize the economic impact of film production on the local economy, and capitalize on the weakening U.S. dollar. New Mexico initially offered a 15 percent tax rebate in 2002 to attract production, and was successful in its efforts. Since its inception, 115 major film

Film Flight

projects have been produced in the state, including 22 projects that took advantage of the state's loan program.⁴⁴ By 2007, 30 film projects had participated in New Mexico's tax rebate program, with total spending of \$253 million.

In addition to luring smaller-scale indie productions, the state has hosted filming for acclaimed features and major action films alike, including *No Country for Old Men*, *Terminator Salvation*, and Imagine Entertainment's upcoming *Cowboys & Aliens*.

New Mexico has increased its rebate rate twice, to 25 percent as of 2010. A study conducted by Ernst & Young found that each time the tax incentive rate was increased, the number of projects and associated spending increased in the state.

In addition to the tax rebate and loan program, New Mexico established a Film Crew Advancement Program that offers a 50 percent reimbursement of wages for on-the-job training of New Mexico residents hired for below-the-line crew positions. The program and the increased presence and capital expenditures of production companies foster the growth of local talent and infrastructure in the state.

North Carolina

North Carolina has long been a location for film and television series, particularly for made-for-TV movies. It has several studios and abundant local talent. The decline in the number of made-for-TV movies, the rise of reality television shows, and runaway production to Canada have taken a toll, however.⁴⁵ Adding to the state's woes were several neighboring states with more generous film tax incentives. North Carolina responded in 2006 with a 15 percent refundable tax credit in film-related spending within the state. Still, the number of productions remained flat as producers chose other states with higher incentives. North Carolina was unable even to attract the MOWs that Louisiana lost due to the devastation caused by Hurricane Katrina.

Not until the expansion of the tax credit in 2008 and an extension of its sunset to 2014 did the number of productions increase.⁴⁶ Ten projects were filmed in North Carolina in 2008, compared with four in 2007. Effective January 2010, the state's tax credit rate was increased to 25 percent. The new rate is more in line with competitors, so given its more established infrastructure and more experienced local talent base, North Carolina is positioned to market itself as a more attractive film location going forward.

Michigan

Michigan is a new addition to the list of states offering film tax incentives. In April 2008, it adopted the most competitive film tax incentive in the U.S., and set the bar for qualification fairly low. The state offers a 40 percent transferable tax rebate on expenditures incurred while filming or producing other entertainment media projects in state. The rate rises to 42 percent if filming is done in core communities.⁴⁷ Compensation expenditures for above-the-line workers, regardless of residency, and for below-the-line Michigan workers are eligible for the 40 percent to 42 percent rebate; for non-resident below-the-line workers, a 30 percent rebate applies.

To grow the state's production infrastructure, Michigan offers a Film and Digital Media Infrastructure Investment Tax Credit. Investments of \$250,000 or more are eligible for a 25 percent tax credit against the production company's state business tax liability. The state also put in place a policy to grow its labor force via the Film and Digital Media Worker Job Training Tax Credit. The program is a 50 percent refundable business tax credit for spending toward on-the-job training provided for Michigan residents hired in below-the-line positions.⁴⁸

Just one year after the inception of Michigan's tax incentive programs, production in the state increased from only two projects with total direct spending of \$2 million in 2007 to 32 completed projects with more than \$70 million in total direct spending in 2008.⁴⁹

Given the magnitude of Michigan's fiscal crisis, many have begun to question whether the state can sustain its generous tax credit. But advocates among state lawmakers argue that the current level of tax credit is justified since it will attract jobs, diversify the state's industry base, and quickly build the infrastructure needed to sustain the film industry. They further argue that growth in the film industry has the potential to counter-balance the massive job losses in the auto industry.⁵⁰

PART 3: CANADA AS A TOP LOCATION FOR FILM PRODUCTION

Canada has been making films since 1913; its first foreign film was produced in 1952.⁵¹ Years of investment and infrastructure development, visionary leadership, and a propensity to cultivate international partnerships have positioned the country well to capture film industry commerce.

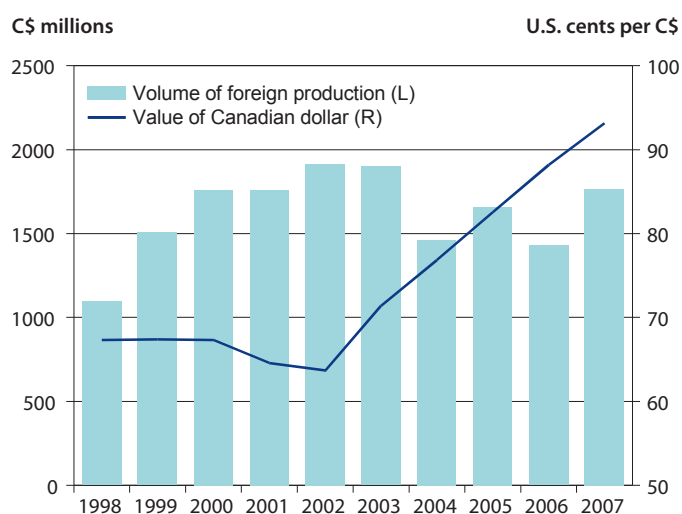
The industry contributed nearly US\$8 billion to Canada's economy in 2008.⁵² Production is mostly concentrated in Vancouver, Montreal, and Toronto. These cities are considered the top locations in North America for filming outside of Los Angeles and New York.

Several factors have contributed to production flight to Canada:

- tax incentives
- proximity to the U.S.
- lower labor costs
- favorable exchange rates (especially prior to 2003)

The Canadian Production Services Tax Credit (PSTC) was enacted in 1998 specifically to attract U.S. production. These measures enabled foreign production companies to save 25 percent or more in costs when filming in Canada.⁵³ After the adoption of these federal and provincial film tax incentives, foreign production ramped up, peaking in 2002, when 211 projects were produced with total expenditure of US\$1.2 billion.

Figure 5. Value of Canadian dollar and foreign production level



Sources: Federal Reserve Board, Assoc. of Provincial Funding Agencies, Dept. of Canadian Heritage.

The Canadian dollar started to gain value in 2002,⁵⁴ after which the number of foreign projects slipped to 166, although the volume amount in dollars of foreign production barely moved.⁵⁵ Canada found itself competing with not only Hollywood, but locations like Louisiana and New Mexico. The federal government acted quickly and aggressively,

Film Flight

expanding the labor-based federal tax credit to foreign producers from 11 percent to 16 percent in 2003. The province of British Columbia followed suit with the Digital Animation or Visual Effects (DAVE) tax credit of 15 percent, which is also labor-based.

In 2003, a public-private partnership of the Ontario Media Development Corporation (OMDC), FilmOntario, and the City of Toronto called the Toronto Ontario Film Office went straight to the heart of film production, establishing an office in Los Angeles to court producers and promote the benefits of filming in Toronto and Ontario.

The strength of the Canadian dollar continued to rise, and by 2005, foreign production in the country had dropped to 155 projects.⁵⁶ Provincial governments realized the need to act and expanded their incentive programs to lure back foreign production companies. British Columbia's PSTC was expanded from 11 percent to 18 percent; Quebec's PSTC jumped from 11 percent to 20 percent; and Ontario's PSTC went from 11 percent to 18 percent with no caps on labor costs and an additional 20 percent refundable tax credit for its growing computer animation and special effects industry.⁵⁷

Ontario's Ministry of Culture took additional steps in 2006, creating the Entertainment and Creative Cluster Partnership Fund. The three-year C\$7.5 million investment fund is managed by the OMDC to stimulate growth through capacity building, marketing innovation, and skills development in the province's entertainment and creative industries.⁵⁸ The success of the program prompted its extension in 2009 for four years with an increased investment to C\$12 million.⁵⁹ Funds in other provinces are also available, as are scholarships for advanced training of professionals.

