Oklahoma's Film and TV Industry: Growth Prospects and State-Level Incentives

REGIONTRACK
Regional Economic Forecasting and Analysis

RegionTrack Inc. (regiontrack.com) is an Oklahoma City-based economic research firm specializing in regional economic forecasting and analysis.

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I. Introduction

Objective of the Report

Film and television (TV) production remains a highly unique and desirable industry across the world. Numerous countries and most of the U.S. states have long competed to attract the industry and its often high-wage and high-skill jobs. These efforts reflect, in part, the iconic role film and TV play in America's past and present and the public's growing consumption of digital entertainment services.

The purpose of this report is to assist state policymakers and the public in better understanding the current economic policy issues surrounding the U.S. film and TV industry. This will aid in assessing Oklahoma's potential as a more significant participant in the industry's future growth.

A key underlying economic development theme addressed throughout the report is whether it is feasible to build a significant film and TV industry in Oklahoma? And if so, is it desirable to do so? It is important for policymakers to understand whether evidence suggests that the competitive environment will allow a far larger film and TV industry to be built in Oklahoma. And, if so, under what conditions.

A growing number of studies examine the economic role of the film and TV industry, as well as the contribution of state-level financial incentives. Existing studies provide considerable evidence on the experiences of other states over the past two decades. However, there is little consensus across the range of research on both the estimated economic outcomes and the proper measures of success to use when evaluating the outcomes. This inconsistency in existing research has created an uncertain foundation for making public policy decisions regarding the industry.

This report provides a critical review of findings in existing research and evaluates and reconciles many of the contradictory results. The objective of the review is to provide a clearer set of expectations for economic outcomes from efforts to expand the film and TV sector in the state. The report further provides original empirical research examining state-level economic effects from both the enactment and removal (or reduction) of film and TV incentives at the state level. The original research attempts to fill in the voids of knowledge left by previous research.

Collectively, these efforts are intended to provide a better foundational view of the economic role of the film and TV sector when forming public policy decisions.

U.S. and Global Film and TV Industry

What we label as the film and TV industry throughout the report comprises a range of activities primarily related to production or distribution of films, television shows, and other forms of digital media for delivery through over-the-air broadcast, cable and wireless systems, and online streaming services. The Motion Picture Association (MPA), the industry's largest advocacy group, describes the sector as the Motion Picture and Television industry. We use the descriptor *film and TV* in the remainder of the report for brevity.

California (primarily the Los Angeles area) has long served as the global hub of film and TV production. More recently, the region has been forced to defend its competitive position as other mature as well as upstart filming locales provide lower-cost alternatives. The Los Angeles region now competes with four major production hubs around the globe – Canada, New York, Georgia, and the United Kingdom for U.S.-produced, English-language feature films and television productions.[1]

Several additional U.S. states have large and growing film and TV sectors, including New Mexico, Louisiana, Connecticut, and others. Most states continue to actively recruit the film and TV industry, and Oklahoma is no exception. Currently, 32 U.S. states and the District of Columbia offer financial incentives to the film and TV sector.

Film and TV in Oklahoma. Oklahoma has long had a presence in motion picture production, with the state's current film incentive enacted nearly 20 years ago. The state has consistently attracted a small but steady number of motion pictures to the state for filming.

Oklahoma offers an attractive filming location because of its diversity of physical landscape, relatively mild and sunny weather, its appealing mix of both urban and rural backdrops for filming, and a low-cost operating environment. Despite these factors, the state has never built a substantial set of support industries, and the sector remains a small component of the state economy.

Industry Growth Trends. Recently renewed interest among the U.S. states in attracting the industry is traced to the ongoing surge in production of new digital media content, primarily for streaming of entertainment content to households worldwide.

This represents an important structural shift in the way entertainment content is produced, delivered, and consumed in the U.S. and abroad. Parallel to this trend, the growth in viewership of traditional films has slowed in recent years, with studios now reallocating their efforts to meet faster growing demand for streaming content.

The ongoing COVID-19 pandemic has only accelerated the trend toward the viewing of more streaming content at home and less in-theater viewing of traditional feature films. Despite a shift in the balance of the industry away from its historical roots and toward streaming content, the overall size of the industry continues to grow. This has steadily increased demand for more filming and production locations in the U.S. and internationally.

Incentive Competition. An international competition to attract the industry was triggered in 1997 as Canada and its provinces expanded their efforts to use financial incentives to encourage U.S. film production companies to leave increasingly high-cost California. Along with Canada, the United Kingdom offers extremely attractive incentives to U.S. production companies and has captured a large share of the global market for U.S. films.[2]

Global competition for film and TV production projects has intensified as dozens of countries now offer attractive incentives to U.S. production companies. Numerous foreign competitors offer a combination of large incentives, lower operating costs, and unique scenery not found in the U.S. They are further aided by increased low-cost global travel and large viewing markets around the world for the finished product

In response to these *runaway* films moving outside the country, numerous U.S. states began offering incentives in the early 2000s to retain this production within the U.S. State-level incentives are now widely used to entice film production companies to shoot locally. Our estimates indicate that 32 states and the District of Columbia currently offer incentives with a total value of nearly $2.8 billion annually. Only five U.S. states have never offered incentives to film and TV production companies.

These incentives have become a key component of the financing model for film productions worldwide. States use a range of incentive types, including cash rebates, tax credits, and grants, with most payouts based on wages paid and purchases made by a production company within the state. Some states incentivize activity that takes place outside the state. Different activities can be incentivized, including traditional filming and production, animation, music, and other dimensions of the process.

Conflicting Research Findings. Continued growth in the total pool of state film and TV incentives has prompted more study of the industry, including spillover economic effects generated by activity in the sector. Studies examining the efficacy of state film and TV incentives have been prepared by several private and public entities including state agencies, legislatures, state auditors, trade groups, consultants, and academics.

These reviews generally examine the degree to which incentives result in an expansion of the film and TV industry itself as well as the amount of compensating economic spillover that accrues to the state more broadly. Existing studies also provide estimates of incremental tax revenue generated by the industry and estimates of return-on-investment (ROI) measured as tax revenue generated relative to the cost of incentives. Several studies further attempt to provide estimates of the cost per job produced by way of incentives.

A motivating factor underlying this report is the lack of agreement within existing research concerning the appropriate data, methodology, geography, and time frame for use in testing the effectiveness of incentives. There is also inconsistency across findings over basic questions concerning the direct economic impact of incentives on film and TV industry hiring and wages as well as the average cost of jobs when financed in whole or in part through incentives. Other debates continue over more technical and empirical aspects of the evaluations such as the

definition of the industry, the approach for making benchmark comparisons across states, and the appropriate economic multipliers to use.

Better Public Policy Toward Film and TV Incentives. There is also little consensus in existing research on the proper policy benchmarks to use when measuring the success of a state film incentive program. As a result, the public policy interpretation of existing research has become highly polarized into two competing views of the industry. In short, advocates argue that the film and TV sector is an excellent source of new high-wage and high-skill jobs in a region. Critics argue that it is not a cost-effective use of public funds and that alternative uses may provide a greater economic return. This seemingly irreconcilable dichotomy of views provides an uncertain foundation for policymakers and the public to evaluate the appropriateness of film and TV incentives for a given state or local area.

Our evaluation of existing research and additional empirical work in the report suggests that proponents and critics of the industry can both be right, and wrong. There are numerous costs and benefits to using financial incentives to attract any industry, with the disagreements over policy frequently falling along the line of which costs and which benefits are more important to the evaluator.

Tax Revenue Recovery. Critics of the film and TV sector frequently apply a near litmus test of whether the industry returns enough tax revenue to recover the direct cost of incentives. Any project that does not produce full tax recovery is deemed undesirable, regardless of the range of additional benefits produced.

This single-hurdle approach is one which many incentive-funded economic development efforts cannot clear, including professional sports franchises and other entertainment mediums. Much like film and TV incentives, advocates for professional sports teams point to high public demand for the non-traditional benefit of increased quality of life through added entertainment options.

The basic concern with focusing policy decisions on a single factor like tax recovery is that other desirable outcomes may be overlooked in the process. In addition to high wage, high skill jobs provided by the industry and improved quality of life, economic development officials and other advocates for the industry often cite non-traditional measures of impact such as greater national and international exposure, broader entertainment options, increased tourism, diversification of the job base, attraction of the creative class, and expansion of the arts. These benefits can be highly valued by both policymakers and the public, even when accompanied by less than full tax-cost recovery.

Nevertheless, the concern with policymakers and economic development officials not considering tax recovery is that they tend to create incentive programs that are unnecessarily generous and costly. There is a wide range in both the total amount of incentive payouts and the percentage payout as a share of film and TV industry spending across the states offering incentives.

There are also critics who oppose most any use of publicly funded financial incentives, regardless of the level of cost recovery. These detractors commonly feel that most forms of state

incentives are a poor use of taxpayer funds, arguing that much of the incentivized activity would likely locate within the state without incentives or that it leads to crony capitalism or distortions in the marketplace. However, existing research consistently finds that the film and TV industry is unlikely to thrive in many states in the current environment without incentives.

While critics generally concede that the film and TV industry can create significant amounts of new jobs and wages, they often counter that the gains reported in economic impact evaluations of the programs are exaggerated. Other criticisms note problems associated with the design and implementation of incentive programs that limit their effectiveness. These include payments for spending that occur outside the state (including wages to nonresidents), payments for salary of high wage cast members, lack of audit oversight, poor recordkeeping, lack of transparency, and other concerns.

All these concerns can be validated to some degree in existing research on film incentives. Later sections of this report examine many of these issues in detail in the evaluation of nonacademic (mostly economic impact) studies as well as the growing body of academic research on film and TV industry incentives.

Structure of the Report

The report provides a detailed evaluation of the industry through the following tasks:

1. Examine Oklahoma's past and present experience with the film and TV industry, including the use of incentives to attract the industry;
2. Evaluate the use of state-level film and TV incentives across the states;
3. Examine the size and geography of the U.S. film and TV industry and assess current growth trends;
4. Review and critique existing research on state film and TV incentives produced by both academic and non-academic researchers and discuss what can be learned by policymakers from these works;
5. Perform additional empirical tests evaluating the economic impacts of the introduction and elimination of state film and TV incentives;
6. Examine cases of localized economic impact related to film and TV incentives, including the potential impact of the development of a certified sound stage and studio in Oklahoma; and
7. Distill key results that emerge from the above tasks and discuss the overall policy conclusions reached within the report.

II. Oklahoma's Film Incentive

Oklahoma Film Enhancement Rebate Program

The state's current film incentive was created within the *Compete with Canada Film Act* (SB 674) signed into law in 2001 by Governor Frank Keating. The bill provided for a 15% cash incentive on movie or TV production spending in the state. The new law was viewed by the Legislature as establishing the most attractive state-level film incentive at the time.[3]

The state's current film incentive, known as the *Oklahoma Film Enhancement Rebate Program,* currently offers qualifying film, television, and streaming series productions a 35% cash rebate toward qualifying expenditures. An additional 2% rebate can be obtained by spending $20,000 or more for the use of music created by an Oklahoma resident that is recorded in Oklahoma or for the cost of recording songs or music in Oklahoma for use in the production. The potential maximum 37% rate remains one of the highest payout percentages among the states.

To qualify, productions must have a minimum total budget of $50,000, with at least $25,000 spent within the state. There are no specified caps for a single project. In 2019, Governor Stitt signed SB200[4] that raised the program's annual cap from $5 million to $8 million.

At the base rebate rate of 35%, the annual cap for the program will incentivize a maximum level of production spending of $22.86 million. At a potential 37% rebate rate using state-based music, the program cap supports a maximum of only $21.62 million in spending.

SB200 expanded the program further to allow film incentives in excess of the $8 million annual cap to attract high-budget film or television series productions using funds from the Oklahoma Quick Action Closing Fund. Qualifying film projects must be deemed as *high impact*, with total expenditures or production costs in excess of $50 million and one-third of total costs deemed Oklahoma expenditures. High-impact films are eligible to receive the same 35%/37% rebate. Dozens of motion pictures have been made in recent years in the U.S. with budgets exceeding $50 million, which is more than double the maximum annual cap potential under the $8 million limit based on 35%/37% payouts.[5] The sunset date for the Compete with Canada Film Act was also extended to July 1, 2027.

Rebates to production companies are approved on a first come first served basis, with cash payment made following the completion of filming and satisfactory review of all program requirements. An audit of expenses submitted for reimbursement must be completed by a CPA.

An eligible *production company* is defined as any person or company who produces film for exhibition in theaters, on television, or elsewhere. A *film* is defined as a professional single media, multimedia program, or feature which meets decency requirements as described in state statute. The rebate applies to a range of productions that are fixed on either film or digital video, including national advertising messages, which can be viewed or reproduced through common media outlets (see §68-3623).

The Oklahoma Film and Music Office and the Oklahoma Tax Commission jointly implement the rebate program on behalf of the state, including management of initial applications from interested productions, qualification of applicants, and processing of final rebate requests.

The Oklahoma Film + Music Office (OFMO) was created by statute as a division of the Oklahoma Tourism and Recreation Department. OFMO administers the state incentive program and is the primary contact point for film and TV industry activity. Legislation related to the creation and operation of OFMO is detailed in Appendix 1. The program operates under a detailed set of administrative rules.[6] Rebate amounts paid per film project are not released by OFMO citing an exemption from the state's Open Records Act.

Enabling Legislation (Oklahoma Statutes §68-3621 - §68-3626)[7]

Any economic evaluation of the state's film incentive must start with the Legislature's stated goal for the program at inception. The legislative intent of the state's incentive program is spelled out clearly in the enabling legislation (*see Appendix 2*). Three distinct economic development goals are enumerated:

1. Increased jobs
2. Increased dollars for Oklahoma businesses
3. Enhanced state image nationwide

The three intents are spelled out in broad language in the legislation, with no performance objectives, targets, or requirements set. For example, there are no standards established for job or wage growth, recovery of tax revenue, geographic distribution, or other objectives.

The legislation also cites five competitive factors shaping the intent of the legislation at the time:

1. The high costs of production are driving activity out of the country, most notably to Canada;
2. The industry is always seeking attractive locations with lower costs of production;
3. If incentivized appropriately, the state becomes an attractive filming location;
4. Oklahoma currently offers minimal incentives; and
5. The Legislature intends to create an incentive that stands out among other states.

These factors are believed to be as relevant in the current environment as they were in 2001 when the legislation was enacted. Canada remains an attractive destination, with both Vancouver and Toronto serving as major filming hubs. The industry also continues to seek alternative low-cost shooting options, with several U.S. states building significant film and TV industries the past two decades. The Legislature also recognized that an appropriate level of incentives would be needed to make the state a competitive market. Although the recent expansion of the program cap to $8 million annually left Oklahoma among the group of states with minimal incentives, the approval of supplemental funding for high-impact films pushed the state into a small group of states which can compete for large-budget films.

Expatriates. Another unique aspect of Oklahoma's film incentive is that it attempts to attract back to the state film industry workers who are former residents. These *expatriates* are defined as

persons who previously resided in the state of Oklahoma for at least one year but do not currently reside in the state. This encourages an important labor force outcome which allows expatriates who were often trained and educated in the state to seek in-state work opportunities. Expatriate workers must register with the state and their contact information is made available to production companies as a source of local labor for in-state productions.

Rebates Rather Than Credits. Oklahoma issues cash rebates to production companies upon satisfactory completion of the incentive agreement. The use by many states of tax credits against income tax rather than cash rebates or grants presents an unusual challenge for state budgeting purposes. Tax credits are designed to offset taxable income that many production companies do not have as out-of-state entities. The credits are not typically used directly by the recipient but are instead are either sold to other buyers, refunded, or redeemed to the state at a discount, used to offset other state tax liabilities (e.g. withholding), or go unclaimed. Most film tax credits are sold to other buyers in need of additional tax credits, often by out-of-state taxpayers.

By using a direct rebate, Oklahoma is eliminating many of the complications often faced by states issuing tax credits. There can be a multi-year delay between the year credits are issued and the year in which they are redeemed. Georgia, for example, has created a substantial future liability with no known timeline by issuing substantial credits over multiple years that have not yet been redeemed. Georgia auditors estimated that as of March 2019, there were more than $1.7 billion in outstanding film tax credits. Representatives of the Georgia Economic Development Commission state that they are further limited by confidential information in administering the program in their response to 2020 state audit.[8]

III. State Film and TV Incentives

States Incentives. Louisiana adopted the first state incentives for film and TV production in 1992. However, much of the current structure of U.S state-level film and TV incentives is traced to 1997 when Canada adopted a national film incentive program (Production Services Tax Credit). This accelerated the ongoing shift in domestic film activity away from California, the historical global filmmaking hub. Canada quickly developed sizeable film and TV infrastructure and gained substantial market share from California.

Other U.S. states sensed the opportunity to retain these *runaway* film productions in the U.S. rather than cede them to Canada. By 2000, six states had enacted a film incentive.[9] Oklahoma was an early mover, as evidenced by passage of the state's Compete with Canada Act in 2001. Several states began to offer incentives in the same time frame, including recent growth leaders New Mexico and Georgia in 2002. Louisiana followed up by expanding its initial program in 2002. New York, currently the second largest U.S. film and TV market, began offering its film incentive in 2004. In response to the loss of productions, California eventually enacted its own rebate in 2009. The total number of states offering incentives reached nineteen states by 2005 and jumped to 41 by 2010.

Several states have since eliminated or restructured their incentive. Only 37 states offered incentives by 2015. As of July 2020, 32 states plus the District of Columbia offer film and TV incentives to production companies.

How Large is the U.S. State Film Incentive Pool?

Figure 1 provides an overview of the range of incentives currently offered in each state including type and amount in the most recently available fiscal year. Tabulating the total amount of film and TV incentives offered by the states is complicated by the use of various forms of incentives, method of payment, lags in reporting, tax credit discounting practices, rollover of caps, and differences in funding periods across the states.

Past estimates suggest that the total pool of film and TV incentives offered by the states has expanded substantially the past two decades. The Tax Foundation maintained an annual tally of state incentives through 2011.[10] The estimates suggest annual incentives were less than $5 million annually through 2003 before bouncing sharply to $68 million in 2004. Incentives then increased annually at a rapid pace through 2010, reaching a peak of $1.40 billion. The Center on Budget and Policy Priorities finds a similar total of $1.48 billion for approximately the FY2010 period.[11]

Thom (2018)[12] finds that total film incentives paid by the states increased to $2.13 billion in 2016.

Figure 1 provides our estimate as of July 2020 for the most recently stated fiscal year in each state that offers a film incentive.[13] In total, an estimated $2.76 billion in incentives are currently being offered annually to the film and TV industry.

For states that use a tax credit, the incentive amount represents tax credits issued in the most recent year and may differ from the actual revenue impact for the year. This is especially important in the case of Georgia since the amount of tax credits approved in the most recent fiscal year (FY19, $860 million) is far larger than the amount of incentives redeemed by tax filers in the state ($470 million). For states with an annual cap, the amount reflects the maximum amount available annually under the incentive. The cap is typically approximately equal to the actual amount conveyed in most states but actual payments can be less.

For perspective, total state incentives are roughly equal to 25% of the $11.9 billion in estimated U.S. and Canada box office receipts in 2018 as reported by Comscore.[14] Measured per capita, total incentives equate to approximately $8.39 in the U.S., or slightly less than the reported $9.11 average price for a cinema ticket in the U.S. in 2018.

More than 90% ($2.5 billion) of the available incentives are offered by a group of 12 states that each offer $50 million or more annually. Georgia leads the group with $860 million in new tax credits approved in FY2019, 30% of the U.S. total. New York and California form a second tier with incentives of $420 million and $330 million, respectively. The top three states account for nearly 60% of total state incentives.

Five additional states offer more than $100 million in incentives – Connecticut ($157 million), Louisiana ($150 million), Illinois ($131 million), New Mexico ($110 million), and New Jersey ($100 million).

A fourth tier offering $50 million or more in incentives includes four states – Massachusetts ($80 million), Pennsylvania ($70 million), Hawaii ($50 million), and Texas ($50 million).

The remaining 20 states plus the District of Columbia each offer less than $50 million annually, with an average of $12.3 million. These states jointly offer $247 million in incentives and would rank only fourth behind Georgia, New York, and California.

Twelve states – Nevada, Montana, Kentucky, Virginia, Utah, Oklahoma, Tennessee, Washington, Colorado, Minnesota, Maine, and Arkansas – and the District of Columbia have relatively small programs, with annual incentive spending of $10 million or less.

Currently, eighteen states do not offer an incentive - Alaska, Arizona, Delaware, Florida, Idaho, Indiana, Iowa, Kansas, Michigan, Missouri, Nebraska, New Hampshire, North Dakota, South Dakota, Vermont, West Virginia, Wisconsin, and Wyoming

International Incentives. Examining the size of international film and TV incentives relative to those offered by U.S. states illustrates how competitive the landscape remains for U.S. film productions. For example, the United Kingdom and Canada offer very attractive and large incentives to U.S. production companies. As an example of some of the most aggressive incentives, Fiji has long offered a 47% base incentive payout for production spending with a cap per project of about US$13 million.[15]

In Canada, both Vancouver in British Columbia and Toronto in Ontario have built sizeable film and TV industries. Ontario has a refundable credit of 21.5% on goods and services and 35% on

labor that excludes nonresident actor, producer, and director salaries. The program has no annual cap with a total of $592 million in total incentives paid in 2018 – $427 million committed by the province and $165 million by the Canadian federal government.[16]

Figure 1. State Film and TV Incentives

State	Incentive Type	Tax Credit Utilization	Base Credit Rate	Annual Cap/Actual Spend Amt.	
				Cap	Amount ($Millions)
Alabama	rebate	-	25% spend/35% res labor	yes	20
Arkansas	rebate	-	20% spend/30% res labor	no cap	n.a.
California	credit	transferable	25-35% spend	yes	330
Colorado	rebate	-	20% spend	yes	1
Connecticut	credit	transferable	30% spend (>$1 million)	no cap	157
District of Columbia	rebate		35% spend/21%nontax/30% res/10%nonres		4
Georgia	credit	transferable	20-30% spend	no cap	860
Hawaii	credit	refundable	20% to 25% spend	yes	35
Illinois	credit	transferable	30% spend	no cap	131
Kentucky	credit	non-transfer./non-refund.	30% spend/35% res labor	no cap	9.6
Louisiana	credit	transferable	25% to 40% spend	yes	150
Maine	credit/rebate	non-transferable	5% spend/10-12% labor	no cap	0.19
Maryland	credit	refundable	25% spend	yes	14
Massachusetts	credit	transferable	25% spend	no cap	80
Minnesota	rebate	-	20-25% spend	yes	0.50
Mississippi	rebate	-	25% spend/30% res labor	yes	20
Montana	credit/grant	transferable	20% to 35% spend/10% non res & 12% res labor	yes	10
Nevada	credit	transferable	25% spend	yes	10
New Jersey	credit	transferable	30% to 37% spend	yes	100
New Mexico	credit	refundable	25-35% spend	yes	110
New York	credit	refundable	25-40% spend	yes	420
North Carolina	rebate	-	25% spend	yes	31
Ohio	credit	refundable	30% spend	yes	40
Oklahoma	rebate	-	35% spend (high-impact film)	yes	8
Oregon	rebate	-	20% spend/16.2% labor	yes	14
Pennsylvania	credit	transferable	25-30% spend	yes	70
Rhode Island	credit	transferable	30% spend	yes	20
South Carolina	rebate	-	30% supplier/20-25% labor	yes	15.5
Tennessee	grant	refundable	25% spend	yes	7.5
Texas	grant	-	5-20% spend	yes	50
Utah	credit/rebate	refundable	20% to 25% spend	yes	8.29
Virginia	credit/grant	refundable	15-20% spend/extra 10-20% res labor	yes	9.5
Washington	rebate	-	30% spend	yes	3.5
U.S. Total					$2,739.6

Note: Data are as of June 2020. Incentive information was collected directly from state budget reports where available, the underlying legislation enacting the incentive, and news accounts. The following eighteen states do not currently offer an incentive: Alaska, Arizona, Delaware, Florida, Idaho, Indiana, Iowa, Kansas, Michigan, Missouri, Nebraska, New Hampshire, North Dakota, South Dakota, Vermont, West Virginia, Wisconsin, and Wyoming.

British Columbia offers a refundable credit of 41% on labor that excludes salaries for nonresident actors, producers, and directors. The program has no annual cap, with $851 million in total incentive spending in 2018 – $607 million committed by the province and $244 million by the Canadian federal government.

The United Kingdom offers a refundable credit of 25% of qualifying expenditures up to 80% of the project budget with no annual cap. Incentives committed in 2018 totaled $1.08 billion.

Canada and the U.K. provided a combined total of $2.53 billion in incentives to film production companies in 2018, only slightly less than the current combined $2.8 billion total across the U.S. states.

Are States Pulling Back on Film and TV Incentives?

Fewer States Offering Incentives. Prior research and numerous political op-eds have cited the elimination or cutback in state-level incentive programs as evidence of the failure of tax incentives to work in many states. Over roughly the past decade, twelve states have either eliminated their film incentive, allowed it to expire, or discontinued state funding. These states, along with their cap or funding levels at elimination, include:

- Iowa – suspended its program in 2009 ($78.8 million estimated for FY2011 before suspension)
- Kansas – suspended its program in 2010 ($2 million cap)
- Arizona – program sunset in 2010 ($70 million cap but actual spend was less than $5 million annually)
- Wisconsin – scaled back in 2010 and eliminated in 2013 ($500,000 cap in 2013)
- Vermont – ended its program in 2011
- Indiana – program expired in 2011 ($2.5 million cap)
- Missouri – allowed its program to lapse in 2013 ($4.5 million cap)
- Florida – program exhausted funding in 2014 ($296 million spend from 2010 to 2014, approximately $60 million annually) and sunset in 2016
- Michigan – ended its program in 2015 ($125.7 million estimated for FY2011 in final year of payout)
- West Virginia – ended funding in 2015 and eliminated in 2018 ($5 million cap in 2018)
- Alaska – ended its program in 2016 (spent a total of $9 million from 2009 to 2015)
- Wyoming – allowed its program to sunset in 2018 (generally $1 million or less)

Similarly, other states sharply reduced the size of their incentive program or allowed it to lapse temporarily in recent years:

- Louisiana placed a cap on spending at $180 million in 2015 and reduced the cap further to $150 million in 2017
- New Jersey – allowed its program to lapse in 2010 but was reinstated in 2018
- Hawaii reduced its cap to $35 million in 2019 but raised it to $50 million later in 2019

But Total Incentive Pool Continues to Grow. Focusing solely on the number of states eliminating or reducing incentives programs provides an incomplete view of the broader trend. In sharp contrast, several states have expanded their programs in recent years which pushed the total incentive pool to new highs.

- Ohio increased its annual cap to $40 million in FY2017
- Georgia has continued to expand its uncapped program, reaching $860 million in FY2019
- North Carolina raised its annual cap to $31 million in FY2019
- Texas increased its annual cap to $50 million in FY2019
- Hawaii's cap was raised from $35 million to $50 million in FY2019
- Oklahoma expanded the base incentive cap to $8 million and added 'high-impact' films using funding from the Oklahoma Quick Action Closing Fund in FY2020
- Kentucky increased its annual cap to $9.0 million in FY2020
- The California Film & Television Tax Credit Program 3.0 was signed into law in June of 2018. The program allocates $330 million per year and extends the sunset to 2025. The current Program 2.0 sunset in June 2020.
- New Jersey increased its program from $75 million to $100 million annually in 2020 and extended the sunset date to 2028.
- Maryland is slated to increase its program from $14 million in FY2021 to $17 million in FY2022

Why Did Some States Eliminate Their Film and TV Incentive? An examination of the twelve states eliminating film incentives suggests a clear shaking-out phase underway the past decade. Some states cited lack of sufficient payback as the reason for cutting film and TV incentives. Other states cited cyclical budget constraints, particularly following the 2008-09 national recession. Six of the twelve states dropped their programs in the immediate aftermath of the recession.

Nine of the twelve states had a very small incentive pool and were unlikely to ever build a substantial industry without more resources. These states include Kansas, Arizona, Wisconsin, Vermont, Indiana, Missouri, West Virginia, Alaska, and Wyoming. Oklahoma finds itself in a similar situation with its current small incentive pool.

The three remaining states that dropped their incentive – Florida, Michigan, and Iowa – built relatively large film and TV sectors and then ended the program. Florida primarily cited the low share of tax recovery from the incentives.[17] Michigan cited low tax recovery and lack of lasting growth in the industry.[18] Iowa was embroiled in a scandal over accounting irregularities and cost overruns within its program when it was eliminated.[19]

Nevertheless, the size of the total incentive pool in the U.S. has continued to grow in recent years, despite fewer states participating, with a sizable number of the remaining states adding to their incentive commitment. And despite the frequent characterization that state film incentive spending is being cut, the total pool is currently at a record high. Efforts also continue in multiple states to revive past film incentive programs including the recent passage of a bill by the Senate in Indiana prior to COVID-19 and a ballot initiative petition effort underway in Arizona.

It is also likely that COVID-19 social distancing restrictions will reduce the amount of incentives tied to 2020 filming activity. Recent reports suggest that almost no filming activity took place in the 2nd quarter of 2020 in the Greater Los Angeles Region. This same degree of shutdown is expected for most filming regions of the country which could sharply reduce the number of productions that qualify for state incentives in 2020.

Oklahoma Incentives for Other Entertainment Sectors

Oklahoma City Incentives for Entertainment. The state's recruitment of the film and TV industry is believed to parallel along many dimensions past efforts to attract an NBA basketball franchise to the state.

Both professional sports and film and TV are touted as providing:

1. An exciting form of entertainment that appeals to a wide portion of the general public;
2. A local amenity that boosts the quality of life in the region;
3. Enhanced civic pride;
4. Enhanced public exposure improving the image and awareness of the region;
5. High-wage service jobs to the region; and
6. Economic activity that is unlikely to develop organically in a small market in the central U.S.

Local incentives played a key role in Oklahoma City's attempts to attract a major sports franchise. The construction of Chesapeake arena was a speculative effort on the part of city that was approved as one of the initial Metropolitan Area Projects (MAPS) projects in 1993. The arena was designed and constructed subject to NBA and NHL specifications.

Entertainment venues have proven to be highly popular with the public in Oklahoma, even when funded through public sources. In Oklahoma City, for example, nearly all the initial MAPS projects approved in 1993 either created new or improved existing entertainment venues. These projects include Bricktown Ballpark ($34 million), Bricktown Canal ($23 million), Cox Convention Center ($60 million), Chesapeake Energy Arena ($87.7 million), Civic Center Music Hall ($53 million), Oklahoma River ($53.5 million), State Fairgrounds Improvements ($14 million). MAPS for Kids in 2001 subsequently focused on education before shifting back to a far greater emphasis on entertainment venues in MAPS 3 in 2009. New entertainment related projects in MAPS 3 include Scissortail Park ($132 million), Trails ($39.5 million), RIVERSPORTS Rapids ($57 million), and Bennett Event Center at State Fair Park ($58.7 million).

Most recently, voter-approved MAPS 4 projects continue to have a strong entertainment focus with projects including new and improved parks ($140 million), updates to Chesapeake Energy Arena ($115 million), construction of a new Fairgrounds Coliseum ($63 million), and a new multipurpose stadium ($37 million). Also approved were sidewalks, bike lanes, trails, and streetlights ($87 million) which are key to various forms of outdoor entertainment.

State Incentives for Entertainment. The state has also contributed significant incentives in the past for entertainment related economic development efforts. The Thunder (Professional

Basketball Club, LLC) has participated in the Oklahoma Quality Jobs Act Program since 2008. In the most recent four fiscal years, the team has received $6 million to $9 million annually in salary rebates.[20] The program provides for a 5% rebate of payroll costs for new jobs created for up to ten years. The Thunder received a legislative exception that allowed them to receive the rebate for 15 years. The rebate amount and payout ratios suggest the Thunder receive incentive benefit based on $120 million to $180 million in annual payroll costs. The total salary amount is heavily weighted toward high salaries earned by NBA players but includes roughly 100 other personnel. Even critics of economic development incentives suggest that these types of incentives can provide returns that do not fit within the typical financial or economic metrics used to evaluate state incentives.

IV. How Large is the U.S. Film and TV Industry?

Much debate remains in the research literature surrounding the size of the film and TV industry at the state and national levels. The amount of wages and employment attributed directly to the industry, in turn, determines its relative economic contribution to the broader economy.

Federal databases of employment and wages are typically structured using NAICS industry classification codes and are rarely able to fully capture employment directly within a sector such as film and TV. Overlapping sectors and misclassification issues have long hampered users of federal economic databases. Employees are classified within a given industry based on a single industry assigned to the full business establishment rather than the job duties or client base of individual employees. McDonald (2011) aptly illustrates many of the data issues surrounding estimates of employment and wages in the film and TV industry.[21]

Economists and other applied researchers continue to raise concerns over the methodology used in many reports and evaluations measuring the size of the film and TV industry. These concerns largely underlie criticisms that many studies exaggerate the wage and salary impacts of the industry.

