

Examining the California Film and Television Tax Credit Program:

The subsidization of California's Signature Industry

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ABSTRACT

California's breathtaking coastline and iconic downtown Los Angeles skyscrapers are brutally destroyed by an extraterrestrial race in the blockbuster film "Battle: Los Angeles". Yet due to the monetary advantage of filming outside California, the motion picture was shot almost entirely in Louisiana. By using replicated sets of California as well as green screen special effects, the producers managed to give the appearance of California while saving 35 percent of its total investment with Louisiana's generous movie production incentives. With an estimated budget of \$70 million, California yet again missed a golden opportunity to fuel its local economies and generate tax revenue. California's Film and Television Tax Credit program was enacted in 2009 as part of a stimulus package to increase film and TV production spending, jobs and tax revenues in California. Four years later the bill remains unchanged; this paper will test whether or not amendments can be made to ensure the program is effectively keeping film production in California.

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INTRODUCTION

As Florida is known for citrus and New York for finance and Wall Street, California is home to Hollywood and the motion picture—or at least used to be. Influxes of motion picture incentives have gradually lured California’s signature industry away from California. In the same way that Detroit lost the auto industry and California lost the aerospace industry, the film industry will shift from California as businesses move to locations that make fiscal sense for movie production. There is a fiduciary agreement between investors and producers to make fiscally correct decisions. Avoiding a chance to receive up to 35 percent of a film’s expenses before its even released—just for the chance of filming in a certain state—seems to break that contract. Production incentives began in the late 1990’s and have since been copied by over forty states in the U.S as well as internationally. With the film industry becoming more mobile as a result of advancements in technology, California suffered staggering losses of production in the past ten years. In 2003, 66 percent of studio feature films were filmed in California. In 2009 only 38 percent of studio films were filmed in state. San Francisco film and TV production employment dropped 43 percent between 2001 and 2006 (CFC). California was in dire need to reverse the regressing trend. It wasn’t until 2009 when the California Film and Television Tax Credit program was enacted, which was specifically designed to help fight runaway production. While other states use tax incentives to *attract* production, the primary purpose of the credit program is to *retain* production. With the first four years of the program in the books, this report will examine if the program is serving its purpose and if not, explain how it can be improved to serve its purpose.

Runaway production in California, also known as film flight, is when producers relocate principal photography outside of California because of greater incentives. California is a unique

location because of its distinctive appeals; industry leading infrastructure, the home to most studios and talent, and its wide array of scenery from snow to sand dunes. Therefore, it doesn't need to boast a lofty tax credit of 30-35 percent such as New York and Louisiana. A conservative program is ideal for the Golden State but being too frugal may be detrimental.

How the Program Works

On June 1st, the California Film Commission received applications from motion pictures to participate in a lottery to receive a credit from the \$100 million annual fund. To be eligible the qualified motion picture must have 75 percent of principal photography shot in California, must be submitted at least 30 days prior to commencement date and must start shooting within 180 days of being chosen (CFC). Applicants are assigned a number and on June 4th the numbers are drawn at random until the \$100 million credit pool is exhausted. This year, 380 applications were submitted and 31 projects were chosen. Eligible applications for a 20 percent tax credit include feature films with a minimum budget of \$1 million and a maximum budget of \$75 million, movies of the week or miniseries with a budget in excess of \$500,000 or a new television series licensed for original distribution on basic cable with a budget greater than \$1 million. Applicants eligible for a 25 percent tax credit are relocating television series or an “independent film” (not studio backed) with a budget between \$1 and \$10 million. The 20 or 25 percent credit can be used against income and sales and use taxes. (An example of the qualifying expenditures for the film *ARGO* can be seen in the appendix). Extremely simplified, a film with a \$50 million dollar budget with \$40 million qualified expenditures would receive an 8 million dollar tax credit (20% of \$40 million).

Intent

California's Film and Television Tax Credit program was written very well and has so far succeeded in slowing down rampant film flight. The film commission asserted in June 2013 that the four-year-old program has generated \$4.67 billion in direct spending within the state and paid \$1.59 billion in wages to crew members. There are, however, a few areas within the program that can be assessed to determine whether or not California can increase its total return on motion picture production.

This report will examine the budget cap placed on for feature film productions. Currently, a film's budget that exceeds the maximum budget of \$75 million is ineligible for a tax credit. Due to the budget cap, many producers are discouraged from filming in California. It's widely believed that big-budget productions offer the greatest reward to a state in respect to economic impact. This paper will examine if big-budget films truly are a preferred economic option, and if so how California can benefit from removing the budget cap.

Next this report will analyze the lottery system currently in place for selecting applicants for a tax credit. With only 31 projects selected out of 380 applicants in 2013, this paper will explore a system that will help potentially better retain production without wasting valued assets.

Literature Review

Since the enactment of California's Film and Television Tax Credit program in 2009, a number of economic think tanks have studied whether the program has successfully helped the fight against runaway production. The studies range from the economic impact the program has

created in respect to the generation of tax revenue to the jobs that have been created in-state; the studies also describe how the program can improve.