Provincial film tax credits have increased several times. As of March 2010:

- British Columbia's PSTC is now 33 percent, with an additional 6 percent for regional productions and another 6 percent for distant locations. The DAVE tax credit increased to 17.5 percent.⁶⁰
- Quebec's PSTC was raised to 25 percent and has been expanded beyond labor expenses to all expenses of qualified production. An additional 20 percent tax credit can be claimed for animation and visual effects production.⁶¹
- Ontario's PSTC is now 25 percent, and the animation and visual effects production credit remains at 20 percent.⁶²

Canada is able to leverage its established resources not only to sustain domestic film production companies but to attract foreign partners. Canada has co-production agreements with fifty-three countries, enhancing creative, technical, and financial resources. Co-productions totaled US\$281.4 million in 2008, with France as the largest partner, followed by the United Kingdom, Ireland, Australia, and New Zealand.⁶³

Canadian leaders don't have control over the movement of currency exchange rates, but they do have the power to adopt policies. Their willingness to move quickly mitigated what probably would have been huge losses for one of the economic engines of the country.

World-Class Infrastructure

Canadian studios have been catering to Hollywood since the Alfred Hitchcock movie *I Confess* was filmed in Quebec and released in 1953.⁶⁴ U.S. expertise helped build Canadian studios into state-of-the-art facilities that produce award-winning films.⁶⁵ In 2007–2008, U.S.-based producers accounted for almost 80 percent of total foreign labor and service (FLS).⁶⁶

Montreal is a versatile set, standing in for locales as diverse as Europe and New York City. It is home to more than 50 soundstages, including the Mel's Cité du Cinéma complex. It has climate-controlled stages (including one of 35,600 square feet) and executive office space. Recent films produced in Montreal include *The Mummy: Tomb of the Dragon Emperor*, *300*, *Get Smart*, and *Beastly*. Naturally, the province has numerous co-production film ventures with French companies.⁶⁷

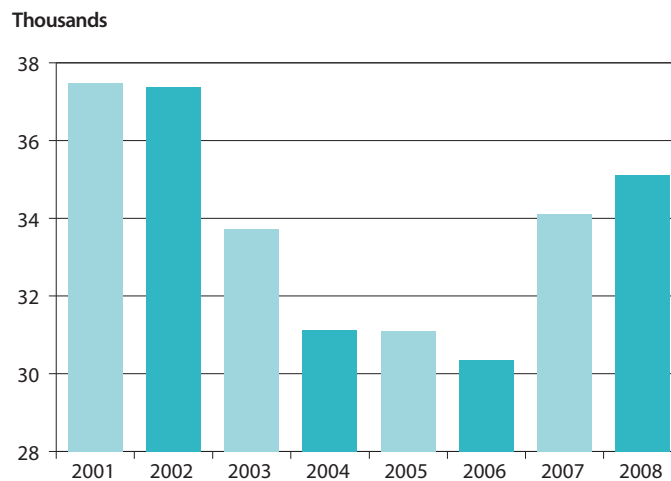
One top Canadian production facility is Pinewood Toronto Studios (formerly Filmport) in Toronto.⁶⁸ One of the country's largest production complexes, with more than 250,000 square feet of production space, it includes eight soundstages, support facilities, and office space. It is part of the U.K.-based Pinewood Studios Group, affording it access to European film productions.⁶⁹

In British Columbia, Vancouver Film Studios boasts ten soundstages and six production office facilities spread over thirty acres near the airport. The facility has produced big-budget feature films, including *Twilight Saga: New Moon* and *Fantastic Four*, and the television series *Battlestar Galactica*.⁷⁰ Elsewhere in Vancouver, North Shore Studios (formerly Lionsgate Studios), with eight soundstages, has produced the films *Elektra* and *Catwoman*; Bridge Studios, with six sound stages and one of the largest visual effects stages, produced *Night at the Museum* and *Juno*.⁷¹

Local Talent for Sustained Growth

Canadian policies have helped to grow its domestic film production workforce. The industry employed 35,112 people, including independent artists, in 2008.⁷² The prevailing film tax incentives have a Canadian resident worker bias and fund scholarship programs, internships, and advanced training of film production professionals. Illustrating the industry's commitment to human capital is the Canadian Film & Television Production Association's (CFTPA) national mentorship program, which partners interns with experienced Canadian independent producers. A majority (80 percent) of interns have had success in finding work in the industry after graduating from the program.⁷³

Figure 6. Canada's movie and video industry employment
Primary establishments and independent production



Sources: Statistics Canada, NAICS codes 5121 and 7115.

Canada has a tremendous pool of professionals for producing major films and television shows. Foreign film production companies and producers can choose either union or nonunion talent at a less expensive rate than their U.S. counterparts, and can save as much as 30 to 40 percent. (One advantage of hiring union workers is more experience with major projects.) To compare, the base fee of principal union actors in Canada is US\$565 (per nine-hour work day)⁷⁴ and US\$441 for nonunion actors (ten hours).⁷⁵ A member of the Screen Actors Guild (SAG) in the U.S. has a minimum rate of US\$782 for a day performer.⁷⁶

PART 4: ADDITIONAL GLOBAL COMPETITION FOR FILM PRODUCTION

Offering world-class infrastructure, professional crews, and tax incentives, **Australia** has enjoyed notable success in attracting foreign film production. These factors recently helped Australia land the underwater action film *Sanctum*, director James Cameron's follow-up to his box office smash *Avatar*.⁷⁷ In addition to filming on the Gold Coast, Cameron is basing post-production in Melbourne, which enhanced its reputation for sophisticated post-production work in recent years with *Where the Wild Things Are* and HBO's *The Pacific*.⁷⁸

Australia's total employment in the film and video production and post-production services was 13,844 in the 2006–07 fiscal year,⁷⁹ a number that represents a 44 percent increase from ten years earlier. Australia has co-production treaties with the United Kingdom, Canada, Italy, Ireland, Israel, Germany, Singapore, and China. (These agreements facilitate the pooling of financial, creative, and technical resources from participating countries and allow access to various public funding mechanisms.) In addition, the country has two memoranda of understanding (MOUs) with France and New Zealand.

Australia offers three federal incentives for production and post-production of films made in the country. Producers may apply for only one of these incentives. The Producer Offset program, introduced in 2007 and administered by Screen Australia, is a 40 percent tax rebate program for qualified feature film expenditures incurred in Australia by an Australian or foreign company with an Australian permanent residency and an Australian Business Number (ABN). A 20 percent tax rebate is available to productions other than feature films such as television series, documentaries, animation, etc. The Location Offset program for non-Australian filmmakers is a 15 percent tax rebate on qualified expenditures incurred in Australia. Finally, the Post, Digital, and Visual Effects (PDV) Offset tax rebate program of 15 percent for such projects performed by a post-production company in Australia can be claimed regardless of where the film was made.⁸⁰

The **United Kingdom** has a long history of film production, dating from the early 1900s. The industry contributed £2.5 billion to the U.K. economy in 2007, or 0.2 percent of total GDP.⁸¹ In 2008, 21,113 people worked in the film and video production industry (SIC code 9211), 46 percent of whom were freelancers.⁸²

The U.K. offers a tax break to British film productions. To qualify, one of these criteria must be met: The film must be from a country with a co-production bilateral treaty with the U.K. (Australia, Canada, France, India, Jamaica, New Zealand, and South Africa); include as producer a member of the European Convention on Cinematographic Co-production; or pass a cultural test (the film must have some British element). The cash rebate is 25 percent of qualified film expenditures with total production expenditures of as much as £20 million in the U.K.; the rebate is reduced to 20 percent if expenditures exceed £20 million.⁸³

The U.K. prides itself on its world-class studios and deep pool of experienced performers and crew. Major studios include the Pinewood Studios, Shepperton Studios, Elstree Film Studios, Ealing Studios, 3 Mills Studios, Twickenham Film Studios, and The Paint Hall in Northern Ireland. In 2009, 125 U.S. movies, of which 99 were independent projects, were produced in the U.K. Expenditures by U.S. production companies totaled £956.9 million that year.⁸⁴ Britain has hosted filming of blockbusters like *Harry Potter and the Half-Blood Prince*. The Los Angeles film community was especially disappointed by Marvel Studios' recent decision to film *Captain America: The First Avenger* in England. Marvel Studios co-president Louis D'Esposito has been quoted as saying that Britain's film incentives were among several deciding factors; this big-budget movie was ineligible for California's program.⁸⁵

Film Flight

Germany is another European heavy-hitter. To compete with neighboring nations, it established the German Federal Film Fund (DFFF) in 2006; it was approved by the European Commission, effective January 1, 2007 (and was recently extended through 2012). The program includes annual aid of €60 million provided by the federal government to fund tax rebates for film production company expenditures in Germany. The 16 to 20 percent rebate applies to qualified production expenditures incurred in Germany.⁸⁶ In some circumstances, however, spending outside of Germany might qualify if the film contains German elements (as much as 30 percent of the total number of shooting days, not applicable to documentary films).⁸⁷ Since its inception, the DFFF has supported 302 film projects, including movies *Valkyrie* and *Inglourious Basterds*.⁸⁸ Germany has co-production agreements with other countries, including Australia, Canada, France, Israel, the U.K., and New Zealand.