Studies that are critical of the industry tend to use more narrowly defined measures of the industry based solely on NAICS classifications. The reasoning is generally twofold: 1) it allows for consistent industry definitions across works for comparability, and 2) it allows for replication of the work by others.

Component Industry Definition

It is important to understand the implications of the various industry definitions used in existing research when discussed in later sections of the report. Using the NAICS structure, the film and TV sector falls primarily within the 4-digit NAICS sector 5121 – Motion Picture and Video Industries in federal employment and wage datasets. Two of the sectors under 5121 – NAICS 512131 (Motion picture theaters except drive-ins) and NAICS 512132 (Drive-in motion picture theaters) – are often excluded from studies of the film and TV sector because they primarily involve the exhibition of motion pictures and have no direct link to the economic activity typically related to film and TV production, or state incentives.

Hence, the film and TV industry as defined throughout much of this report is based primarily on the following four (or a subset of the four) 6-digit NAICS industry sectors:

1. NAICS 512110 – Motion Picture and Video Production
2. NAICS 512120 – Motion Picture and Video Distribution
3. NAICS 512191 – Teleproduction and Postproduction Services
4. NAICS 512199 – Other Motion Picture and Video Industries

These four core sectors are commonly used in existing studies when defining the scope and size of the film and TV sector. Little disagreement is present over whether these sectors should be

included. These four sectors are also believed to provide an industry definition that closely matches the intended economic activity underlying most state film and TV incentives.

Recently released data from the 2017 Economic Census in Figure 2 provide detailed estimates on economic activity within the four core sectors. Economic Census data are considered among the most comprehensive and reliable measures of sector level activity because they are tabulated using a large sample size relative to many federal employment and wage surveys. It is also one of the few public databases that provide estimates of industry sales or revenue by detailed industry sector.

Estimates for the four cores sectors (512110, 512120, 512191, and 512199) are combined in the last row of Figure 2. In 2017, the four sectors of the film and TV industry accounted for a combined 16,800 firms with nearly 17,500 locations and total revenue of $72.6 billion. The firms employed 163,700 workers who earned $13.86 billion in wages. Workers in the sectors earned an average of $84,680 annually, more than 60% above the overall U.S. average of $51,890. The average firm size suggests a typical film and TV industry firm is relatively small with $4.3 million in annual revenue. Sector 512110 is the largest component of the overall sector and is used in later empirical studies at the state level.

Figure 2. Economic Census (2017) – NAICS 512 and Component Industries

2017 NAICS code	NAICS Code Description	Number of firms	Number of establish-ments	Sales, value of shipments, or revenue ($1,000)	Annual payroll ($1,000)	Number of employees
512	Motion picture and sound recording industries	22,253	25,818	102,087,852	18,134,270	340,981
5121	Motion picture and video industries	18,825	22,118	88,586,554	15,795,464	316,612
512110	Motion picture and video production	13,812	14,352	65,876,062	11,619,691	130,640
512120	Motion picture and video distribution	340	347	1,424,164	247,647	3,196
512131	Motion picture theaters (except drive-ins)	1,899	4,473	15,834,092	1,912,695	151,651
512132	Drive-in motion picture theaters	178	191	133,085	23,530	1,297
512191	Teleproduction and other postproduction services	2,475	2,576	5,079,952	1,916,827	28,529
512199	Other motion picture and video industries	178	179	239,199	75,074	1,299
5122	Sound recording industries	3,439	3,700	13,501,298	2,338,806	24,369
512230	Music publishers	655	709	4,652,658	534,511	6,197
512240	Sound recording studios	1,802	1,863	921,528	293,552	5,421
512250	Record production and distribution	587	690	7,343,848	1,322,951	9,180
512290	Other sound recording industries	403	438	583,264	187,792	3,571
*512110 + 512120 + 512191 + 512199 (Film & TV)		16,805	17,454	72,619,377	13,859,239	163,664

Source: U.S. Census Bureau – 2017 Economic Census

Excluded Sectors. Some economic activity directly related to the film and TV sector is almost certainly not captured by the four core NAICS industry sectors. Additional sectors used in studies of the film and TV industry include the following:

1. NAICS 512131 – Motion Picture Theaters excluding Drive-Ins
2. NAICS 512132 – Drive-In Motion Picture Theaters
3. All music-specific sectors underlying NAICS 5122 (512220, 512230, 512240, 512290)
4. NAICS 5151 – Broadcast Radio and TV
5. NAICS 515210 – Cable and Other Subscription Programming
6. NAICS 531120 – Commercial Real Estate Lessors
7. NAICS 532490 – Equipment Rental
8. NAICS 5419 – Marketing Services
9. NAICS 711110 – Theater Companies and Dinner Theaters
10. NAICS 711120 – Dance Companies
11. NAICS 711130 – Musical Groups and Artists
12. NAICS 711190 – Other Performing Arts Companies
13. NAICS 711410 – Agents and Managers for Public Figures
14. NAICS 711510 – Independent Artists, Writers, and Performers

These additional sectors almost certainly fit within a broader category capturing the *Entertainment* industry of a region. Although most of these categories may have some, and possibly significant, overlap with Film and TV in practice, they fall primarily outside the specific categories of activity generally traced directly to film and TV production as defined under state incentive programs.

MPA Estimates. While the exact amount of overlapping data is unknown, some estimates suggest that misclassified and uncaptured data is far larger than the amounts captured by the four core component industries. Economic impact reports produced by industry trade groups and state economic development agencies often use a far broader definition of the film and TV industry. Fully recognizing the limitations of federal datasets, they make estimates of employment and wages using external information to augment what is viewed as misclassified data within the NAICS industry structure.

For example, recently prepared economic impact estimates[22] compiled in 2019 by the Motion Picture Association (MPA) are based on a far broader definition of the industry. MPA data suggest the U.S. motion picture and TV industry consists of 93,000 businesses providing 892,000 direct jobs with $76 billion in direct wages, or average annual wages of approximately $82,000 per job. These estimates are direct effects and do not include spillover effects. Other MPA estimates of direct economic activity suggest the industry produced $229 billion in sales, paid $29.4 billion in revenues to government entities, and exported $17.2 billion in services. It is important to note that the MPA methodology includes the use of NAICS classification codes that are both wholly associated with the film and TV industry as well as numerous codes that are only partially associated the industry.[23] However, MPA provides no details on the methodological approach or underlying assumptions used in the impact report to select industries that are deemed to hold film and TV industry jobs.

Clearly, the estimates produced by MPA, the industries primary trade association, are capturing and describing a far different and much larger film and TV industry than used in most studies of the industry. Industry revenue estimates reported by MPA are roughly three times larger than estimates for the combined four core sectors in the Economic Census ($229 billion vs. $72.6 billion). The 93,000 business establishments reported by MPA is more than 5 times the count reported in the Economic Census. Employment reported by MPA (892,000 vs. 163,664) as well as total annual wages paid as reported by MPA ($76 billion vs. $13.86 billion) are similarly more than five times higher. Only average annual wages paid per worker is roughly equal in both sources ($86,323 vs. $84,681).

These significant differences in industry definition underlie much of the policy disagreement over the economic role of film and TV. Most economic researchers fully recognize the limitations of using federal databases to define an industry but also recognize the difficulties inherent in creating a custom definition. However, the criticism of the approach used by MPA is more a matter of transparency and inability to evaluate and replicate their results than a matter of underlying philosophy toward overcoming the limitations of federal databases.

Alternative Measures (CBP and QCEW)

The widely used County Business Patterns (CBP) database provided by Census provides an alternative source for data on hiring and wages in the film and TV industry by NAICS sector. The CBP survey is administered annually using payroll records and provides a near full sample of all private sector business establishments and employment in the U.S.

Figure 3 provides estimates for the four core sectors of the film and TV sector in 2018, the most recent year of CBP data available. Relative to Economic Census data for 2017, CBP data for 2018 suggests a comparable size for the four core sectors. Estimates are only slightly larger for the number of establishments (18,544 vs. 17,454), number of employees (165,603 vs. 163,664), and total annual wages paid ($15.06 billion vs. $13.86 billion).[24]

Figure 3. County Business Patterns Database (2018) – Film and TV Component Industries

2017 NAICS Code	NAICS Code Description	Number of establish-ments	Number of Employees	Annual Wages (Thou.)	Average Annual Wage
512110	Motion picture and video production	15,251	132,179	$12,300,915	$93,063
512120	Motion picture and video distribution	358	2,932	268,198	91,473
512191	Teleproduction and other postproduction services	2,714	29,584	2,416,204	81,673
512199	Other motion picture and video industries	221	908	75,647	83,312
*512110 + 512120 + 512191 + 512199 (Film & TV)		18,544	165,603	$15,060,964	$90,946

Source: U.S. Census Bureau

The Quarterly Census of Employment and Wages produced by the Bureau of Labor Statistics provides an alternative and more comprehensive source for data on hiring and wages in the film and TV industry by NAICS sector. QCEW is used commonly across studies of film and TV activity, as well as in our empirical work in later sections of the report. The QCEW survey is

valued because it performs a quarterly Census, or full count, of activity rather than using sampling techniques to count establishments, employment, and wages in the U.S.

Relative to Economic Census data for 2017, recent QCEW data for 2019 shown in Figure 4 suggest a far larger number of establishments (24,460 vs. 17,454), employees (263,064 vs. 163,664), and total annual wages paid ($27.97 billion vs. $13.86 billion) in the four core film and TV sectors. Growth in the four sectors in QCEW data from 2017 to 2019 explains only a small fraction of the substantial difference between the two databases. All four core sectors are larger in the QCEW data than in the Economic Census which suggests it is providing a more comprehensive estimate of employment in the industry.

Figure 4. QCEW Database (2019) – Film and TV Component Industries

2017 NAICS Code	NAICS Code Description	Number of establish-ments	Number of Employees	Annual Wages ($)	Average Annual Wage
512110	Motion picture and video production	20,547	235,385	25,114,499,743	106,695
512120	Motion picture and video distribution	558	7,755	1,058,161,852	136,448
512191	Teleproduction and other postproduction services	2,836	16,403	1,589,692,339	96,912
512199	Other motion picture and video industries	520	3,520	208,593,455	59,254
*512110 + 512120 + 512191 + 512199 (Film & TV)		24,460	263,064	27,970,947,389	106,328

Source: Bureau of Labor Statistics

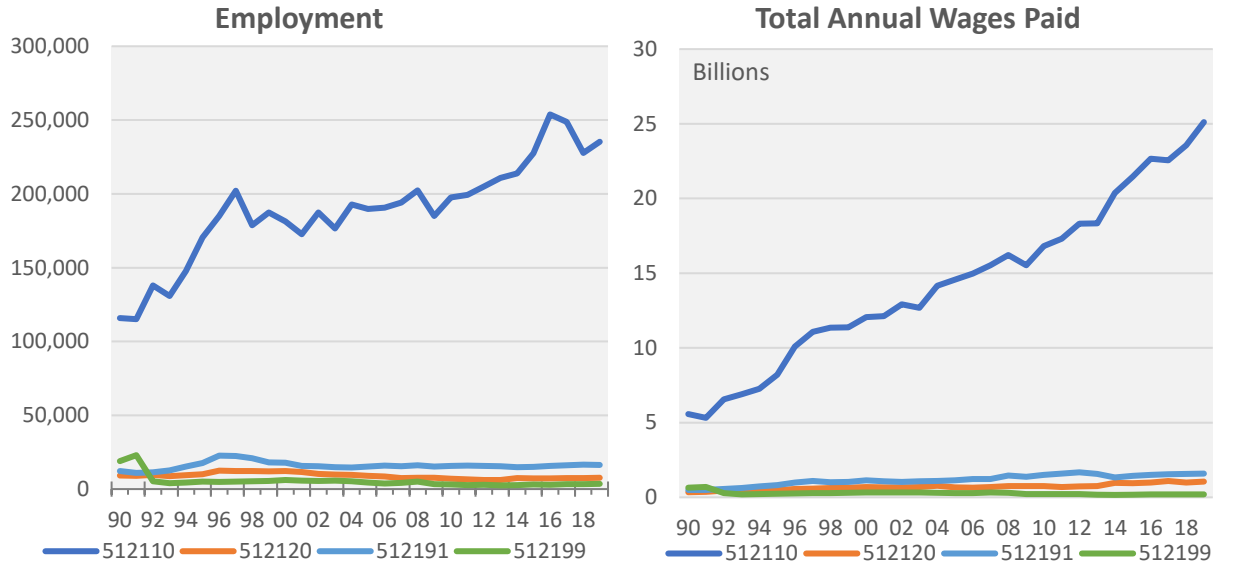
However, the QCEW estimates remain far lower than estimates provided by MPA using a broader definition for the industry. Relative to QCEW, MPA estimates remain roughly three times higher for number of establishments, employment, and total annual wages paid. Conversely, there is a far higher average annual wage in QCEW data at $106,328 per worker in 2019.

These comparisons illustrate the vast differences in estimates of the direct economic activity attributed to the film and TV industry. This creates the potential for significant differences in both direct economic impacts and spillover effects. While no agreed upon value exists for the size of the industry, it is important to use defensible and fully disclosed methods for defining the industry when doing empirical analysis of the sector.

A final note is that some empirical studies use NAICS 512110 (Motion picture and video production) alone as a proxy for the film and TV sector. A later empirical section of this report does so when performing state level comparisons. This reflects not only the wide availability of QCEW data for NAICS 512110 at the state level but also a high share of data suppressions at the state level for the other three NAICS sectors.

The use of 512110 captures the dominant share of movement in total film and TV industry activity. Based on QCEW data for 2019, the sector represents approximately 84% of total establishments, 90% of employment, and 90% of total wages paid across all four core sectors. Figure 5 illustrates the share of movement present in both employment and wages captured by each of the four core sectors over time.

Figure 5. QCEW Employment and Wages by NAICS Sector (Film and TV components)



Source: Bureau of Labor Statistics - Quarterly Census of Employment and Wages

Where is the U.S. Film and TV Industry Located?

The geographic location of film and TV industry employment and wages is detailed by state in Figure 6. Industry level establishments, employment, and wages are defined using the four core NAICS sectors (512110, 512120, 512191, and 512199). The type and amount of incentives offered are detailed as well (*see Figure 1 for details*).

There are several noteworthy characteristics of the industry's distribution across the states:

1. **California remains the dominant film and TV production location.** California is home to almost half (46%) of employment and nearly 60% of total wages paid in the U.S. film and TV sector.
2. **High degree of concentration in a small number of states.** Just three states – California, New York, and Georgia – currently account for approximately 70% of employment and 80% of wages paid in the U.S. film and TV production sectors. New York and Georgia are home to approximately 20% and 5% of total industry jobs and wages, respectively.
3. **Many Small Markets**. All 50 states have a film and TV sector. However, outside of the top three markets, each of the remaining states have approximately 2% or less of the industry.
4. **Many of the fastest growing U.S. states are not significant film and TV markets**. Washington, Arizona, Nevada, North Carolina, and Colorado do not rank among the industry leading states. Among this group, only North Carolina has an incentive program of more than $10 million.

Figure 6. Film and TV Industry Size and Incentives by State

State	Estab-lish-ments	Employ-ment	Total Wages Paid	Average Annual Wage	Film & TV Incentive	Annual Cap on Incentive	Cap Amt./ Incentive ($Millions)	Share of Total U.S. Incentives
Alabama	133	721	$41,746,620	57,901	Y		$20	0.7%
Alaska	25	40	1,379,916	34,498			-	0.0%
Arizona	255	1,514	48,521,976	32,049			-	0.0%
Arkansas	88	224	15,629,404	69,774	Y	N	*	0.0%
California	10,247	120,752	16,292,946,411	134,929	Y		330	12.0%
Colorado	386	1,648	96,303,384	58,437	Y		1	0.0%
Connecticut	258	3,627	507,926,258	140,040	Y	N	157	5.7%
Delaware	36	63	716,384	11,371			-	0.0%
District of Columbia	134	615	62,261,009	101,237	Y		4	0.1%
Florida	1,151	6,875	525,182,207	76,390			-	0.0%
Georgia	612	16,433	1,142,403,921	69,519	Y	N	860	31.4%
Hawaii	129	1,560	96,699,495	61,987	Y		35	1.3%
Idaho	44	105	4,412,582	42,025			-	0.0%
Illinois	691	4,458	377,765,857	84,739	Y	N	131	4.8%
Indiana	164	478	26,398,930	55,228			-	0.0%
Iowa	82	249	12,612,249	50,652			-	0.0%
Kansas	77	167	7,002,262	41,930			-	0.0%
Kentucky	146	468	22,313,002	47,677	Y	N	9.6	0.4%
Louisiana	204	4,450	263,874,985	59,298	Y		150	5.5%
Maine	89	169	7,917,032	46,846	Y	N	0.19	0.0%
Maryland	277	1,436	92,362,939	64,320	Y		14	0.5%
Massachusetts	353	3,383	233,458,246	69,009	Y	N	80	2.9%
Michigan	336	1,622	104,078,712	64,167			-	0.0%
Minnesota	211	933	50,276,258	53,887	Y		0.5	0.0%
Mississippi	67	218	5,979,384	27,428	Y		20	0.7%
Missouri	181	1,091	53,089,407	48,661			-	0.0%
Montana	77	290	17,290,921	59,624	Y		10	0.4%
Nebraska	55	110	4,435,887	40,326			-	0.0%
Nevada	214	1,549	63,864,512	41,230	Y		10	0.4%
New Hampshire	51	350	22,762,651	65,036			-	0.0%
New Jersey	293	4,081	410,229,434	100,522	Y		100	3.7%
New Mexico	145	2,205	176,794,240	80,179	Y		110	4.0%
New York	3,062	49,692	5,335,793,411	107,377	Y		420	15.3%
North Carolina	437	1,779	102,574,998	57,659	Y		31	1.1%
North Dakota	25	42	3,437,024	81,834			-	0.0%
Ohio	307	1,779	96,508,741	54,249	Y		40	1.5%
Oklahoma	107	317	15,127,916	47,722	Y		8	0.3%
Oregon	330	2,944	162,830,185	55,309	Y		14	0.5%
Pennsylvania	371	3,928	268,229,531	68,287	Y		70	2.6%
Rhode Island	79	388	29,978,339	77,264	Y		20	0.7%
South Carolina	138	971	51,706,170	53,250	Y		15.5	0.6%
South Dakota	56	143	5,191,100	36,301			-	0.0%
Tennessee	304	5,739	314,694,025	54,834	Y		7.5	0.3%
Texas	859	6,290	389,513,731	61,926	Y		50	1.8%
Utah	337	2,165	113,029,841	52,208	Y		8.29	0.3%
Vermont	38	127	5,164,259	40,663			-	0.0%
Virginia	260	1,884	135,957,131	72,164	Y		9.5	0.3%
Washington	301	2,048	109,498,743	53,466	Y		3.5	0.1%
West Virginia	34	232	6,406,686	27,615			-	0.0%
Wisconsin	180	672	31,813,090	47,341			-	0.0%
Wyoming	23	36	4,839,041	134,418			-	0.0%
United States	24,460	263,064	$27,970,947,389	106,328			$2,739	100.0%

Source: Bureau of Labor Statistics – Quarterly Census of Employment and Wages (2019 annual averages); refer to Figure 1 for notes and sources on state film incentives.

Notes: Industry statistics are from the QCEW database. The industry is defined as NAICS 512110 + 512120 + 512191 + 512199. *Arkansas has made few incentive payouts in recent years despite having an incentive in place.

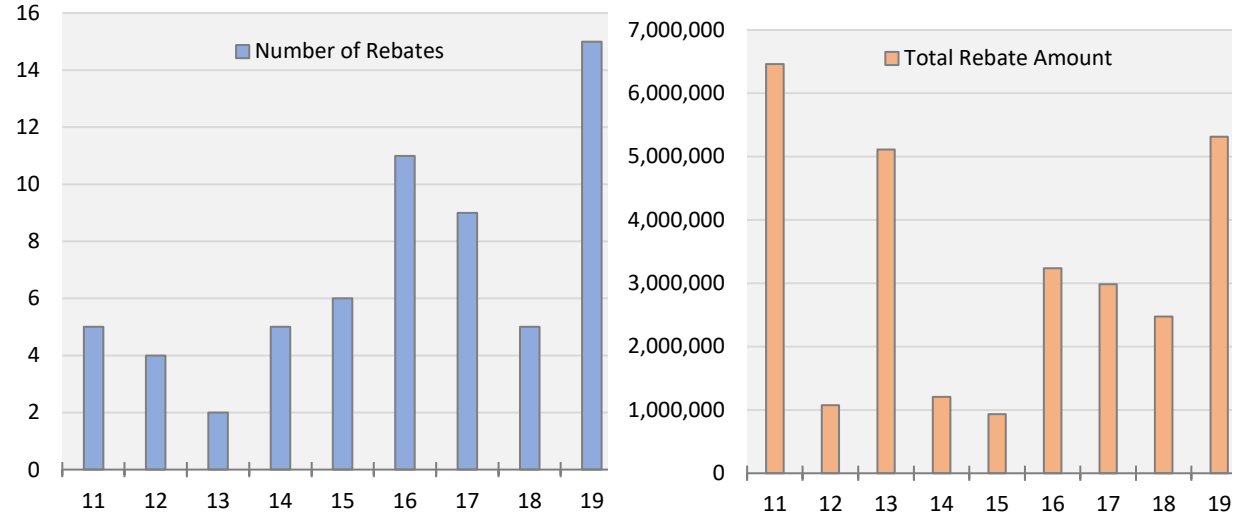
Industry Size vs. Incentives

Several additional stylized facts concerning the link between incentive size and industry size at the state level emerge from Figure 6:

1. **States with the largest incentives tend to have the largest film and TV industries.** The traditional filming hubs of California and New York are aggressive in efforts to retain and grow the existing industry. Only one state (Florida) within the top ten as measured by film and TV wages offers no incentives. Only two states (Florida and Michigan) within the top 25 states by total wages paid offer no incentives. Florida offered incentives until 2014. Michigan offered incentives until 2015.
2. **Nearly all states with no incentive have a film and TV industry that ranks among the smallest by employment and wages**. Only one state (Mississippi) in the bottom 10 measured by employment and wages offers incentives.
3. **Few states with no incentive have a sizeable film and TV industry**. Of the states with no incentive, only Florida and Michigan have a film and TV industry with more than $100 million in annual wages. Both states had a large incentive in place in the past and ended it.
4. **Few states with a sizeable incentive pool have a small film and TV industry**. Kentucky ($9.6 million incentive), Mississippi ($20 million incentive), and Rhode Island ($20 million incentive) are the only states with a sizeable incentive program and yet have a relatively small film and TV industry. Kentucky's tax credits are not transferrable or refundable and hence less attractive to production companies.
5. **Most states have placed a cap on total annual incentive payments**. Only seven states do not cap film and TV incentives – Arkansas, Connecticut, Georgia, Illinois, Kentucky, Maine, and Massachusetts.
6. **Many states with the largest incentives have no incentive cap.** Georgia, Connecticut, Illinois, and Massachusetts offer more than $80 million in incentives and have no cap on the program. Georgia now has the largest incentive program with $860 million in issued tax credits in FY2019.
7. **Most states use some form of tax credit rather than rebates or grants as an incentive**. Twenty states use some form of a tax credit. Sixteen of these states use only a tax credit. Four states use a combination of both a tax credit and a rebate/grant. The remaining twelve states and Washington D.C. use a rebate or grant only.
8. **The largest incentive programs are nearly universally based on tax credits.** The top ten states measured by incentive size all issue only tax credits. States using primarily rebates/grants generally have among the smallest incentive programs. Texas is the only state with an incentive program of $50 million or more that offers a rebate/grant only.
9. **Tax credits tend to be either transferable or refundable, or both.** Exceptions include Kentucky's tax credit which is non-refundable and non-transferable. Maine has a non-transferable credit. This likely explains, in part, the relatively small film and TV sector in both states despite each having an incentive in place.

10. **None of the small Farm Belt and upper northeast states have managed to develop a large film and TV sector despite often-scenic landscapes**. These states also have among the smallest populations and would struggle to finance meaningful film incentives.
11. **Oklahoma film and TV incentives remain small relative to competing states.** In FY2019, rebates were paid to 15 production companies totaling $5.32 million. Figure 7 summarizes the number and amount of film rebates paid in Oklahoma from FY2011 to FY2019.

Figure 7. Oklahoma Film Incentive Rebates (Fiscal Year)



Source: Oklahoma Incentive Review Committee and Oklahoma Comprehensive Annual Financial Report (CAFR) – FY2017, FY2018, and FY2019.

California Film Incentives

California remains the largest global filming hub and continues to offer aggressive incentives to the film industry. California's most recent film and TV incentive effort, labeled Project 2.0, offers significant insight into the size, and use of state-level film and TV incentives. Detailed production data are collected from film and TV productions receiving the state's film tax credit.[25] These data are noteworthy because individual recipients of incentives are published for public review. This is not the case in many states offering incentives, including Oklahoma. The lack of program transparency is a common criticism in studies of state film and TV incentives.

Figure 8 provides a summary of the first five fiscal years of Project 2.0, breaking down tax credits issued across five production types. Production types include feature films, new TV shows, recurring TV series, pilots, and relocating TV series. Project 2.0 has an annual cap of $330 million in incentives, however only $230 million was available in FY2016, the first year of the project. Again, this is the third largest incentive pool offered by a state, trailing only Georgia and New York. Project 2.0 sunsets on June 30, 2020, while Project 3.0 begins July 1, 2020 with the same annual cap but changes to performance and selection criteria.[26]

In the most recent annual data for FY2020, California film tax credits totaled $306.25 million and supported 45 productions (mostly feature films and recurring TV series) involving almost 3,000 film days (66.5 days per production). Tax credits averaged $6.8 million per production.

Figure 8. California Film and TV Tax Credits and Expenditures

Type of Production by Year	Number Of Productions	Qualified Expenditures	Reserved Tax Credits	CA Filming Days	Extras and Stand- ins	Crew Hired	Cast Hired
2015-2016	**47**	**901,923,000**	**177,948,000**	**2,445**	**95,700**	**7,342**	**5,468**
Feature Film	9	194,811,000	37,464,000	360	13,192	1,310	355
Independent Film	1	24,326,000	2,500,000	102	1,122	140	153
Mini-Series	1	9,135,000	1,844,000	35	2,410	124	204
Movie of the Week	2	13,613,000	2,761,000	20	290	230	68
New TV Series	12	306,606,000	56,992,000	941	37,399	2,051	2,058
Pilot	11	60,353,000	12,772,000	153	8,635	1,775	450
Recurring TV Series	6	134,516,000	27,208,000	391	15,778	957	1,099
Relocating TV Series	5	158,563,000	36,407,000	443	16,874	755	1,081
2016-2017	**54**	**1,562,768,000**	**321,976,000**	**3,584**	**161,787**	**9,212**	**5,381**
Feature Film	17	438,047,000	79,092,000	662	28,924	2,685	790
New TV Series	10	263,438,000	53,332,000	786	31,976	1,744	1,152
Pilot	5	32,879,000	6,810,000	73	3,044	1,041	179
Recurring TV Series	14	516,649,000	108,544,000	1,323	68,031	2,395	2,464
Relocating TV Series	8	311,755,000	74,198,000	740	29,812	1,347	796
2017-2018	**46**	**1,701,393,000**	**337,403,000**	**3,359**	**147,414**	**8,729**	**7,245**
Feature Film	20	719,160,000	132,892,000	908	44,915	3,739	1,358
New TV Series	7	228,950,000	46,081,000	668	25,570	1,298	1,542
Pilot	2	13,459,000	2,725,000	30	2,145	302	41
Recurring TV Series	15	663,178,000	136,544,000	1,583	69,274	2,950	3,821
Relocating TV Series	2	76,646,000	19,161,000	170	5,510	440	483
2018-2019	**37**	**1,421,626,000**	**293,930,000**	**2,637**	**114,971**	**6,807**	**4,795**
Feature Film	15	346,341,000	69,009,000	492	24,113	2,200	754
New TV Series	5	238,034,000	45,388,000	431	14,246	1,327	785
Recurring TV Series	13	669,513,000	137,599,000	1,378	58,740	2,485	2,658
Relocating TV Series	4	167,738,000	41,934,000	336	17,872	795	598
2019-2020	**45**	**1,696,726,000**	**306,248,000**	**2,989**	**123,958**	**7,736**	**4,565**
Feature Film	24	611,553,000	115,984,000	1,129	46,982	3,448	1,191
Independent Film	1	18,578,000	2,500,000	35	750	120	36
New TV Series	4	237,287,000	41,912,000	422	15,656	860	399
Recurring TV Series	14	779,358,000	133,364,000	1,299	57,098	2,877	2,878
Relocating TV Series	2	49,950,000	12,488,000	104	3,472	431	61

Source: California Film Commission http://film.ca.gov/tax-credit/project-titles/

The 45 productions employed 4,600 cast members, 7,700 crew members, and 124,000 extras and stand-ins. The credits supported $1.7 billion in qualified spending (below-the-line salary and purchases within the state), with tax credits averaging 18.5% of qualified spending. California's realized payout percentage is among the lower rates across states offering incentives, and well below Oklahoma's 35%/37% payout.

Across the past four fiscal years, California film tax credits were nearly fully reserved, totaling $1.26 billion or $314.9 million annually. The tax credit supported 182 productions in the period that required a combined 12,500 filming days, 22,000 cast members, 32,500 crew members, and 548,000 stand-ins and extras. The payout percentage as a share of qualified spending averaged 19.8% the past four fiscal years.

Qualified Spend versus Total Spend. A key question arising in studies and reviews of the film and TV sector is the amount of non-qualifying spending that may occur in the state that is tied to qualified spending covered by an incentive. Typically, not all spending associated with a project is covered by an incentive agreement. Figure 9 illustrates the amount of added spending above qualified spending that took place during the five years of Program 2.0 for those productions receiving incentives.

The ultimate cost-effectiveness of incentives is heavily influenced by any accompanying spending that is not incentivized. In California, this non-qualifying spending above incentives is significant. Only about two-thirds of total spending on these films was covered by an incentive agreement. Across the five years, only 66.2% of the estimated $11 billion in total in-state film and TV spending is covered as qualified spending under an incentive agreement. Much, if not all in some cases, of this additional spending is almost certainly a direct byproduct of the issuance of incentives.

The remaining $3.72 billion (one-third of the total) in accompanying spending would typically be excluded in evaluations of the economic impact and return of film and TV incentives. This data is either not available or difficult to estimate with any degree of certainty because of opaque data collection and reporting at the state level. Over the five fiscal years of Program 2.0, incentives payments of $1.44 billion represent 19.7% of qualified spending for incentive purposes but only 13.1% of total in-state spending for incentivized productions. This detailed information on incentive recipients is fully disclosed and viewed as an important marketing tool for the California Film Commission. However, Oklahoma does not maintain and release records for both qualified and non-qualified spending in the state.

Figure 9. California Production Spending and Incentives – Program 2.0

Fiscal Year	Estimated Total In-State Spending	Qualified Spending	Reserved Incentives	Incentive Share of Qualified Spending	Incentive Share of Total Spending
2015-16	$1,300,000,000	$901,923,000	$177,948,000	19.7%	13.7%
2016-17	2,000,000,000	1,562,768,000	321,976,000	20.6%	16.1%
2017-18	2,400,000,000	1,701,393,000	337,403,000	19.8%	14.1%
2018-19	2,400,000,000	1,421,626,000	293,930,000	20.7%	12.2%
2019-20	2,900,000,000*	1,696,726,000	306,248,000	18.0%	10.6%
Total	$11,000,000,000*	$7,284,436,000	$1,437,505,000	19.7%	13.1%

Source: California Film Commission
Notes: Total spending for FY2020 is formed using a five-year estimate released by the CA Film Commission[27] and subtracting published values for prior years.

Runaway Projects. Not all productions that apply for an incentive in California receive one. The California Film Commission tracks the eventual outcome of films that apply for the state tax credit but are denied. The ultimate shooting location for these productions provides considerable evidence on the role played by incentives in the location of film and TV industry activity. The key question is whether these runaway films shoot in California anyway or seek incentive funding in another locale.

The Commission finds that in the first four fiscal years of Project 2.0, approximately two-thirds ($3.54 billion) of the $5.2 billion in production spending that applied for a tax credit but did not receive one left the state to shoot elsewhere. The remaining one-third of spending ($1.69 billion) stayed in the state as a completed production with no state incentives.

Of the $3.54 billion in production spending leaving the state, $1.8 billion went to sixteen states including Washington, Oregon, Nevada, Utah, New Mexico, Oklahoma, Louisiana, Florida, Georgia, Alabama, Tennessee, Kentucky, Virginia, New York, Massachusetts, and Michigan. The primary beneficiaries were Georgia ($876 million), New Mexico ($308 million), New York ($130 million), and Louisiana ($110 million). These four states captured approximately 80% of the total. Among the sixteen states receiving runaway films, only Florida and Michigan did not have an incentive. However, both had incentives until approximately five years ago, and both have a relatively large and established film and TV sector currently.