The Economic Impact

In 2011, the Los Angeles Economic Development Corporation (LAEDC) was commissioned by the Motion Picture Association of America (MPAA) to complete a full-scale economic impact study. The intent of the study was to show how the California Film and Television Tax Credit program affected California. It found that at least \$1.13 in tax revenue will be returned to state and local governments for every tax credit dollar approved under the legislation. It also found in its first two years, the program has generated more than \$3.8 billion in economic output and is supporting more than 20,000 jobs (LAEDC). The LAEDC used IMPLAN as the input/output program to generate the economic impact model. IMPLAN software systems use thousands of tables of data, mostly government supplied, to generate economic multipliers and estimates of direct, indirect and induced economic activity.

The “direct impact”, in this case, is the actual dollar value of a production budget. This includes in-state spending, salary, housing, catering, and anything directly listed on a production budget. “Indirect Impact” is spending related to the production but not in the actual budget (Headway). For example, a, the production that hires a caterer for \$5 million is making a “direct impact. The catering company will then pay its employees, which include various staff members and chefs as well as related supplies, all of which are classified as an indirect economic impact. The last stage of the economic trickledown effect is “induced impact” which would be when the caterer or anyone hired by the production spends his wage on family, lifestyle or other personal household expenses. This data was used to determine that the economic impact multiplier of the

California Film and Television Program was 2.5 times the direct spending of the films' budgets (LAEDC).

IMPLAN is a respectable economic research tool often utilized by federal government agencies and prominent universities. This paper will not address the accuracy of the estimates IMPLAN or Headway Projects made on the programs economic impact. It would be very difficult to analyze the outputs because most of the data used in IMPLAN's models are undisclosed. However the Headway Project, a think tank of UCLA-IRLE researchers, found that the economic impact was overstated due to the LAEDC assumption that none of the projects that received tax credits from California would have filmed in California without one. The LAEDC didn't account for films that need to film in California or want too regardless of incentive. Accordingly, the UCLA-IRLE researchers reduced the net positive impact of \$1.13, to \$1.04 per \$1 of tax credit allocated (Headway).

The main takeaway from the complementary report thus far is that, California's tax credit program is operating with a net benefit. Now the question is how to maximize or at least improve that net benefit through adjustments within the programs legislations.

Big-Budget Production and Budget Cap

Under the current program, California prohibits any production with a budget greater than \$75 million to apply for the 20 percent tax credit. While most reports on the California Film and Television Tax Credit program agree that the production budget cap is damaging, proposed solutions vary.

The LAEDC originally suggested that the program should instead allow credits to a certain limit to be applied to productions of any size. This would allow a production with a

budget of \$100 million to receive the credit on the first \$75 million spent. The remaining \$25 million that isn't incentivized will compound the economic impact on California. To quantify this idea, the LAEDC reviewed a budget for a \$175 million production budget that spent 51 percent on below-the-line expenditures. The results show that the state would spend \$15 million (20% of \$75 million on qualifying expenditures) but state and local governments will receive \$26.7 million in tax revenue. In other words, \$1.78 in taxes would be generated for each dollar of tax credit allocated (LAEDC). This figure is most likely high because of their assumption that all films will leave without an incentive, but the error is mitigated by not including potential tax revenue from film tourism of big-budget production sets and locations.

Exhibit 5-2 Impact Ratios of Big-Budget (\$175 million) Production With 20% Tax Credit on \$75 million Qualifying Expenditures	
Estimated tax credit (\$ millions)	\$ 15.00
Economic output per dollar tax credit	31.4
Labor income per dollar tax credit	11.23
GDP per dollar tax credit	10.67
Tax revenue per dollar tax credit	1.78

Source: LAEDC

Another hypothetical solution is to allow big-budget films projects to participate at a 12 percent credit. The opportunity to stay and work in California; the convenience for actors, directors and producers; the access to California's superior industry infrastructure; and the time saved by not relocating could well encourage films to stay in-state at a reduced tax credit (Headway). The Headway Project report never discussed how they derived the lower credit rate of 12 percent to attract more feature films. Yet it's hard to deny the improved economic impact that it could have in California if more films stayed in-state. Under the current program

California would spend \$15 million in tax money on a \$75 million project, but if the credit was changed to 12 percent for robust projects, California would only spend \$15 million if the budget was greater than \$125 million.

Lastly the simplest hypothetical solution is to eliminate the tax credit cap entirely. No other state currently has a cap on their motion picture tax credit program. Basing the cap on a films budget is irrelevant because the tax credit is allocated based on qualifying expenditures, not how much a production spends in total.

Lottery System

To meet the current demand California would need an excess of \$500 million in funds, but there is only \$100 million allocated annually; the California Film Commission (CFC) enacted a lottery system as a solution to this discrepancy. This system randomly selects projects until the \$100 million allocation pool is exhausted while the remaining projects are placed on a waiting list in case one of the chosen productions drops out; the waiting list is an attempt to prevent films from leaving California. Every year the demand for the tax credit outstrips California's allotted funds. On June 1st of 2013, 380 projects were submitted and 31 were chosen. In 2012, 28 projects were selected out of 322 applicants. A producer currently has a better chance to win cash on a California Lottery scratcher than to be chosen for a tax credit.

Most research has focused on the need to increase the allocation pool to satisfy more projects and help eliminate runaway production. While this issue is of extreme importance to the future success of the program, until California is in a better fiscal state, the program should be maximizing the benefit of the current \$100 million annual allocation. This report will compare

the costs and benefits of the lottery system to a system based on maximizing total tax revenue returned to California.