PART 5: COMPETITION FOR POST-PRODUCTION

Post-production⁸⁹ is an essential part of filmmaking. It encompasses the technical work done after the film is shot—the addition of visual effects, for example, as well as sound mixing and editing. Visually groundbreaking films such as *Star Wars*, *Jurassic Park*, *The Lord of the Rings*, and *Avatar* relied heavily on phenomenal post-production innovations to captivate audiences.

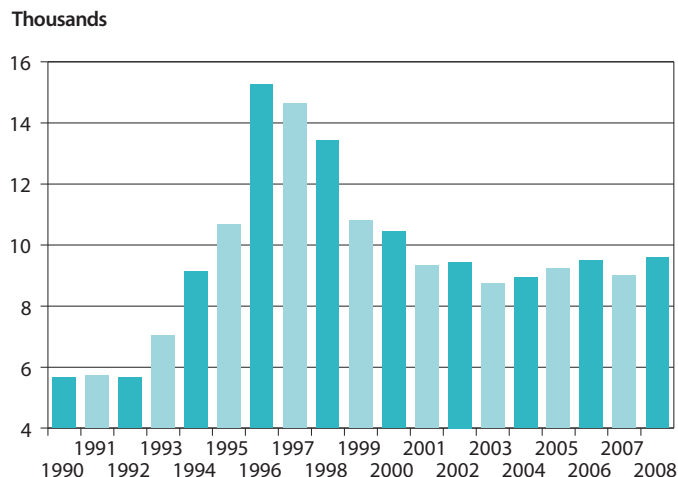
California remains a heavy hitter when it comes to digital special effects and animation. The state is home to some of the biggest companies in this field, such as Industrial Light & Magic, Digital Domain, Rhythm & Hues, Dreamworks Animation SKG, and Pixar Animation Studios. Those are in addition to major in-house firms that include Sony Imageworks, the Walt Disney Studios, Universal Studios, and Warner Bros.

Digital Special Effects and Animation

Until the late 1960s, most visual effects were done at Hollywood studios. In the early 1970s, pioneers Francis Ford Coppola and George Lucas moved post-production to the San Francisco Bay Area, ushering in the era of analog visual effects.⁹⁰ In 1977, *Star Wars* brought the technology light years forward with computerized camera work completed in studio. In 1978's *Superman*, special effects employed the Zoptic system, an application of front projection. Since the 1980s, special effects have driven the appeal of major science-fiction films such as *Tron*, *Terminator 2: Judgment Day*, *Jurassic Park*, and *The Matrix*, all featuring digital visual effects that redefined the experience of watching movies. Silicon Valley was at the leading edge of the special effects revolution.

This graph shows that in 1990, California had more than 5,600 jobs in post-production. After enjoying robust growth in the early 1990s and peaking at 15,252 jobs, the industry experienced a sharp decline. The sector has never fully recovered: In 2008, California had only 9,600 post-production jobs.

Figure 7. Post-production in California
Employment



Sources: California Employment Development Department.

Film Flight

California remains dominant in post-production employment within United States, but from 2003 to 2008, the compound annual growth rate for post-production services in California was only 1.9 percent. In the same period, New York grew 3.5 percent, North Carolina grew 2.9 percent, and Washington grew 6 percent.

After the bursting of the technology bubble a decade ago, many post-production jobs started moving offshore. Among the major beneficiaries of this shift were New Zealand and India.

Portability

New Zealand has been a strong contender in the visual effects arena ever since Weta Digital, a Wellington company, provided most of the visual effects for the *Lord of the Rings* trilogy. Its superior technology and ability to digitally transmit its work back to a Los Angeles studio overnight portends a future in which more of this work will be done outside of California. Weta Digital and California-based Industrial Light & Magic created the phenomenal visual effects for *Avatar* with the assistance of Atlanta-based Giant Studios' software-driven optical motion capture technology.⁹¹

Buoyed by the outsourcing of back-office and other jobs to **India**, many software firms in that country started offering incentives for post-production work. As a result of growing consumer demand from its domestic market, India had a great deal to offer, including lower costs; skilled, English-speaking workers; and industry familiarity. India's gaming and animation industry was estimated to have grossed US\$661 million in 2008, up from US\$364 million in 2006.⁹²

Hollywood filmmakers were initially skeptical of using these services because they believed it meant surrendering creative control due to distance, but more recently, major studios have reached out to India. Part of the post-production work on Sony Pictures' *Spider-Man 3* was done in India, and in January 2008, DreamWorks Animation SKG contracted with Paprikaas Interactive Services, an animation house based in Bangalore, for creative and technical services. Los Angeles-based Sony Pictures Imageworks has a satellite facility in Chennai.

Many independent firms have established satellite locations in India. Prominent among them are Rhythm & Hues and Digital Domain, both Los Angeles-based winners of Academy Awards. Rhythm & Hues specializes in visual effects and computer animation for feature films, television commercials, theme park rides, and music videos. Its work is seen in the films *Babe* and *The Golden Compass* (for which it won an Oscar), *The Chronicles of Narnia: The Lion, The Witch and The Wardrobe*, and *Night at the Museum*.⁹³ The company has established an Indian subsidiary in Mumbai and Hyderabad. Digital Domain, a special effects and video games firm, also has subsidiaries in India.⁹⁴

Cost-savings is the primary reason producers take post-production outside of the U.S. But domestic competition for this work is also fierce. Pixel Magic, based in Toluca Lake, California, recently opened a satellite company in **Louisiana**, where it plans to train and recruit workers.⁹⁵ Research and state-of-the art technology in computer graphics, 3-D, and digital design at Sandia National Laboratories in **New Mexico** support companies working in the digital arts, and Digital Media Garage at the University of New Mexico offers advanced training to workers in that field. New Mexico's attraction includes tax incentives and interest-free loans, which encouraged Sony Pictures Imageworks to open a satellite facility in Albuquerque.

London's formidable entertainment industry and large population of professional musicians have always positioned it well for securing film-score work. Abbey Road Studios, where the iconic *Star Wars* score was recorded with the London Symphony Orchestra in 1977, has become the chief alternative to the U.S. for orchestral film scores.⁹⁶ London still maintains its competitive edge in this field; the background scores for *Iron Man 2*, for example, were recorded there.⁹⁷

As the hub of country music, **Tennessee** has also become a center of sound/music post-production. Using less expensive local musicians, Nashville sound designer Nick Palladino and his team conceived, recorded, and mixed the audio for the successful independent film *Fireproof* in 2008.

3-D Video Games

With box-office revenues promising only modest growth, the rapidly expanding game industry is attracting interest from Hollywood power brokers such as producer Jerry Bruckheimer, director Steven Spielberg, and television network MTV. Many blockbuster action films are immediately followed by video game versions, and there is tremendous overlap between the skill sets needed to develop video games and those needed to create sophisticated visual effects for feature films.