International markets were just as important for these runaway productions that did not receive incentives from the state. Estimated spending leaving California for international destinations totaled $1.74 billion in the four-year period. Approximately two-thirds went to the Canadian provinces of Vancouver, Montreal, Toronto, and Quebec. More than one-fourth went to Europe, primarily the United Kingdom. Other locations (largely Australia and South Africa) reportedly received about 10% of the film and TV spending not incentivized by California.

These data clearly suggest several conclusions concerning the international competition for film and TV productions:

1. **A large share of film and TV production is located in a particular market because of incentives**. While specific factors such as a region-specific theme, unique labor force requirements, or technical needs such as animation can drive the location decision, incentives are often the dominant factor in location choice.
2. **Film and TV production activity is highly mobile with respect to the availability of incentives**. Two-thirds of California's productions not receiving incentives relocated outside the state.
3. **The market for incentivized U.S. film and TV productions is truly global**. Spending leaving California was split roughly 50-50 between U.S. and international destinations.
4. **Even the largest hub, California, will lose production activity to other regions when incentives are not available**. More than $3.5 billion in spending left California in the four-year period. This suggests that most regions have the capability of building their local film and TV sector through incentives.

5. **Production spending above the incentivized amount can be quite large in an individual market**. Productions spent $3.72 billion on incentivized projects in the state above the amount qualified for incentives. This is more than one-third of total spending on incentivized projects. This non-qualified spending can substantially reduce the average realized cost of incentive payments and increase the total tax recovery.
6. **Some productions will shoot in a region without incentives**. In California, generally viewed as the most attractive filming hub in the world, this share is estimated at only one-third of non-incentivized spending. This share will likely serve as an upper limit for most states.
7. **Industry leader California's relatively low average incentive payout of just below 20% is well below many states, including Oklahoma**. This payout rate is sufficient to attract far more applicants than state funding can support. Payout ratios well above 20% are likely unnecessary to attract film productions in most states.

Incentives Per Capita by State

As noted earlier in the report, larger states generally offer larger incentives. Hence, large incentives in the largest states may be far less significant as a share of the state budget than in smaller states. And conversely, smaller incentives in the smallest states may still reflect a significant financial burden. Many of the states that dropped incentives the past decade were low-population states that could not support a competitively sized incentive base.

To scale incentives to the size of the state, Figure 10 provides a comparison of incentive spending on a per capita basis. Nationally, film and TV incentives total $8.39 per person. Among just those states offering incentives, the per capita average film incentive is $10.87.

Incentive spending per capita is far higher in just a few states. Georgia has not only the largest total pool but also the highest per capita at $81.00. States spending more than $30 per capita include New Mexico ($52.46), Connecticut ($44.04), Hawaii ($35.41), and Louisiana ($32.27). These high per capita spending amounts are influenced to varying degrees by relatively small populations in all four states.

California has a large pool of incentives but moderate per capita spending of only $8.35, which matches the national average. This low average is influenced heavily by the California's large population base. Similarly, other large states with relatively large incentives have relatively low incentive spending per capita. These include Illinois ($10.34), Pennsylvania ($5.47), Ohio ($3.42), North Carolina ($2.96), and Texas ($1.72).

All states except Montana with less than $20 million in incentives have per capita spending below the overall average of $8.39.

Oklahoma's per capita incentive cost ranks among the lowest of all states offering incentives at $2.02. Not only is the total incentive pool relatively small in the state, but the relative overall cost burden is among the lowest. If Oklahoma moved to the overall U.S. average of $8.39, the state incentive pool would reach $33.2 million. This would match California's per capita spending but would trail well behind the highest-spending states. The total incentive pool would also rank the state only 14th, just ahead of North Carolina.

Figure 10. State Film and TV industry and Incentive Characteristics

State Name	Establishments	Employment	Total Wages	Average Wage	Incentive	Cap Or Spend Amount	U.S. Incentive Share	U.S. Employment Share	U.S. Wage Share	Population	Incentives per Capita
United States	24,460	263,064	$27,970.9	$106,328		$2,755	100.0%	100.0%	100.0%	328,239,523	$8.39
Georgia	612	16,433	1,142.4	69,519	YES	860	31.2%	6.2%	4.1%	10,617,423	$81.00
New York	3,062	49,692	5,335.8	107,377	YES	420	15.2%	18.9%	19.1%	19,453,561	$21.59
California	10,247	120,752	16,292.9	134,929	YES	330	12.0%	45.9%	58.2%	39,512,223	$8.35
Connecticut	258	3,627	507.9	140,040	YES	157	5.7%	1.4%	1.8%	3,565,287	$44.04
Louisiana	204	4,450	263.9	59,298	YES	150	5.4%	1.7%	0.9%	4,648,794	$32.27
Illinois	691	4,458	377.8	84,739	YES	131	4.8%	1.7%	1.4%	12,671,821	$10.34
New Mexico	145	2,205	176.8	80,179	YES	110	4.0%	0.8%	0.6%	2,096,829	$52.46
New Jersey	293	4,081	410.2	100,522	YES	100	3.6%	1.6%	1.5%	8,882,190	$11.26
Massachusetts	353	3,383	233.5	69,009	YES	80	2.9%	1.3%	0.8%	6,892,503	$11.61
Pennsylvania	371	3,928	268.2	68,287	YES	70	2.5%	1.5%	1.0%	12,801,989	$5.47
Hawaii	129	1,560	96.7	61,987	YES	50	1.8%	0.6%	0.3%	1,415,872	$35.31
Texas	859	6,290	389.5	61,926	YES	50	1.8%	2.4%	1.4%	28,995,881	$1.72
Ohio	307	1,779	96.5	54,249	YES	40	1.5%	0.7%	0.3%	11,689,100	$3.42
North Carolina	437	1,779	102.6	57,659	YES	31	1.1%	0.7%	0.4%	10,488,084	$2.96
Alabama	133	721	41.7	57,901	YES	20	0.7%	0.3%	0.1%	4,903,185	$4.08
Mississippi	67	218	6.0	27,428	YES	20	0.7%	0.1%	0.0%	2,976,149	$6.72
Rhode Island	79	388	30.0	77,264	YES	20	0.7%	0.1%	0.1%	1,059,361	$18.88
South Carolina	138	971	51.7	53,250	YES	15.5	0.6%	0.4%	0.2%	5,148,714	$3.01
Maryland	277	1,436	92.4	64,320	YES	14	0.5%	0.5%	0.3%	6,045,680	$2.32
Oregon	330	2,944	162.8	55,309	YES	14	0.5%	1.1%	0.6%	4,217,737	$3.32
Montana	77	290	17.3	59,624	YES	10	0.4%	0.1%	0.1%	1,068,778	$9.36
Nevada	214	1,549	63.9	41,230	YES	10	0.4%	0.6%	0.2%	3,080,156	$3.25
Kentucky	146	468	22.3	47,677	YES	9.6	0.3%	0.2%	0.1%	4,467,673	$2.15
Virginia	260	1,884	136.0	72,164	YES	9.5	0.3%	0.7%	0.5%	8,535,519	$1.11
Utah	337	2,165	113.0	52,208	YES	8.29	0.3%	0.8%	0.4%	3,205,958	$2.59
Oklahoma	107	317	15.1	47,722	YES	8	0.3%	0.1%	0.1%	3,956,971	$2.02
Tennessee	304	5,739	314.7	54,834	YES	7.5	0.3%	2.2%	1.1%	6,829,174	$1.10
Dist. of Columbia	134	615	62.3	101,237	YES	4	0.1%	0.2%	0.2%	705,749	$5.67
Washington	301	2,048	109.5	53,466	YES	3.5	0.1%	0.8%	0.4%	7,614,893	$0.46
Colorado	386	1,648	96.3	58,437	YES	1	0.0%	0.6%	0.3%	5,758,736	$0.17
Minnesota	211	933	50.3	53,887	YES	0.5	0.0%	0.4%	0.2%	5,639,632	$0.09
Maine	89	169	7.9	46,846	YES	0	0.0%	0.1%	0.0%	1,344,212	$0.14
Arkansas	88	224	15.6	69,774	YES	*	0.0%	0.1%	0.1%	3,017,804	$0.00
Alaska	25	40	1.4	34,498	NO		0.0%	0.0%	0.0%	731,545	$0.00
Arizona	255	1,514	48.5	32,049	NO		0.0%	0.6%	0.2%	7,278,717	$0.00
Delaware	36	63	0.7	11,371	NO		0.0%	0.0%	0.0%	973,764	$0.00
Florida	1,151	6,875	525.2	76,390	NO		0.0%	2.6%	1.9%	21,477,737	$0.00
Idaho	44	105	4.4	42,025	NO		0.0%	0.0%	0.0%	1,787,065	$0.00
Indiana	164	478	26.4	55,228	NO		0.0%	0.2%	0.1%	6,732,219	$0.00
Iowa	82	249	12.6	50,652	NO		0.0%	0.1%	0.0%	3,155,070	$0.00
Kansas	77	167	7.0	41,930	NO		0.0%	0.1%	0.0%	2,913,314	$0.00
Michigan	336	1,622	104.1	64,167	NO		0.0%	0.6%	0.4%	9,986,857	$0.00
Missouri	181	1,091	53.1	48,661	NO		0.0%	0.4%	0.2%	6,137,428	$0.00
Nebraska	55	110	4.4	40,326	NO		0.0%	0.0%	0.0%	1,934,408	$0.00
New Hampshire	51	350	22.8	65,036	NO		0.0%	0.1%	0.1%	1,359,711	$0.00
North Dakota	25	42	3.4	81,834	NO		0.0%	0.0%	0.0%	762,062	$0.00
South Dakota	56	143	5.2	36,301	NO		0.0%	0.1%	0.0%	884,659	$0.00
Vermont	38	127	5.2	40,663	NO		0.0%	0.0%	0.0%	623,989	$0.00
West Virginia	34	232	6.4	27,615	NO		0.0%	0.1%	0.0%	1,792,147	$0.00
Wisconsin	180	672	31.8	47,341	NO		0.0%	0.3%	0.1%	5,822,434	$0.00
Wyoming	23	36	4.8	134,418	NO		0.0%	0.0%	0.0%	578,759	$0.00

Source: Bureau of Labor Statistics and Bureau of Economic Analysis; refer to Figure 1 for sources on incentives.
Notes: Arkansas has made few incentive payments in recent years.

V. Existing Research on State Film and TV Incentives

This section of the report provides an in-depth evaluation of existing research on state film incentives with an eye toward condensing the findings into logical groupings, providing a critical review of the literature, and noting how study methodology influences the findings.

We do this in three stages. First, we review a broad group of nonacademic studies, mostly economic impact reports, that evaluate the economic role of state film incentives. Economic impact studies make assumptions on the effects of incentives on direct spending by film and TV production in the state and then apply multipliers to the direct spending from input-output models to derive predicted total economic impacts of incentives. We compare and contrast the methodology and results of the economic impact studies.

Second, we examine a smaller but rapidly growing body of academic literature that uses more advanced empirical approaches to evaluate incentives in the U.S. film and TV sector. The academic studies empirically evaluate the assumptions on the connection between state film incentives and spending commonly invoked in the nonacademic economic impact studies. With their primary focus on the direct effects of incentives on film and TV production the studies generally do not estimate the total economic impacts of incentives.

Finally, we provide a synthesis of both the nonacademic and academic literature and discuss key policy conclusions from the research findings. We also discuss the limitations of existing findings and the implications for Oklahoma in its efforts to increase the size of its film and TV industry.

Reviews of Economic Impact Studies

A large number of nonacademic economic impact studies of state film incentives have been conducted by private and public entities. The studies primarily estimate the economic contribution of film spending to state economies. Although the studies differ in many respects, each study contains two essential elements.

First, the study estimates the direct spending associated with film incentives in the state. Typically, the studies attribute the level of all film spending receiving incentives, or all changes in film spending after the creation of incentives, to their existence. Oftentimes though subsidies are granted after the film production decision has been made, do not require an expansion of activity, and can be larger than what would be required (Saas, 2006). The impact studies almost invariably do not present evidence to support the assumption on the role of incentives in the direct spending.

Second, film spending must be translated into their impact on the overall economy using an economic model. Metrics of the overall economy include total spending, employment, income, gross state product and state/local government revenues. Use of an input-output model is the standard approach for translating film spending into the impacts on the metrics of the overall economy. An input-output model captures the economic relationships between sectors within the state, the connections of a state's sectors to those outside the state, and the sources of final demand for the sectors such as exports. Input-output models produce what are known as multipliers. A multiplier is the ratio of the total increase in economic activity to the increase in direct activity associated with a change in external demand. Film production is assumed to primarily be consumed outside the state with the production generating internal economic benefits as the film spending ripples across the state economy.

We review recent notable economic impact studies of state film incentives. The studies nicely illustrate the choices routinely made in conducting an economic impact study and how the choices affect the predicted economic impacts. We begin first with discussion of input-output models and their application in economic impact studies of film incentives. This is followed by highlights of previous reviews of economic impact studies and concluded by discussion of a sample of recent economic impact studies.

Input-Output Multipliers

The input-model is simply a tool and its usefulness for the task at hand largely depends on the intention and skill of the user. Not surprisingly then, studies that rely on input-output analysis can produce widely varying predictions, even for the same state economy as assumptions often replace direct knowledge of activities and relationships (Christopherson and Rightor, 2010). The multiplier or ripple effects on the overall economy from direct spending by the film and TV industry greatly affect the economic returns from incentives. With a basic economic model, a doubling of predicted multiplier effects doubles the ratio of gross benefits to costs of film incentives (Bartik and Sotherland, 2019). The input-output model used to estimate the multiplier effects can become nearly as important in the benefit-cost calculation as the assumptions made on the connection between film incentives and film spending.

Multipliers differ across industries and states and depend in part on the extent of economic linkages between households and firms. Because of a lack of complete data on these linkages, especially at the sub-national level, film incentive impact studies rely on models produced by the U.S. Bureau of Economic Analysis (2019a) or private entities such as EMSI (Crapuchettes, Robison and Deacon, 2017), IMPLAN (2019) or REMI (2020). The models differ in many ways, including the data used, industry level of disaggregation, and assumptions on the linkages in the economy and their measurement.

The starting point for all the regional input-output models are the national input-output accounts of the U.S. Bureau of Economic Analysis (BEA), which are used to estimate the spending of one industry on inputs from other industries in the economy and spending by households on each of the industries. An increase in spending by the film industry increases spending on other industries, adjusted for the portions occurring in the state, which in turn increases their spending, and so on. The spending continues to ripple across the economy in rounds until no additional spending occurs. Because each industry involves workers and their compensation, the spending of workers on each industry also is estimated each round.

The ratio of total spending to the direct spending is the spending multiplier. If only the additional or indirect spending by industries is considered in the calculation, a Type I multiplier results. A Type II multiplier includes the induced spending by workers (households). The multipliers can be calculated for employment, income, value added or output (spending), simply as the total change in the metric divided by the direct change in the metric associated with spending by the film industry.

Type I output multipliers for the four-digit NAICS categories Motion Picture and Video Recording sector (NAICS 5121) and Sound Recording sector (NAICS 5122) for the nation can be obtained from the BEA total requirements matrix (U.S. Bureau of Economic Analysis, 2019c) as 1.68 and 1.25, respectively. The multipliers likely mask significant differences across states, differences across components of the four-digit categories, and omit household spending responses to increased income. To explore the differences across states and the role of induced household spending we turn to state-level estimates of Type I and Type II multipliers.

We use state-level input-output multipliers from EconAlyze through its software IO-Snap (2019). IO-Snap uses data on input-output transactions, employment, compensation, and gross state product from BEA to produce full input-output analytical capabilities for the nation, states, and sub-state regions. Type I and Type II multipliers are produced for output, income, and employment for 67 sectors. The BEA sector in IO-Snap that includes the film industry is Motion Picture and Sound Recording Studios (NAICS 512), which is comprised of NAICS 5121 and 5122.

For the nation, IO-Snap reports Type I and II output multipliers of 1.58 and 2.48 for NAICS 512. The Type I multiplier is closer to the BEA national Type I multiplier for NAICS 5121 than that for NAICS 5122, which suggests the Motion Picture and Video Recording sector multiplier dominates the more aggregate category's multiplier. Corresponding IO-Snap Type I and II

employment multiplier values for the U.S. are 1.90 and 3.41, while the corresponding income multipliers are 1.71 and 2.80.

Table Figure 11 displays the Type II output multipliers for the lower 48 states from IO-Snap. All multipliers are smaller than the corresponding multiplier value of 2.48 for the U.S. The smaller state multipliers occur because the aggregate Motion Picture and Sound Recording Industries sector and other sectors affected by indirect and induced spending will spend more outside a state than all the sectors will spend outside the nation. This lessens the ripple effects of Motion Picture and Sound Recording Industries sector spending across a state economy compared to those across the national economy.

California has the largest Motion Picture and Sound Recording Industries sector output multiplier. This likely relates to three factors: the size of the California economy, the concentration of the industry in California, and California's high average labor compensation in the sector. In 2017, BEA total employment in California comprised nearly 23 percent of the nation's total employment. California's Motion Picture and Sound Recording Industries sector using BEA total employment comprised over 35 percent of the national total in the sector. The ratio of California's employment share in the sector to its overall employment share is 1.55. This ratio is referred to as a location quotient, which often is used to measure industry concentration. California's location quotient in the Motion Picture and Sound Recording Industries sector ranks first in the nation.

Among the top ten states for largest output (spending) multiplier, nine of them (with Florida as the exception) have a top ten ranking for its location quotient. New York is the only other state with an LQ above 1. Together, California and New York are home to nearly one-half of Motion Picture and Sound Recording jobs nationally in 2017. IO-Snap estimates the sector's Type II multiplier in Oklahoma to be 1.18, ranking 38th among the lower 48 U.S. states. Oklahoma similarly ranks 36th for its location quotient, revealing a relatively small presence of the sector in the state. The simple correlation between the Type II multiplier and the location quotient across states is 0.75. This suggests that it is not just the size of the overall state economy that matters for the Motion Picture and Sound Recording Industries multiplier but also the size of the industry, possibly from threshold or cluster effects of increasing industry size.

California ranks first with its average compensation of $107,861 per employee, New York ranks second with compensation of $95,852 per job, while Oklahoma ranks 37th with average compensation of $23,058. The simple correlation between compensation per employee and the Type II output multiplier across states is 0.76. In addition, the simple correlation between the location quotient and compensation is 0.91.

Figure 11. Motion Picture and Sound Recording Industries Multiplier Analysis by State

State	Output Multiplier Type II	Rank	Location Quotient	Rank	Compensation ($)	Rank
California	2.17	1	1.55	1	107,861	1
Tennessee	2.07	2	0.62	6	51,905	6
Georgia	2.02	3	0.75	3	63,157	4
Connecticut	2.01	4	0.47	10	63,481	3
New York	1.99	5	1.12	2	95,852	2
Louisiana	1.92	6	0.48	8	41,704	9
New Mexico	1.80	7	0.68	4	56,812	5
Utah	1.79	8	0.65	5	32,262	17
Florida	1.78	9	0.33	17	47,178	8
Oregon	1.68	10	0.50	7	39,273	11
Nevada	1.63	11	0.48	9	30,580	21
New Jersey	1.49	12	0.35	14	50,950	7
Illinois	1.43	13	0.32	19	38,491	12
Massachusetts	1.38	14	0.34	15	40,381	10
Montana	1.37	15	0.33	18	29,645	24
Virginia	1.37	16	0.29	22	34,162	15
Texas	1.35	17	0.36	13	31,979	18
New Hampshire	1.32	18	0.29	23	31,581	20
Colorado	1.31	19	0.34	16	29,737	23
Arizona	1.30	20	0.39	11	25,073	31
Rhode Island	1.29	21	0.28	25	31,583	19
Michigan	1.28	22	0.29	24	29,810	22
Maryland	1.26	23	0.31	21	35,727	14
Missouri	1.26	24	0.24	32	27,565	27
South Carolina	1.25	25	0.22	39	34,028	16
Washington	1.25	26	0.37	12	27,784	26
Indiana	1.24	27	0.22	38	27,158	28
Maine	1.24	28	0.27	27	24,561	34
Minnesota	1.23	29	0.27	26	24,561	33
North Carolina	1.23	30	0.24	31	27,826	25
Pennsylvania	1.22	31	0.26	28	36,800	13
Wyoming	1.22	32	0.31	20	21,022	41
Ohio	1.22	33	0.22	37	27,053	29
Iowa	1.20	34	0.20	41	19,603	46
Wisconsin	1.20	35	0.22	35	24,525	35
Kansas	1.19	36	0.24	30	22,130	39
Idaho	1.18	37	0.23	33	18,313	47
Oklahoma	1.18	38	0.22	36	23,058	37
Vermont	1.17	39	0.25	29	20,465	42
Kentucky	1.17	40	0.21	40	23,570	36
South Dakota	1.15	41	0.23	34	20,042	44
Alabama	1.15	42	0.18	44	25,070	32
Arkansas	1.15	43	0.17	46	25,259	30
Mississippi	1.15	44	0.15	48	21,763	40
Delaware	1.13	45	0.19	42	20,130	43
Nebraska	1.12	46	0.19	43	19,767	45
North Dakota	1.11	47	0.17	45	23,003	38
West Virginia	1.10	48	0.17	47	16,309	48

A likely contributing factor in the differences in compensation in Motion Picture and Sound Recording Industries across states is the sub-sector composition of employment in the aggregate sector. Based on U.S. Bureau of Labor Statistics QCEW data for 2017, the year for which the IO-Snap multipliers are estimated, there are significant differences in pay across the sub-sectors in Motion Picture and Sound Recording Industries nationally (see Figure 12). The highest paid jobs are in the Motion Picture and Video Distribution sub-sector (NAICS 51212) with average pay of $147,975, while the lowest paid jobs are in Motion Picture and Video Exhibition (NAICS 51213), which are movie theaters and drive-in theaters, with average pay of $14,352. Average pay in Motion Picture and Video (NAICS 51211), the most-incentivized component of the industry, is $95,652, far above the average for the aggregate sector (NAICS 512) $68,104.

Figure 12. National Sub-sector Pay in Motion Picture and Sound Recording Industries

NAICS Sector	Employment	Share	Annual Wage
Motion Picture and Sound Recording Industries (NAICS 512)	424,508	1.00	$68,104
Motion Picture and Video Industries (NAICS 5121)	407,390	0.96	$67,484
Motion Picture and Video Production (NAICS 51211)	236,113	0.56	$95,652
Motion Picture and Video Distribution (NAICS 51212)	7,417	0.02	$147,975
Motion Picture and Video Exhibition (NAICS 51213)	144,234	0.34	$14,352
Postproduction Services and Other Motion Picture and Video Industries (NAICS 51219)	19,626	0.05	$88,659
Sound Recording Industries (NAICS 5122)	17,118	0.04	$82,854

Source: U.S. Bureau of Labor Statistics Quarterly Census of Employment and Wages (QCEW)

The composition of employment across the components of the Motion Picture and Sound Recording Industries greatly varies across states. To preserve confidentiality of survey respondents as required by law, QCEW data are suppressed for the sub-sectors in many states. We instead then use the estimates of unsuppressed data produced by the W.E. Upjohn Institute for Employment Research (Bartik et al., 2018) based on the method of Isserman and Westervelt (2006) for Census County Business Patterns Data.

From Figure 13, we see that with the exception of Tennessee (with Nashville), Motion Picture and Video Industries (NAICS 5121) employment nearly comprises the entirety of the Motion Picture and Sound Recording Industries sector. The share of Motion Picture and Video Production (NAICS 51211) employment relative to that of the aggregate sector (NAICS 512) exceeds one-half in California (0.8), Louisiana (0.8), New Mexico (0.74) and New York (0.62). Other sizeable shares are shown in Connecticut (0.42), Georgia (0.41), New Hampshire (0.4) and Oregon (0.37). Utah stands out as the only state with a large sub-sector employment share in Postproduction Services and Other Motion Picture and Video Industries (NAICS 51219). The

aggregate sector in the remainder of the states is dominated by Motion Picture and Video Exhibition (NAICS 51213), largely comprised of lower paid jobs in local movie theaters.

The states with larger sub-sector employment shares in Motion Picture and Video Production (NAICS 51211) tend to be those with larger predicted multipliers by IO-Snap for the aggregate sector (NAICS 512), in which the simple correlation between the two is 0.75. Sub-sector employment shares in NAICS 51211 are by far mostly associated with a smaller share in NAICS 51213, in which the simple correlation between the two is -0.83. The differences in the two shares across states leads to differences in compensation and spending on other sectors in the state economy, both of which affect the estimated multiplier.

Simple linear regression analysis reveals a positive relationship between the average level of compensation and the Type II Output multiplier of IO-Snap, while also accounting for the influence of location quotients of the aggregate sector. So, the lower multipliers for Oklahoma and many other states largely are attributable to the lower shares of NAICS 51211 in NAICS 512 and higher shares of NAICS 51213. If Oklahoma had Louisiana's sub-sector composition of NAICS 512, more likely Oklahoma's output multiplier, currently estimated as 1.18 for the aggregate sector, would be near Louisiana's 1.92. The key result is that estimated aggregate sector multipliers for most states likely understate the multipliers for NAICS 51211 because of the significant portions of employment in NAICS 51213.

Figure 13. State Sub-sector Employment Shares in Motion Picture and Sound Recording

State/NAICS Code	5121	51211	51212	51213	51219	5122
Alabama	0.98	0.12	0.00	0.81	0.06	0.02
Arizona	0.98	0.08	0.00	0.88	0.03	0.02
Arkansas	0.97	0.15	0.01	0.80	0.00	0.03
California	0.96	0.80	0.00	0.10	0.06	0.04
Colorado	0.94	0.22	0.00	0.70	0.02	0.06
Connecticut	0.98	0.42	0.02	0.50	0.03	0.02
Delaware	0.96	0.15	0.00	0.80	0.01	0.04
Florida	0.95	0.26	0.01	0.65	0.03	0.05
Georgia	0.95	0.41	0.00	0.51	0.03	0.05
Idaho	0.99	0.05	0.00	0.93	0.02	0.01
Illinois	0.95	0.17	0.00	0.71	0.06	0.05
Indiana	0.97	0.09	0.01	0.84	0.03	0.03
Iowa	0.98	0.12	0.00	0.85	0.01	0.02
Kansas	0.98	0.07	0.00	0.90	0.01	0.02
Kentucky	0.98	0.12	0.00	0.83	0.03	0.02
Louisiana	0.99	0.80	0.00	0.19	0.01	0.01
Maine	0.98	0.14	0.00	0.81	0.03	0.02
Maryland	0.94	0.30	0.00	0.60	0.04	0.06
Massachusetts	0.97	0.21	0.04	0.67	0.05	0.03
Michigan	0.96	0.14	0.00	0.74	0.07	0.04
Minnesota	0.90	0.19	0.00	0.62	0.09	0.10
Mississippi	0.99	0.05	0.00	0.92	0.01	0.01
Missouri	0.98	0.13	0.04	0.78	0.03	0.02
Montana	0.99	0.25	0.01	0.69	0.04	0.01
Nebraska	0.94	0.06	0.00	0.88	0.00	0.06
Nevada	0.97	0.17	0.00	0.77	0.02	0.03
New Hampshire	0.97	0.40	0.00	0.56	0.01	0.03
New Jersey	0.92	0.21	0.01	0.69	0.01	0.08
New Mexico	1.00	0.74	0.00	0.25	0.00	0.00
New York	0.88	0.62	0.02	0.16	0.08	0.12
North Carolina	0.96	0.21	0.00	0.74	0.01	0.04
North Dakota	0.90	0.11	0.00	0.78	0.01	0.10
Ohio	0.97	0.17	0.00	0.77	0.03	0.03
Oklahoma	0.99	0.11	0.00	0.88	0.00	0.01
Oregon	0.95	0.37	0.00	0.54	0.04	0.05
Pennsylvania	0.97	0.20	0.01	0.74	0.02	0.03
Rhode Island	0.84	0.23	0.00	0.60	0.00	0.16
South Carolina	0.81	0.19	0.00	0.61	0.01	0.19
South Dakota	0.99	0.11	0.04	0.82	0.01	0.01
Tennessee	0.68	0.22	0.00	0.42	0.04	0.32
Texas	0.96	0.10	0.01	0.81	0.03	0.04
Utah	0.99	0.12	0.00	0.36	0.51	0.01
Vermont	0.92	0.26	0.00	0.61	0.05	0.08
Virginia	0.98	0.22	0.01	0.71	0.04	0.02
Washington	0.90	0.17	0.00	0.67	0.05	0.10
West Virginia	1.00	0.05	0.00	0.95	0.00	0.00
Wisconsin	0.91	0.14	0.00	0.74	0.03	0.09
Wyoming	0.99	0.12	0.00	0.87	0.00	0.01

Source: Year 2016 Unsuppressed CBP employment from the W.E. Upjohn Institute for Employment Research (Bartik et al., 2018)

Past Reviews of Economic Impact Studies

We begin our review of state film incentive economic impact studies by listing and discussing primary findings provided in previous reviews, which have appeared in policy briefs or as parts of subsequent economic impact studies. We focus primarily on reported incentive costs per job created and feedback of incentivized economic outcomes on state/local government revenue. We highlight the reported rate of return to state investment in incentives (ROI) in the studies in Figure 14. We also discuss differences in methodology that contribute to differences in predicted impacts of state film incentives.

Across six studies reviewed, Weiner (2009) reports state revenue generated per dollar of incentives ranging from a low $0.07 for Connecticut to $0.94 for New Mexico and $1.13 for New York. The estimates for the remaining four studies range from $0.13 to $0.24. This produces incentive dollar costs per job ranging from over thirty thousand to a positive return in which the revenue generated exceeded the incentive expenditure. Four studies use the IMPLAN model, while the other two studies rely on the REMI (2020) model.

Weiner criticizes the studies for New Mexico and New York, performed by Ernst & Young, for not considering the balanced budget requirement in the two states, for not adjusting for salaries of highly paid actors and other above-line personnel who likely live out of state, and for lacking documentation of the methodology in the use of the IMPLAN model and in estimating tourism impacts.

Figure 14. Previous Reviews of Economic Impact Studies

Study	Revenue Feedback (ROI)
Camoin Associates (2019a)	$1.11 for CA, $0.43 for FL, and $0.22 for LA
Christopherson and Rightor (2010)	$0.08 for CT; $0.16 and $0.18 for LA and $0.28 for RI
Independent Fiscal Office (2019)	Performed by a government agency=range from $0.06 for MD and WA to $0.20 for VA; Commissioned by a government agency=range from $0.13 for OK to $0.51 for NY; Private entity studies=$0.21 for MI and $0.89 for MD
Tannenwald (2010)	Range from $0.16 for MA to $1.05 in NY
The PFM Group	Performed by government entity=range from $0.06 for MD, $0.07 for AK and CT, $0.55 for NJ, and $0.65 for CA; Median rate of return is $0.28
Weiner (2009)	Range from a low of $0.07 for Connecticut, to $0.94 for New Mexico and $1.13 for New York; Estimates for the remaining four studies range from $0.13 to $0.24

Tannenwald (2010) reports and evaluates the results of ten early nonacademic studies on the economic impacts of state film incentives. Tannenwald lists author(s), sponsor(s), net revenue per job created, revenue feedbacks per dollar of incentive expenditure, and whether the impact study takes into account the state expenditure or tax changes needed to finance the incentives. Also indicated is whether the study recognizes that some film production would occur in the state without the incentives.

The estimates of the incentive cost per job created range from $88,000 from a study on Massachusetts by its Department of Revenue to a net gain of $2,000 per job from a study of New York by a consulting firm. These correspond to estimated revenue feedbacks of only $0.16 for every dollar of incentive in Massachusetts to $1.05 in New York. Further illustrative of the differences among studies are the differences between two studies of New Mexico. The New Mexico study produced by two authors from New Mexico State University estimate the cost per job at $13,400 with a revenue feedback of $0.14, while the study completed by consultants (Ernst & Young) only one year later report a gain of $400 per job and a revenue feedback of $1.50. The remainder of the studies report an average cost per job of $24,140 and average revenue feedback of $0.17.

Tannenwald attributes the larger estimates by the consultants to the inclusion of estimates of tourist spending reported to be related to filming in the state, which comprise approximately one-third of the total estimated activity based on visitor surveys. Also noted are an assumption of incentivized expenditures that did not qualify for incentives occurring in New Mexico and an estimate of the average wage of film production workers that was 2.4 times the U.S. Bureau of Labor Statistics estimate.

Christopherson and Rightor (2010) similarly reviews nonacademic impact studies of film subsidies in its analysis of New York film incentives. Limited tax revenue feedback effects are reported in several studies: $0.28 for Rhode Island; $0.08 for Connecticut; and $0.16 and $0.18 for Louisiana. The report reviewed for Rhode Island concludes that film production output would need to have a multiplier of 3.57 for the state to break even in tax revenues. The impact for Connecticut can be low because the film production can take place close to New York City and use workers and spend money on items from New York City. As the authors note, the overall economic impact of film production on a state depends critically on how many state residents are involved in the productions, their wages, and on the size, types, and sources of purchases of goods and services. Studies vary in their assumptions on these, which mostly are not made clear in the studies or available for independent evaluation.