\$100 million Annual Allocation

Lastly, the programs funding has been under great scrutiny. The \$100 million currently offered is minute in comparison to New York, Georgia and Canada who offer \$400-\$500 million annually. With the estimated economic impact around \$1.04 dollars, there is no clear evidence that increasing the annual funding will hurt California. Right now the \$100 million dollars is breeding uncertainty with producers, inhibiting its ability to regain fleeing production. The program currently satisfies less than 10 percent of applicants and producers are starting to forgo the preparation expenses to shoot in California because there is little guarantee that the application will be selected. Preparation is costly because it requires a lot of time to research locations, to scout locations and to create shooting schedules. Therefore, producers rather film in a different state where they are guaranteed a credit. It's also challenging to put a film in motion without certainty. If a producer isn't able to let the actors know where the film will be located or the exact production schedule and start time, it will be hard to get the ball rolling and sign talent (Headway).

Now in the program's fourth year, the \$100 million dollar annual allocation has led to yet another problem. TV shows that have received a credit in a previous year are re-eligible to be placed at the top of the queue for future drawings. Eight of the 12 TV shows granted funds in 2012 automatically received credit again in 2013. This eliminates a huge portion of the \$100 million available in funds before the drawing even starts. Along with an 18 percent increase in applicants (322 to 380), the odds for a new film to receive the credit at slim to none. Right now

the \$100 million is exhausted too early and it is a source of uncertainty to producers, ultimately scaring off potential production. This paper will not extensively cover the need to increase the annual production budget. It's well documented how necessary an increase in annual allocation is to the program's success. Until the California government agrees to increase the funding toward film credits, it will be hard to increase the success of the program in stopping film flight

Economic Model

Big-budget productions are believed to be the most beneficial projects because of the massive in-state spending per production. This large spending is a result of long shooting schedules and production periods, as well as the employment of thousands of workers per project. Majority of these big-budget films currently leave California for states that have no cap on their subsidies. Using data from the Empire State Film Production Credit (2004-2013) and Florida's film and tax credit program (2011), this report will first verify that big budget films do in fact hire more workers and have longer shooting periods on average. This is important because it will help determine whether several small-budget films better stimulate the economy versus one big-budget production.

This paper used two different two-sample t-tests to describe the difference between the average production hires and shooting periods for big and small-budget productions. A two-sample t-test is used to determine if two population means are equal.

My first test examined if differences existed in the average amount of production hires between different size films. For this paper, the distinction of a big-budget production was based on in-state expenditure's in excess or below \$10 million. Subsequently, 146 observations were labeled as "big-budget" leaving 369 observations under "small-budget". The large disparity

between the numbers of projects will lead to big-budget productions featuring a greater standard error. This simply means that the accuracy for the observations to represent a population will lower with only 146 productions.

For the first test of average production hires for big and small budget productions, my null hypothesis is that total production hires for a small-budget film is, on average, the same as a big-budget production. The results of the 2-sample t-test are as follows:

Two-Sample T-Test and CI: Total Production Hires, Big/Little Budget

Two-sample T for Total Production Hires

Big/Little				
Budget	N	Mean	StDev	SE Mean
BIG	146	2311	1887	156
LITTLE	369	348	325	17

Difference = mu (BIG) - mu (LITTLE)
Estimate for difference: 1963
95% CI for difference: (1653, 2274)
T-Test of difference = 0 (vs not =): T-Value = 12.50 P-Value = 0.000 DF = 148

In blue, we can see that on average a big-budget project hires 2311 employees while the average small-budget production hires only 348. The p-value, the probability of observing a sample statistic as extreme as the one actually observed was less than .05 meaning that we reject the null hypothesis that big and little budgets employ the same workforce on average. We can conclude with 95 percent confidence that big-budget films hire more workers on average than small-budget films.

Next, this paper follows the same procedure to test whether big-budget productions have the same amount of shoot days as small-budget productions. This is important because shoot days is believed to be an indicator, along with production hires that helps predict total economic benefit. For every day a production stays on location, expenses increase; hourly salaries (direct),

groceries and food (indirect/induced), electricity (indirect) etc. The null hypothesis for this test is: the difference in number of shooting days is negligible between different budget sizes.

Two-Sample T-Test and CI: Total Shoot Days, Big/Little Budget

Two-sample T for Total Shoot Days

Big/Little Budget	N	Mean	StDev	SE Mean
BIG	146	92.7	79.9	6.6
LITTLE	370	43.0	93.9	4.9

Difference = mu (BIG) - mu (LITTLE)

Estimate for difference: 49.77

95% lower bound for difference: 36.21

T-Test of difference = 0 (vs >): T-Value = 6.06 P-Value = 0.000 DF = 309

Again in blue, we can see that big-budget pictures shoot an average of approximately 93 days on average, while a small-budget production shoots for only 43 days. The P-value in red is 0.000 again which means with 95 percent certainty we can reject the null hypothesis that the budget size doesn't affect the total amount of shoot days. Big-budget films shoot for a longer period of time on average than smaller productions.

To create greater return to California's investment in the motion picture industry, greater tax revenue needs to be generated. In essence it's necessary to raise the predicted economic impact from \$1.04 for every dollar spent toward the tax credit.