Lucasfilm Entertainment, for example, has a San Francisco–based division called LucasArts, which develops interactive entertainment software for video game console systems, computers, and the Internet. George Lucas felt this element was needed to round out his vision of a state-of-the-art, multifaceted entertainment company.⁹⁸

In the early 1990s, the average cost of developing a video game was \$40,000. In 2004, it was about \$10 million. This huge increase denotes the demand for 3-D images, artificial intelligence, and enhanced voice and sound effects. By 2011, it is estimated that development costs for a single game will range from \$15 million to \$25 million.⁹⁹

Austin, Texas, is a hub in the game industry, and home to more than 130 game developers. Among the biggest players here are Disney Interactive Studio's Junction Point and Electronic Arts subsidiaries Pogo.com and BioWare. The city is also home to more than 100 start-up companies. Together, they create thousands of interactive games for iPhones, consoles, and multiplayer Internet activity. City government and the Chamber of Commerce have taken steps to provide financial incentives to bring more tech business to Austin, but experts agree that Austin's technology-friendly environment and its large population of skilled workers are its most compelling attractions.

As headquarters of Microsoft and Nintendo of America, the Seattle area is rich in digital resources. Surreal Software, a division of Warner Bros. Interactive; Zombie Studios; and another Warner Bros. family member, Snowblind Studios of Bothell, are all growing in concert with the industry.

Many U.S. states are working to develop animation and video game industries of their own with the aid of incentives. In particular, Louisiana has combined its pursuit of movie production with the goal of increasing its presence in the video game industry. In 2005, Louisiana instituted aggressive tax incentives for video game production and workforce development programs at several of its universities. The state provides a 25 percent tax credit for production expenditures and a 35 percent tax credit for resident labor expenditures for gaming, web applications, and the next generation of interactive content. There are no minimum investment requirements and no cap on production expenditures.¹⁰⁰ It's one of the strongest digital media incentives in the U.S.

Georgia is not far behind. It introduced the Georgia Entertainment Industry Investment Act in 2008, offering up to a 30 percent tax credit for qualified production and post-production expenditures—and the legislation specifically included game developers and animation.¹⁰¹ In the two years since the law was signed, Atlanta has solidified its growing reputation as a hub for video game development. In Savannah, Meddin Studios is expected to work on all aspects from pre-production to post-production, including distribution and asset management.¹⁰²

Florida is another noteworthy game development incubator. The nonprofit concern Games-Florida hopes to expand interactive multimedia by developing new studios and attracting others to the state. California's Digital Domain is expanding into Florida with a studio specializing in video game and animation work, and plans to employ more than 500 people by the end of 2013.¹⁰³

Canada is a leader in game development as well as movie production, and is actively developing a stronger workforce that will be well positioned to seek post-production work as well as video game creation. Canada's largest video game companies—Electronic Arts Canada, with headquarters in California, Artificial Mind & Movement (A2M) in Montreal, and Ubisoft, with multiple offices across Canada—account for much of the country's interactive digital media revenue and

Film Flight

employment. Many other firms in this category appear to be expanding, or looking to expand, in Canada. Notable among them are Vivendi/Activision, Nintendo, THQ, Disney, and Microsoft.¹⁰⁴

California remains a major player in this arena, which naturally complements the state's traditional high-tech strength. It is already home to high-end development and graphics studios for companies like Activision-Blizzard, Disney Interactive, Sony, Electronic Arts, and THQ. But California is vulnerable to losing business to the competitors described above, which offer lower costs for work that is portable. If game developers continue to expand their role as a source for visual effects in major films, this could be the next area where California sees entertainment jobs bleeding away. Implementing a digital media tax credit to nurture these operations could be the answer to retaining a large piece of this pie.

CONCLUSION

To the world at large, California is as much character as place. As long as people want to watch entertainment on a screen, the Golden State will be indelibly associated with what they see.

The motion picture and television industry may trade in fantasy and escapism, but as a business, it is hardly immune to economic pressures and the imperatives of technological change. For California to retain its practical as well as iconic hold on this industry, it must know intimately what other regions have to offer, and develop strategies to equal and possibly surpass them.

Specifically, in order to continue to thrive as a leader of film and television production, California must:

- develop a series of production incentive programs designed to keep all types and sizes of productions in the state, whether they are network broadcasts, cable television shows, commercials, independent films, or studio blockbusters
- adopt policies to encourage long-term investments and upgrades in infrastructure and technology at production and post-production facilities. As competing locations continue to improve their facilities, California needs to provide incentives for studios and companies to invest within California, not elsewhere.
- make tax incentive programs permanent, thus creating a stable policy environment and signaling long-term commitment
- consider implementing a new digital media tax credit to attract and retain developers of digital animation, visual effects, and video games
- empower key ombudsmen positions at the state and local levels to simplify and expedite the permitting process. This has been done successfully in other states and countries, and needs to be done here.
- educate politicians and the general public alike about the economic importance of the film industry, focusing the message on job creation and investment, not just the appeal of the end products

Producers of film, television, and video game entertainment will be at home in California for the long haul when their costs are contained, their locations are convenient and well-equipped, and their well-trained workers are nearby and able to advance.

Unfortunately, the current economic picture for California is not pretty. Given its gaping budget deficit, there's no denying this is a tough time to afford any additional tax breaks—but in this case, California can't afford *not* to. The state can't squander any opportunities to retain and add significant numbers of high-paying jobs. Given the trends we have seen over the last decade, the long-term payoff that would be realized by shoring up a major industry far outweighs the short-term cost to revenues.

The state should not attempt to match incentives from other locations that provide large upfront cash advances and unsustainably large film credits. Given California's current fiscal state, this approach is infeasible. However, by providing somewhat expanded and more effectively targeted credits that lower the cost of production to a reasonably competitive level, California will position itself to win over producers based on its strengths in human capital and facilities as well as its reputation for excellence.

Even if tradition keeps the headquarters of the main studios and production houses in the state, it will mean very little if all of the actual production work is done elsewhere. Over the past few decades, California has watched a number of its major industries pack up and move to greener pastures. Los Angeles County, in particular, was once a leading center in financial services, aerospace, and the garment manufacturing industry—but these have all eroded sharply. Especially in the current climate, California cannot allow another key industry to slip away.

APPENDIX: INCENTIVE PROGRAMS BY LOCATION*

Details of tax credit	
California	* 20% of qualifying local spending for qualifying features, movies of the week, miniseries, and new television series for basic cable
	* 25% of qualifying local spending for qualifying “relocating” television series and “independent films” income tax credit
	* Nonrefundable, nontransferable (except for “independent films” or transfers to affiliates) income tax credit, or sales and use tax credit; income tax credits cannot be applied until 2011
	* No compensation caps (except for above-the-line positions)
	* Feature film budget cap of \$75 million; “independent film” budget cap of \$10 million
	* \$100 million funding per fiscal year from 2009/2010 to 2013/2014; ≤ \$10 million a year set aside for “independent films”; annual allotment on a first-come, first-served basis
	* Project criteria: ≥ 75% of the production days or total production budget within the state; minimum budget of \$1 million for a feature film, an independent film, and a new television series; minimum budget of \$500,000 for MOWs and miniseries; “independent films” qualify if produced by a company that is not publicly traded or owned > 25% by publicly traded companies
	* Sales tax relief for productions available: yes
	* Hotel occupancy tax relief available: yes
	* Sunset/review: June 30, 2014
California Film Commission: www.film.ca.gov	
Georgia	* 20 percent of the “base investment” in the state
	* An additional 10 percent if an approved project includes a “qualified Georgia promotion”
	* Transferrable tax credit (one transfer to one or more transferees)
	* Compensation cap of \$500,000 per person per project on W-2 salaries; no cap paid to loan-outs or workers subject to 1099s; no project or funding caps
	* Project criteria: minimum local spending of \$500,000
	* Sales tax relief for productions available: yes
	* Sunset/review: none
	Georgia Film, Music and Digital Entertainment Office: www.georgia.org/GEORGIAINDUSTRIES/ENTERTAINMENT/ABOUTUS/Pages/default.aspx

* All program details current as of June 30, 2010.