As discussed above in the prior section, the multiplier effect can be expected to vary across states. States with greater breadth and depth of the film industry and higher industry wages would be expected to have larger multipliers for the industry. Christopherson and Rightor (2010) report a film industry employment multiplier of 3.1 for New York, comparing it to a reported multiplier of 1.87 for Louisiana. Film industry centers such as New York are where much of pre- and post-production activities occur because of industry headquarters. The authors reference another report that 97 percent of film or television shoots in Connecticut were in the footloose segment of the industry and not the more stable pre- and post-production activities. New York also is noted by the authors as home to a large share of creative talent in the U.S. To produce a sustainable industry with larger multiplier effects additional expenditures on film studio infrastructure by local areas may be required.

Some economic impact studies include reviews and summaries of findings from previous studies. The PFM Group (2016) reports the results of film incentive program evaluations for fifteen states that spanned 2008-2015, including four states that eliminated their programs. Each

evaluation was performed by an appropriate government entity within the state. The reported per dollar return to investment on film incentives range from $0.06 for Maryland, $0.07 for Alaska and for Connecticut, to $0.55 for New Jersey and $0.65 for California; the median rate of return across the evaluations is $0.28.

Independent Fiscal Office (2019) reports the results from fourteen studies. Across the six studies performed by a government agency between 2010 and 2018, the reported per dollar return on incentives ranged from $0.06 for Washington and Maryland to $0.20 for Virginia.

The rates of return for studies commissioned by a government agency are $0.13 for Oklahoma, $0.15 and 0.17 for Louisiana, $0.24 for Michigan, $0.33 for New Mexico, and $0.51 for New York. Two studies by private entities reported rates of return of $0.21 for Michigan and $0.89 for Maryland.

Figure 15. Summary of Economic Impact Study Results

Study	Incentive Role Assumption	Input-Output Model	Revenue Feedback (ROI)
Camoin Associates (2019a)	Spending that could "reasonably" be assumed to have occurred without the incentives, including non-qualifying spending	EMSI	$1.08 for all jurisdictions in NY
Camoin Associates (2019b)	All spending in entertainment industry receiving credits	EMSI	$0.35 average for two years for LA
Christopherson et al. (2006)	Changes in spending after incentive adoption	IMPLAN	$0.61 for NY based on study results and our calculations
Ernst and Young (2009)	Credit eligible spending and change in post-incentive trend in non-qualifying spending	IMPLAN	$1.1 for NY state tax revenues and $1.9 when New York City is included
Georgia Tech Center for Economic Development and Research (2019)	Estimated total qualifying spending	IMPLAN	$0.28 for GA based on study estimates of labor income and our tax calculations
HR&A Advisors (2012)	Credit eligible spending and change in post-incentive trend in non-qualifying spending	IMPLAN	$1.09 for NY state tax revenues and $2.23 when New York City is included
Independent Fiscal Office (2019)	Ninety percent of the spending receiving credit attributable to incentives	IMPLAN	$0.13 for PA
Loren C. Scott Associates (2017)	All certified spending of film, sound recording and live performances	RIMS II	$0.23 average for two years for LA
MNP LLP (2014)	All spending assumed attributable to incentives	IMPLAN	$0.33 for state revenue, $0.10 for local revenue
The PFM Group (2016)	All spending assumed attributable to incentives	IMPLAN	$0.13 for OK
Popp and Peach (2008)	All spending of qualifying projects	IMPLAN	$0.14 for NM

Sample Economic Impact Studies

We review a sample of economic impact studies to assess the likely role various methods used and assumptions made in the studies played in the predicted economic and fiscal impacts of film incentives. We choose states that feature prominently in the film industry and use of incentives for which notable studies have been done. We begin with New York because of its prominence in the film industry and the multiplicity of studies that estimate the impacts of New York's incentive program. We then examine studies of Louisiana, New Mexico, Oklahoma, Pennsylvania, and Georgia. Key features of the studies are highlighted in Figure 15, including the assumed role of incentives in direct spending, the input-output model used, and the estimated return on incentive investment.

New York

New York has the second largest level of employment in Motion Picture and Video Production (NAICS 51211) in the nation and contains the creative talent, facilities, business services and sources of financing and professional expertise to support a mature and fully developed media industry (Christopherson and Rightor, 2010). The creation and expansion of incentives in New York reportedly occurred because of perceived job losses to competing states (Christopherson and Rightor, 2010). New York's film incentive program has been the focus of several economic impact studies, which nicely reveal differences in assumptions that can be made in the studies and differences in estimates that result.

Christopherson et al. (2006) estimate the impacts of the enactment of New York's film tax credits in 2004 on the economy in 2005 and 2006 for the New York Film, Television and Commercial Initiative. Changes in economic activity are associated with the film tax credits because of the relatively stagnant levels of employment and earnings in the industry the previous ten years in New York compared to Los Angeles' robust growth. The study relies on a modified version of the IMPLAN input-output model.

Based on analysis by the authors on production budget data and data on business income within the Independent Artists, Writers and Performers sector (NAICS 7115), the authors conclude that payments to the sector from filming production are not appropriately counted as part of intermediate service inputs in the IMPLAN input-output model. The authors estimate that one-third of value added in New York's NAICS 7115 sector is from filming activity, an amount they assess as conservative. They also adjust the IMPLAN sector that is most related to filming activity for outside estimates of employee compensation and business income.

The IMPLAN model then provides the estimated indirect and induced spending effects on the overall economy of the direct spending of NAICS 51211, NAICS 51219 and one-third of NAICS 71151. The study reports an overall Type I employment multiplier of 1.9 and Type II employment multiplier of 3.1, and implies a value added Type II multiplier of approximately 2.15. The study does not consider potential tourism or quality of life effects from having the film industry. Finally, the study did not evaluate the incentive costs of jobs created or estimate revenue feedback effects.

In a report on New York film incentives by Camoin Associates (2019a) for Empire State Development, estimates of the economic impacts of incentives are based on an assessment of spending by projects receiving funding that could "reasonably" be assumed to not have occurred without the incentives, including spending by the projects that did not qualify for incentives. The collective revenue feedback, or return on investment (ROI), for all jurisdictions in New York is estimated at $1.08 per dollar of incentives. This implies a positive benefit for the budget rather than a cost. The report notes the estimated ROI of 1.08 is slightly below estimates of similar previous reports. The ROI also is compared to those reported in studies by state or local government agencies in other states in recent years: California (1.11); Florida (0.43) and Louisiana (0.22). Absent from consideration are the potential impacts on tourism of the projects receiving funding.

How does the study compare to Christopherson et al. (2006)? Camoin Associates (2019a) made assumptions on the role of incentives in the amount of spending both receiving and not receiving incentives, while Christopherson et al. (2006) assume the change in activity during 2005 and 2006 is attributable to incentives. For either approach, it is likely that activity counted as attributed to incentives would have occurred without the incentives. The assumption by Camoin Associates is more difficult to assess for its accuracy because of the lack of details provided in the report.

Both studies rely on an input-output model to estimate the multiplier effects of film production activities: Christopherson et al. use the IMPLAN model; and Camoin Associates use a proprietary model produced by EMSI. Camoin Associates define the industry as NAICS codes 512110 (Motion Picture and Video Production), 512120 (Motion Picture and Video Distribution), 512191 (Teleproduction and Other Postproduction Services), and 512199 (Other Motion Picture and Video Industries). In comparison, Christopherson et al. define the industry as NAICS 51211, 51219 and one-third of NAICS 7115. Christopherson et al. include estimates of business (e.g., proprietor) income, while although no mention is found in the Camoin Associates report, the EMSI input-output model includes proprietor income in their earnings estimates (Crapuchettes, Robison and James, 2017).

Christopherson et al. reports an employment multiplier of 3.1, which compares to an implied employment multiplier of 1.98 in the Camoin Associates report. Christopherson et al. (2006) provide both the Type I and Type II multipliers, with the difference the inclusion of induced spending in the Type II multiplier. The implied value added multiplier of 2.15 in Christopherson et al. is comparable to the implied earnings multiplier of 2.08 of Camoin Associates.

Christopherson et al. does not report a cost per job or return on investment. We follow the procedure of Camoin Associates to provide figures for comparison. We use the estimates of New York film tax credits for 2005 and 2006 from Ernst and Young (2009) of 60.4 and 82.2 million. To estimate the ROI for Christopherson et al., following the method of Camoin Associates we use the estimated value added attributable to film incentives of $0.8 billion for the two years and corresponding ratio of total state and local taxes to gross state product of $0.108. This suggests increased tax revenue of $86.4 million for an ROI of 0.61, which is lower than the estimate by Camoin Associates (2019a) but higher than many of those reported above from studies of other

states. This translates to an average net revenue cost per job over the two years of $3,579, which is below the average cost reported in many other studies but not as favorable as the estimated positive impact on the budget by Camoin Associates.

Two other studies of New York film incentives report yet much larger returns on investment (ROI) than Camoin Associates. Ernst and Young (2009) reports an ROI of 1.1 for state tax revenues but 1.9 when New York City revenues are included for film incentives in 2007. HR&A Advisors (2012) report an ROI of 1.09 for state tax revenues and 2.23 for when New York City is included. Both studies use the IMPLAN model. But Ernst and Young (2009) relies on the Type-SAM multiplier (IMPLAN, 2019), which includes induced state and local government spending that produces a multiplier that is larger than the standard Type II multiplier. Reported values for output and employment multipliers are 2.26 and 2.77. This compares to values of 1.8 and 2.29 for HR&A Advisors (2012) for the output and employment multipliers. Both sets of multipliers are in the range of those used by Christopherson et al. (2006) and Camoin Associates (2019a). So, the multipliers are unlikely the primary source of the widely divergent ROI.

Both Ernst and Young (2009) and HR&A Advisors (2012) assume that the credit eligible film production spending and the change in the post-incentive trend in non-credit eligible production spending would not occur without the incentives. The assumption on non-credit spending is based on the perception that growth in credit eligible spending creates favorable beneficial cluster effects on other filming activity through increasing the supply of necessary inputs. For HR&A Advisors the non-credit eligible activity occurred in the sectors Motion Picture and Video Production (NAICS 51211), Motion Picture and Video Distribution (NAICS 51212) and Post-production and Other Motion Picture and Video Industries (NAICS 51219). HR&A Advisors (2012) derive tax rates and applies them to model estimates of changes in corresponding tax bases, while Ernst and Young use historical tax ratios of tax revenues to tax bases. Consistent with the other New York studies the impact of filming on tourism is not estimated.

Louisiana

Loren C. Scott Associates (2017) use the RIMS II input-output model produced by the U.S. Bureau of Economic Analysis (BEA) to assess impacts in Louisiana. Household income in the RIMS II model includes both payroll compensation and proprietor income. The report argues that the effect on independent contractors in the Independent Artists, Writers and Performers sector (NAICS 7115) is captured by the input-output model. The input-output coefficient in the detailed sector BEA U.S. input-output model for the per dollar purchases by the Motion Picture and Video Industries sector (NAICS 5121) from the NAICS 7115 sector is 0.002 (U.S. Bureau of Economic Analysis, 2019b), which suggests that consistent with the data of Christopherson et al. (2006) independent contractors would need to be entered into the model as a direct impact if there is information to suggest a larger connection than suggested by the model. The NAICS sector codes are not provided in the study but certified spending of all film, sound recording, and live performance activities are entered into the input-output model by spending category.

Based on the direct spending in the three entertainment categories (film, sound, and live), the estimated indirect impacts of the input-output model, and the amount of certified tax credits there is an estimated revenue feedback from the incentives of 22.8 percent in 2015 and 22.3 percent in 2016. This is based on the relationships between household earnings and state and local tax and fee revenues estimated by the Louisiana Legislative Fiscal Office. The net incentive cost per job associated with the movie incentive program then is $15,547 in 2015 and $15,640 in 2016.

Camoin Associates (2019b) use the EMSI input-output model to evaluate the impacts of Louisiana's incentives programs for spending in the entertainment categories of film production, sound recording, and live performances across six six-digit NAICs industries deemed to most represent Louisiana's entertainment industry. The study assumes that 100 percent of the spending receiving credits would not occur without the availability of credits.

The study reports the total number of jobs created by the incentives equal to 6,099 in 2017 and 7,464 in 2018. This corresponds to 2,357 direct jobs in 2017 and 2,588 in 2018, implying employment multipliers of 2.59 and 2.88 for the two years. Returns on investment to state and local tax revenue equal 0.34 in 2017 and 0.36 in 2018, both for film production, sound recording, and live performances entertainment categories combined, and film production separately. In terms of net tax revenue required from the state budget, the ROIs translate into a net revenue cost of $12,920 per job created in 2017 and $12,869 in 2018. No attempt is made to assess the impact on tourism.

New Mexico

In a report to the Legislative Finance Committee of the State of New Mexico, Popp and Peach (2008) estimate the economic impact and state budget rate of return of the state's film incentives for fiscal year 2008. The study assumes all projects qualifying for tax rebates would not have occurred without the rebates. Spending that does not qualify for the tax rebates is not included. Because rebates equal twenty-five percent of reported total qualified spending, they estimate total qualified spending at four times the tax rebate amount.

The IMPLAN model is used to estimate the multiplier effects of the total qualified spending. Including indirect and induced spending, each dollar of direct qualified spending is estimated to generate $2.26 of total spending in the economy. The associated employment multiplier is 2.73. Using historical averages of gross receipts taxes, personal income taxes and corporate income taxes to personal income, the study estimates a return to the state budget of 14.44 cents for every dollar of rebate, but this did not include local revenue impacts. The implied net state revenue cost per job is $13,425.

The focus on Motion Picture and Video Production (NAICS 51211) spending omitted consideration of the impact on Independent Artists, Writers, and Performers sector (NAICS 7115) beyond that captured in the IMPLAN interindustry linkages. Data are reported for wage and salary employees and the IMPLAN model provides proprietor income in the analysis. The study did not consider possible dynamic cluster effects of qualified film activity or the impact of filming activity in the state on tourism.

The State of New Mexico hired MNP LLP to assess New Mexico's film industry in a series of phased reports. In the first report (MNP LLP, 2014), economic impacts are estimated for fiscal years 2010-2014 using direct spending estimates from the New Mexico Film Office and the model by IMPLAN to capture the multiplier effects. The report notes that the direct spending estimates may contain some non-qualifying expenditures. All spending is assumed attributable to the existence of incentives.

Using the gross receipts tax rate, the effective personal income tax rate and estimates of total economic impacts and other taxes from the IMPLAN model, government feedback effects of the tax are calculated. The reported rate of return to the state is $0.33 for every dollar of tax incentive, with a corresponding return to local governments of $0.10, producing a combined return on investment of $0.43. The net revenue cost per full-time equivalent job created either directly or indirectly is estimated as $8,519. The study discusses additional impacts on infrastructure, educational programs, and tourism but does not attempt to quantify them.

The subsequent Phase II report (*MNP LLP, 2015*), focused more on the New Mexico film incentive employment. New Mexico residents comprised approximately 74 percent of all direct incentivized jobs, including approximately 70 percent of all managerial positions. About one-fifth of all jobs held by New Mexico residents were managerial positions and 67 percent met the minimum weekly hours for full-time employment. Hourly compensation of the film production jobs was higher than that in the same occupation in other industries in New Mexico and higher than the average in the state. Most of the positions held by New Mexico residents included benefits such as health insurance and pension plans that were primarily funded by the employers. The jobs directly created by the incentives require post-secondary education, work experience, or on-the-job training. Overall, an average of 1,863 jobs were directly associated with film incentives over the five-year period of fiscal years 2010-2014, which translated into an average of 3,328 total jobs created in the state economy over the period; the implied employment multiplier is 1.79. The spending was geographically concentrated, with over three-fourths of the spending occurring in three cities: Albuquerque (53.3%); Santa Fe (12.6%), and Rio Puerco (11.8%).

The Phase III report (*MNP LLP, 2015*) focuses on the economic impact of film incentives on tourism, infrastructure spending, and development of educational programs. Estimates of tourism impacts are based on surveys of visitors and New Mexico businesses directly affected by tourism. The report concludes that film-induced-tourism increased substantially after 2008 with the popularity of *Breaking Bad* and its spin-off *Better Call Saul*. The report notes that it is difficult to predict the popularity of a series and how much tourism it will induce. Low, median, and high scenarios of tourist impact scenarios are developed for fiscal year 2014, with estimates of associated visitor spending, output, gross state product, employment, labor income, state taxes and local taxes. Estimates such as for tourism-induced employment and taxes exceed those associated with film production given in the Phase I and II reports. Estimates of equal magnitude would double the revenue return on investment and cut in one-half the incentive cost per job.

Surveys of five education institutions document the increased number of students enrolled in film related programs for the fiscal year 2010-2014 period. Graduation rates reportedly mostly

stayed constant or increased over the period. Most representatives of the education institutions surveyed indicated film incentives as the primary reason for creation of the film related programs. The report similarly documents the development of infrastructure for film production including four major studios including state-of-the-art sound stages and plans for future infrastructure spending.

Oklahoma

The PFM Group (2016) uses the IMPLAN model to estimate the economic impact of state film incentives for Oklahoma. The report notes modest growth in the number of film production businesses in Oklahoma and a lack of apparent effect of the state's film incentive program on jobs or payroll in the businesses. A reported rate of return of $0.13 per dollar of film incentives though appears based on an assumption that the film activity would not occur in the state without the incentives. A ratio of total tax revenue to gross state product is used to estimate the state revenue returned from the incentive-induced economic activity. A questionable feature of the study is the reported use of the Independent Artists, Writers and Performers sector in IMPLAN to model the economic impact. The IMPLAN sector of primary focus should be Motion Picture and Videos. While some direct spending might occur in the Independent Artists, Writers and Performers sector beyond what is predicted in the input-output based on spending by the Motion Picture and Videos sector (IMPLAN, 2020), it would be smaller by comparison (Christopherson et al., 2006).

Pennsylvania

Independent Fiscal Office (2019) evaluates Pennsylvania's film production tax credit. The study assumes that the ninety percent of the spending receiving tax credits occurs because of the credits. Wages and salaries comprise 72.3 percent of qualified expenses for television and 34.0 percent of feature film expenses. Other expenses include those for rentals, lodging for crews and catering, and per diem. An upper bound estimate results from assuming that all non-wage expenditures remain in Pennsylvania.

The study uses the IMPLAN model, which is noted as a static model, and eschews the dynamic REMI model because of its complexity and lack of need for dynamic analysis. Advantages of the REMI model would be its time dimension and more fully accounting for the general equilibrium responses in the economy to increase film production.

The total increase in net sales or output reported relative to the increase in direct spending revealed a multiplier impact of 1.8. For every dollar of tax credits, states tax revenues increase 13.1 cents. The study notes that if the assumption of the share of spending receiving tax credits that is attributable to them is reduced from ninety percent to sixty-five percent, the net economic impact is cut in half and becomes minimal if the share is reduced further to forty-five percent. Not considered are potential film-induced tourism impacts.

Georgia

In a policy brief, Bradbury (2019b) evaluates the claims of the film industry's impact on the Georgia economy by the Georgia Department of Economic Development and the Motion Picture

Association (MPA). Georgia spent over $800 million in tax incentives in both 2017 and 2018 and has the third highest level of wage and salary employment in the Motion Picture and Video Production sector in the nation. Although recognizing the growth of the industry in Georgia since the establishment of incentives, Bradbury concludes that the reported economic impacts are inflated.

Bradbury reports lower employment in the industry based on data from both the Governor's Office of Planning and Budget and QCEW data for NAICS 51211 than reported by MPA. Similarly, Bradbury notes use of an output multiplier of 3.57 by the Georgia Department of Economic Development and argues that a RIMS II of 2.07 is more accurate. Moreover, Bradbury further notes the recommendation of Bartik and Sotherland (2019) that input-output multipliers need to be reduced by about one-quarter and generally should not be considered greater than 2 (except for high-tech industries).

Based on the lower employment estimates and employment multiplier of two, Bradbury reports significantly lower film industry impacts on Georgia employment and output. For 2017, Bradbury estimates an average dollar incentive cost per QCEW (full-time plus part-time) job in the film industry (NAICS 51211) of $52,166. This implicitly assumes all employment in the industry can be attributed to the incentives. But it also ignores the multiplier effect of the sector and revenue feedbacks.

We estimate the incentive cost per job and the state budget return on investment taking into account the components omitted in Bradbury's calculations for 2017. We first estimate the change in QCEW employment and wages in Motion Picture and Video Production as the change from 2005 through 2017. We then translate these into the overall employment and wage impacts using the IO-Snap Type II employment multiplier of 2.841 and income multiplier of 2.2; the IO-Snap multipliers are comparable to the RIMS II multipliers reported in Bradbury (2019b). The feedback of the increased economic activity is based on the ratio of total tax collections (less corporate income taxes) (Urban Land Institute, 2020) to BEA total wages and salaries in 2017, equal to 0.087. Using the above and Bradbury's incentive expenditure of $800,277,268 in 2017 the incentive cost per job becomes $16,043 and the per dollar return to state revenue equals 23.9 cents. Applying the same tax rate to the reported total impact on labor income by Georgia Tech Center for Economic Development and Research (2019) generates an ROI of 27.8 cents per dollar of incentives. These are comparable to those reported in many other studies but much more favorable than suggested by the incentive cost per job in Bradbury (2019b).

The estimates of incentive cost-effectiveness are overstated to the extent some of the increased employment and wages and salaries from 2005-2017 would have occurred without the incentives. They also are overstated to the extent the multipliers used in the calculations are too large. If we instead adopt the recommendation of Bartik and Southerland (2019) and reduce the multipliers by one-quarter, the incentive cost per job becomes $23,077 and the per dollar return to state revenue equals 17.9 cents. The argument that state multipliers from input-output models are too large though is most relevant for economies near or at full employment, which currently is not the case in the U.S., and is based on the view that resource movements across states are limited in the longer run.

Lessons from the Nonacademic Impact Studies

The review of the nonacademic impact studies provides several lessons on the evaluation and use of state film incentives. Many of the lessons have commonality with the use and evaluation of tax incentives across all industries as discussed in Weiner (2009). The first set of lessons pertains to those learned regarding the methodology used in economic impact studies of state film incentives. The second set of lessons pertains to the outcomes of the economic impact studies.

Lessons on economic impact study methodology:

1) The economic impact studies generally lack transparency that makes it difficult to assess the veracity of their results.
    a. Complete details are needed on the total and types of spending assumed to occur because of film incentives. Input-output models have assumptions on the spending patterns of the sector assumed to increase and they may not match those that currently exist or might exist in the state in the future with adoption of incentives.
    b. What is the NAICS detail of the industry sector assumed to be affected? Multipliers will be more accurate for input-output models that have a sector for the industry that matches the wages and pattern of spending by the incentivized film production activity. Use of the aggregate sector NAICS 512 without adjustment is likely not accurate, particularly for states with low levels of employment in the aggregate sector that is dominated by low-paying local movie theater employment.
    c. Care should be taken not to enter spending changes into the model that are already implicit from the sector directly stimulated. Because the levels and patterns of spending associated with incentives may differ from the film sector in the input-output model, some studies appear to directly enter the spending by sector in the model, but no mention is made on how employment in the sector is increased without implying additional (double-counted) spending by the sector.
    d. The use of differing sources of spending data and differences in methodology, along with the lack of transparency, make comparison of the economic impact studies almost impossible.
    e. Are the jobs in film production filled by residents of the state? What final demands are endogenous in the model? Type I multipliers reflect spillover spending effects solely between industries, while Type II multipliers add induced spending by labor. SAM multipliers such as those produced by IMPLAN endogenize other final demands such as state and local government spending. Using SAM multipliers requires carefully considering full government budget offsets.
2) Many of the studies likely overstate the spending that occurs because of the incentives.
    a. Much of the spending that occurred before the adoption of incentives likely would have occurred without the incentives.

   b. Assuming that non-qualified spending occurs because of incentive spending is questionable without further evidence. Using changes in spending after the adoption of incentives, particularly in comparison to the nation or comparable states, would reduce the potential for bias.

3) Economic impact studies focus on short-term spending effects, ignoring whether the fiscal incentive program is economically sustainable in the long run.
   a. In calculating revenue returns from increased economic activity, economic impact studies ignore potential increases in public service costs for new residents (Bartik, 2019b).
   b. The studies do not address whether the economic activity ceases in the future if the tax incentives are removed.
4) There rarely is any sensitivity analysis or discussion of the uncertainty in the estimates produced in the study.
   a. The input-model coefficients contain significant measurement error, both in terms of the technical requirements of purchases between sectors and especially the share of the purchases by the film sector that come from within the state.
   b. Inputting film production spending into the structure of the input-output model relies heavily on assumptions that could involve considerable uncertainty.

Lessons on the outcomes of state film incentives

1) Estimated direct and indirect spending from the tax incentives increase new state tax revenues, but not enough to fully offset the cost of the incentives. The standard economic impact studies reporting a full offset of the cost make additional assumptions that are not transparent.
2) The studies ignore opportunity costs of the taxes and hence do not consider the social welfare implications of the film tax incentives.
   a. Is the use of money for tax incentives the best use for creating long-term economic development compared to education, public infrastructure, or tax incentives for other industries? Are other government services adequately funded based on citizen preferences?
   b. An economic impact study then should only be one component of the policy decision regarding film incentives.
3) The potential of filming to increase tourism could greatly affect the economic success of film incentives. Full revenue cost offset only appears possible if there is large film-induced tourist spending.
   a. Tourism impacts have been included in impact studies of New Mexico and New York and constitute large shares of the estimated economic impacts of film production in the states (Christopherson and Rightor, 2010).
   b. Studies have demonstrated the attraction of shooting sites to visitors (Tooke and Baker, 1996; and Riley, Baker, and van Doren 1998), particularly

television series that repeatedly show a location (Riley, Baker, and van Doren, 1998).

c. Difficulties with including tourism impacts is that there may be more than one reason to visit an area, visiting a shooting site may be substitutable with another activity in the area, and visits can be seasonal (Christopherson and Rightor, 2010). Impact studies incorporating tourism impacts then require information on these considerations in addition to data on visitor expenditures
d. The effect on tourism may be geographically concentrated in the state, suggesting that local governments should bear some of the costs and partner with the state.

Overall, an unequivocal answer on the costs and benefits of film incentives to a state's citizens cannot be provided solely by a standard economic impact study. But use of best practices in economic impact analysis, supplemented with additional analysis, can make an economic impact study a valuable source of information in formulating state film incentive policy.

Academic Reviews of Film and TV Incentives

Numerous studies on the economic effects of state film incentives appear in the academic literature. The studies are in response to the critique of the common assumptions made by nonacademic economic impact studies that all film production receiving incentives is attributable to the incentives, or alternatively that incentives are responsible for all increases in film production post-incentive adoption. In the absence of a randomized experiment there are many ways to attempt to assess what part of film production in a state is attributable to the incentives and what part would have occurred in the absence of incentives.

The studies reviewed below vary along several important dimensions in their approach and in their effectiveness in estimating the economic effects of film incentives. Figure 16 lists the studies, their geographic focus, the time period of analysis, the outcome variables examined and their measurement of film incentives. Figure 17 lists the methods of analysis, primary empirical findings, and policy conclusions of the studies. The section concludes with lessons that can be drawn from the academic literature on the effects of film incentives.

Focus of the Studies

With few exceptions, the academic studies detailed in Figure 16 focus on most or all U.S. states. Using a large number of states provides an assessment of the overall, on-average, experience of states with film incentives. The larger sample also provides degrees of freedom for testing the statistical significance of estimated effects. The disadvantage is the potential heterogeneity or diversity of state experiences. States differ in their physical, economic, and social characteristics and in their incentive programs in ways that are difficult to fully measure and account for in empirical analysis of all states as a group.

To address the potential heterogeneity of experiences, Adkisson (2013), Button (2018), Bradbury (2019a) and Thom (2019) adopt the case study approach of selected states. Button (2018) focuses on Louisiana and New Mexico, which are amongst the earliest to adopt aggressive film incentives and have been noted as examples of successes. Thom (2019) likewise focuses on Louisiana, but also examines the experiences of Connecticut, Georgia, Massachusetts, and New York. All five are high incentive expenditure states, comprising seventy-seven percent of all expenditures in 2017 (Thom, 2019, p. 94). Bradbury (2019a) takes Georgia and North Carolina as case studies, with North Carolina as an early adopter of film incentives and Georgia a large incentive expenditure state. Adkisson (2013) separately examines the experiences of all 44 states that had an incentive in place sometime during the period of analysis. Panel studies of all states instead attempt to address heterogeneity by adding interaction variables to reflect the size of the industry in the state (Button, 2019) or omit states such as California and New York in sensitivity analysis (O'Brien and Lane, 2018; Thom, 2018).

The periods of analysis in the studies mostly include the years when film incentives became prevalent, starting in the late 1990s and extending at least several years, through 2017 in two of the studies (Button, 2019; Thom, 2019). Button (2018, 2019) includes many years prior to adoptions of film incentives in any state for comparison to the post-incentive adoption years. Use of all years, combined with use of all states (Swenson, 2017; Thom, 2018; Button, 2019;

Bradbury, 2020a), produces an average effect across a period which contained early years where only a few states had film incentives and later years where nearly all states had film incentives. Case studies of single states implicitly allow for varying effects across time in addition to across states. Adkisson (2013) divides states into early film incentive adopters, early followers, and late adopters in case study analysis. In sensitivity analysis, Button (2019) tests whether the timing of incentive adoption mattered for estimated outcomes.

Figure 16. Reviews of Film and TV Research – Study Focus

Study	Region	Years	Outcomes Examined	Incentive Variables
Adkisson (2013)	44 states with incentives	1997-2011	Motion Picture and Video Industries QCEW Employment (NAICS 51211-51219)	Year of adoption of any incentive
Swenson (2017)	Lower 48 states	1998-2011	Motion Picture and Video Industries CBP Employment and Establishment Shares (NAICS 512110-512199); D&B non-wage contractors	Year of adoption of any incentive
Button (2018)	Louisiana, New Mexico	1998-2008	IMDb productions; Feature Films; Television Series; Motion Picture and Video Production QCEW Employment and Establishments (NAICS 512110, SIC 7812)	Year of adoption of any incentive
O'Brien and Lane (2018)	49 states plus Washington, D.C. (excludes Iowa)	1998-2010	IMDb Feature Films; Motion Picture and Video Industries CBP Employment and Establishments (NAICS 5121)	Year has any incentive and estimated dollar value of incentives
Owens and Rennhoff (2018)	Locations in lower 48 states	1999-2013	IMDb Feature Films (majors, mini-majors, independents)	Year has any incentive and by type; value of incentive by type
Thom (2018)	Lower 48 states	1998-2013	Motion Picture and Sound Recording Studios BEA Gross State Product, Employment, Wages (NAICS 512)	Year of adoption or elimination for each of four incentives; Annual SFI spending
Bradbury (2019a)	Georgia and North Carolina	1990-2016	Per Capita Income	Year of adoption for Georgia; Years of adoption and increased generosity of incentives for North Carolina
Button (2019)	50 states plus Washington D.C.	1976-2017	Feature Films; Television Series; QCEW and CBP Motion Picture and Video Production Employment and Establishments (NAICS 512110, SIC 7812) and related industries	Year of adoption for any incentive
Thom (2019)	Connecticut, Georgia, Louisiana, Massachusetts, New York	1991-2017	QCEW Motion Picture and Video Production Employment (NAICS 512110)	SFI Expenditure
Bradbury (2020a)	Lower 48 states	2000-2015	BEA Gross State Product and Personal Income Per Capita; Motion Picture and Sound Recording Studios Gross State Product (Share and Per Capita)	Year has any incentive and by type

BEA-U.S. Bureau of Economic Analysis; CBP-U.S. Census County Business Patterns; D&B-Dun and Bradstreet; DID-Difference-in-Differences

FE-Fixed Effects; NAICS-North American Industrial Classification System; QCEW-U.S. Bureau of Labor Statistics Quarterly Census of Employment and Wages; SFI-State Film Incentive; SIC-Standard Industrial Classification System

The studies also differ in the outcome variable or metric used to assess the effects of film incentives. Some studies use multiple measures, while others rely on a single measure. A number of studies directly examine the number of films or television series that were produced in a state in response to incentives (Button, 2018, 2019; and Owens and Rennhoff, 2018). Because of potential non-residency of workers in the film and television industry and purchases of materials from out of the state, most studies advocate the use of government measures of employment, wages, or output in the economy.

The most commonly used labor market measures are employment, number of establishments, or wages and salaries for Motion Picture and Video Production, NAICS 51211 (Swenson, 2017; Button, 2018, 2019; Bradbury, 2019a, 2020a). This is the sector believed primarily to be affected by film incentives as it is defined as activities "primarily engaged in producing, or producing and distributing motion pictures, videos, television programs, or television commercials" (North American Industry Classification System 2017, p. 415). The two sources of data used for the industry are solely for payroll employment and do not include proprietors: 1) Quarterly Census of Employment and Wages (QCEW) and 2) County Business Patterns (CBP). Excluding proprietors leads to an understatement of the direct employment effects of film incentives. Other sectors that may be related to incentives include: Independent Artists, Writers, and Performers (NAICS 711510); Motion Picture and Video Distribution (NAICS 51212); and Postproduction Services and Other Motion Picture and Video Industries (NAICS 51219). To the extent these activities are directly or indirectly affected by incentives, the studies that do not consider them understate incentive effects.