This model shows whether or not California would benefit from attracting big budget films instead of discouraging them with a production budget cap. The statistics in this model will use data from New York's tax credit program from the years 2004-2013. New York is second to California in annual motion picture production, and has a greater allocation pool of annual credits and no production budget cap. Therefore the data has more observations (347)

and a broader range of film budgets than California’s program data. Here is a breakdown of how the two states compare:

Domestic								
State	Number of TV and film productions, 2009-2010	Type of incentive program	Annual funding (millions)	Project budget cap (millions)	Maximum benefit	Transferability	Refundability	Sunset/ Review
California	1,087	Tax credit	\$100	\$75 for feature films \$10 for indie films	20% of qualifying local spending 25% for qualifying relocating TV series and indie films	N (except indie films or transfers to affiliates)	N	Originally 6/30/2014; extended to 6/30/2015
New York	624	Tax credit	\$420	N	30% of qualifying production local spend 10% of the qualifying post-production spend (if 30% credit not claimed) 4-5% of the eligible investment credit base	N	Y	12/31/2014

(source: Milken)

The New York data additionally represents California because the film flight New York experienced in 2010 shows greater similarities with the flight prior to California’s program enactment. In 2010, the annual funding of the New York Film & Television Tax Incentive Program was nearly exhausted with no sign of extending the program (Empire State). The applications for the program experienced an immediate and considerable decline in applications. New York ultimately realized the importance of their incentive and extended the program for five more years. The following shows the difference between the applications in 2010 and 2011, once the program proved sustainable.

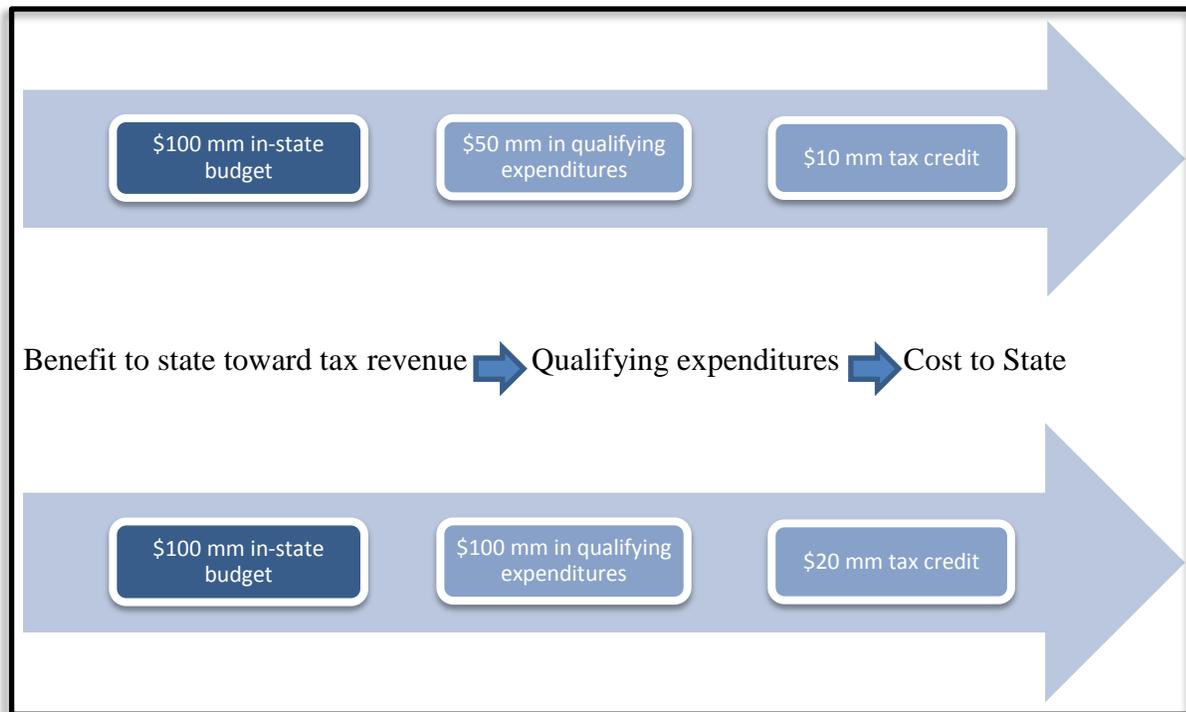
Applications (Q1 & Q2)					NY Spend	Full and/or Part Time Jobs
	Film	Pilots	Series	Total		
2010	29	2	7	38	\$644 million	33,809
2011	54	15	16	85	\$1.16 billion	44,951

(source: Empire State Analysis- 2011)

A “production budget”, used by production companies, includes above-the-line costs, below-the-line costs, insurance, rights, licensing fees, wages, and overall services performed in a project (CFC). Above-The-Line expenditures are salaries paid to individuals who influence the movies creative direction; oftentimes the wages of the screenwriter, producers, director, casting directors and actors. In most cases, budget sheets also include Below-The-Line workers. These are the wages spent on the rest of the operating crew members. This comprises of assistant directors, gaffers, grips, costume designers, location manager etc. This “line” is fundamental because it helps identify what expenses are eligible for a tax credit in most states, such as in California and New York. While both expenditures benefit tax revenue to the state hosting production, only below-the-line expenditures qualify toward an incentive.