Film Flight

Louisiana	* 30% of qualifying local spending, including the payroll for residents and nonresidents; plus an additional 5% on resident payroll ≤ \$1 million
	* Partially refundable, fully transferable motion picture production tax credits; the credits can be transferred to the state of Louisiana for 85% of face value on projects certified on/after July 1, 2009
	* Compensation cap of \$1 million per person on 5% resident payroll credit; no project or funding caps
	* Project criteria: Minimum local spending > \$300,000
	* Sunset/review: none
	Louisiana Economic Development Entertainment Office: www.louisianaentertainment.gov/film/default.cfm
Michigan	* 40% of direct production expenditures or 42% of qualifying direct production expenditures in “core communities”
	* 30% of qualified personnel expenditures, i.e. nonresident below-the-line crew (or 50% qualified job training expenditure credit for resident below-the-line crew)
	* 25% infrastructure investment tax credit
	* Refundable and transferable business tax credit (or nonrefundable, nontransferable income tax credit); nonrefundable, transferable infrastructure investment tax credit (and nonrefundable, nontransferable qualified for resident below-the-line crew with a 10-year carry forward)
	* Compensation cap of \$2 million per person for personal services for direct production and qualifying personnel expenditures; \$20 million annual cap for infrastructure investments.
	* Project criteria: Minimum local spending of \$50,000 for direct production and qualifying personnel credit; \$250,000 minimum for infrastructure investment tax credit.
	* Hotel occupancy tax relief available: yes
	* Loan program available: yes
	* Sunset/review: Annual report required for the direct production and qualifying personnel credits; September 30, 2015, for the infrastructure investment credit.
Michigan Film Production: www.michiganfilmproduction.com	
New Mexico	* 25% of qualifying local spending
	* Refundable (productions may benefit from either the gross receipts tax deduction/sales tax exemption or the 25% refundable tax credit, but not from both)
	* Compensation cap: \$5 million per project on the credit for all “performing artists” compensation ; there are no other project or funding caps
	* Project criteria: none
	* Hotel occupancy tax relief available: yes
	* Sales tax relief for productions available: yes
	* Loan program available: yes
	* Sunset/review: none
New Mexico State Film Office: www.nmfilm.com	

New York	* 30% of qualifying local spending	
	* 4% to 5% on investments in construction and upgrades to qualified film production facilities	
	* Refundable film production tax credit	
	* Project caps of \$75 million in 2009; \$85 million in 2010; \$90 million in 2011 and 2012; \$110 million in 2013; annual allotment on first-come, first-served basis (if exhausted, carries over to next year's allotment)	
	* Project criteria: Qualified production costs at a qualified film production facility must be ≥ 75% of such costs within and outside NY (requires at least 1 day at a qualified facility on a set); if production costs at a qualified facility are < \$3 million, then shooting days in NY outside qualified production facility must be ≥ 75% of shooting days within and outside NY. The investment tax credit is available for tangible property containing at least 1 soundstage ≥ 7,000 SF, which is principally used as a qualified film production facility and the taxpayer provides ≥ 3 qualified services, including but not limited to studio lighting grid, lighting and grip equipment, multi-line phone service, broadband information technology access, industrial scale electrical capacity, food services, security services, and heating, ventilation and A/C	
	* Sales tax relief for productions available: yes	
	* Sunset/review: December 31, 2013	
	New York State Governor's Office for Motion Picture and Television Development: www.nylovesfilm.com	
	New York City	* 5% of qualifying local spending
		* 1% of outdoor media (marketing credit)
* Refundable (to the extent not used to offset taxes, the refund will be paid in two equal payments in the current and following tax years)		
* \$30 million annual cap on first-come, first-served basis (if exhausted, carries over to next year's allotment)		
* Project criteria: Qualified production costs at a qualified film production facility must be ≥ 75% of such costs within and outside NYC; if qualified production costs are < \$3 million, then shooting days in NYC outside qualified production facility must be ≥ 75% of shooting days within and outside NYC; location costs and post-production costs qualify if ≥ \$3 million is spent in a qualified facility		
* Sales tax relief for productions available: yes		
* Sunset/review: December 31, 2011		
The City of New York Mayor's Office of Film Theatre & Broadcasting: www.nyc.gov/html/film/html/index/index.shtml		
North Carolina	* 25% of qualifying local spending (subject to sales and use tax adjustments and state income tax)	
	* Refundable tax credits	
	* Compensation cap of \$1 million; \$7.5 million per feature film; no other caps	
	* Project criteria: Minimum local spending of \$250,000	
	* Hotel occupancy tax relief available: yes	
	* Sales tax relief for productions available: yes	
	* Sunset/review: December 31, 2013	
	North Carolina Film Office: www.ncfilm.com	

Film Flight

Canada	* 16% of qualifying Canadian labor expenditures
	* Refundable
	* No compensation or project caps
	* Project criteria: Costs must be > C\$1 million on worldwide basis within 24 months after start of principal photography for feature film or video; > C\$100,000 per episode for series or pilot < 30 minutes; and > C\$200,000 per episode for series or pilot ≥ 30 minutes.
	* Eligible entities: An “eligible production corporation” must have a permanent establishment in Canada whose primary activity is the production of films or videos or the provision of film or video production services AND must own the copyright throughout production in Canada or must contract directly with the copyright owner; private broadcasting/cable subsidiaries are eligible
	* Sunset/review: none
	British Columbia
	* 33% of qualifying British Columbia (BC) labor expenditures
	* 15% additional credit on qualifying Digital Animation or Visual Effects (DAVE)
	* 6% additional credit on qualifying BC “regional” labor when > 50% of BC principal photography is done outside Vancouver area (pro rate number of regional days by total BC days), minimum 5 regional days required
* 6% additional on qualifying BC “distant” labor (calculated by pro rating number of days shot in “distant location” by total BC days; must first qualify for Regional Tax Credit).	
* No compensation or project caps	
* Project criteria: C\$100,000 per episode for series or pilot < 30 minutes (exception: productions that consist of all or substantially all digital animation or visual effects); > C\$200,000 per episode for series or pilot ≥ 30 minutes.	
* Eligible entities: The production company must be a Canadian taxable company with a permanent establishment in BC whose primary business is film or video production or provision of production services; broadcasting/cable subsidiaries are eligible.	
* Sunset/review: none	
British Columbia Film Commission: www.bcfilmcommission.com/production/index.htm	
Ontario	
* 25% of qualifying Ontario (ON) labor expenditures and production expenditures;	
* 20% additional credit on qualifying ON labor related to digital animation and special effects work	
* No compensation or project caps	
* Project criteria: Production budget must be > C\$1 million worldwide for feature film or video; > C\$100,000 per episode for series or pilot < 30 minutes; > C\$200,000 per episode for series or pilot ≥ 30 minutes	
* Eligible entities: The production company must be a corporation taxable in Canada, with a permanent establishment in ON, primarily carrying on the business of film, TV, or video production; broadcasters are eligible	
* Sunset/review: none	
Ontario Media Development Corporation: www.omdc.on.ca/Page3142.aspx	
Quebec	
* 25% of qualifying Quebec (QC) expenditures (not limited to QC labor)	
* 5% additional credit on qualifying animation and special effects QC expenditures (not limited to QC labor); 20% qualifying animation and special effects credit for low-budget productions	
* No compensation or project caps	
* Project criteria: Production budget must be > C\$1 million worldwide for feature film or video; > C\$100,000 per episode for series or pilot < 30 minutes; > C\$200,000 per episode for series or pilot ≥ 30 minutes	
* Eligible entities: The production company must be a corporation taxable in Canada, with a permanent establishment in QC, primarily carrying on the business of film, TV, or video production; broadcasters are eligible.	
* Sunset/review: none	
Montreal Film and TV Commission: http://ville.montreal.qc.ca/portal/page?_pageid=4497,7006316&_dad=portal&_schema=PORTAL&playMovie=false	