Other studies include measures of these related sectors either separately or as part of an aggregated sector. Button (2019) includes payroll-based measures of several detailed sectors highlighted in economic impact studies as related to the film and television industry, including NAICS 711510. Adkisson (2013) examines NAICS codes 51211-51219, which includes establishments in Motion Picture and Video Production, Distribution, Exhibition, Post-Production, and other services. Thom (2018) focuses on employment, gross state product, and wages and salaries in the aggregate sector Motion Picture and Sound Recording Industries, NAICS 512, which includes the aggregate (four-digit) NAICS sectors of Motion Picture and Video Industries and Sound Recording Industries. More published data sources exist for the aggregated sectors and they more likely capture all activities affected by film incentives. But the more aggregated sectors also include activities that are highly unlikely to be affected by film incentives such as movie theaters (included in NAICS 51213) and sound recording studios (included in NAICS 5122). Oxford Economics (2017) reports almost no correlation between state-level QCEW employment in NAICS 51211 and BEA employment in NAICS 512 over the 1998-2013 period, suggesting the aggregate measure is a poor metric for assessing film incentives. Because of the relatively small size of the film and television industry the problem becomes more acute when using metrics of the entire economy such as in Bradbury (2019a, 2020a). Teasing out the impacts of a small industry on the overall state economy is problematic because the effects can get overwhelmed by trends in other industries and other events that are nearly impossible to fully account for in empirical analysis.

The most common method of measuring incentives is specification of a binary indicator variable that takes a value of 1 the year an incentive program is adopted or is in place. Some studies include additional binary variables indicating features of the incentive program such as whether tax credits are refundable or transferable, sales tax waivers, lodging tax waivers, and requirements of worker residency (Owens and Rennhoff, 2018; Thom, 2018; Bradbury, 2020a). Thom (2018) tests for the influence of incentive duration on outcomes. Case studies implicitly account for features of incentive programs because of the specific programs in the place of study (Adkisson, 2013; Button, 2018; and Thom, 2019) and assess the influence of duration of the state incentive program. Thom (2019) uses the magnitude of incentive expenditures instead of binary indicator variables.

Study Methodology, Findings and Conclusions (Figure 17)

The studies vary widely in the empirical methods used to identify the impacts of film incentives. There are recognized best practices in empirical economic research that improve identification of policy impacts that mimic what could be obtained from the outcomes of a randomized experiment (Reich, Allegretto and Godoey, 2017; Button, 2019). We discuss these practices and the extent the studies reviewed meet them. We then discuss the findings of the studies regarding the impacts of film incentive programs on select metrics. This is followed by conclusions that are drawn from the studies.

To establish the impacts of film incentives there should be detectable impacts in states that have them compared to states without incentives. The level or growth in the metric should change in a state when the film incentive program is adopted or is in effect relative to the change in the level or growth of the metric in states without incentives. This comparison across time for states with incentives to states without them is commonly referred to as difference-in-differences (DID).

A common method used in DID is panel two-way fixed effects of all states over time (Swenson, 2017; Thom, 2018; Bradbury, 2020a; Button, 2019). Measures of which states have film incentives and when they were in effect should reveal changes in levels or growth of the desired impact metric. One concern with the panel two-way fixed effects approach is the interpolation across states that are inherently different (Abadie, Diamond and Hainmueller, 2010). Ascribing the difference-in-differences in growth across states to the existence of a film incentive program can be biased by differences in state programs and characteristics that are difficult to measure and take into account. Panel two-way fixed effects models can include control variables to mitigate this concern (Thom, 2018; Bradbury, 2020a; Button, 2019), but there still may unmeasured differences and nonlinearities in relationships. Another way to address this concern is to establish that the metric examined behaves similarly across states prior to the enactment of incentives in some states (Button, 2019). If the metric behaves similarly, there is said to be parallel trends in the metric and unmeasured confounding factors are argued not to influence the estimated incentive impacts.

An alternative method is to use the Synthetic Control Method (SCM) of Abadie et al. (2010). In SCM, the comparison of a state with a film incentive program is to a weighted average or synthetic of other states that have similar characteristics and the metric behaves similarly prior to

enactment of incentives. An additional advantage of SCM is the allowance of nonlinear incentive impacts. Button (2018) applies the SCM separately for Louisiana and New Mexico. One limitation of Button (2018) is the limited number of states that had not enacted a film incentive program that could be used for construction of the synthetic comparison. Bradbury (2019a) similarly applies the SCM approach to Georgia and North Carolina.

Figure 17. Reviews of Film and TV Research – Methodology and Findings

Study	Method	Empirical Findings	Policy Conclusions
Adkisson (2013)	Case study trend analysis	A few states slightly gained employment, others lost employment; Occurred across early and late incentive adopters and early followers	Incentives are a zero-sum game for national film production employment
Swenson (2017)	Panel Difference-in-Differences; State and year fixed effects	None of the incentive variables are statistically significant for employment or establishments; No net effect on D&B non-wage contractor moves	Zero-sum game from most states offering incentives
Button (2018)	Synthetic Control Method case study	Significant effect on IMDb productions and feature films but not television series; Positive but insignificant effects on employment or establishments	Best case cost per job, including contractors, $48,388 for Louisiana and $21,035 for New Mexico
O'Brien and Lane (2018)	Panel Difference-in-Differences; Gross Domestic Product as a Control Variable	Existence of any incentives increases number of films produced in the state; Mixed evidence for incentive effects on employment and establishments; Diversity and dominance of companies increases filming activity, employment, and number of establishments	Design incentives to increase organizational diversity, especially for companies involved in distribution, marketing, and sales of films
Owens and Rennhoff (2018)	Discrete choice model; Location characteristic control variables	Incentives significantly influence location of filming; Refundable credits more effective than transferrable credits; Over fifty-two percent of film production would shift if all incentives were removed; Concentration would occur as 17 states would gain production of films without incentives but 32 states gain in 2013; No lasting effect of incentives if they are removed.	Revenue negative for states; State revenue feedback ranges from low of $0.13 per dollar of incentive in Oklahoma to high of $0.77 in Texas; Incentive cost per job stimulated ranges from high of $24,114 in Missouri to low of $1,426 for Texas; Lower than cost of directly increasing the number of state employees; Attractiveness depends on opportunity cost of funds
Thom (2018)	Panel Difference-in-Differences; State and year fixed effects; Control variables	Refundable credits significantly increased wages in the industry; Duration of transferrable credits increased employment; Annual SFI spending insignificant; No gross state product effects	More attention needed for incentive design; Need for better cost-benefit analysis and oversight of programs
Bradbury (2019a)	Synthetic Control Method case study	Negative but statistically insignificant effects on per capita income (despite raw increases in QCEW NAICS 512110 employment and establishments)	No wider impacts on overall economy; Incentives ineffective for economic development
Button (2019)	Panel Difference-in-Differences; State and year fixed effects; Control variables; Event study	Large effect on TV series filming that occurs gradually over time and in states with a medium or large existing industry size and may persist after incentive repeal; Little evidence feature film production location is affected by incentives; No evidence for meaningful positive effects on labor market indicators in the sector or in related sectors	Agglomeration spillovers of TV series filming suggest magnitude of incentive program matters
Thom (2019)	Case study; Interrupted Time Series Analysis; Control Variables	Statistically significant immediate effect on Connecticut, which is attributable to the nontax component of incentives; Statistically significant effect over time on Louisiana	Evidence of interstate competition; No practical significance of incentives for job creation
Bradbury (2020a)	Instrumental Variables Estimation Panel Difference-in-Differences; State and year fixed effects; Control variables	No link between incentives and overall economic activity	No basis for economic development to justify film incentives.

SFI-State Film Incentive; QCEW-U.S. Bureau of Labor Statistics Quarterly Census of Employment and Wages

Owens and Rennhoff (2018) implements a discrete choice model in assessing film location choices. The model includes several variables relating to physical and economic characteristics of geographic locations. The list of characteristics is far from exhaustive and there is a possibility of omitted confounding factors.

Time series analysis of individual states that adopt film incentives do not provide comparisons to the experiences of states without them (Adkisson, 2013; Thom, 2019). Rather than a difference-in-differences comparison, i.e., differences across time after states have incentives compared to the same differences in states without incentives, the comparison is simply the difference across time in the states after they have incentives. Control variables can be added to capture industry and incentive trends elsewhere (Thom, 2019) but the lack of comparison to other appropriate states limits causal identification.

Another concern is the potential endogeneity of adoption of film incentives by states. If states that are doing well economically and not enduring fiscal stress, for example, more likely adopt film incentives (Sewordor and Sjoquist, 2016) then their estimated effects likely are upwardly biased. Many of the studies did not explicitly address this possibility.

Use of the SCM approach mitigates endogeneity to the extent similar states are used for comparison, including similarity in the performance of the incentivized sector(s) prior to a state having a film incentive program. Button's (2018) use of SCM established similar pre-treatment paths of the selected metrics for each of Louisiana and New Mexico. But there is not any mention of the similarity of each state with its corresponding synthetic control unit in terms of characteristics that may affect the location of film production. Bradbury (2019a) uses the characteristics from Reed (2009) that may affect overall state economic growth, but not characteristics more specific to the film production such as those examined in Owens and Rennhoff (2018).

Bradbury (2020a) relies on instrumental variables estimation to address the endogeneity concern. The approach is based on the findings of Leiser (2017) regarding what best predicts whether a state will put a film incentive program in place. Bradbury uses the age of a state's film commission office and the percent of border states that have a film incentive program to predict whether a state has a film incentive program, removing economic considerations that could confound the estimated impacts.

Button (2019) argues that state fixed effects in panel studies control for persistent differences in economic conditions. But economic shocks occurred during the periods of analysis that differentially affected regions. Button also then separately adds state trend variables, control variables from Leiser (2017) and Thom and An (2017) and drops California and New York in sensitivity analysis. The findings of the study are robust to these changes.

Another concern is whether the outcomes in a state are affected by whether neighboring states have a film incentive program (Sewordor and Sjoquist, 2016). SCM and panel two-way fixed effects models in default form ignore this possibility, invoking what is the so-called Stable Unit Value Assumption. Unaccounted for spillovers can bias estimates of incentive impacts because changes in outcomes in a state are solely attributed to the incentives in the state. Button (2019)

finds that allowing for spillovers from states with incentives onto their neighbors does not affect the main results of the study.

The studies more likely find significant effects of film incentives on filming production than on labor market metrics. Owens and Rennhoff (2018) finds that film incentives significantly influence filming locations and that if all states eliminated their incentives filming would concentrate in a relatively few states. The study also finds refundable credits to have larger effects than transferrable credits because the latter are privately exchanged at a discount. They did not examine any labor market metrics.

Button (2018) finds incentives in New Mexico to be associated with statistically significant increases in filming productions listed on the IMDb database and feature films listed on the Studio System database. Incentives in Louisiana only significantly increase feature film productions. In contrast, Button (2019) finds large effects on TV series filming across all states but not for feature film production. The estimated TV series effect occurs gradually over time, particularly in states with a medium or large existing industry size and is argued to likely persist after incentive repeal.

Case studies more likely report positive labor market effects than panel studies of all states. Adkisson (2013) reports that fairly equal numbers of states gained or lost employment in Motion Picture and Video Industries (NAICS 5121) after having incentives, which was true for early adopters of incentives, early followers, and late adopters. Button (2018) finds positive effects of film incentives on employment and the number of establishments in the Movie Picture and Video Production (NAICS 512110) sector for both Louisiana and New Mexico. But because of the limited number of states used in constructing the counterfactual comparison, the effects are statistically insignificant. Across all states over time, Button (2019) finds no evidence for positive effects on employment, wages, and the number of establishments in the Motion Picture and Video Production industry or in related industries, including in the sector comprised of independent artists, writers, and performers. Thom (2019) reports a statistically significant immediate positive effect on Motion Picture and Video Production employment in Connecticut, which the study attributes to the nontax component of incentives, and a statistically significant positive effect over time in Louisiana. No statistically significant effects are found for Georgia, Massachusetts, and New York.

A common policy conclusion offered by the studies is that film incentives are a zero-sum game (Adkisson, 2013; Swenson, 2017). While incentives may shift filming activity across states, they are not believed to increase filming nationally. But this is primarily based on stable employment trends in national film production during the period of proliferation of state film incentives, ignoring developments outside of the U.S. such as in Canada (Lester, 2013). The incentive dollar cost per job may be large (Button, 2018) and the net revenue impacts likely are negative (Owens and Rennhoff, 2018). The studies generally conclude that film incentives are not an effective economic development tool in terms of directly stimulating labor market outcomes. Button (2018) reports evidence that size of the industry matters for incentive effectiveness, suggesting agglomeration economies in the film industry. O'Brien and Lane (2018) finds that organizational diversity and dominance increases filming activity and associated number of jobs and

establishments, though this is based on the NAICS 5121 aggregate, which includes businesses that might not be incentivized such as movie theaters (Bradbury, 2020b). Owens and Rennhoff (2018) finds evidence that suggests that when incentives are repealed the number of films produced in the state diminish, though this was not assessed for varying size of the industry.

Key Policy Lessons from Academic Research

Despite the differences in the studies there are several important policy lessons that can be drawn from the academic literature. But there also are some unanswered questions or under-addressed issues. The issue of states using film incentives is more nuanced than typically is recognized in the studies. A list and discussion of these lessons follow below:

1) The film industry would be concentrated in relatively few locations in the absence of state incentives, likely close to the concentration before the enactment of state film incentive programs.
2) Case studies more likely report positive effects of state film incentives on the intended activity. State incentive programs appear to be too diverse and interact with differences in state characteristics in ways that make most studies of all states unable to find the effects of state film incentive programs.
3) The heterogeneity of case study results and lack of results in panel studies of all states suggest that the size and composition of the industry might matter. Keeping incentive programs small by putting low caps on program or annual expenditures may reduce risk but it also may guarantee limited or no impact. Development of a film industry that is capable of growing and sustaining itself without continued incentives might require attaining critical mass of the industry in the state. Benefits of a critical mass or cluster could derive from associated business services, support services, infrastructure such as studios and sound stages, tradeshows, and film festivals (Christopherson and Rightor, 2010). Sufficient mass may facilitate place branding the unique characteristics of the industry in the state (Vang, Maher and Brambini, 2018). A larger program also may provide more certainty for prospective film projects, which is a critical factor in choosing a location for film and television production.
4) There is no perfect metric to evaluate film incentives. Data on film locations most directly track whether activity in the sector is affected by incentives. But film location data do not provide any information on whether the desired increases in state labor market outcomes occur. A disconnect between film production spending and state labor market outcomes can occur because of non-resident employment in the industry and out-of-state spending. Among labor market indicators that can be used to assess film incentives, many are too aggregated across sectors and the overall economy; many metrics include activities not targeted by the incentives, making it difficult to detect incentive impacts. Narrowly defined indicators, both in concept and by industry, likely miss labor market outcomes that could be associated with film incentives. Most studies use payroll-based measures for the Motion Picture and Video Production industry. This leaves out proprietors, which would create larger induced spending effects from the industry.
5) In contrast to non-academic studies performed for the industry or for states evaluating film incentives, the academic studies do not integrate their findings with other relevant

information on spillovers to the rest of the economy. At best, there is some use of existing nonacademic studies to perform back-of-the-envelope calculations. This likely occurs in part because of the cost of obtaining and using input-output models to estimate spending effects on other sectors. But there is a large empirical literature on estimating multipliers that could be used (e.g., Bartik and Southerland, 2019). Trying to detect the sector spillovers empirically without an input-output model is difficult because of the trends and shocks in other industries. Although often acknowledged, the potential effects on tourism and quality of life are ignored because of the difficulty of measuring them. The omission of these spillover leaves knowledge of the broader effects of the film industry incomplete.

6) There is little comparison to other state incentive programs. State incentive programs are ubiquitous and there should be more comparisons of the findings for film incentives to other programs. There is an opportunity cost to every incentive program and many or most programs likely do not pay for themselves. Film industry establishments are footloose and likely more responsive than establishments in other industries, which is a key consideration in benefit-cost calculations of incentives (Bartik, 2019b).
7) There is little or no discussion of film incentives in the studies to public policy making and social welfare more generally. Every action by state and local governments has an opportunity cost. Each dollar expended by government is one less spent in the private sector. There is little evidence that state and local tax reductions pay for themselves (Rickman and Wang, 2018) and in fact may only produce revenue through increased economic activity (Berck, Golan and Smith, 1997) approximately equal to the amounts typically reported for film incentives. Governments spend dollars on education and highways because of beliefs such expenditures may generate returns through increased economic activity (Bartik, 2019b). Society simply may intrinsically value education, increased safety on the roads, public libraries, parks, etc. Sports activities and stadiums commonly receive strong public support for tax assistance despite widespread reports of a lack of impact on local economic development (Coates and Humphrey, 2008). There is evidence to suggest that states have adopted film incentives for intangible benefits such as quality of life and publicity (Sewordor and Sjoquist, 2016), which should be weighed against other policy objectives rather than simply assessed on narrow economic outcome metrics.

VII. Empirical Tests of the Economic Role of State Film Incentives

Following most of the empirical academic studies and economic impact studies we examine the Motion Picture and Video Production sector (NAICS 51211). From the discussion in previous sections, the sector's share of employment dominates in explaining the variation in compensation, location quotients and multipliers across states for the three-digit sector Motion Picture and Sound Recording Industries (NAICS 512). The industry metrics we use are the levels of employment and total annual wages reported by the Quarterly Census of Employment and Wages (QCEW). For comparability across states, employment is divided by the 2011 level of population and total annual wages is divided by the 2011 level of personal income as reported by the U.S. Bureau of Economic Analysis (BEA).

The results of previous empirical studies suggest diversity in the economic experiences of states with film incentives. Differences in film incentive programs and state political and economic characteristics may interact in ways that are difficult to capture with standard empirical panel analysis. This suggests the use of the case study approach. But because the results of one case study may not readily generalize to all states, we consider several scenarios across multiple states.

We follow Button (2018) and Bradbury (2019a) and use the Synthetic Control Method (SCM) of Abadie, Diamond, and Hainmueller (2015). The SCM has been used extensively in policy evaluation, including several studies of state and local tax policy (Rickman and Wang, 2020). In SCM, a counterfactual or unit of comparison is constructed for establishing what would have happened in the absence of some change in policy or occurrence of some event. In our application, the unit of analysis is the state that changes its film incentive policy and the counterfactual is a weighted average of other states that did not make a change in its film incentive policy. The weights are calculated based on matching both the time series movement in some metric of the film industry prior to the policy change and variables representing characteristics that may affect filming activity in the state. The differences in outcomes in the metric before and after the change in policy become the estimate of its effects.

The use of the SCM approach to identify the direct effects of film incentives stands in contrast to approaches used in economic impact studies. The three approaches most commonly found in economic impact studies are: 1) assuming that all production activity receiving incentives is attributable to the incentives, and sometimes including production activity not receiving incentives because of perceived cluster benefits; 2) attributing the change in trend in the state's film production activity to the adoption of incentives; or 3) using the change in the state's trend in film production activity relative to the national trend. All three approaches are problematic, with the first two approaches mostly likely to yield upwardly biased estimates of the impacts of film incentives on film production. The findings by Owens and Rennhoff (2018) of non-incentive state characteristics influencing the location of film production supports the need to compare states that had similar characteristics and trends in production activity before changes in film incentive policies. Simple comparisons to national trends in the third approach likely

produce biased estimates because of the dominance of California and New York in national film production.

Case Studies

Almost all states have had incentives for the motion picture and film industry in place at some point in time since 1998 (Bradbury, 2020a), with forty four states, plus Washington D.C. and Puerto Rico having incentive programs in 2009 (National Conference of State Legislatures, 2018). This limits the number of case study comparisons that can be constructed. Our solution is to formulate two general scenarios for the SCM analysis using periods where there are sufficient numbers of incentive policy differences. First, following Bradbury (2019a) and Button (2018) we attempt to assess the effect of early adoption of film incentives. We compare the early adopters to states that never adopted incentives or did not adopt them until later. Second, we assess the effect on states that had film incentives during a sufficient period of time and then eliminated them. We compare these states to those that had incentives during the same period but never eliminated them. We include an analysis of the effects of the capping of incentives in Louisiana.

Figure 18 lists the scenarios examined based on incentive program information from the National Conference of State Legislatures (2018) and Bradbury (2020a).

Figure 18. State Incentive Program Actions

State	Incentive Program Action
Arizona	Adoption-2006; Elimination-2010
Florida	Adoption-2003; Elimination-2016
Indiana	Adoption-2007; Elimination-2011
Louisiana	Adoption-2002; Capped-2015
Michigan	Adoption-2008; Elimination-2015
New Mexico	Adoption-2002
North Carolina	Adoption-2000
Rhode Island	Adoption-2000
Vermont	Adoption-2006; Elimination-2011
Wisconsin	Adoption-2008; Elimination-2013

Source: National Conference of State Legislatures (2018)

Early Incentive Adopters

A few states stand out as early adopters of incentives that have continued to maintain them. Because most states eventually adopted incentives we focus on the early year experiences of states that first adopted film incentives. Focusing on the early adopters provides comparisons to other states before they adopted film incentives as forty-four states, plus Washington D.C. and Puerto Rico had incentive programs in 2009 (National Conference of State Legislatures, 2018). We follow Button (2018) and examine Louisiana and New Mexico because of their early adoption in 2002 and increased role and perceived success in the film industry. We also examine North Carolina and Rhode Island which adopted incentives in 2000 and continue to maintain

them, though North Carolina later switched from a tax credit to a grant program (National Conference of State Legislatures, 2018). To allow for at least five years of post-adoption analysis we examine metrics through 2006. We use data beginning in 1990 to provide a longer period for matching the pre-incentive film production experiences of the early adopters with those of non-adopters, which better matches on unobservable factors over time that may influence film production (Abadie, Diamond and Hainmueller, 2010). The number of states to include as potential donors to the counterfactual unit is limited because of the number of states that had adopted incentive programs by 2006 and QCEW data nondisclosures. States included as potential donors that never adopted film incentives include Idaho, New Hampshire, and South Dakota. Potential donor states that adopted incentives after 2006 include Indiana, Iowa, Kansas, Kentucky, Michigan, Nevada, Ohio, West Virginia, Wisconsin, and Wyoming.

Incentive Repealers

Re-evaluation of film incentive programs and state budget difficulties led thirteen states to end their incentive programs between 2009 and 2018 (National Conference of State Legislatures, 2018). Many of the states had maintained the incentive programs for several years. Termination of the programs has not been without controversy and calls to re-instate film incentives (e.g., Thompson, 2019; Cain, 2020; George, 2020; Morehead, 2020). We examine the experiences of six states that terminated their incentive programs as case studies: Arizona, Florida, Indiana, Michigan, Vermont, and Wisconsin.

The six states had incentives in place for the following periods indicated in parentheses: Arizona (2006-2010), Florida (2003-2016), Indiana (2007-2011), Michigan (2008-2015), Vermont (2006-2011) and Wisconsin (2008-2013). We compare the states ending their incentive programs to states that had incentive programs over the same periods but maintained them through the end of the sample period. Twenty states that had incentives in place from 2006 until 2019 comprise the donor pool: Connecticut, Georgia, Illinois, Maine, Maryland, Massachusetts, Minnesota, Mississippi, Montana, New Mexico, North Carolina, Oklahoma, Oregon, Pennsylvania, Rhode Island, South Carolina, Tennessee, Texas, Utah, and Washington. The pre-treatment period for each state is the latter of 2006 or the year of incentive adoption. Years after termination of the incentive program until 2019 comprise the post-treatment period.

SCM Implementation

The SCM method selects states from a donor pool and assigns them weights to match pre-treatment fits of both the outcome variable and the characteristics of the states. The closer the incentive state examined is to its counterfactual comparison in the outcome variable and characteristics the more likely the counterfactual represents what would have happened in the incentive state without adoption or repeal of incentives. The state characteristics used in the SCM matching are measures of housing costs, the average wage rate, the tax and regulatory climate, natural amenity attractiveness, the share of the adult population with a bachelor's degree, population density, and a measure of industry composition. These are characteristics that have been shown to affect both overall economic growth in a state (Rickman and Wang, 2020) and location of filming activity (Owens and Rennhoff, 2018). As shown in Figure 19, different

measures are used for some characteristics to fit the years used for the pre-treatment period of the scenario. All measures pre-date the year of change in incentive program.

Figure 19. State Characteristics

Variable	Description and Measurement	Incentive Adoption Scenario	Incentive Repeal Scenario
RPP-Rent	BEA rent component of regional price parity (2011)	No	Yes
FMR	HUD Fair Market Rent averaged across 2, 3 and 4 bedroom apartments	Yes	No
AMEN	USDA ERS Natural amenity scale	Yes	Yes
COLLEGE	Census share of the adult population 25+ with a bachelor's degree (2000)	Yes	Yes
WAGE00	BEA nonfarm wage rate in 2000	Yes	No
WAGE11	BEA nonfarm wage rate in 2011	No	Yes
DENSITY	Census population density in 2000	Yes	Yes
INDMIX0207	Industry mix employment growth 2002-2007 (Dorfman et al., 2011)	No	Yes
INDMIX9802	Industry mix employment growth 1998-2002 (Bartik et al., 2018)	Yes	No
ECFREE00	Fraser Economic Freedom Index 2000	Yes	No
ECFREE03	Fraser Economic Freedom Index 2003	No	Yes

BEA-U.S. Bureau of Economic Analysis; HUD-U.S. Department of Housing and Urban Development; USDA-United States Department of Agriculture, Economic Research Service

Empirical Results and Analysis

Figure 20 contains a summary of the SCM results for all scenarios. Reported for each scenario is the difference-in-differences (DID), which is the difference between each pair of paths in the years after the adoption of the incentive program relative to the difference before incentive adoption. The DID is interpreted as the effect of the state incentive program. Each DID is translated into the impact on the economic measure examined and reported in the third column of the table.

Film Incentive Adoption Scenarios

Louisiana. Figure 21 shows dramatic increases in both Motion Picture and Video Production (NAICS 50211) employment and wages in Louisiana after adoption of incentives in 2002. Prior to adoption of the incentives, Louisiana employment and wages in the sector follow the synthetic controls fairly closely. The characteristics of the two synthetic control units close match those of Louisiana.

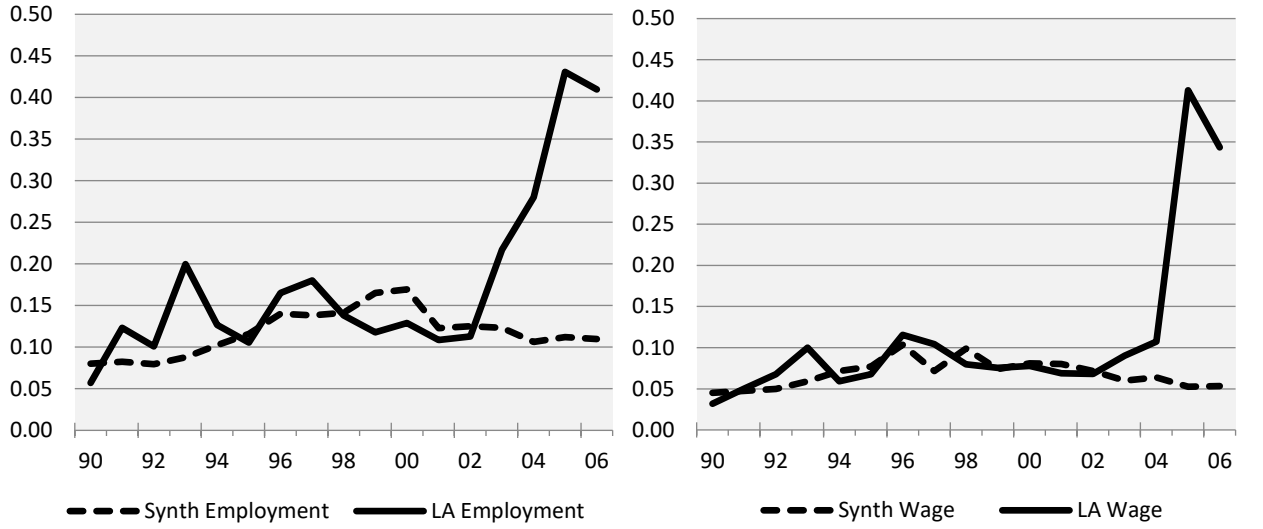
The DID estimates for 2002-2006 vs. 1990-2002 equal 0.309 for employment and 0.291 for wages. The DID estimate for employment slightly exceeds Louisiana's actual increase in Motion Picture and Video Production sector (NAICS 51211) employment over the period. The DID estimate indicates that employment in NAICS 51211 per person in Louisiana (scaled by 1,000) increased by 0.309 from 2002-2006 compared to the change for the corresponding synthetic control over the period relative to the difference in changes between the two from 1990-2002. Converting the difference in estimated DID per capita jobs relative to the actual per capita jobs to total jobs, the DID estimate implies that the increase in the number of employees from 516 in 2002 to 1,875 in 2006 in the sector would have instead been a drop of 56 without the adoption of

incentives. The increase represents a two hundred seventy-four percent increase of the 2002 value, which compares to a 1.7 percent increase nationally. The DID estimate for wages implies that the approximately four hundred percent increase that occurred over the 2002-2006 period underestimates (by 27.3 percent) the effect of the incentives and dominates the corresponding sixteen percent that occurred across the nation.

Figure 20. Synthetic Control Method Results

State (Scenario)	DID	Labor Market Outcome
Arizona (Eliminate, 2010)	Wage=-0.098	Wage=lower by one hundred and forty-one percent of 2010 value
Florida (Eliminate, 2016)	Employment=-0.038; Wage=-0.073	Employment=lower by twelve percent of 2016 value; Wage=lower by thirteen percent of 2016 value
Indiana (Eliminate, 2011)	Employment=-0.055; Wage=-0.024	Employment=lower by eighty-three percent of 2011 value; Wage=lower by thirty percent of 2011 value
Louisiana (Adopt, 2002)	Employment=0.309; Wage=0.291	Employment=higher by two hundred and seventy-four percent of 2002 value; Wage=lower by four hundred and twenty-seven percent of the 2002 value
Louisiana (Cap, 2015)	Wage=-0.683	Wage=lower by forty-three percent of 2015 value
Michigan (Eliminate, 2015)	Employment=-0.132; Wage=-0.125	Employment=lower by seventy percent of 2015 value; Wage=lower by forty-five percent of 2015 value
New Mexico (Adopt, 2002)	Employment=0.632; Wage=0.66	Employment=higher by two hundred and eighty-six percent of 2002 value; Wage=higher by three hundred and eighty-six percent of 2002 value
North Carolina (Adopt, 2000)	Employment=0.009; Wage=0.032	Employment=higher by eight percent of 2000 value; Wage=higher by fifty-one percent of 2000 value
Rhode Island (Adopt, 2000)	Employment=0.257; Wage=0.493	Employment=higher by three hundred and fifty-two percent of 2000 value; Wage=higher by seven hundred and twenty-two percent
Vermont (Eliminate, 2011)	Wage=-0.11	Wage=lower by eighty-six percent of the 2011 value
Wisconsin (Eliminate, 2013)	Employment=-0.028; Wage=-0.106	Employment=lower by twenty-seven percent of 2013 value; Wage=lower by one hundred and three percent of the 2013 value

Figure 21. Louisiana Incentive Adoption: LA Employment and Wage vs Synthetic (Synth)

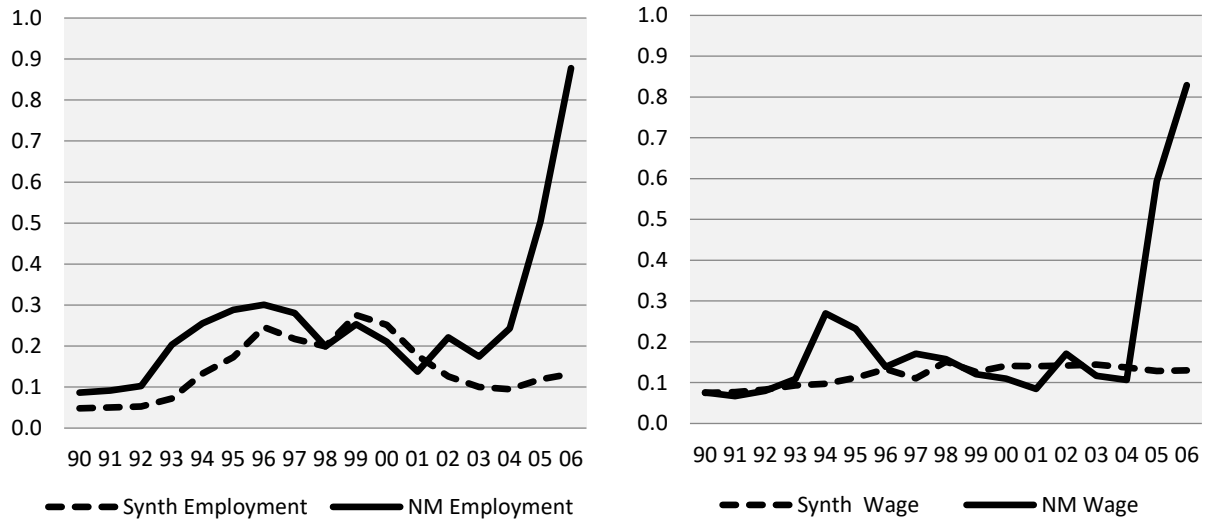


Weights: Employment (MI=0.602, WV=0.221, WY=0.176); Wage (KY=0.434, ID=0.356, OH=0.184, WY=0.018, WV=0.008)
DID: Employment=0.309; Wage=0.291

New Mexico. Figure 22 likewise shows strong increases in Motion Picture and Video Production sector employment and wages for New Mexico after its adoption of a film incentive program in 2002. The paths of New Mexico employment and wages follow those of the corresponding synthetic paths from 1990 through at least the last year of not having the incentive program. The synthetic path for employment drops more than New Mexico's during the initial couple of years of adoption and holds steady for wages. Dramatic divergence of the two paths occur during 2005-2006. The synthetic control characteristics most closely match New Mexico's in terms of lower housing rents, lower average wage rate, and lower shares of adults with a bachelor's degree.