Empirical Analysis

The regression will test how a project’s percentage of ineligible expenditures reacts to a rise in production budget. Qualifying expenditures are portions of a production budget that are eligible to receive a credit; meaning that ineligible expenditures are the part of a production budget ineligible for a tax credit. This is important because all the money spent in-state helps the economy. However, only qualifying expenditures require the state to handout a production incentive. Below is an example of two projects with a 20 percent tax credit on qualified expenditures.

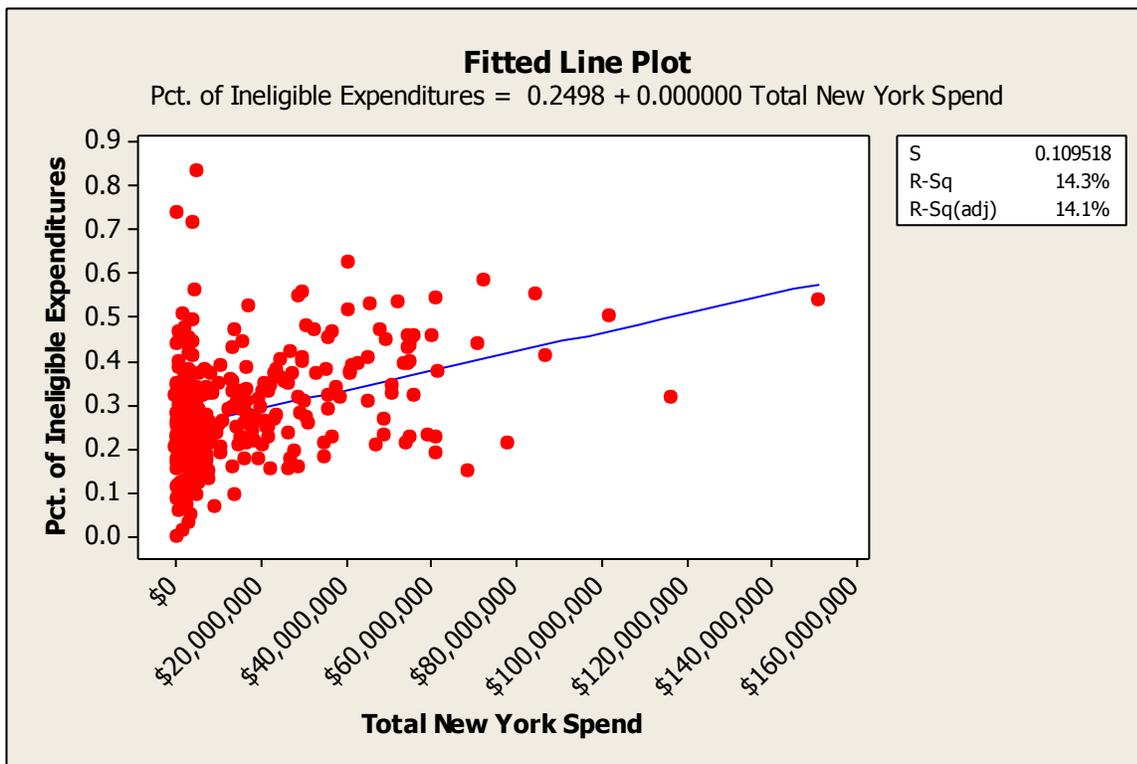


The state's return on investment is the generated tax revenue collected from in-state expenditures. The tax credit rate (20-25 percent in California) multiplied by a production's qualified expenditures comprises the total amount of tax credit allocated. Therefore, the ideal project to maximize state tax revenue would be having *high* in-state expenditures with a relatively *low* percentage of qualifying expenditures. The purpose of this model is to predict whether or not the size of a production budget affects this ratio. If there is a noticeable trend, then either pursuing big-budget or small-budget films will generate the best economic benefit for California.

For this model the response variable y is the percentage of a production's budget ineligible for a tax credit. The predictor variable x is the production's total in-state expenditures (New York). A subset of the data in Minitab looks like:

	Total New York Spend	Total Qualified Expenditures	Pct. of Ineligible Expenditures	Year
1	\$7,512,851	\$4,691,932	0.375479	2004
2	\$29,895,348	\$13,243,447	0.557006	2004
3	\$28,923,069	\$19,753,552	0.317031	2004
4	\$5,430,552	\$3,697,024	0.319218	2004
5	\$7,093,466	\$5,679,201	0.199376	2004
6	\$41,135,930	\$25,876,168	0.370959	2004

Here is a plot of the data with the estimated regression equation:



The positive slope shows that there is indeed a relationship between percentage of a budget ineligible for a tax credit and the total in state production spending.

Regression Model:

Null hypothesis $H_0 : \beta_1 = 0$

Alternative hypothesis $H_A : \beta_1 \neq 0$

My null hypothesis states that as production company's spends more, the percentage of ineligible expenditures will remain constant (a slope of zero). My alternative hypothesis states that changes in the size of a production budget do affect the production's percentage of ineligible expenditures. While it's understandable that a big-budget film will have a greater amount of total ineligible expenditures, the test will find if there is a change of ineligible expenditures as a percent of total budget.