Australia	* 40% for qualifying feature films; or
	20% for qualifying television productions/documentaries for producer offset; or
	15% for qualifying local spend (QAPE) for location offset.
	* 15% additional for post, digital, and visual effects (PDV) offset (can be claimed regardless of where the film was made)
	* Tax rebate
	* No compensation or project caps
	* Project criteria: For location offset, if QAPE = A\$15 million but < A\$50 million, it must be ≥ 70% of total spending; if QAPE ≥ A\$50 million, no percentage test; TV series must average ≥ A\$1 million per hour; for PDV offset, minimum qualifying PDV spending = A\$5 million; for producer offset minimum spending = \$1 million for feature films, TV series, and telemovies (lower spending test for documentaries and short form animation), and production must pass “Australianness test” (subjective), official co-productions automatically qualify
	* Eligible entities: Australian resident company or non-resident with a PE and Australian Business Number (ABN)
* Sunset/review: none	
Screen Australia: www.screenaustralia.gov.au	
Germany	* 16% to 20% of qualifying local spending (up to 80% of the total production costs)
	* Cash (financial aid) grant
	* Project cap of €4 million per film (€10 million if local spending ≥ 35% of budget or if ≥ 2/3 of cultural characteristics awarded; €60 million per year)
	* Project criteria: Minimum budgets for feature films is €1 million, animated films is €3 million, documentaries is €200,000; ≥ 25% of budget must be local spending or 20% if budgeted > €20 million; if €15 million local spending, no percentage test; cultural test
	* Eligible entities: German production company or establishment
	* Sunset/review: December 31, 2012
Germany Federal Film Fund: www.ffa.de/content_dfff/dfff_leitfaden.phtml?language=en	
United Kingdom	* 25% of qualified film expenditures with total production expenditures of as much as £20 million in the UK; 20% if expenditures exceed £20 million
	* Payable tax credit (cash rebate)
	* No compensation or project caps
	* Project criteria: Certified “British” film or official co-production; ≥ 25% of the “core expenditure” must be “UK expenditure”; intended for theatrical release
	* Eligible entities: Qualified U.K. production company
	* Sunset/review: none
	UK Film Council: www.ukfilmcouncil.org.uk

Source: Entertainment Partners, Basic Overview of U.S. and International Production Incentives, http://www.entertainmentpartners.com/Content/Support/support_files/EP_IncentivesOverview.pdf

ENDNOTES

1. California Film Commission.
2. FilmL.A., press release, "Overall On-Location Filming Springs Forward in Los Angeles," April 8, 2010, available for download at http://www.filmla.com/news_releases.php (accessed June 23, 2010).
3. California Film Commission, <http://www.film.ca.gov/Incentives/> (accessed March 15, 2010).
4. Richard Verrier, "'Transformers' Takes Over L.A. Streets," *The Los Angeles Times*, June 2, 2010.
5. The Migration of U.S. Film and Television Production, U.S. Department of Commerce International Trade Administration (ITA), 2001, <http://www.ita.doc.gov/media/migration11901.pdf>.
6. U.S. Bureau of Economic Analysis and Moody's Economy.com, 2008 industry real gross product, NAICS codes 5121 and 7115.
7. Entertainment Partners, Basic Overview of U.S. and International Production Incentives, http://www.entertainmentpartners.com/Content/Support/support_files/EP_IncentivesOverview.pdf (accessed February 23, 2010).
8. California Film Commission, <http://www.film.ca.gov/Incentives/> (accessed March 15, 2010).
9. California Film Commission, June 2010, <http://www.film.ca.gov/res/docs/pdf/April%20Issue.pdf> (accessed May 3, 2010).
10. Rick Orlov, "Council Passes Film Incentives," *Los Angeles Daily News*, March 19, 2010, http://www.dailynews.com/business/ci_14713902 (accessed March 22, 2010); Lisa Horowitz, "L.A. Signs Long-Term Contract with FilmL.A.," *The Wrap*, March 21, 2010, <http://www.thewrap.com/article/los-angeles-signs-long-term-contract-filmla-15865> (accessed June 3, 2010).
11. David Waterman, *Hollywood's Road to Riches* (Cambridge, MA: Harvard University Press, 2005), pp. 168–169.
12. Statistics Canada, NAICS codes 512 and 71X, <http://www.statcan.gc.ca/pub/15-001-x/2009012/tablesectlist-listetableauxsect-eng.htm> (accessed March 9, 2010).
13. Employment figures are from the California Employment Development Department.
14. Kevin Klowden and Anusuya Chatterjee, "The Writers' Strike of 2007–2008: The Economic Impact of Digital Distribution," Milken Institute, June 2008.
15. Motion Picture Association of America, State-by-State Film and Television Production 2008, <http://mpaa.org/policy/state-by-state> (accessed May 10, 2010).
16. The BLS NAICS code for the motion picture and video industry is 5121; for independent artists, writers, and performers, it is 7115. The motion picture and video industry category includes subcategories for movie and video production (NAICS 512110), motion picture and video distribution, motion picture theatres, teleproduction and post-production (NAICS 512191), and other motion picture and video industries.
17. NAICS code 512110.
18. Monitor Company, "U.S. Runaway Film and Television Production Study Report," June 1999, http://www.dga.org/news/pr_runaway.pdf (accessed February 23, 2010).
19. NAICS code 7115. The Census Bureau provides the following definition: "This industry comprises independent (i.e., freelance) individuals primarily engaged in performing in artistic productions, in creating artistic and cultural works or productions, or in providing technical expertise necessary for these productions. This industry also includes athletes and other celebrities exclusively engaged

- in endorsing products and making speeches or public appearances for which they receive a fee." See <http://www.census.gov/econ/census02/naics/sector71/7115.htm>.
20. California Employment Development Department.
 21. Entertainment Partners, Basic Overview of U.S. and International Production Incentives, http://www.entertainmentpartners.com/Content/Support/support_files/EP_IncentivesOverview.pdf (accessed Feb. 23, 2010).
 22. New York State Governor's Office for Motion Picture and Television Development.
 23. See <http://www.nytimes.com/interactive/2010/03/06/nyregion/0307-new-york-oscar-tour.html?ref=awardsseason>. This map highlights locations for recent Oscar-nominated films that were shot in New York City. In addition to illustrating the city's role in recent movies, it conveys the scope and impact of a single movie project on its production location.
 24. Ernst & Young, Estimated Impacts of the New York State Film Credit, February 2009.
 25. Ibid.
 26. Patrick McGeehan and Patrick Healy, "Dropping of 'Law & Order' Leaves Hole in Economy," *The New York Times*, May 14, 2010.
 27. Scott Collins, "The Upfronts: NBC Going Back to Basics for Fall," *The Los Angeles Times*, May 17, 2010.
 28. Ernst & Young, Estimated Impacts of the New York State Film Credit, February 2009.
 29. New York City Mayor's Office of Film, Theatre, and Broadcasting.
 30. Larry Rohter, "Fee to Film in New York Municipal Buildings Riles Producers," *The New York Times*, January 4, 2010.
 31. Georgia Film, Music & Digital Entertainment Office, <http://www.georgia.org/GeorgialIndustries/Entertainment/AboutUs/Pages/Incentives.aspx> (accessed June 17, 2010).
 32. "Georgia Boosts Incentives for Entertainment Industry," Georgia Film, Music & Digital Entertainment Office press release, May 12, 2008.
 33. Jack Egan, "Georgia Shoots Take Off: Aggressive Incentives Draw High-Profile Pics," *Variety*, May 16, 2010, http://www.variety.com/index.asp?layout=print_story&articleid=VR1118019132&categoryid=13 (accessed June 21, 2010).
 34. Ibid.
 35. Jonathan Landrum Jr., Associated Press, "Tyler Perry Unveils New Studio in Atlanta," *USA Today*, October 5, 2008, http://www.usatoday.com/life/television/news/2008-10-05-perry-studio_N.htm (accessed June 21, 2010).
 36. Richard Verrier, "Atlanta Studio Opens as Filming in Georgia Booms," *Los Angeles Times* "Company Town" blog, June 16, 2010, http://latimesblogs.latimes.com/entertainmentnewsbuzz/2010/06/atlanta-studio-opens-as-filming-in-georgia-booms.html?utm_source=feedburner&utm_medium=feed&utm_campaign=Feed%3A+newsandbuzz+%28News+%26+Buzz%29.
 37. Louisiana Economic Development Entertainment Office.
 38. Federal Reserve Board, G.5A Foreign Exchange Rates (Annual), <http://federalreserve.gov/releases/g5a/> (accessed February 4, 2010).
 39. Louisiana Economic Development Entertainment Office.
 40. Production in Louisiana increased every single year since 2002, except in 2006, when it experienced a drop due to the massive destruction created by Hurricane Katrina in September 2005.
 41. Mike Scott, "Ryan Reynolds' 'Green Lantern' Film Casting About for Crew Members," *New Orleans Times-Picayune*, January 26, 2010, http://www.nola.com/movies/index.ssf/2010/01/green_lantern_film_looking_for.html (accessed June 4, 2010).
 42. Weldon Thomas, "Los Angeles Film Industry Struggles While Louisiana Thrives," Examiner.com, <http://www.examiner.com/examiner/x-32274-Shreveport-Headlines-Examiner~y2010m2d7-la-movies> (accessed June 4, 2010).