The difference-in-differences (DID) estimates for 2002-2006 vs. 1990-2002 equal 0.632 for employment and 0.66 for wages. The employment DID implies that New Mexico's incentives caused the number of jobs in its Motion Picture and Video Production sector to increase two hundred and eighty-six percent of its 2002 value. The estimated DID for wages approximately equals the actual change in wages, which implies that the increase in wages from $12,450 thousand in 2002 to $60,370 thousand in 2006 occurred because of the adoption of incentives.

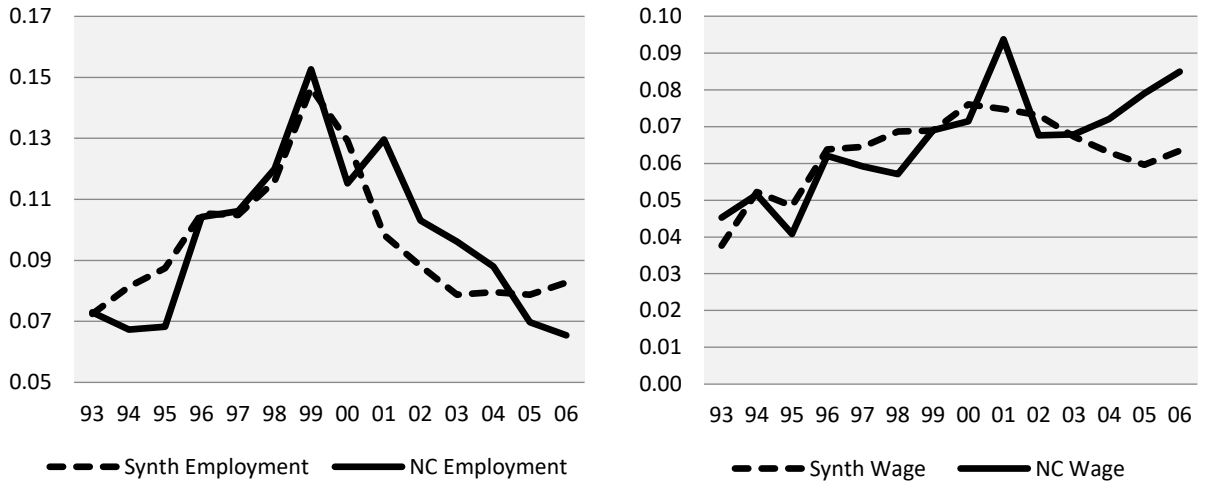
Figure 22. New Mexico Incentive Adoption: NM Employment and Wage vs Synthetic (Synth)



Weights: Employment (WV=0.6, NV=0.23, ID=0.17); Wage (MI=0.584, ID=0.416)
DID: Employment=0.632; Wage=0.66

North Carolina. Figure 23 shows small effects of tax incentives for North Carolina from 2000 to 2006. The pre-treatment period begins in 1993 because of a lack of fit for pre-treatment paths using 1990 as the first pre-treatment year. The synthetic unit characteristics generally are similar to those for North Carolina. Notable exceptions are the faster industry mix employment growth and somewhat lower wage rates in both synthetic control units and higher North Carolina bachelor's degree share.

Figure 23. North Carolina Incentive Adoption: NC Employment & Wage vs Synthetic (Synth)



Weights: Employment (IN=0.708, WY=0.181, WV=0.059, OH=0.052); Wage (KS=0.542, KY=0.311, WY=0.09, NH=0.05, WI=0.007)
DID: Employment=0.009; Wage=0.032

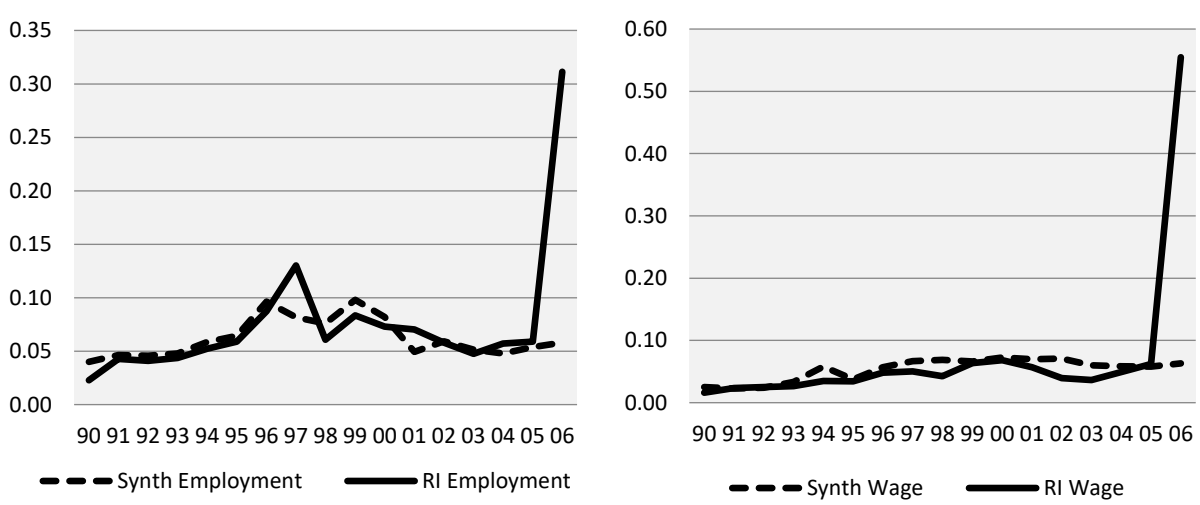
The estimated DID for North Carolina is 0.009 for employment and 0.032 for wages. The employment DID implies that instead of losing 481 jobs in the sector over the period, the state would have lost 567 jobs without the incentives, a positive impact of 86 jobs (equal to 7.7

percent relative to the 2000 value). The DID for wages implies a gain from the incentives approximately equal to fifty-one percent of the 2000 level.

Rhode Island. Rhode Island adopted incentives in 2000 but it is not until 2006, the last year in the sample, that there is a detectable impact of the incentives on employment and wages (Figure 24). Rhode Island's pre-treatment paths of employment and wages closely match the corresponding synthetic unit paths. Although outside the sample because of considerations of having a larger donor pool, employment and wages remain elevated post-2006, suggesting permanent effects of the incentives. Rhode Island had higher housing rents, wage rates and population density than both its employment and wage synthetic unit.

The DID estimate for employment equals 0.257 and for wages equals 0.493. Rhode Island's estimated employment DID slightly exceeds the actual per capita change in employment from 2000 to 2006. The incentives caused employment to increase by three hundred and fifty-two percent of the 2000 value of seventy-seven. Approximately the entirety of the post-incentive wage increase can be attributed to Rhode Island's adoption of incentives.

Figure 24. Rhode Island Incentive Adoption: RI Employment & Wage vs Synthetic (Synth)



Weights: Employment (WY=0.695, WV=0.19, KS=0.114); Wage (KS=0.707, WY=0.232, KY=0.033, OH=0.029)
DID: Employment=0.257; Wage=0.493

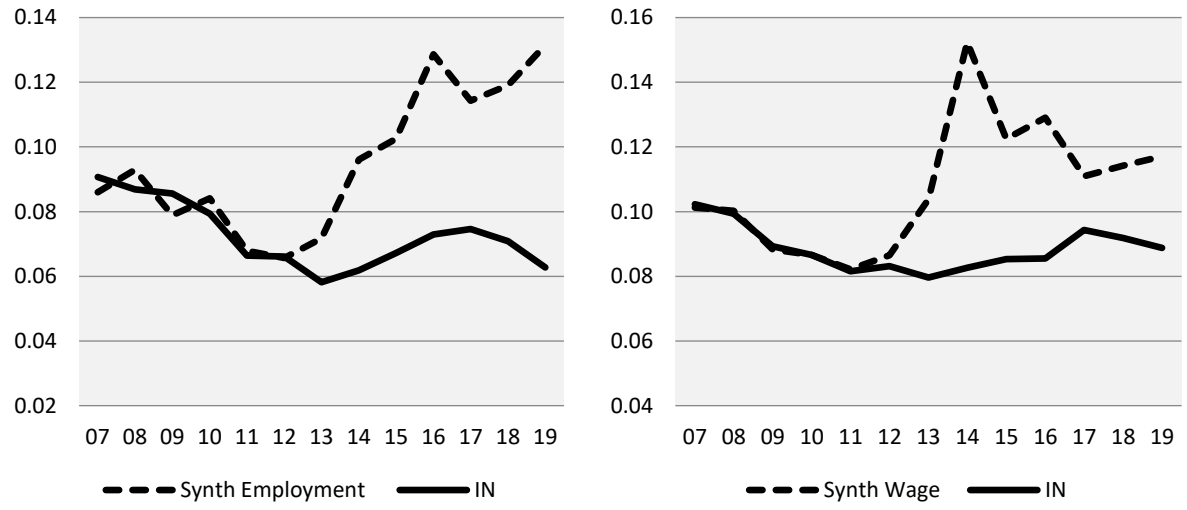
Film Incentive Repeal Scenarios

Figures 25-28 display the Synthetic Control Method (SCM) results for states that repealed film incentives. Each figure contains the path of employment or wages in the Motion Picture and Video Production sector (NAICS 51211) before and after the repeal of incentives and compares it to the paths of the corresponding synthetic control comprised of states that had incentives throughout the period of analysis. The difference between each pair of paths in the years after the repeal of the incentive program relative to the difference before incentive is interpreted as the effect of the state incentive program.

Indiana. Figure 25 contains the SCM results for Indiana, which had incentives in place between 2007 and 2011. After matching the synthetic control paths during the period when incentives were in place, both employment and wages in the Motion Picture and Video Production sector fell below the synthetic control paths after the repeal of incentives. Indiana is slightly less amenity attractive and slightly more densely populated than each of its synthetic control units.

The estimated DID for Indiana is -0.055 for employment and -0.024 for wages. The estimated DID for employment implies that rather than declining by twenty-four from 2011-2019, employment in Indiana's Motion Picture and Video Production sector would have increased by three hundred thirty-four, an eighty-three percent change relative to the employment level of four hundred thirty-three in 2011 if incentives had not been removed. The estimated DID for wages implies about thirty percent lower total annual wages in the sector because of the absence of incentives.

Figure 25. Indiana Incentive Repeal: IN Employment and Wage vs Synthetic (Synth)

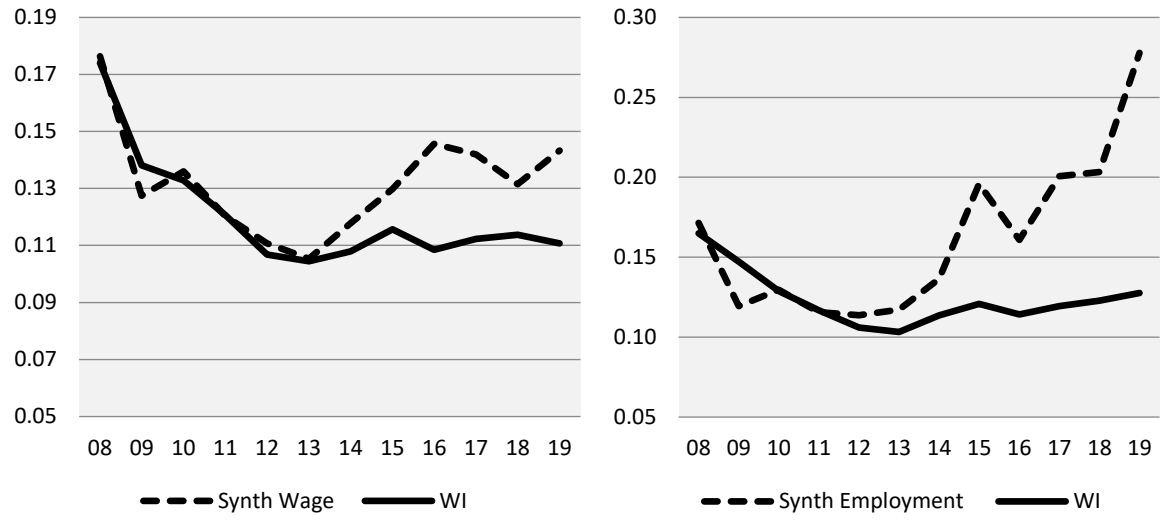


Weights: Employment (NC=0.454, MS=0.391, IL=0.118, ME=0.037); Wage (MS=0.571, MN=0.38, IL=0.049)
DID: Employment=-0.055; Wage=-0.024

Wisconsin. The Wisconsin incentive repeal exhibits a similar pattern in Figure 26 to Indiana's. Wages in the Motion Picture and Video Production sector especially would have increased more with incentives. The characteristics of the synthetic control units mostly match those of Wisconsin, with the exceptions that Wisconsin is less densely populated and had a greater composition of slower growing industries nationally during 1998-2002.

The estimated DID for Wisconsin is -0.028 for employment and -0.106 for wages in the industry. Rather than only increasing by thirty-six during 2013-2019, the SCM suggests that Wisconsin's employment in the sector would have increased by one hundred ninety-four, the difference representing 26.5 percent growth of the 2013 level of five hundred ninety-six. For the sector's total annual wages in Wisconsin, the estimated DID suggests they would have been higher by one hundred and three percent of the 2013 value.

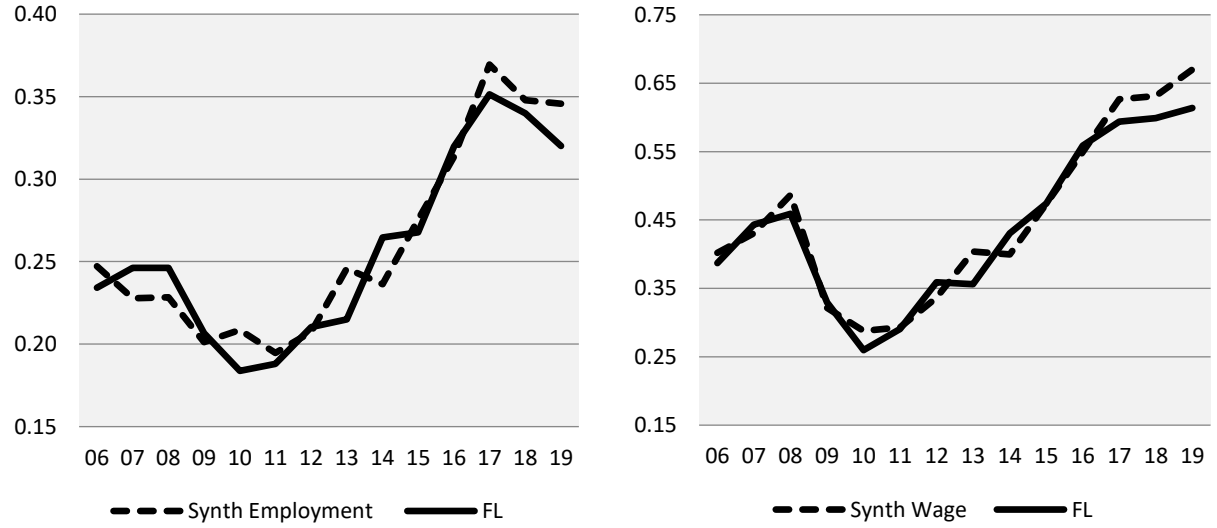
Figure 26. Wisconsin Incentive Repeal: WI Employment and Wage vs Synthetic (Synth)



Weights: Employment (NC=0.333, MS=0.306, MD=0.215, ME=0.093, WA=0.053); Wage (SC=0.491, MN=0.361, RI=0.094, ME=0.054)
DID: Employment=-0.028; Wage=-0.106

Florida. Figure 27 suggests the repeal of film incentives in Florida reduced both employment and wages in its Motion Picture and Video Production sector. Florida had incentives in place from 2003 to 2016, yielding a long pre-incentive repeal period for matching. Florida's characteristics generally matched those of the synthetic control units with a couple of exceptions. For both the employment and wage comparisons, Florida is somewhat more amenity attractive and more densely populated than the synthetic control units.

Figure 27. Florida Incentive Repeal: FL Employment and Wage vs Synthetic (Synth)



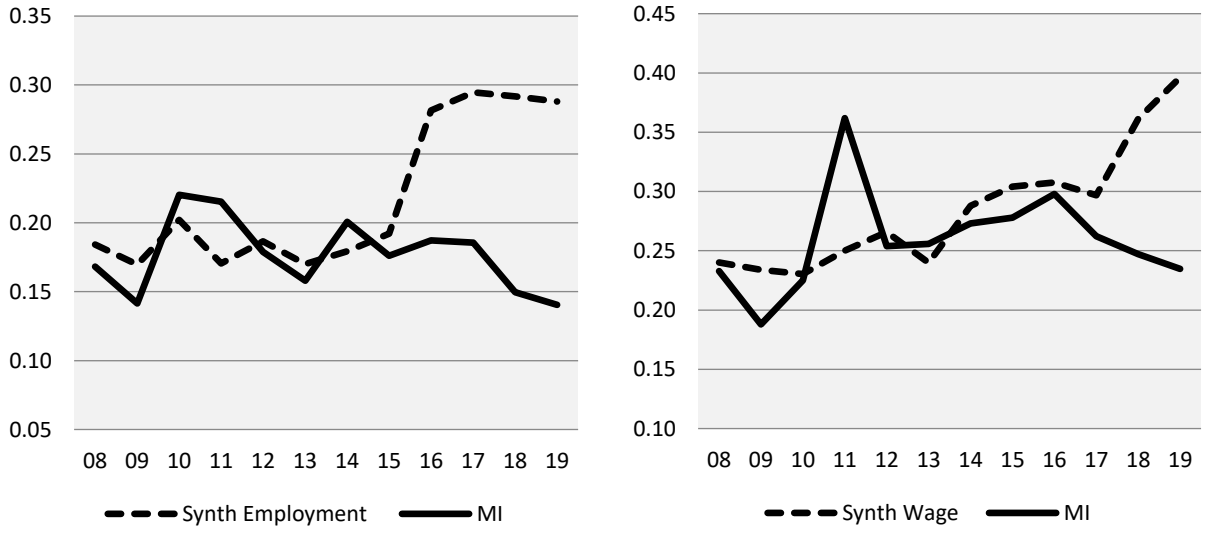
Weights: Employment (TX=0.591, MD=0.194, UT=0.183, GA=0.032); Wage (ME=0.362, UT=0.272, MD=0.252, NM=0.039, CT=0.035, GA=0.028, OR=0.012)
DID: Employment=-0.038; Wage=-0.073

Although the differences appear small in Figure 27 compared to the previous figures, this in part is because of the long pre-treatment period and wider range of values. The estimated DID is -0.038 for employment and -0.073 for wage. The estimated employment DID indicates that employment would have increased by seven hundred twenty-four from 2016 to 2019 rather than increasing only by seven if the incentive had remained in place. Relative to the level of employment of 6,092 in 2016, this translates into a 11.8 percent lower level than what would have occurred with incentives. Wages would have been 13.1 percent higher relative to the 2016 value had Florida maintained the incentives.

Michigan. Figure 28 shows Michigan's experience with repealing its film incentives in 2015. With the exception of an upward blip in wages in 2011, Michigan's paths of employment and total annual wages follow those of the synthetic control paths. Michigan is somewhat less natural amenity attractive and had somewhat lower bachelor's degree shares in 2000 than its synthetic control units, but otherwise matches the synthetic control units well.

The estimated DID for employment is -0.132 and total annual wages is -0.125. The estimated DID for employment suggests that it would have increased by nine hundred forty-nine from 2015 to 2019 rather decrease by three hundred fifty-three, with the difference representing 70.3 percent of employment in the sector in 2015. The estimated DID suggests total annual wages in the Motion Picture and Video Production sector would have been 44.8 percent higher in terms of the 2015 value had Michigan retained its incentives.

Figure 28. Michigan Incentive Repeal: MI Employment and Wage vs Synthetic (Synth)



Weights: Employment (TN=0.345, MS=0.271, MN=0.167, PA=0.159, RI=0.057); Wage (PA=0.297, MS=0.209, IL=0.208, NC=0.137, OR=0.086, MN=0.053, TN=0.011)
DID: Employment=-0.132; Wage=-0.125

Arizona and Vermont. We also examine the repealing of incentives for Arizona and Vermont. For both Arizona and Vermont, the employment paths during the pre-incentive years did not match well and violated the parallel trends assumption needed for unbiased estimation of the effect of repealing incentives. The paths for total annual wages matched well for both states. Arizona's synthetic control for total wages is comprised of three states (SC=0.743, TX=0.151, ME=0.106). Compared to the synthetic control unit, Arizona is more natural amenity attractive, had higher wages, had higher housing costs, and had a mix of faster growing industries nationally during 2002-2007. Vermont's synthetic control unit for total annual wages is comprised of four states (MT=0.352, MS=0.326, MN=0.293, RI=0.029) and closely matches Vermont's characteristics.

The estimated DID for total annual wages equals -0.098 for Arizona and -0.11 for Vermont. Arizona's DID estimate suggests that maintaining incentives would have led to an increase in total wages equal to one hundred forty-one percent of the 2010 value. Vermont's DID for total annual wages suggests an incentive-induced increase of total wages equal to 85.6 percent of the 2011 value.

Louisiana Cap. One final scenario considered was the capping of the total amount of incentives in Louisiana. Previously uncapped, Louisiana capped the amount of tax credits that could be claimed at $180 million in 2015 in response to budgetary concerns, reducing the cap further to $150 million in 2017 (Karlin, 2019). The response of film production to the capping of incentives in Louisiana provides another test of the role of film incentives in state film production.

Louisiana's QCEW employment and total annual wages in the Motion Picture and Video Production (NAICS 51211) sector declined after 2015. We apply the SCM approach to each outcome though to assess the role of capping incentives in the decline. We specify 2006-2015 as the period to construct the synthetic control match and compare the difference in changes from 2015-2019.

The SCM fails to produce a suitable match for employment but succeeds in matching the path of Louisiana's total annual wages in the sector. The synthetic control unit for total annual wages is comprised of the following states, with the weights in parentheses: Connecticut (0.536), New Mexico (0.294), and Tennessee (0.17). In contrast to Louisiana's experience, total wages of the synthetic control unit rose from 2015 to 2019. The estimated DID for the total annual wage scenario is -0.683. The SCM DID estimate suggests that total annual wages would have been nearly fifty percent higher in 2019 (forty-three percent of the 2015 value) had Louisiana not capped its incentives.

Re-evaluation of the Cost-Effectiveness of Incentives for Louisiana and New Mexico

Using the above SCM estimates for the adoption of incentives in Louisiana and New Mexico, we estimate the state budgetary return from economic activity stimulated by film incentives and the dollar incentive cost per job created. We compare and contrast them to those of Button (2018) for the 2003-2008 period.

Louisiana. Although our pre-treatment (incentive) period ends in 2006, and two of the states contributing to the synthetic control for employment subsequently adopted incentives, Wyoming in 2007 and West Virginia in 2008, we calculate the synthetic control estimates through 2008 for comparability with Button (2018). If anything, this would bias our estimated incentive impacts for Louisiana downwards if Wyoming's and West Virginia's incentives stimulated their film production post-2006.

From the SCM incentive adoption scenario the average difference in Louisiana's level of Motion Picture and Video Production (NAICS 51211) employment from its synthetic control for 2003-2008 is 1,417. This includes an adjustment for the average difference during the pre-incentive period between Louisiana and its synthetic control. Our estimate exceeds the value of 1,111 reported by Button (2018) for the period. Using a Type II employment multiplier of 2.78 from IO-Snap, the total employment impact of the incentives is predicted to be 3,943. Louisiana employment in the related sub-sectors of Motion Pictures and Video Distribution (NAICS 51212) and Postproduction Services and Other Motion Picture and Video Industries (NAICS 51219) declined from 2002-2006. Consistent with the evidence by Button (2019) for all states, there does not appear to be an incentive effect on Independent Artists, Writers and Performers sector (NAICS 7115) as it also declined during 2002-2006 in Louisiana.

The corresponding SCM estimated impact on total annual wages in Motion Picture and Video Production is $55,708,751 for 2003-2008. There is less potential contamination of the wage treatment effect for 2007-2008 because the two weights for West Virginia and Wyoming only sum to 0.026 for the wage synthetic control. Consistent with employment, there appears to be no effect on employment in NAICS 51212, 51219, or 7115. Multiplying the direct wage effect by the IO-Snap income multiplier of 2.643 yields a predicted total wage impact of $147,238,229. Using tax data from the Annual Survey of Government Finances (Urban Land Institute, 2020) and BEA wage and salary data, an average ratio of total state taxes (less net corporate income taxes and the category including severance taxes) to wage and salary income over 2003-2008 is calculated as 0.112. Multiplying the total estimated wage impact by this ratio produces an estimated revenue feedback from film-induced economic activity of $16,542,630.

Button (2018) reports an average of $75.3 million in film incentives over the period in 2009 dollars. Converting this into an average of $70.6 million nominal dollars for 2003-2008, the return to state revenue would be 0.23. Subtracting the revenue feedback from the nominal incentive cost and dividing by the estimated total number of jobs created, produces an estimate of $13,698 cost per job created from the film incentives.

In contrast, Button (2018) estimates an incentive cost per direct job of $48,388 based on the SCM estimated job impact in the paper. While the details of Button's calculation are not

provided in the paper, the estimate included the addition of estimated contract jobs in addition to establishment jobs. The average ratio over the period of BEA total employment, which includes proprietors, and BEA wage and salary employment for the aggregate sector Motion Picture and Sound Recording sector (NAICS 512) is 1.16, suggesting our net revenue cost per job could be sixteen percent lower if the aggregate ratio held for NAICS 51211. There is a slight negative but statistically insignificant relationship between the ratio across states in 2017 and the Census County Business Pattern share of employment in NAICS 51211 in the aggregate sector, suggesting that adjusting by the NAICS 512 total employment to wage and salary employment ratio may be appropriate for estimating the proprietor impact in NAICS 51211.

New Mexico. Following Button (2018), we perform a similar exercise for New Mexico. The SCM estimate of the average level of employment in NAICS 51211 in New Mexico relative to its synthetic control unit, adjusted for the pre-incentive difference, is 1,048. If anything, the estimate could be biased downwards because of the larger weight that West Virginia has in the employment synthetic control. Given the IO-Snap employment multiplier of 3.62, New Mexico's incentives are predicted to have increased total employment in the economy by 3,442. QCEW employment and wage data mostly are nondisclosed for NAICS 51212 and 51219 in New Mexico and where they are disclosed the values are small. Employment and total annual wages in NAICS 7115 either are flat or decrease over the period.

The corresponding SCM estimate of total annual wages for New Mexico is $37,115,698 which translates to $94,756,378 with an approximate income multiplier of 2.55. Potential downward bias in the estimate may occur because of the larger weight of Michigan, which adopted incentives in 2008, receives in the construction of the synthetic control. The average tax rate for New Mexico (as calculated above for Louisiana) over the period is 0.123, which when applied to the total estimated change in total annual wages produces an estimated return to state tax revenue of $12,369,570. The rate of return on film incentive dollars to the state budget then equals 0.48. The net revenue cost per job created from the film incentives equals $3,593, which as with Louisiana is much lower than the estimate by Button (2018), reported as $21,035 per direct job. Our estimated cost could be sixteen percent lower because of the ratio of total employment to wage and salary employment over the 2003-2008 period.

Besides differences in SCM estimates and our inclusion of indirect/induced jobs, differences in our estimates of the cost-effectiveness of the incentives from Button (2018) also may arise from the differences in tax rates used in the calculations. We assume that increased wages and taxes will affect most categories of taxes and not just the major categories such as income taxes and sales taxes, which produces larger estimated revenue feedbacks. The sole categories removed from consideration are net corporate income taxes and taxes not elsewhere classified (NEC), which includes severance taxes, both of which are sensitive to the energy industry in each state. The tax revenue feedbacks are close to those predicted from regressions of the tax measures on total wages and salaries in natural logarithms for the two states from 1990-2008; Louisiana's regression estimates suggest slightly higher feedback on revenue, while New Mexico's regression estimates suggest slightly lower revenue feedback.

Our estimates of the cost per job of $13,698 and return on investment equal to 0.23 are closer to those for total impacts from other studies of Louisiana for different time periods than to those of Button (2018). For 2013, Owens and Rennhoff (2018) report a state return-on-investment of $0.17 and dollar incentive cost per job of $20,224 for Louisiana. For 2015-2016, Loren C. Scott & Associates estimate an incentive dollar cost per job of $15,494, while for 2017-2018 Camoin Associates (2020) report a return-on-investment of $0.35 and dollar incentive cost per job of $12,895.

The above rate of return estimate for New Mexico of $0.48 and associated estimated net cost per job of $3,593 are more favorable than those of total impacts reported for New Mexico by Owens and Rennhoff (2018) of $0.20 and $17,807, and by Popp and Peach of $0.14 and $13,424.99. More comparable estimates of $0.33 and $8,519 are provided by *MNP LLP* (2014).

Oklahoma State Film Incentive Experience

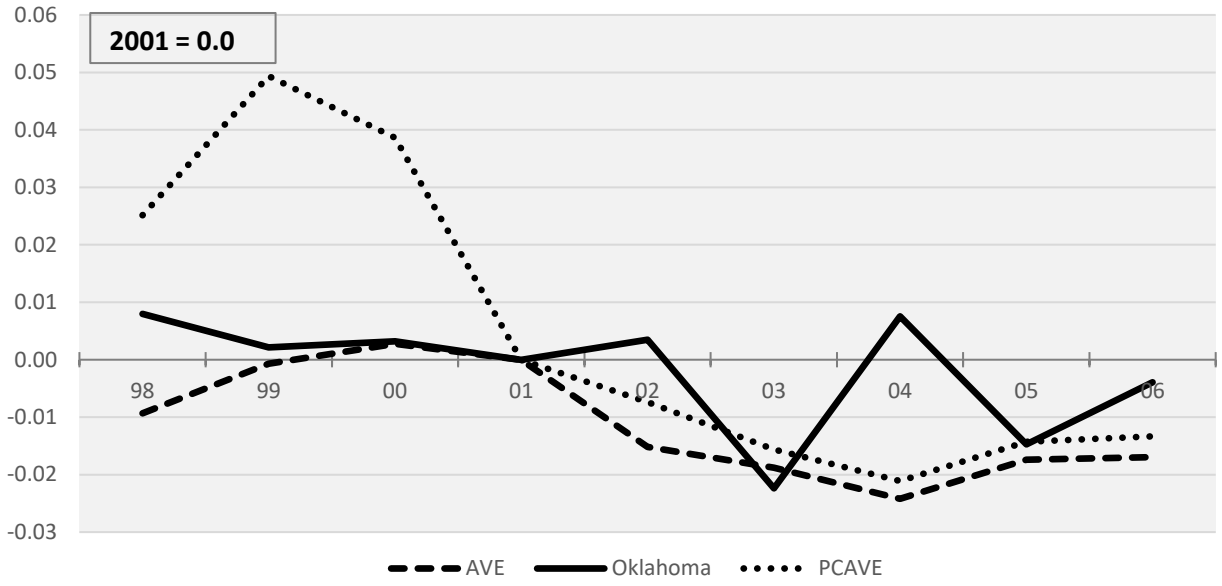
Oklahoma's film incentive program was approved in 2001 with funding beginning in 2005 and contained an initial annual cap of $5 million through the period of analysis (The PFM Group, 2016). Because of a lack of disclosed QCEW data prior to 1998 for Oklahoma, and because funding did not start until 2005, we are unable to use the SCM approach applied above to evaluate the effects of Oklahoma's incentive program. We instead compare per capita employment in Motion Picture and Video Production (NAICS 51211) for Oklahoma to averages of other states that did not adopt incentive programs.