Regression Analysis: Pct. of Ineligible Exp. versus Total New York Spending, Year

The regression equation is

$$\text{Pct. of Ineligible Expenditures} = 2.70 + 0.000000 \text{ Total New York Spend} - 0.00122 \text{ Year}$$

317 cases used, 30 cases contain missing values

Predictor	Coef	SE Coef	T	P
Constant	2.703	5.062	0.53	0.594
Total New York Spend	0.00000000	0.00000000	7.52	0.000
Year	-0.001222	0.002521	-0.48	0.628

S = 0.110479 R-Sq = 15.5% R-Sq(adj) = 15.0%

Analysis of Variance

Source	DF	SS	MS	F	P
Regression	2	0.70332	0.35166	28.81	0.000
Residual Error	314	3.83253	0.01221		
Total	316	4.53585			

Durbin-Watson statistic = 2.01400

The p-values in blue shows whether the predictors in the regression are a good or bad indicator of the response variable. The p-value for Total New York Expenditures is less than .000 and is a great predictor of ineligible expenditures. The P-value for years as a predictor of ineligible expenditures is above .05, and is not considered a good indicator. This high value was expected because 'years' should not be a significant indicator of a productions percentage of ineligible expenditures.

The overall P-value of the regression (red) is so small (less than 0.001) that we can reject the null hypothesis and conclude that β_1 does not equal 0. There is sufficient evidence, at the $\alpha = 0.05$ level, to conclude that there is a relationship between ineligible production spending and a project's total in-state production budget.

A Durbin-Watson test for autocorrelation was necessary to prove the legitimacy of the findings. Autocorrelation, or serial correlation, is a mathematical tool for finding repeating patterns. The Durbin-Watson test ultimately examines whether there is a trend present in the data between years or if each observation is independent. In testing for positive autocorrelation, my null and alternative hypotheses are as follows:

Ho: $\rho = 0$ (positive autocorrelation does not exist)

HA: $\rho > 0$ (positive autocorrelation is present)

The critical values, found in the Durbin-Watson significance table, with $K=2$ (number of regressors) and $n > 200$ (number of observations), are:

$dL=1.653$ and $dU=1.693$.

Since the Durbin-Watson test statistic (squared in black) is greater than the upper bound critical value— $d > dU$, we fail to reject the null hypothesis that there is no autocorrelation present. Therefore, no changes are necessary to the regression to validate using data from many different years.

In California, lawmakers are uncertain of the effectiveness of California's film and TV tax credit program largely because of insufficient performance data available. By using data from New York's incentive program, which is over four times larger than California's, it's possible to estimate what will work best in California. California's conservative annual program funding

raises the argument of whether it is more beneficial to attract several small-budget productions or to attract fewer big-budget features and television series. This model shows with great confidence that the best productions to target are the projects with the largest budgets, as they provide the greatest economic impact. On average they hire many more workers, have longer shooting periods, and spend a greater percentage of total budget on ineligible expenditures toward a tax credit.

A potential explanation of the positive trend is that big-budget productions have greater Above-The-Line expenditures. Major feature films and TV shows hire top-tier talent and prestigious directors. Actors such as Tom Hanks, Adam Sandler, Johnny Depp and Leonardo DiCaprio earn anywhere from \$30 to \$77 million per picture (CNN). Although these expenditures are ineligible for tax credits in most states, the salary directly contributes toward state tax revenue. Under the current budget cap, Leonardo DiCaprio, who leads the industry as top paid male actor at \$77 million per picture, disqualifies a production from receiving a tax credit in California as soon as he is hired.

Even though the benefits of big-budget productions are undeniable, the program is unlikely to change until California can increase the annual allocation of expenditures. This is mainly because the government prefers to aid as many films as possible, and a few blockbuster films will exhaust the program's annual funds faster than several small projects will.

The Lottery System

Previous analyses of California's Film and TV tax credit program often note the need to raise the annual allocation of funds. Meanwhile, however, analyses of the lottery system to allocate credits are usually dismissed because the system is an effective way to avoid "politics".

Is there a way for this program to be fair and efficient? Or is it better for the government programs to be more fair than efficient?

In the free agent market of Major League Baseball, each team offers a contract for a player based on the organizations need for the players skill-set. Hypothetically speaking, Albert Pujols is a free-agent and the Angels, in dire need of a first baseman, will pay him \$20 million a year for four years. The Dodgers, who already have a great first baseman, are only willing to pay \$2 million a year for four years because they don't necessarily need a first baseman. Under a lottery system, mimicking the one used for the Film and TV tax credit program, the odds of the Angels signing Pujols are the same as the Dodgers signing him. Although the solution may be perceived as fair because both teams have the same chance of receiving the player, the outcome is unjust because the Angels have a greater need for Pujols and Pujols would rather play for \$20 million than \$2 million. In some markets, controlling factors to create a perceived level of fairness may be detrimental. Certain markets, such as free-agency in Major League Baseball, will operate with more efficiency and greater equity if left to the free-market—a market system in which prices and wages are determined by competition without government regulation or fear of monopolies. In the case of California's Film and Television program, the government owns the supply (tax credits), but rather than let the market decide the demand, the government allocates them at random, impartial of the applicants perceived benefits.