43. Film New Mexico, www.nmfilm.com.
44. Ernst & Young, Economic and Fiscal Impacts of the New Mexico Film Production Tax Credit, January 2009, <http://www.nmfilm.com/locals/downloads/nmfilmCreditImpactAnalysis.pdf> (accessed June 24, 2010).
45. Fiona Morgan, "North Carolina's Film Industry Is Booming Again," *Independent Weekly*, March 21, 2007.
46. North Carolina Film Office, <http://www.ncfilm.com/about-us/film-archives/movies-2000-present.html> (accessed March 3, 2010).
47. A map and listing of core communities can be found in the Michigan Film Office's website, <http://www.michiganfilmoffice.org/cm/files/CoreComunitiesMap.pdf> (accessed March 22, 2010).
48. Michigan Film Office, <http://www.michiganfilmoffice.org/For-Producers/Incentives/Default.aspx> (accessed March 3, 2010).
49. Steven R. Miller and Abdul Abdulkadri, "The Economic Impact of Michigan's Motion Picture Production Industry and the Michigan's Motion Picture Production Credit," Center for Economic Analysis Michigan State University, Feb. 6, 2009.
50. Gary Heinlein, "Lawmakers Debate Limits to Michigan Film Incentives," *Detroit News*, June 4, 2009, <http://detnews.com/article/20090604/OPINION01/906040343/Lawmakers-debate-limits-to-Michigan-film-incentives> (accessed June 3, 2010).
51. Neil Craig Associates, International Film and Television Production in Canada, October 2004.
52. Statistics Canada, NAICS codes 512 and 71X, <http://www.statcan.gc.ca/pub/15-001-x/2009012/tablesectlist-listetableuxsect-eng.htm> (accessed March 9, 2010).
53. Monitor Company, "U.S. Runaway Film and Television Production Study Report," 1999, http://www.dga.org/news/pr_runaway.pdf.
54. Federal Reserve Board, G.5A Foreign Exchange Rates (Annual), <http://federalreserve.gov/releases/g5a/> (accessed February 4, 2010).
55. CFTPA and APFTQ, "09 Profile, An Economic Report on the Canadian Film and Television Production Industry," <http://www.cftpa.ca/newsroom/pdf/profile/profile2009-en.pdf> (accessed Feb. 4, 2010).
56. Ibid.
57. CEIDR, "The Global Success of Production Tax Incentives and the Migration of Feature Film Production from the U.S. to the World - Year 2005 Production Report," <http://www.ceidr.org/> (accessed Feb. 9, 2010).
58. Ontario Media Development Corporation, press release, "The Government of Ontario has made a one-time award of \$23 million to the OMDC," March 29, 2006, <http://www.omdc.on.ca/Asset4379.aspx> (accessed Feb. 9, 2010).
59. Ontario Media Development Corporation, press release, "Ontario Is Expanding Its Support of an Innovative Economy," April 30, 2009, <http://www.omdc.on.ca/AssetFactory.aspx?did=6479> (accessed Feb. 9, 2010).
60. British Columbia Film Commission, http://www.bcfilmcommission.com/production/tax_incentives.htm (accessed March 23, 2010).
61. Société de développement des entreprises culturelles (SODEC), http://www.sodec.gouv.qc.ca/documents/ddp/lignes_directrices_PSTC_anglais_juin_2009.pdf (accessed March 23, 2010).
62. Ontario Media Development Corporation, <http://www.omdc.on.ca/Page3236.aspx> (accessed March 23, 2010).
63. CFTPA and APFTQ, "09 Profile, An Economic Report on the Canadian Film and Television Production Industry," <http://www.cftpa.ca/newsroom/pdf/profile/profile2009-en.pdf> (accessed Feb. 4, 2010).
64. Neil Craig Associates, "International Film and Television Production in Canada," October 2004.
65. The Migration of U.S. Film and Television Production, U.S. Department of Commerce International Trade Administration (ITA), 2001.

66. CFTPA and APFTQ, "09 Profile, An Economic Report on the Canadian Film and Television Production Industry," <http://www.cftpa.ca/newsroom/pdf/profile/profile2009-en.pdf> (accessed Feb. 4, 2010).
67. Montreal Film and TV Commission, http://ville.montreal.qc.ca/portal/page?_pageid=4497,7006316&_dad=portal&_schema=PORTAL&playMovie=false (accessed March 8, 2010).
68. Global Shooting Guide 2009, "Canada Continues to Draw U.S. Coin," *Variety*, <http://www.variety.com/article/VR1118010650.html?categoryid=3792&cs=1&query=Pinewood+Toronto+Studios> (accessed March 8, 2010).
69. Pinewood Studios Group.
70. Vancouver Film Studios, <http://www.vancouverfilmstudios.com/index.htm> (accessed March 8, 2010).
71. British Columbia Film Commission, <http://www.bcfilmcommission.com> (accessed March 8, 2010).
72. Statistics Canada, Table 281-0024, NAICS codes 5121 and 7115, <http://www.statcan.gc.ca/start-debut-eng.html> (accessed Feb. 4, 2010).
73. Canadian Film & Television Production Association, <http://www.cftpa.ca/mentorship/> (accessed March 8, 2010).
74. Does not include payroll service fee, union contract fee, or contribution to retirement and health funds.
75. Means of Production, Canadian Talent Rate Comparison, June 16, 2009, http://meansofproduction.ca/pdf/CDN_Talent_Rates_2009.pdf (accessed March 9, 2010).
76. Fee does not include contribution to the Pension & Health Fund, 2009 SAG Basic Agreement and Television Agreement Minimum Rates, June 10, 2009, <http://www.sag.org/files/documents/2009%20TV%20Theatrical%20Rates%206%2011%2009%20final.pdf> (accessed March 9, 2010).
77. James Wigney, "James Cameron's Sanctum Filmed in Australia," *Sunday Herald Sun*, January 17, 2010, <http://www.heraldsun.com.au/news/breaking-news/james-camerons-sanctum-filmed-in-australia/story-e6frf7jx-1225820534306> (accessed June 4, 2010).
78. Film Victoria media release, "James Cameron Underwater Action Film to Post Produce in Melbourne," January 20, 2010, available for download at <http://film.vic.gov.au/www/html/29-media.asp> (accessed June 4, 2010).
79. Australian Bureau of Statistics (ABS), "Television, Film and Video Production and Post-Production Services, 2006–07."
80. Screen Australia, "Get the Picture Production Industry," September 16, 2009.
81. Expressed in real gross value added (GVA).
82. U.K. Film Council, 09 Statistical Yearbook, <http://www.ukfilmcouncil.org.uk/media/pdf/2/p/2009.pdf> (accessed March 10, 2010).
83. U.K. Film Council, <http://www.ukfilmcouncil.org.uk/qualifying> (accessed March 9, 2010).
84. U.K. Film Council Research and Statistics Unit, 2009 Production Statistics, http://www.ukfilmcouncil.org.uk/media/pdf/j/i/2009_Full_Year_Production_Report_Final_Version.pdf (accessed March 10, 2010).
85. Richard Verrier, "On Location: Captain America Will Be Filmed in . . . London," *The Los Angeles Times* "Company Town" blog, <http://latimesblogs.latimes.com/entertainmentnewsbuzz/2010/05/on-location-captain-america-will-be-filmed-inlondon.html> (accessed June 4, 2010).
86. The Federal Government Commissioner for Culture and Media, http://www.bundesregierung.de/nn_6538/Content/EN/Artikel/2006/11/2006-11-02-das-neue-modell-zur-foerderung-filmwirtschaft__en.html (accessed March 12, 2010).
87. Jonathan Olsberg, Olsberg|SPI, "Global Production Hot Zones," Screen International Film Summit, http://www.o-spi.com/files/Screen_International_Film_Summit_Presentation_2009-10-13_Absolute_Final.ppt (accessed March 12, 2010).
88. German Federal Film Fund, DFFF Figures 2007–2009, http://www.ffa.de/downloads/dfff/dfffinzahlen/2010-02-10%20DFF%20Flyer%20Evaluation_engl.pdf (accessed May 3, 2010).