We first compare Oklahoma over the period of 1998 to 2006 to an average of eighteen states that did not have an incentive program during those years. The states included either never adopted an incentive program or did not adopt one until 2007 or later. We also include an average of five states that most matched the characteristics of Oklahoma based on principal component (PC) analysis. The values are expressed as differences from 2001.

Figure 29 shows that either comparing to the average of all eighteen states (AVE) or to the average of the five states mostly closely matched to Oklahoma based on principal components (PCAVE), there does not appear to be a significant difference in employment growth after 2001. Oklahoma's path did not follow either of the other two paths prior to 2001. So, difference-in-difference calculations would not be meaningful.

It might be that because funding did not start until 2005 that an effect would not be expected before then. To explore this possibility, we next compare Motion Picture and Video Production Employment in Oklahoma over the 1998 to 2019 period to the average across seven states that never had incentives over the entire period (with the brief adoption of incentives by Kansas the sole exception): Delaware, Idaho, Kansas, Nebraska, New Hampshire, North Dakota, and South Dakota. As shown in Figure 30, consistent with the analysis above there does not appear to be a persistent difference in outcomes for Oklahoma compared to the average of states that never had incentives. There is a brief upward blip from 2008-2010, followed by a drop below the average of other states, before returning to close to the average at the end of the period.

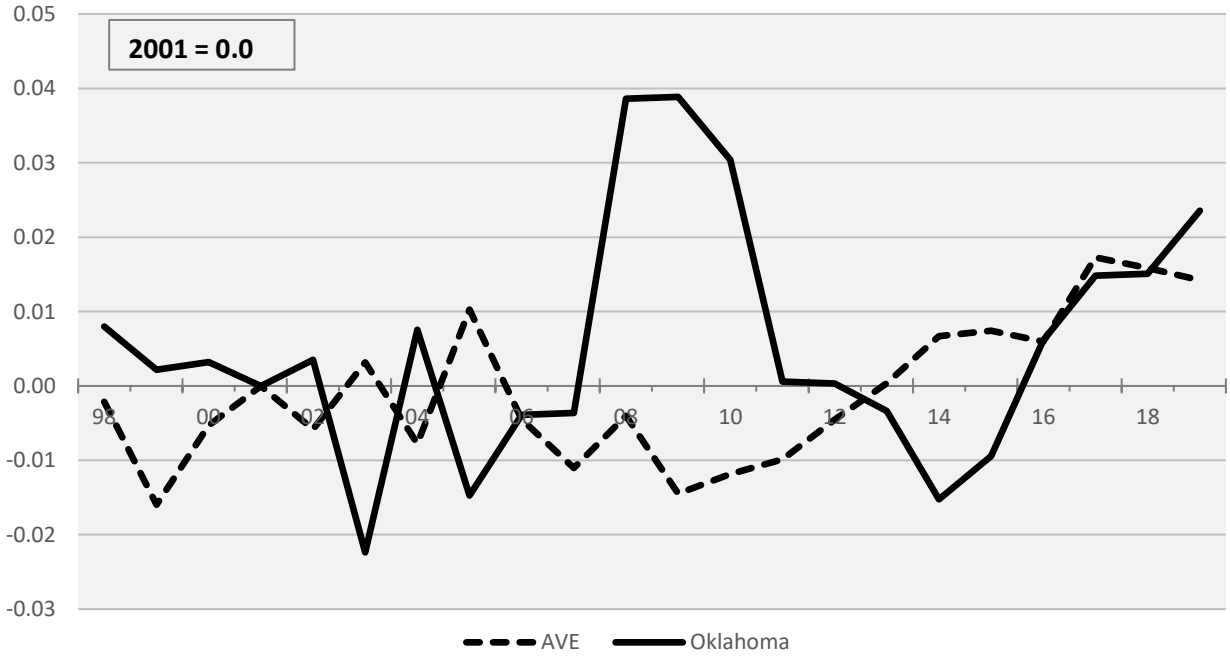
Figure 29. Oklahoma Adoption of Incentives: Per Capita Employment (1998-2006)



AVE (Average of Alabama, Arkansas, Delaware, Idaho, Indiana, Iowa, Kansas, Kentucky, Michigan, Nebraska, Nevada, New Hampshire, North Dakota, Ohio, South Dakota, West Virginia, Wisconsin, Wyoming)

PCAVE (Average of Alabama, Arkansas, Kansas, Kentucky, West Virginia)

Figure 30. Oklahoma Adoption of Incentives: Per Capita Employment (1998-2019)



AVE (Average of Delaware, Idaho, Kansas, Nebraska, New Hampshire, North Dakota, and South Dakota)

Placebo Tests

Despite the matching of the states making changes in their incentive programs to other states that did not make a change during the period of analysis, based both on the similarity of characteristics and the trend in the film industry labor market outcomes prior to the change in the incentive program, it remains possible that differences after the incentive policy change are attributable to other factors. If we randomly chose another state that did not make a change in its incentive policy and pretended it did make a change in policy, it is possible that the SCM approach would show that there was a difference in outcomes because of other unaccounted for factors.

Therefore, we follow the convention in SCM studies (and recommended best-practices in empirical research) and perform placebo tests. We pretend that each state in the donor pool made a change in the film incentive policy and use the remaining states in constructing a counterfactual comparison. The difference in outcomes for the placebo states versus their counterfactual comparisons should be nonexistent or at least smaller than the differences for states that made changes in their incentive programs. We use the rank of the difference in outcomes (DID) for the state making a change in its incentive policy relative to the differences for the placebo states divided by the number of donor pool states as the level of significance.

Figures 31 and 32 show the placebo test results for the state film adoption scenario. Each line represents the difference between the actual outcome and the predicted outcome based on the synthetic control unit. The donor states are shown by thin solid lines, while the four incentive adopting states examined are shown by dashed lines. The synthetic controls for the donor states are constructed using 1990-2000, consistent with the incentive adopting states of North Carolina and Rhode Island.

Following Rickman and Wang (2018, 2020) we use the calculated difference-in-differences (DID) to rank the outcomes in the placebo analysis. For the donor states, North Carolina, and Rhode Island the DID calculations use 1990-2000 and 2000-2006, prorated per year. For Louisiana and New Mexico, the calculations use 1990-2002 and 2002-2006, which when compared to 2000 for the donor states makes it more challenging to demonstrate a statistically significant effect for the two states. Based on the DID calculations, for both

Figure 31. Film Incentive Adoption Placebo Analysis: Employment

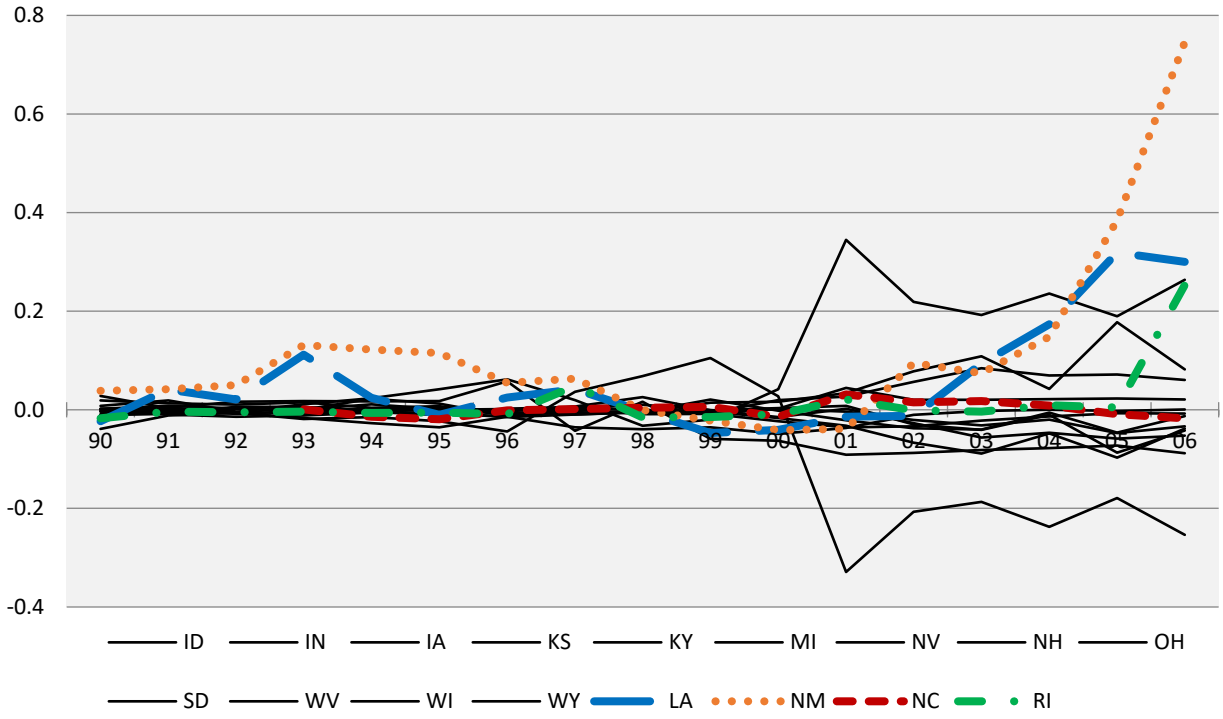
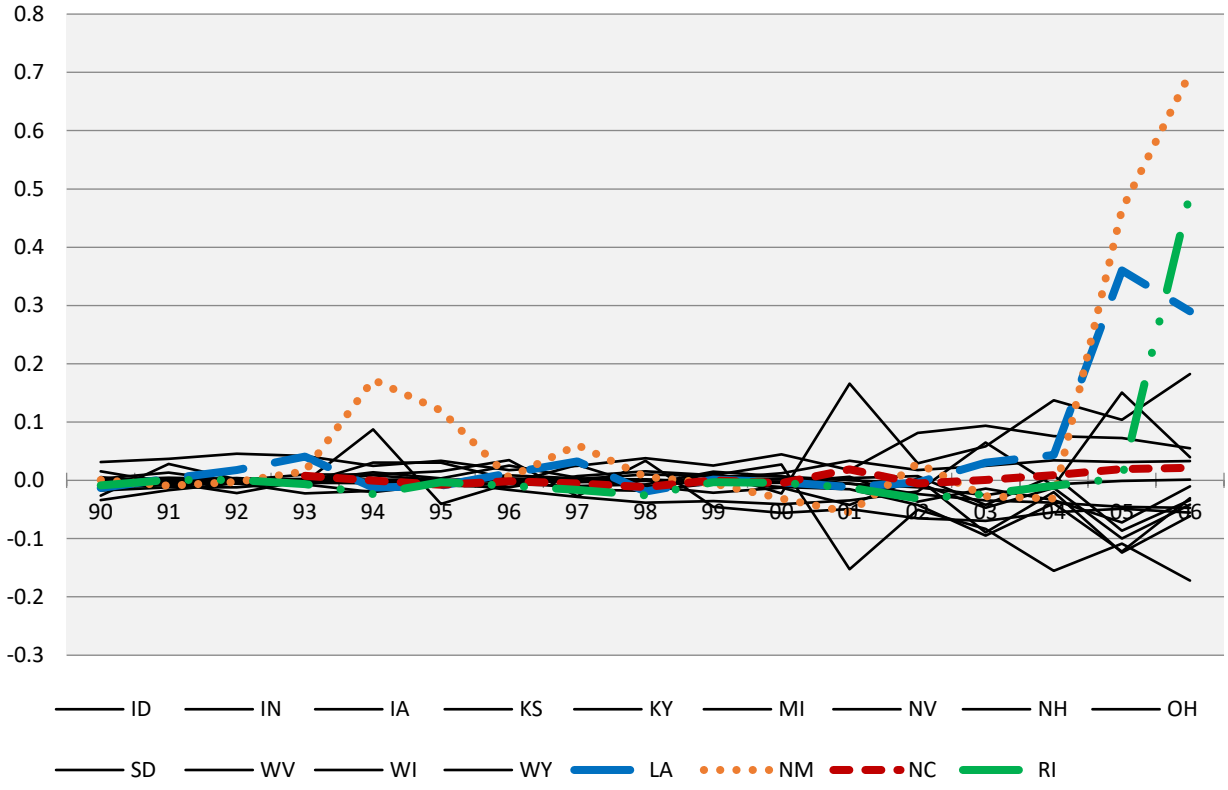


Figure 32. Film Incentive Adoption Placebo Analysis: Wage and Salaries



employment and wages, Louisiana, New Mexico, and Rhode Island rank first compared to the donor states (not shown), making the result statistically significant below the 0.1 level (i.e., 1/13=0.08). North Carolina's DID ranks eighth for employment and fourth largest for wages and salaries, make its estimated positive effects for employment and wages in the Motion Picture and Video Production sector statistically insignificant.

We repeat the placebo analysis for the states that repealed their incentive programs, or in the case of Louisiana capped its incentives. First, we perform a placebo analysis for Arizona, Indiana, Wisconsin, and Vermont, which did not have incentives for long-periods of time. For the twenty donors we specify 2006-2011 as the pre-treatment (incentive) period and 2012-2019 as the post-treatment period without incentives. Second, we perform a placebo analysis for Florida, Louisiana, and Michigan. The pre-treatment period is 2006-2015, leaving 2016-2019 as the post-treatment period.

For the first placebo analysis none of the state declines in employment or wages are statistically significant (not shown). The estimated DID for employment ranks ninth for both Indiana and Wisconsin compared to the DID for the placebo states. Recall that the SCM failed to produce a successful employment synthetic control for Arizona and Vermont. For wages, the estimated DID ranks sixth for both Wisconsin and Vermont, seventh for Arizona, and twelfth for Indiana. The DID calculations for the incentive repealing states are based on the year of repeal in each of the states and prorated per year.

Figures 33 and 34 show the placebo test results for Florida, Louisiana, and Michigan. Recall that the SCM failed to produce an efficacious employment counterfactual for Louisiana. So, Louisiana is not included in Figure 33. Of the twenty donor states, the SCM only produced seventeen successful placebo comparisons for both the employment and wage scenarios.

In the employment placebo comparison, the estimated DID for Michigan ranks second and Florida's ranks eighth most negative. With only seventeen placebo comparisons, neither estimated DID qualifies as statistically significant, though Michigan comes close. In the wage placebo scenario, Louisiana ranks first, Michigan ranks second, and Florida ranks fifth, for most negative DID. This qualifies the negative post-incentive repeal of Louisiana as statistically significant, with that of Michigan again nearly significant.

Georgia is the placebo state with the strongest positive increase in both employment and wages and salaries after 2014-2015, likely attributable to the opening of Pinewood Atlanta Studios.

Figure 33. Film Incentive Repeal Placebo Analysis: Employment

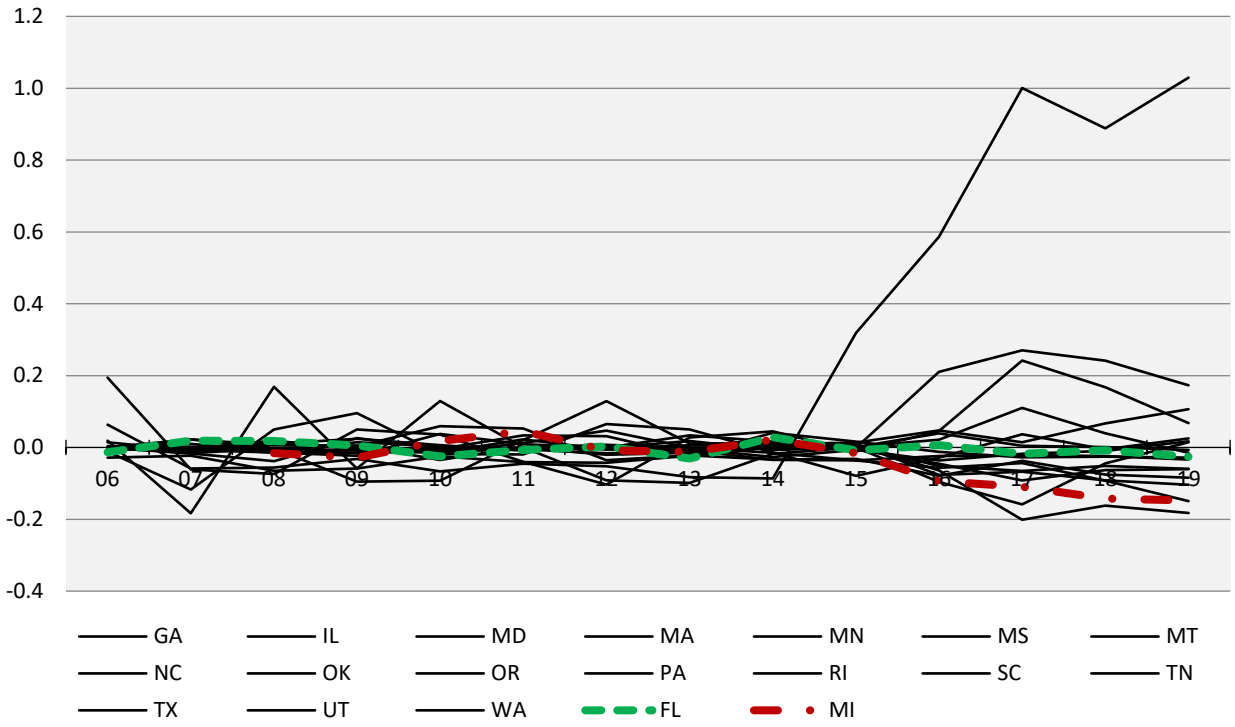
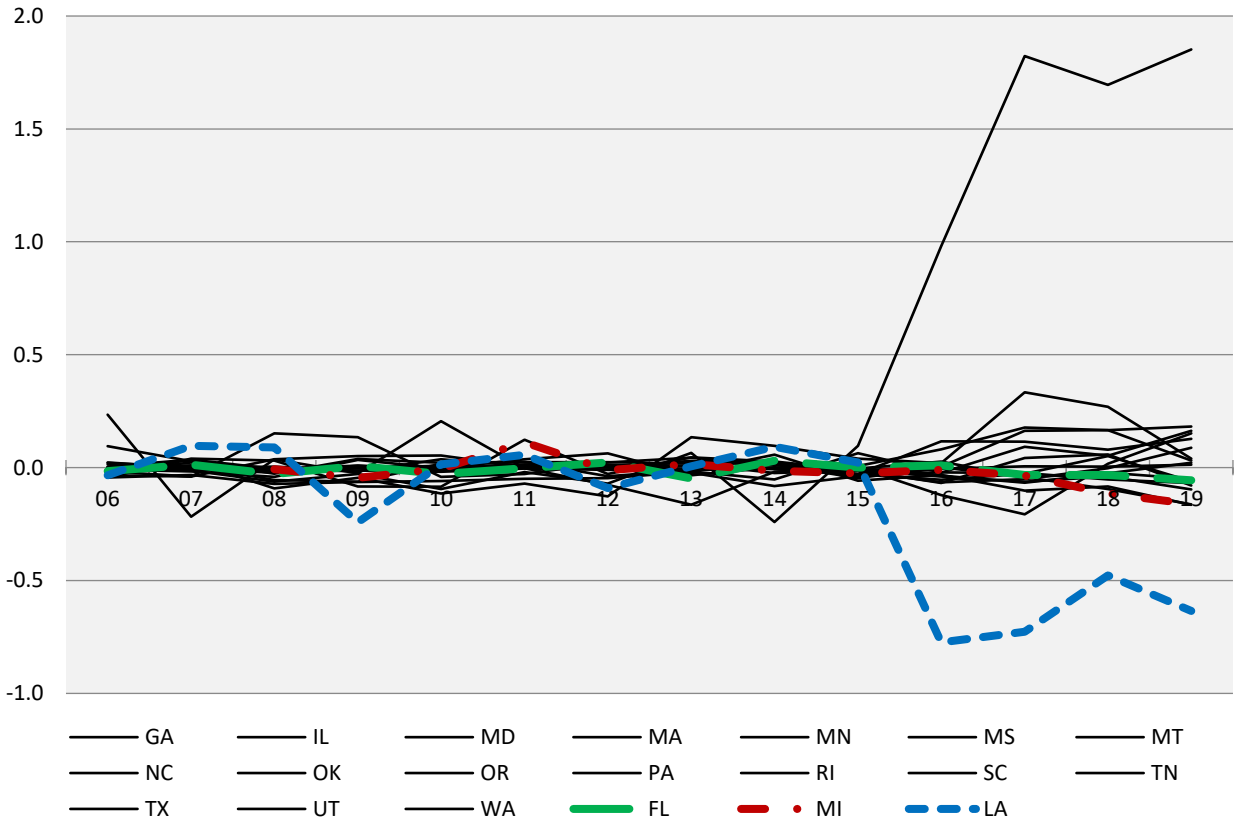


Figure 34. Film Incentive Repeal Placebo Analysis: Wage and Salaries



Key Lessons from the Empirical Analysis

1) **State film incentives significantly increase film production**.
    a. For three of the four early adopters examined, both employment and wages in the Motion Picture and Video Production sector significantly increased in the state after adoption of an incentive program relative to a matched comparison unit that predicts what would have happened without the incentives. For the fourth early adopting state, relative wages increased after adoption of incentives, but the estimate is not statistically significant.
    b. Evidence from examining six states that repealed their incentives suggests meaningful declines in Motion Picture and Video Production (NAICS 51211) employment and wages after the elimination of incentives. Both employment and wages noticeably declined in four of the six states. Effective comparison units could only be obtained for wages for the other two states; relative wages declined in both states after elimination of film incentives. The capping of incentives in Louisiana is shown to have significantly reduced wages in the film sector, though an effective comparison unit for employment is not available.
    c. Incentives appear to play a much larger role in Motion Picture and Video Production than do state incentives in other sectors. Based on a review of 34 empirical incentive studies, Bartik (2018) concludes that incentives generally play a minor role in other sectors. Depending on the relative credence given to each of the studies reviewed, Bartik suggests that between 75 percent to 98 percent of firm location decisions would have been the same without the incentives received. Based on the analysis above, comparable calculations for the percent of Motion Picture and Video Production employment that would have occurred without film incentives in the four early incentive adopters in 2006 are 24.5, 28, 86.4 and 17.4 for Louisiana, New Mexico, North Carolina, and Rhode Island.
2) **There do not appear to be other sectors directly related to incentive-induced increases in Motion Picture and Video Production (NAICS 51211)**.
    a. Independent Artists, Writers and Performers sector (NAICS 7115) employment and wages did not follow the incentive-induced changes in the Motion Picture and Video Production sector in the early incentive-adopting states. Of the seven states where meaningful employment effects are found, employment in the Independent Artists, Writers and Performers sector is only positively related to Motion Picture and Video Production employment for two states, negatively correlated for three states, and uncorrelated for two states, over the 2001-2019 period.
    b. Employment and wages in Motion Pictures and Video Distribution (NAICS 51212) and Postproduction Services and Other Motion Picture and Video Industries (NAICS 51219) did not follow the incentive-induced changes in the Motion Picture and Video Production sector in the early incentive-adopting states.

The two sectors are highly concentrated in California and New York, though Louisiana, Texas and Utah contain significant employment in NAICS 51219.

3) **State film incentive programs likely need to exceed some threshold to be effective. Larger incentive programs more likely lead to required business services, infrastructure investment, and educational programs that create clustering of activity**.
    a. Of the states examined, those with larger incentive expenditures are more successful. Other states, such as Oklahoma with the $5 million cap during the period of analysis did not appear to be more successful than states without incentive programs.
    b. The reductions in employment and wages in the Motion Picture and Video Production sector following the elimination of incentives though suggest that the cluster effect is not sufficiently strong to offset the continual need for some amount of film incentives once the industry is established in the state to maintain the size attained.
4) **Successful state film incentive programs likely generate significant budgetary returns from increased spending in Motion Pictures and Video Production and its indirect effects on spending in the rest of the economy**.
    a. The incentives programs are highly unlikely to pay for themselves though unless the increase in state filming increases tourism or increases quality of life and attracts new residents.
    b. Our estimated net revenue costs per job associated with state film incentives for Louisiana and New Mexico compare favorably to those of other export-based sectors. Bartik (2019a) reports an average cost of $24 thousand of state job and investment tax credits per direct job created across the U.S. in 2015. Assuming an average state employment multiplier of two across the nation reduces the incentive cost to $12 thousand per job. But assuming an upper bound of 25 percent of the jobs as incentivized from the above discussion increases the cost to $48 thousand, which greatly exceeds our state film incentive estimates of $13,698 for Louisiana and $3,593 for New Mexico. Using the high-tech employment multiplier of 3 from Bartik and Sotherland (2019) only improves the average incentive cost reported by Bartik (2019a) to $32 thousand per job in other export sectors.
5) **Successful state film incentive programs likely pass a benefit-cost analysis**.
    a. The feedback to state tax revenues from film incentives is only a fraction of their total benefits. Increased jobs and wages from the incentives increase the average well-being of state residents. Other benefits include increased property values, though as with the fiscal benefits, they are small in comparison to the increased earnings from the incentives.

b. Using a baseline model of general incentive benefits and costs, Bartik (2019b, p. 40) reports a benefit-cost ratio of 1.52. Included in the baseline model is an assumption that incentives induce the location or expansion decision of 12 percent of the firms. The findings above for four early incentive adopting states that incentives induced 13.6 to 82.6 percent of film spending suggest benefit-cost ratios that are multiples of the baseline model benefit-cost ratio of Bartik (2019b) for the more successful programs. The baseline model assumes an employment multiplier of 1.75, which is lower than those for Motion Picture and Video Production in states with a large presence of the sector, further suggesting a larger benefit-cost ratio from film incentives, particularly during periods of high unemployment as the baseline model assumes an unemployment rate of 3.9 percent. Net incentive costs are assumed paid for by increased household taxes.

VIII. Localized Impacts

Many TV and film productions become synonymous with their setting or filming location. The film Fargo remains a key source of name recognition (some unwanted) for its namesake city in North Dakota. Albuquerque for Breaking Bad. The Walking Dead in Senoia, Georgia. Devil's Tower National Monument with Close Encounters of the Third Kind. Hawaii 5-0 and Magnum P.I. with Hawaii. Street Outlaws in Oklahoma City.[28]

Economic spillover effects from the film and TV sector are difficult to detect at the state level, particularly in states with a small film and TV sector relative to the size of the overall economy. This is true of many states, especially the three largest U.S. film and TV markets – California, New York, and Georgia.

However, when viewed at the local level, the economic effects of film and TV are oftentimes highly visible at the street level and can be transformative. In this section of the report, we first examine a local television show filmed in Pawhuska, Oklahoma and evaluate some of the recent local economic effects. As with other cities, Pawhuska has become synonymous with the Pioneer Woman television show.

We then prepare a case study evaluating the potential localized impact of the development of an initial film production and sound stage facility in Oklahoma. As discussed in other sections of the report, the lack of an industry-quality sound stage and a small incentive pool in Oklahoma limit the state's ability to foster growth in the film and TV sector. We provide a simulated case of the expected filming activity associated with a sound stage and estimates of potential economic impacts. This should provide state policymakers with a reasonable view of the economic potential and cost to incrementally grow the industry in the state.

Pawhuska, Oklahoma – Pioneer Woman

Pawhuska, Oklahoma (population 3,415 in 2019) is a recent example of localized spillover economic effects from a television show hosted in Oklahoma. The Pioneer Woman television production, a well-known cooking and lifestyle show on the Food Network, is hosted by Ree Drummond. The show is an offshoot of an initial lifestyle blog which is now accompanied by a quarterly magazine published by Hearst.

The show is filmed primarily in Pawhuska at the family's ranch in rural Osage County. The show is produced by Pacific Television, a U.K.-based production company, which participates in the state's film incentive program. The show shoots in Pawhuska approximately five times per year for three weeks per shoot. The London-based production company brings a crew of about 20 to the local area while shooting. This activity results in significant spending in the local community for lodging, food, transportation, and other items.

The popularity of the Pioneer Woman media brand has also spurred a significant surge in tourism and retail activity in Pawhuska. Ree Drummond rehabilitated several historic parcels in central downtown, including a large retail store (The Pioneer Woman Mercantile) with full-service restaurant and bakery that opened in late 2016; a nearby pizza restaurant and ice cream parlor in 2018; an eight-room boutique hotel deemed 'cowboy luxury' in 2018; and an event and

meeting facility in 2020. Significant added employment in the city was needed to operate the new establishments.

Tourism-related travel to the area has increased rapidly, mostly tied to the Pioneer Woman brand. In the summer, on holidays, and most weekends, auto and foot traffic become very heavy downtown, with the Mercantile experiencing long lines to dine at the restaurant.

Tours at the rural ranch house where the show is filmed are open to the public and have become a popular tourist stop. Tourism to Pioneer Woman-related attractions also melds well with visits to the nearby Tallgrass Prairie Preserve, the nearly 40,000-acre home to the largest protected remnant of tallgrass prairie in the world and a 2,500 head bison herd. Tourists commonly visit both attractions.

Surge in Taxable Sales. The activity now visible in Pawhuska is far different from the limited traffic in downtown prior to the Pioneer Woman developments. Pawhuska has long struggled to gain a solid economic footing. Economic development in the region in recent years is traced primarily to the Osage Nation, with tribal headquarters in Pawhuska. Its rural location in northeast Oklahoma has left it distant from the main transportation and development corridors across Oklahoma the past century.

The economic spillover effects of the Pioneer Woman developments are highly visible not only in city foot traffic but also in retail sales figures for Pawhuska. As with most cities in Oklahoma, the primary source of revenue to the city remains sales tax. Figure 35 illustrates monthly historical taxable sales in the city of Pawhuska along with all other cities in Osage County that levy a sales tax.

Since the opening of the Mercantile in late 2016, taxable retail sales in both the city of Pawhuska and Osage County reversed an extended downturn and entered a sharp upturn. City taxable sales increased from an annual rate of approximately $30 million in late 2016 to $45 million by 2018, a 75% increase.

Taxable sales have remained in the $45 million range through mid-year 2020. For comparison, taxable sales in all other cities in the county were in a steep downturn in late 2016 and have since flattened out and shown no growth.

While we cannot know the exact share of the increased retail activity traced both directly and indirectly to Pioneer Woman-related destinations versus other venues, discussions with local city leaders suggest that there are no other known new retail ventures in the period that can account for more than a small fraction of the direct gain in taxable sales. The surge in activity in the city has also resulted in significant and visible spillover retail activity at a range of establishments in the city.

Range of Benefits. On a small scale, Pawhuska illustrates the numerous potential spillover economic benefits from hosting film and TV and other entertainment activity:

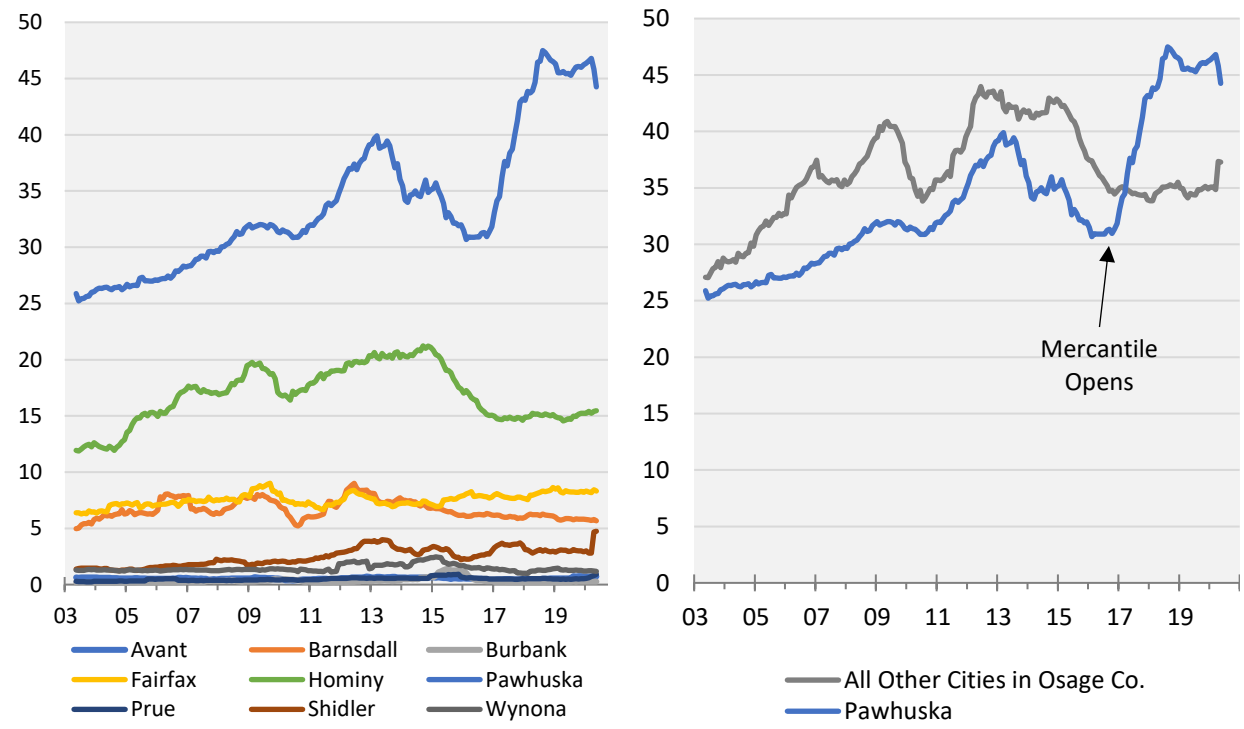
1. Increased local retail activity and tax revenue
2. Increased tourism activity

3. Added local hiring and wages
4. Higher utilization of local commercial space
5. Greater consumer choice in the local market
6. Sharply increased name recognition for the city outside the region
7. Spillover business activity to other existing businesses

While the TV show is certainly not solely responsible for the boost in economic activity in the city, it undoubtedly served as the catalyst in the recent redevelopment of Pawhuska.