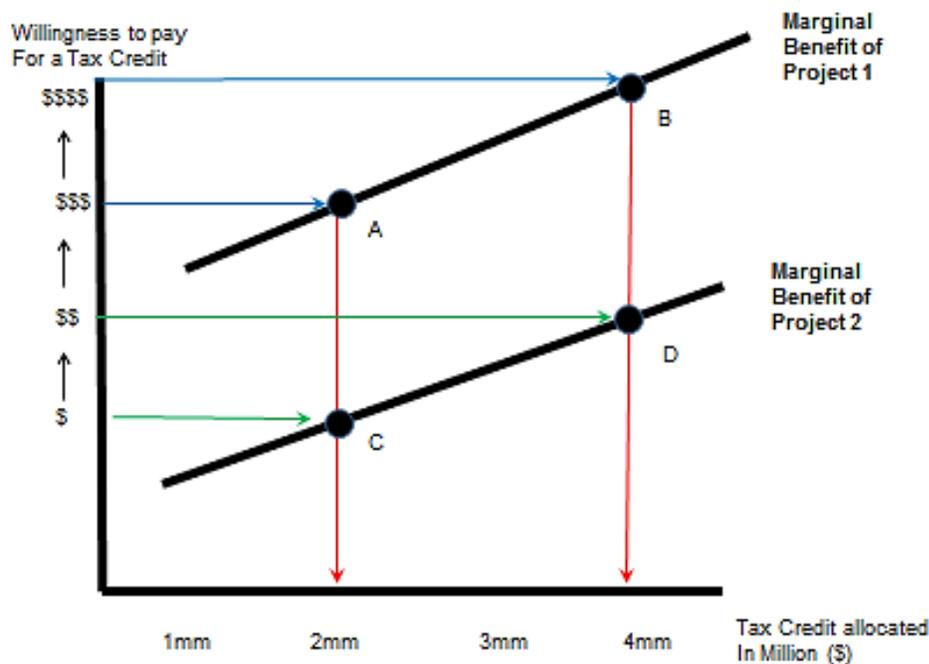
Amy Lemisch, director of the California Film Commission, noted that while she understands that demand far exceeds supply for tax credits, “our goal is to administer the program in the most fair and efficient way possible.” The random lottery system was designed to promote “fairness” and stimulate California's working class. Yet the bill was passed as part of a stimulus package designed to help California regain its waning signature industry. Essentially,

the program will be successful if it creates working class jobs in California while stimulating the state's economy. Equity in government programs is often promoted on the basis of fairness, with the government helping those most in need (Marlow). In this case, the program was carefully written to keep the money out of the pockets of well-off studio executives and into the pockets of independent producers without studio backing instead. While this seemingly creates equity because independent producers are at a monetary disadvantage to major studios, the question remains as to whether the perceived fairness is worth the economic losses it creates.

Theoretical Analysis

The government owns and supplies a good in the form of tax-credits and film producers create demand for that good. The marginal benefit to the producer is different for each applicant. This means that each production company has a unique desire to attain an extra dollar in tax credits. The "buyer value" is the highest price that a consumer would be willing to pay to have the good rather than not have it. More specifically, a film project would have a high buyer value if the producers must locate in California but cannot do so without some sort of a tax credit. On the other hand, a project that applied for the tax credit without needing it would have a low buyer value. The project either has enough money to not worry about receiving a credit, or aesthetically doesn't need to take place in California. The graph below shows the difference in marginal benefit between potential productions Project 1 and Project 2.

Individual Demand



The difference from A →C and B→D depict Project 1's the greater benefit and willingness to pay and perceived buyer value of a \$2 million tax credit.

The current system forgoes efficiency for equity. Under the lottery system, the two producers with vastly different perceived benefits have the same probability of receiving a tax credit. By applying Coasian Bargaining to an Auction system, California can potentially increase efficiency by allocating tax credits. For the purpose of this paper, the “Coase Auction” is a potential solution that may help generate greater revenue for California while allocating the limited number of tax credits available to those who need it most.

The Coase Theorem is used as a way to efficiently allocate resources in a market without government intervention such as tax or subsidy. *If* private parties can bargain *without cost* over the allocation of resources, then the private market will always solve the problem of externalities

and allocate resources efficiently. Since the government is the owner of the resource—tax credits—the main implications of the Coase Theorem are keeping transaction costs low and the ability to find the highest valued user.

The Coase Theorem often loses its applicability due to the fact that the transaction costs tend to prevent bargaining from yielding outcomes that are more efficient than not bargaining at all. An example can be seen in two owners of a duplex; an elderly man in one, and a young “punk” in the other. The old man wants to bargain with the punk to stop blasting music after 9:00 PM but the young man is rather intimidating. The young punk wants the old man to stop playing Jazz flute at 8:00 AM every morning. The old man, in fear of confrontation, decides against bargaining in favor of asking the government to enforce a noise ordinance for necessary “quiet hours”. If the transaction costs were lowered and the old man was able to confront his neighbor, they may have reached an agreement that would satisfy both owners. The transaction costs for film credits are relatively low because the government is the solitary owner of the tax credits.