-
89. NAICS code: 512191. This industry (which is part of the larger motion picture and video industry) comprises establishments primarily engaged in providing specialized motion picture or video postproduction services, such as editing, film/tape transfers, subtitling, credits, closed captioning, and animation and special effects. This does not include sound-mixing and other audio works.
90. This involved rear and front projection of time and space of pre-filmed background scenery and live-action footage inside the studio.
91. Lisa R. Schoolcraft, "Avatar' Puts Studio on Map," *Atlanta Business Chronicle*, March 19, 2010, <http://www.bizjournals.com/atlanta/stories/2010/03/22/story5.html?b=1269230400%5e3056061> (accessed March 24, 2010).
92. NASSCOM, press release, "Animation and Gaming Services: India Emerging as High-End, Skill-Based Destination," August 28, 2009, <http://www.nasscom.in/Nasscom/templates/NormalPage.aspx?id=57470> (accessed March 12, 2010).
93. Rhythm & Hues website, Company Backgrounder, <http://www.rhythm.com/inside-rh/press-area/company-backgrounder/>.
94. <http://www.rhythm.com/india/overview.html>.
95. Louisiana's Office of the Governor, press release, "Governor Jindal and Pixel Magic Announce New Digital Media Studio in Lafayette," November 6, 2009, <http://www.gov.state.la.us/index.cfm?md=newsroom&tmp=detail&catID=2&articleID=1748> (accessed June 24, 2010).
96. Christopher Walsh, "The Road to History: Inside Abbey Road Studios," Prosoundnews blog, 9/23/2009, <http://www.prosoundnews.com/Blog.aspx?id=24338> (accessed 3/12/10).
97. Blair Marnell, "Iron Man 2' Score Being Recorded in London, Reports Jon Favreau," MTV, February 8, 2010, <http://splashpage.mtv.com/2010/02/08/iron-man-2-score-being-recorded-in-london-reports-jon-favreau/> (accessed April 22, 2010).
98. LucasArts website, <http://www.lucasarts.com/company/about/page1.html>.
99. Texas Comptroller of Public Accounts, "Current Trends in the Media Industry: Film Production, Television Commercials and Video Games," <http://www.window.state.tx.us/specialrpt/mmedia/trends.html> (accessed March 12, 2010).
100. <http://www.louisianaeconomicdevelopment.com/opportunities/key-industries/digital-media.aspx>.
101. Georgia Department of Economic Development, <http://www.georgia.org/GeorgiaIndustries/Entertainment/AboutUs/Pages/Incentives.aspx>. (accessed June 4, 2010).
102. Georgia Department of Economic Development, Press Release, "Nation's First All-Digital Production Facility Locates in Georgia: Meddin Studios Opens Doors, Creates Jobs in Savannah," November 6, 2009, <http://www.georgia.org/Press/Pages/NewsItem.aspx?newsid=499> (accessed March 12, 2010).
103. David S. Cohen, "Digital Domain Florida Eyes Games: New Studio to Also Develop Animation, Other Projects," *Variety*, October 12, 2009, <http://www.variety.com/article/VR1118009863.html?categoryId=1009&cs=1> (accessed March 12, 2010).
104. Nordicity, "2008 Canadian Interactive Industry Profile," CIAIC, February 2009 (accessed April 13, 2010).

ABOUT THE AUTHORS

Kevin Klowden is a Managing Economist at the Milken Institute, where he serves as Director of the California Center. He specializes in the study of demographic and spatial factors (the distribution of resources, business locations, and movement of labor) and how these are influenced by public policy and in turn affect regional economies. Klowden was the lead author of “The Writers’ Strike of 2007–2008: The Economic Impact of Digital Distribution,” which analyzes the changing dynamics of the entertainment industry and measured the economic impact of the writers’ work stoppage on the California economy. In addition to co-authoring reports such as “California’s Highway Infrastructure: Traffic’s Looming Cost” and “North America’s High-Tech Economy,” he coordinated the Institute’s two-year Los Angeles Economy Project, seeking public-policy and private-sector solutions to challenges the region faces amid a growing unskilled labor pool. Klowden previously worked in the field of interactive electronic entertainment development and as an adjunct professor of geography at Santa Monica College. He served on the editorial board of *Millennium*, the international affairs journal of the London School of Economics, where he earned a master’s degree in the politics of world economy. He earned a bachelor’s degree in historical geography, as well as a master’s in economic geography, from the University of Chicago.

Anusuya Chatterjee is a Senior Research Analyst in the Regional Economics group at the Milken Institute. She specializes in health- and productivity-related issues, including the economic impacts of publicly funded projects, the entertainment industry, and the life-sciences industry. Her research has been published in various academic journals and presented at conferences. Among the Milken Institute publications she has co-authored are “The Greater Philadelphia Life Sciences Cluster,” “The Writers’ Strike of 2007–2008,” “An Initial Examination on Reforming the California Lottery,” and “An Unhealthy America.” Most recently, she worked on the Institute report “Jobs for America: Investments and Policies for Economic Growth and Competitiveness.” Her prior experience includes a tenure track academic position at the University of Southern Indiana; working with the New York State Office of Alcoholism and Substance Abuse Services on funded projects; and helping the Cancer Foundation of India with data collection methodologies and strategies. Her previous publications include “Estimating the Cost of Providing Outpatient Chemical Dependency Treatment Services in New York State,” “Encouraging the Use of Preventive Health Care: The Role of Head Start,” and “Forecasting Macroeconomic Indicators of Indiana in a Bayesian VAR Framework.” Chatterjee received a Ph.D. in economics from the State University of New York, Albany; a master’s degree from the Delhi School of Economics; and a bachelor’s degree from Jadavpur University in India.

Candice Flor Hynek is a Senior Research Analyst with the Institute’s Regional Economics group, where she has contributed to such reports as “Jobs for America: Investments and Policies for Growth and Competitiveness” and “Manufacturing 2.0: A More Prosperous California.” She was formerly associate economist of the LAEDC Kyser Center for Economic Research, where she worked for more than eight years, and specialized in the structure of leading industries in Southern California. She managed the Kyser Center’s major economic reports and served as editor of the e-EDGE economic newsletter. The co-author of numerous reports, including “The Business of Sports in Los Angeles County” and “The Creative Economy of the Los Angeles Region,” she has contributed U.S. economic outlook articles to several industry newsletters. Flor Hynek is an active member of the National Association for Business Economics (NABE) and was the 2008–09 president of the Los Angeles Chapter of NABE. She received her bachelor’s degree in business economics from California State University, Long Beach.



MILKEN INSTITUTE

1250 Fourth Street
Santa Monica, CA 90401

Phone: 310-570-4600

Fax: 310-570-4601

E-mail: info@milkeninstitute.org

www.milkeninstitute.org