Figure 35. QCEW Employment and Wages by NAICS Sector (Film and TV components)

Taxable sales base, rolling 12-month total, millions of dollars



Source: Oklahoma Tax Commission

Case Study: Oklahoma Sound Stage

Using findings throughout the report, we develop a case study of the economic effects that could reasonably be expected from the development of a sound stage located in Oklahoma. The case examined can be described as the initial phase of a development plan enabling future growth in the state's film and TV industry.

The case should provide policymakers with a realistic view of the potential for a new film production facility, the cost it might entail for the state, and the range of economic impacts that can be expected.

Successful Film and TV Markets. Existing research suggests that successful film and TV markets have three key characteristics:

1. Physical endowments and amenities – a state must have ample scenic attractiveness and diversity that provide a range of filming options. Oklahoma ranks high in this category given the range of terrain present in the state (desert to mountainous areas) and the mix of urban and rural settings. The relatively temperate climate and high number of sun days in the state is also conducive to shooting efficiency.
2. Competitive financial incentives – Oklahoma offers a highly competitive percentage payout of 35%/37% but a relatively modest total state pool of $8 million given the competitive landscape. The rate of incentive payout is extremely high, possibly far too high, relative to most competing states, particularly California. An unintended consequence of a payout ratio that is too high is that it effectively reduces the effective size of the pool and lowers the potential size of the economic impact. The small total incentive pool is also unlikely to support the operations of a new production facility.
3. Industry-quality infrastructure and personnel – all successful film hubs have high quality production facilities capable of handling modern filming needs. A key competitive weakness faced by the state is the lack of a production facility with a certified sound stage. The state also has a relatively small resident crew base with limited depth and experience.

Lack of a Sound Stage is Key Hurdle. The lack of a full-service sound stage and film production facility in the state is a key constraint keeping Oklahoma from moving into a higher tier among U.S. and international filming locations. Currently, there are no industry-quality sound stages located in the state. Existing facilities are relatively small and often used for non-commercial purposes. Many are multi-use private or public spaces used primarily as performance venues.

Industry professionals inside and outside Oklahoma continue to cite the need for an initial sound stage to ignite the development process for the industry.[29] Access to a dedicated sound stage and production facility is integral to the production process for both films and TV series.

Smaller TV productions, such as the Pioneer Woman, are certainly possible given the state's limited offerings. However, Oklahoma is unlikely to ever serve as home to a major television series without a dedicated facility for regularly scheduled filming. The state's natural scenery and cityscapes provide ample opportunity for filming in outdoor surroundings but provide no

ability to shoot indoors in a controlled environment. The lack of indoor sound stages for custom sets and controlled filming schedules forces production companies planning both indoor and outdoor shoots to move their indoor filming activity to another state.

The lack of a dedicated production facility also hampers the development of a highly experienced full-time crew base within Oklahoma. Instead, it encourages the use of out-of-state crew members rather than local hires.

The success of a new production facility is closely intertwined with the small size of the state's current incentive. The construction of a new facility will be hampered by the lack of incentives adequate to support the expected increase in filming activity. Conversely, any attempt to significantly raise the state incentive pool will require the presence of a new production facility. The development of a larger film and TV sector in the state is unlikely to transpire without both a modern production facility and a larger incentive pool.

Sound Stages in Major Hubs. A review of sound stage and production infrastructure in the major production hubs puts the role of limited infrastructure in Oklahoma into perspective. A recent annual inventory of sound stages[30] in major U.S. and global production hubs is summarized in Figure 36.

For each hub, the figure describes the number of production facilities, the number of certified sound stages, number of large stages (>30,000 sq. ft.), and total square footage in each market in 2018. A certified stage has a standing permit to film issued by local and state authorities.

Figure 36. Sound Stage Inventory in Major Production Hubs (2018)

	Los Angeles	United Kingdom	British Columbia	Ontario	Georgia	New York
Number of Stages	384	162	95	92	107	200
Studio Facilities	52	30	25	38	21	33
Stages > 30,000 Sq. Ft.	12	32	15	18	15	–
Square Footage of Stages	5,200,000	3,500,000	2,500,000	2,300,000	2,000,000	1,800,000

Source: FilmLA Sound Stage Production Report (2018)

The Greater Los Angeles region remains the largest production hub with 52 total production facilities offering 384 certified sound stages covering 5.2 million square feet. For comparison, the United Kingdom has 30 studios and 162 sound stages; British Columbia has 25 studios and 95 sound stages; Ontario has 38 studios and 92 sound stages; New York has 33 studios and 200 sound stages; and Georgia has 21 studios and 107 sound stages.

Across all regions in the report, the average production facility has approximately 100,000 square feet of space, with stages ranging from 1,800 to approximately 42,000 square feet. The occupancy rate for facilities operated by FilmLA members was a reported 96%. One-hour and half-hour TV series accounted for 75% of the shoot day productions across all sound stages. Talk shows, commercials, and other TV and miscellaneous media accounted for 22% of shoot day production. Feature films accounted for only 3% of shoot day production.

Sound Stage Funding. While most sound stages are typically funded privately, there is precedent for public economic development incentives for studio development. The state of New Mexico provided a $6.5 million loan guarantee plus a $10 million grant toward the $30 million cost to build Santa Fe Studios which opened in 2011 and has hosted numerous feature films and Netflix productions.[31] This studio was instrumental in the development of the industry in Santa Fe. The studio also received $3.5 million worth of infrastructure improvements from Santa Fe County.[32]

A major new production facility[33] in the planning stages in Albany, Georgia intends to use a combination of federal and state incentives. Federal tax breaks for facility construction are expected from an economic incentive for 'opportunity zones' enacted in the Tax Cuts and Jobs Act of 2017 designed to stimulate economic growth in economically distressed areas. Coupled with Georgia's attractive film incentive, the campus is designed to provide a cost-effective filming location for multiple production companies.

OK Commerce Evaluation. A recent Oklahoma Department of Commerce report evaluated the feasibility of building a commercial sound stage in the state.[34] The report examined several potential locations and provided a financial analysis of the cost of construction and expected revenues from operation.

The report concluded the construction and operating success of a new sound stage was feasible in Oklahoma but noted several conditions that would influence its success. Most were related to the state's film incentive. Suggested changes include:

1. Increase the cap on the $5 million state film incentive in place at the time;
2. Enact a longer sunset period to foster project stability; and
3. Tie the state film incentive to the use of a qualifying sound stage in the state.

The total cap on the incentive pool has been raised marginally to $8 million per year, but it remains one of the smallest incentive pools in the U.S. The ability by the Governor to use the Oklahoma Quick Action Closing Fund provides an even larger, but uncertain, pool. A potential policy approach to linking film and TV activity to a sound stage in the state would be to reduce the base incentive rate and reapply a portion of it to the use of an in-state certified sound stage.

The Oklahoma Commerce report did not provide estimates of the economic impact of a potential sound stage. We pursue this task in the following sections.

Initial Production Facility in OKC

The scenario we examine represents a hypothetical case for both the size and capabilities of a new production facility and the amount of film production activity that would be attracted. The scenario for a new facility is based on consultations with several film and TV industry representatives. It further assumes that the state film incentive is expanded to support increased filming activity.

Key assumptions for the sound stage design and associated film spending include:

1. The facility is in Oklahoma City with convenient ground access to Will Rogers World Airport.
2. The production facility would have two sound stages capable of simultaneously housing two ongoing productions.
3. The facility would have office and administrative space and an on-site mill.
4. One sound stage would be dedicated to hosting a permanent TV show on long-term contract.
5. A variety of other productions including feature films, small films, commercials, animation, and other entertainment shoots will utilize the second sound stage.
6. The TV show will produce estimated in-state spending of $50 million annually (10 shows at $5 million each. This is consistent with recent public reports of spending for a range of TV shows.[35]
7. A range of other productions would spend an estimated $50 million in the state.

Several key assumptions underlie the estimates:

1. A studio would require far larger state film incentives to cover the expected amount of filming taking place at the production facility.
2. An increase in state film incentives would likely be ineffective unless a production facility was constructed in the state.
3. Tourism impacts would be modest in early years unless a hit TV production is attracted; and
4. Some film production spending will extend beyond that qualifying for the incentive.
5. The expected spending likely represents an upper bound on the potential economic impact.

There are two primary anticipated economic impacts resulting from the development of an initial sound stage:

1. Upfront construction impacts as the facility is built or an existing facility is renovated.
2. Ongoing hiring, wage, and tax impacts tied to annual film production spending.

Studio Construction Impact

We estimate the cost of constructing a new facility using data from both Georgia and New Mexico along with input from industry representatives.

Georgia's state auditor recently estimated that, in 2016, five studios surveyed spent an estimated $122 million on studio construction, an average of $24.4 million for each project.[36] No details are available on the specifications of the studios, but this represents a large sample of recent studio construction. The construction was estimated as supporting 1,017 direct jobs and $55.6 million in direct labor income. On a per studio basis, this activity would require about 205 construction workers and produce $11.1 million in labor income during the construction phase.

Santa Fe Studios was constructed in Santa Fe, New Mexico in 2011 at an estimated cost of $30 million. The sound stages at the studio are similar in size to those discussed in this case study. However, the Santa Fe facility is more costly because it has a large 57-acre backlot, significant administrative space, and final production space.

Industry representatives suggest that the current cost to build a new studio in Oklahoma City with two stages, office space, and on-site mill is approximately $20 million. This estimate falls slightly below the numbers reported in Georgia and New Mexico.

Construction impact estimates for a new facility are detailed in Figure 37. IO-Snap multipliers are used to estimate direct and total impacts for the construction sector in Oklahoma. This is a one-time effect that is likely to occur within a 12-month period.

The initial $20 million expenditure is estimated to support 182 direct jobs with $12.5 million in wages during construction. Total effects calculated using multipliers for the state's construction sector suggest a change in the state of $43.5 million in total output, 335 jobs, and $19.0 million in wages. The underlying multipliers are 2.18 for output, 1.90 for wages, and 1.84 for employment.

Expected tax revenue associated with construction would total $2.03 million at a 10.7% average tax rate applied to the estimated wage gains. The average tax rate is calculated as the ratio of total state taxes as defined by the Census Bureau (Urban Land Institute, 2020) (minus corporate taxes and taxes not elsewhere classified (which include oil and gas severance taxes)) to total state wages over the 2015 to 2017 period. This is the same method used in our empirical study in the prior section of the report.

Figure 37. Studio Construction Impacts

Estimated Effect	Output	Income	Employment	Tax Revenue
Direct	$20,000,000	$10,000,000	182	$1,070,000
Indirect/Induced	23,500,000	9,010,000	153	964,070
Total	$43,500,000	$19,010,000	335	$2,034,070

Notes: Multipliers from IO-Snap

Annual Film Spending Impact

The largest expected economic impacts from studio construction come from ongoing annual spending by production companies using the studio. The case study assumes that the $100 million in expected annual spending is used for in-state wages and purchases of goods and services. This assumes the studio is operating at its intended capacity and is unlikely to represent the earliest years of the studio's operations.

Total film spending following construction of a production facility will undoubtedly include existing spending associated with the state's current $8 million film incentive. It is assumed that

projects similar to those filmed in the state in the past will be increasingly likely to film in the state given access to a new production facility.

Direct Impacts. Figure 38 provides estimated annual impacts for film spending. The $100 million in spending supports an estimated 775 direct jobs with total direct wages of $50.5 million. Total direct wages are estimated as 50.5% of total spending. The wage share is calculated as wages paid to resident labor as a share of total spending adjusted for nonresident labor income averaged across both Georgia and New Mexico. Both states provide estimates of the share of total labor income paid to both residents and nonresidents and are believed to have average wage rates and overall business operating costs similar to those in Oklahoma.[37]

It is important to note that some states (e.g. Georgia and New Mexico) offer incentives allowing nonresident labor as a qualifying expense. Oklahoma generally does not, except for expatriates who were formerly residents of the state and return to work in-state. This is expected to be a very small percentage of total spending and no adjustment is made in the results. Across Georgia and New Mexico, the average ratio reported for the share of total film spending going to resident labor income is 73.4%.

Direct employment is estimated using an average wage of $65,203 per worker, the average for film industry workers in both Georgia and New Mexico. The direct job estimate includes both full- and part-time employees.

Finally, direct tax revenue from annual film spending is $5.4 million, based on a 10.7% share of wages.

Figure 38. Annual Film Spending Impact

Estimated Effect	Output	Income	Employment	Tax Revenue
Direct	$100,000,000	$50,500,000	775	$5,403,500
Indirect/Induced	80,300,000	60,600,000	1,380	6,484,200
Total	$180,300,000	$111,100,000	2,155	$11,887,700
Incentive rate	35%			
Incentivized Spend	$100,000,000			
Incentive Amount	$35,000,000			
Tax Recovery	$11,887,700			
Tax Recovery Share	34.0%			

Notes: Multipliers from IO-Snap

Total Impacts. Figure 38 provides estimates of the total impact expected from annual film spending. The estimates include spillover effects from the initial $100 million in direct annual spending – $50.5 million in wages and the remaining $49.5 million for purchases of other goods and services across the state.

Findings in earlier sections of the report suggest that multipliers for NAICS 512 for Oklahoma understate the expected impact for film and TV activity. The small film and TV sector in Oklahoma currently contributes little to the multiplier for NAICS 512 in Oklahoma. The multiplier for Oklahoma instead more closely captures the activity in motion picture theaters (NAICS 512131) and drive-in theaters (NAICS 512132). Instead, we select a more appropriate multiplier for Oklahoma using the minimum multiplier for NAICS 512 in three states – Georgia, Louisiana, and New Mexico – that have much larger film and TV sectors but similar average wages and operating costs. These multipliers are 1.80 for output, 2.20 for income, and 2.78 for employment.

Based on these multipliers, the $100 million in annual in-state film spending supports estimated total output of $180.3 million along with 2,155 total jobs and $110.1 million in wages.

Estimated annual tax revenue from film spending totals $11.89 million. The estimate is based on a 10.7% share of wages. Assuming the full $100 million in in-state film spending receives an incentive at the base 35% rate, estimated tax revenue returned equals 34.0% of the $35 million in expected incentives.

Non-Qualified Spending. It is important to note that some additional in-state spending above the incentivized amount is likely to take place within Oklahoma as films and TV shows have access to better infrastructure in the state. This non-qualified spending is rarely tracked by states but can have significant effects on the estimated impact from a new production facility in the state.

In California, a reported one-third of in-state spending on films receiving incentives was in the form of additional non-qualified spending by production companies. If Oklahoma experienced the same 33% non-qualified share of spending, the total economic impact estimated in the prior section would be approximately 50% larger.

The economic effects from non-qualified spending are often ignored in research addressing the economic role of film and TV because data is generally not available and non-qualified spending is only indirectly related to state incentive spending. However, our objective in this case study is to measure the potential impact of the production facility rather than the impact of the state incentive. It would be important to track non-qualified spending in Oklahoma to determine the full impact of a new production facility.

It is often argued that these non-qualified expenditures would have taken place in the state without the incentive. However, again, California's experience suggests that two-thirds of the spending on productions not receiving incentives will leave the state for another film market.

Spillover Tourism

The type of local economic effects in Pawhuska from the Pioneer Woman TV series are becoming increasingly common around the country. Other popular television shows that have become synonymous with relatively small filming locations include Fixer Upper in Waco, Texas; Duck Dynasty in West Monroe, Louisiana; and Home Town in Laurel, Mississippi. This exposure often creates significant new tourism activity by fans of the show.

There is little existing empirical research on the size of film and TV-related tourism, though some studies have demonstrated the attraction of shooting sites to visitors (Tooke and Baker, 1996; and Riley, Baker, and van Doren 1998). Film and TV tourism is particularly difficult to measure because it often cannot be attributed to current or very recent industry activity, there can be more than one reason to visit an area, and visiting a shooting site may be substitutable with another activity in the area (Christopherson and Rightor, 2010). Tourist visits instead reflect a long history of activity that generates sustained interest in a region. Often tourism is attributed to a single film or TV show that may have debuted many years ago. Television series that repeatedly show a location particularly increase tourist visits to a location (Riley, Baker, and van Doren, 1998). Hence, tourism is often believed to be a residual benefit that may happen well after state film incentives are offered to any particular production.

New Mexico – Breaking Bad. The state of New Mexico has done extensive study of film-related tourism.[38] They cite survey evidence that suggests tourism decisions can be heavily influenced, in whole or in part, by film and TV industry activity. Survey data suggest that film tourism in New Mexico has increased substantially since 2008 when early popular programs aired. Tourism is also found highly regional within the state. In certain regions, up to 20% of tourism could be film-influenced. They estimate between 5 and 13 percent of total state visitor spending in 2014 could be influenced by film. Direct film-related tourist spending is estimated between $302 million and $777 million annually, or between 5.0% and 12.8% of total visitor spending to the state. This equates to between $116 million and $298 million in labor income.

New Mexico has also completed research on the hit TV shows *Breaking Bad* and its spin-off *Better Call Saul* to better understand the tourism implications of a hit TV series associated with a region (Albuquerque). Both shows were filmed in Albuquerque and became closely linked with the city. New Mexico and private firms have engaged in multiple efforts to market the shows, particularly *Breaking Bad*, These efforts include a dedicated web page, themed and guided tours, travel and accommodation promotions, and merchandise and souvenirs. In survey data of visitors to the state, 76% were aware of TV shows filmed in New Mexico. Breaking Bad was listed as the most recognizable show filmed in New Mexico. Of those survey respondents aware of New Mexico-based shows, approximately 54 percent indicated that their awareness of film and/or television series filmed in New Mexico had at least some influence on their decision to visit New Mexico. In addition, New Mexico found that some visitors not initially influenced to travel to the state by film and TV productions engage in film and TV-related tourism experiences during their stay.

Georgia attempts to estimate total film and TV-related tourism rather than tourism tied directly to incentivized productions only. They measure the number of tourists visiting the state that were at least partially motivated by film and that participated in tourism and sight-seeing activities. The final estimates are based on a ratio from a 2011 study by MPA that 0.78% of total visitor spending in Georgia in 2010 was film induced.[39] This same ratio was applied to total tourism spending for 2016 to calculate direct tourism spending. They estimate film tourism to produce $145.7 million in direct output and $291.8 million in total output; $52.9 million in tourism labor income $100.5 million total labor income; and 2,591 direct jobs 3,592 total jobs.

It is believed that film tourism in Oklahoma is currently quite small. At most, far less than one percent of total state tourism activity. Recent estimates published by the Oklahoma tourism office suggest that total state tourism reached $9.6 billion in 2018.[40] For comparison, New Mexico recently estimated the state received $7.1 billion in tourism spending in 2018.[41] Much of the uncertainty over film tourism remains the lack of reliability in total tourism estimates within a state.

IX. Summary of Policy Findings

Our review of existing research on film and TV incentives and additional empirical research on the topic suggest several policy conclusions for development of Oklahoma's film and TV industry. These findings provide insight into the underlying questions of the viability of growth in the Oklahoma film and TV industry and the efficacy of using incentives to grow the sector.

1. **Current growth patterns and shifts in consumer viewing behavior suggest that the U.S. film and TV production sector will continue to grow in coming years**. Streaming is expected to be a faster growing segment than traditional filmmaking in the future. Spending on TV shows is now growing at a far faster pace than traditional films.
2. **Film and TV industry jobs in the U.S. remain attractive to states because they are often high-skill and high-wage relative to many other industries.** Film and TV jobs paid average annual wages of $106,300 in 2019 based on QCEW data for the four core NAICS sectors comprising the industry. This is 80% higher than the $59,219 average across all industry sectors in the U.S.
3. **Film and TV jobs generally offer significant diversity to the workforce and populace in most states.** These performance arts-related jobs tend to attract the creative class and bring demographic diversity. In Oklahoma, the industry would also bring significant diversification to the state's heavily oil and gas dependent economic cycle.
4. **The availability of incentives is often the single most important factor for production companies in choosing a shooting locale**. Production companies and their investors have come to expect access to state incentives for most projects. The industry is highly mobile and will relocate to regions where incentives are available, including numerous international destinations.
5. **A distinct shaking out period has been underway the past decade among states offering film and TV incentives**. Twelve states have ended their incentive programs or allowed them to expire in recent years. Nine of these states offered very small incentive pools, and half were eliminated following the 2007-09 national recession.
6. **Despite fewer states offering incentives, the total pool of state-level film and TV incentives in the U.S. continues to grow**. Several states, including Oklahoma, have expanded, or enhanced their programs in recent years. The current incentive pool offered by U.S. states has reached a record of nearly $2.8 billion. Policymakers in many states continue to view film and TV jobs as highly desirable and a viable tool for economic development and diversification.
7. **The use of incentives can translate into greatly increased economic activity in a state's film and TV sector**. States outside the traditional markets of California and New York have developed sizeable film and TV sectors the past decade using incentives to spur growth. Prime examples are Georgia and New Mexico. Both California and New York view incentives as necessary to maintain the size of the industry.
8. **The Oklahoma Legislature's stated goal of creating an incentive "that will stand out among those of other states" is not being achieved through the current base incentive.** While the state offers an attractive 35%/37% percentage payout per project, the relatively small $8 million annual cap on the program inhibits it from being

competitive given a $2.8 billion annual pool across all states. Relative to the size of the state, Oklahoma currently offers $2.02 per capita in incentives versus $8.39 across the U.S. and $10.87 in those states that offer incentives. It is also less than 20% of the per capita incentive in industry leading California.

9. **The high percentage payout of 35%/37% in Oklahoma is well above the rate offered by most major competitors except Georgia.** Using such a high payout rate may be unnecessary and limits the number of productions that can be incentivized. This may also sharply reduce the spillover economic effects and share of tax recovery.
10. **Oklahoma's lack of filming infrastructure limits the prospective growth of the industry in Oklahoma**. The presence of certified sound stages and resident filming locations remain a key component of the growth process for the film and TV industry in a state. Both Georgia and New Mexico have built numerous sound stages across each state to accommodate the growth. Attracting a resident TV show to Oklahoma is highly unlikely until a suitable permanent filming facility that meets modern industry standards is constructed in the state.
11. **State film incentive programs likely need to exceed some threshold to be effective.** Larger incentive programs more likely lead to required business services, infrastructure investment, and educational programs that create clustering of activity.
12. **Oklahoma is unlikely to build a more substantial and nationally competitive film and TV sector without a larger incentive pool**. Oklahoma's historical practice of offering only small incentives is unlikely to provide a meaningful boost to the industry in the state. Recent changes in the law allowing the Governor to use the quick closing fund for film and TV productions will help but leaves uncertainty for production companies.
13. **The ability to provide film and TV incentives is far greater in high population states with larger state spending power.** To reach the average per capita incentive ($8.39) offered across the states, Oklahoma would need to offer approximately $33 million in annual incentives. This would match the per capita expenditure by industry leader California.
14. **The historical support of consumer entertainment in Oklahoma suggests that a more extensive film program could receive substantial public support in the state.** Several state lawmakers and policymakers have expressed their support for the film incentive in Oklahoma. The history of voters in Oklahoma, and Oklahoma City in particular, suggest that various forms of entertainment are highly valued. For example, large financial incentives at the state and local level support the presence of the Oklahoma City Thunder in Oklahoma City.
15. **Existing research and our own research findings suggest that the film and TV industry tends to shrink in size in states that eliminate or cap their incentives.** The reductions in employment and wages in the Motion Picture and Video Production sector following the elimination of incentives suggests that a cluster effect is not sufficiently strong to offset the continual need for some amount of film incentives once the industry is established in the state to maintain the size attained.
16. **Relatively large and consistent incentives over the long-run are needed to build a meaningful business base**. Uncertainty in the availability of incentives would cause

those in control of projects to not consider Oklahoma as a viable long-term production location.

17. **Increasing the state incentive is unlikely to expand the film and TV industry without the presence of a modern production facility in the state**. A larger incentive pool and the presence of a sound stage are closely intertwined in the process of expanding the sector in Oklahoma. Expanding the state incentive without the needed infrastructure would hamper potential growth in the film and TV sector.
18. **Economic growth effects from the use of incentives are far more likely to be observed and measurable in small regions rather than at the state level.** A key concern with existing studies of state film and TV incentives is that they often seek to identify statewide economic effects. However, film and TV industry activity is far too small in most states to detect a boost to statewide economic activity. Pronounced economic impacts are highly visible at the local level. The Pioneer Woman TV production in Pawhuska, Oklahoma is an example of this activity contributing to the revitalization of a rural Oklahoma town.
19. **The issue of states using film incentives is more nuanced than typically is recognized in most existing studies.** Several states with large incentive programs appear to have been successful in creating a large film and TV presence in the state. Other states, such as Oklahoma with a $5 million cap during the period of analysis did not appear to be more successful than states without incentive programs.
20. **There is little reason to expect film and TV incentives to recoup sufficient tax revenue to offset the direct cost of incentives**. Using traditional measures of tax recovery are unlikely to produce a positive outcome. Most studies suggest a far less than one-to-one recovery of expenditures through added tax revenue. However, the return to tax revenue is not as small as suggested in many studies and likely higher than that from other incentives or reductions in taxes. Oklahoma's high payout rate of 35%/37% also possibly contributes to less tax recovery from the incentive pool.
21. **The use of a simple litmus test of tax revenue recovery to evaluate state film incentives ignores significant additional benefits that can be derived from a larger film and TV sector.** There are numerous economic development reasons beyond the traditional measures of jobs, wages, and tax revenue recovery for using incentives to support the film and TV industry, including lifestyle amenities and improved quality of life. States may adopt incentives for intangible reasons, consistent with public support for professional sports and other forms of entertainment.
22. **Our estimated net revenue costs per job associated with state film incentives for Louisiana and New Mexico compare favorably to those of other export-based sectors.** Bartik (2019a) reports an average cost of $24 thousand of state job and investment tax credits per direct job created across the U.S. in 2015 (for which at most 25 percent of the jobs created occur because of the incentives). This estimated cost greatly exceeds our cost estimate for film and TV-related jobs in Louisiana and New Mexico.
23. **Successful state film incentive programs likely pass a benefit-cost analysis**. Based on an average estimate that incentives induce 12 percent of all location or expansion of export sectors across the nation, Bartik (2019b) estimates that incentives generally pass a

benefit-cost analysis. With much higher incentive-induced effects in the film and television industry and a higher than average multiplier, the benefits of a well-designed state film-incentive program would far exceed the costs. The primary benefits come in the form of increased earnings of state residents. These broader benefits are not captured if using a simple litmus test of tax revenue recovery.

24. **Evaluation of state incentive programs requires careful consideration of the multipliers used in the analysis.** Studies understate the potential spillover effects of the film and TV industry if they use multipliers based on the structure of the state economy with a small film and TV sector that has fewer linkages to other sectors in the state economy and lower wages.
25. **Full tax revenue recovery for film and TV incentives only appears possible if there is large film-induced tourist spending or increased quality of life.** The potential effects on tourism and quality of life typically are ignored because of the difficulty in measuring them.
26. **Some significant tourism effects are reported with hit TV shows tied to the region where filmed.** A local example is the transformative effects of the Pioneer Woman TV show on Pawhuska, Oklahoma. New Mexico reports that the hit show *Breaking Bad* has generated a multi-year stream of domestic and international tourists. Successfully measuring tourism effects in Oklahoma would require an ongoing effort to track this activity.
27. **Results in the report shed considerable light on the potential economic contribution of a newly constructed sound stage and production facility in Oklahoma.** Estimates suggest an initial $100 million in direct annual spending would be associated with a fully operational production facility with two sound stages and a resident TV show. Spending would include $50.5 million in wages and the remaining $49.5 million for purchases of other goods and services across the state. Based on multiplier effects, the $100 million in annual in-state film spending supports estimated total output of $180.3 million along with 2,155 total jobs and $110.1 million in wages. Estimated annual tax revenue from film spending totals $11.89 million. Assuming the full $100 million in in-state film spending receives an incentive at the base 35% rate, estimated tax revenue returned to the state equals 34.0% of the $35 million in expected incentives.
28. **Existing research often ignores the benefits from non-qualified spending on productions receiving a state incentive.** In California, non-qualified spending is one-third of total spending for projects receiving a state incentive. These expenditures are often excluded because of lack of data and a focus on evaluating only the incentive rather than total film and TV activity. If Oklahoma, were to match the 33% share in California, the estimated economic impacts of a new production facility in the state would be approximately 50% higher.
29. **It would likely require an expansion of the current state incentive program to fully support a new production facility in the state.** A roughly $33 million annual incentive program would place the state at the national average of incentive spending per capita ($8.39) and equal the incentive spending per capita by industry leader California.

30. **Oklahoma offers a highly competitive percentage payout of 35%/37% but a relatively modest total state pool of $8 million given the competitive landscape.** The rate of incentive payout is extremely high, possibly far too high, relative to most competing states, particularly California's average rate of just less than 20%. An unintended consequence of a payout ratio that is too high is a reduction in the effective leverage of the incentive pool which, in turn, lowers the potential size of the economic and tax impact.
31. **Our evaluation of existing research and additional empirical work in the report suggests that proponents and critics of the industry can both be right, and wrong.** There are numerous costs and benefits to using financial incentives to attract any industry, with the disagreements over policy frequently falling along the line of which costs and which benefits are more important to the evaluator.
32. **Overall, an unequivocal answer on the costs and benefits of film incentives to a state's citizens cannot be provided solely by a standard economic impact study.** But use of best practices in economic impact analysis, supplemented with additional analysis, can provide the breadth of information needed in formulating state film incentive policy.

X. Appendices

Appendix 1. Oklahoma Film + Music Office

Oklahoma Statutes §74-2236. Oklahoma Film and Music Office.

A. There is hereby created within the Department, the Oklahoma Film and Music Office. The Office shall have the primary responsibility in state government for promoting the state as a location for producing motion pictures, television programs, videos and recording or performing music. The Office shall assist the motion picture, television and video film and music industries by providing production contacts in the state, suggesting possible filming, performing, publishing, and recording locations, and other activities that may be required to promote the state as a filming and music center. The Office shall develop resource guides, a database, and a web site. The Office shall develop listings of music festivals and music events being held in Oklahoma.

B. The Oklahoma Film and Music Office shall cooperate with other state and local offices as required to promote the film and music industries in this state.

C. The Oklahoma Film and Music Office shall establish a film production registration program. Under the program, film production companies shall be required to register with the Office prior to starting production on a film located in the state. The Office shall not require production companies to pay a fee for registration. The purpose of the program shall be to allow the Office to accurately track the number of filming productions occurring in the state and the economic impact of those productions.

D. The Oklahoma Film and Music Office shall submit an annual report to the Governor, the Speaker of the House of Representatives, and the President Pro Tempore of the Senate prior to July 1 of each year regarding the activities of the Office. The report shall state the number of filming productions that the Office has helped bring to the state and the economic impact of those productions, and provide similar information concerning the efforts of the Office to promote the music industry in this state.

Added by Laws 2005, c. 363, § 37, eff. Nov. 1, 2005. Amended by Laws 2006, c. 29, § 3, eff. July 1, 2006; Laws 2013, c. 227, § 33, eff. Nov. 1, 2013.

Oklahoma Statutes §74-2231. Confidential lists and information.

The Department may keep confidential:

1. Prospect lists, booking lists, subscriber lists, permission marketing lists, or personal information provided to the Department; and

2. Business plans, feasibility studies, financing proposals, marketing plans, financial statements, or trade secrets submitted by a person or entity seeking economic advice from the Department and any information compiled by the Department in response to the submissions.

Added by Laws 2005, c. 363, § 32, eff. Nov. 1, 2005. Amended by Laws 2007, c. 106, § 1, eff. July 1, 2007.

Appendix 2. Oklahoma Film Incentive Legislation

Oklahoma Statutes §68-3621 - §68-3626[42]

Legislative intent. (§68-3622)

The Legislature hereby finds that the production of films in Oklahoma not only provides jobs for Oklahomans and dollars for Oklahoma businesses, but also enhances the state's image nationwide. Recognizing that the high costs of film production are driving motion picture and television production out of the country, most notably to Canada, and that the film industry is always seeking attractive locations that can help cut the costs of production, the Legislature further finds that the State of Oklahoma, with the appropriate incentive, can become an attractive site for film production and that Oklahoma is presently among several states with minimal incentives to attract the film industry. It is therefore the intent of the Legislature that Oklahoma provide an incentive that will stand out among those of other states and increase film production in this state.

Added by Laws 2001, c. 259, § 2, eff. July 1, 2001.

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XII. Endnotes

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