This also removes another common implication of the Coase Theorem of who the property rights belong to. The individual who owns the property rights will receive the better bargain. In the example above, if the young punk was the owner of the duplex, he would have the bargaining power to demand the old man to stop playing music in the morning. If the old man was owner of the property, he would gain the upper-hand in negotiations for the music to stop playing past 9 PM. The Coasian solution would be that the young man will stop playing loud music at night if the old man stops playing his jazz flute in the morning. In the case of film credits, there is no property right issue because the California Film Commission is the owner of the tax credit. With no property rights and no intimidation issue, language barrier, or any other

major transaction costs, the final implication of the system is how to find the applicant who has the greatest value for the tax credit.

Auctions

An auction is simply a public sale in which goods or properties are sold to the highest bidder. The outcome of an auction does not depend on the identity of the bidders. The underlying assumption made when modeling auctions is that each bidder has an intrinsic value for the item being auctioned; they are willing to purchase the item for a price up to a certain value, but not for any higher price (Cornell Institute). The intrinsic value in this case is the bidder's "buyer value" from before. The applicant with the greatest buyer value will be willing to pay the most and therefore would win the auction. The Coase Auction gets tricky because rather than auctioning a good or property, the government is, in fact, auctioning money. For every extra dollar spent in receiving a tax credit, the tax credit percentage is lowered. Therefore, a production company willing to pay \$1 million for a tax credit of \$2 million would be willing to film in California for 10 percent tax credit rather than the 20-25 percent credit currently in place. The Headway Project noted that the reduction of the tax credit in California would still stimulate production due to the expenses of relocating in a different state. A 10 percent credit in California may be equivalent to a 20 percent credit in a different state once relocation costs are factored in. Importing key crew members, actors, and the added expenditures on housing together reduce a large percentage of the fiscal savings of the tax credit.

The application of the Coase Auction would benefit more production companies by helping more projects with the same amount of annual funds. The money received from the auction can be reapplied to the program's available funds—helping to extend the annual

allocation. In the example of the production willing to spend \$1 million for a \$2 million tax credit, the \$1 million salvaged by the CFC would recycle into the annual funding pool. Since the user is essentially spending money to receive a savings on qualified expenditures, there will be an inherent cap on how much someone is willing to bid. No production would bid over the amount they will receive.

While the auction system is undoubtedly a simple and fair allocation system, this paper proposes a system that is more efficient and fair in a different respect. Under the current program, all qualified applicants have the same opportunity to win a tax credit for their film project. Furthermore, studio executives are unable to buy or swindle themselves subsidizations. However, as mentioned earlier, the studio blockbusters hire more jobs on average than small productions and provide a better benefit to California. While the lottery system does prevent reimbursing already wealthy executives, the labor force for big-budget and small-budget films remain the working class. The perceived benefit of helping all production companies equally to help the working class might prove less impartial of a system than it appears. The Coase Auction theory is inherently more complicated than the current lottery system. However, the Coase Auction would ultimately allow producers with a greater marginal benefit and buyer value a better opportunity of receiving a tax credit. The Coase Auction system would potentially extend the allocation pool—helping a greater number of projects while generating greater tax revenue from production in California.

Conclusion

The purpose of this paper was to analyze the California's Film and Television Tax Credit program, which was enacted to help increase jobs, tax revenues and film and TV production

spending in California. Although this paper did not discuss every aspect of the current program, it addressed how the CFC was successful in generating working class jobs, and how it helped stimulate California's signature industry. Even though the program has helped bring home the movie industry, there are areas within the program that must be rewritten in order to fully preserve film production within the state.

The first finding revealed that California will benefit from targeting big-budget productions. Big-budget films generate more money in California compared to small-budget productions. This is due to the increase in number of employees that big-budget films require. Big-budget productions also spend more on expenditures that are ineligible for tax credit. The ineligible expenditures generate the same tax revenue for California, but don't contribute toward receiving a tax credit. A common saying in the independent film industry is "it's all on the screen". In other words, independent productions have no money to waste. This demonstrates that there will be less indirect and induced benefits received by the state from small independent film productions. As this report has shown, California will generate the most revenue by targeting big-budgets because they spend more in-state which includes a greater percentage of ineligible expenditures.

Next, this paper analyzed the use of random lottery system for allocating tax credits in California's film industry. While undoubtedly a fair and simple system, the net benefit to film producers and California's economy is reduced. By using ideas borrowed from Coase Bargaining and applying it to an auction system, California can potentially allocate its production credit to a greater number of films, generate more revenue in California, and help the film-makers who are in greatest need of subsidies.

Appendix

Breakdown of the firm “Argo” expenditures in California:

Hotel/Housing (ATL & BTL)	\$210,053
Car rentals:	\$42,467
Catering, bakery goods & other food items	\$475,747
Hardware & lumber supplies	\$441,663
Secretarial personnel, equipment (Xerox, phones etc)	\$70,957
Local wardrobe purchased	\$401,738
Dry cleaning	\$71,037
Gasoline	\$182,156
Location fees-Total	\$1,430,962
City, county and other governmental permit fees	\$34,303
Off-duty personnel (police, fire etc)	\$71,968
Local cast & extras hired	\$3,028,975
Local security hired	\$327,917
Per Diem payments	\$23,385
Local hires (carpenters, electricians etc.)	\$18,888,098
Other rentals	\$3,620,466
Other purchases:	\$1,809,420
GRAND TOTAL SPENT:	\$31,049,818

(Credit: Film Works)

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