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PHOENIX CENTER POLICY BULLETIN NO. 68

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May 2024

ECONOMIC IMPACTS OF NEW YORK'S FILM TAX CREDIT

Abstract: Most states in the United States offer tax incentives to attract television, video and film production to their respective local economies. Such credits are a type of tax competition where the best and most stable incentives (among other factors) attract the patronage of the film industry. Some programs have proven very successful. Georgia, with its attractive film tax credit program, became an entertainment industry power player in a little more than decade. While several studies suggest the payoffs of these tax incentive programs justify their costs, other analysts report inadequate financial returns of such programs. As might be expected, the conflicting findings mostly depend on the definition of the return on investment, as well as incompatible methodologies. For example, reports of inadequate returns are based on tax revenues alone, which is a narrow and arguably inappropriate measure of return. In this BULLETIN, a method for estimating the economic returns of a film tax credit is presented, and then estimated for New York. Three measures of the return-on-investment are calculated, two of which are often found in prior reports and a third based on the Compensation Principle. The analysis indicates that the film tax credit program in New York has a positive return for all three definitions.

I. Introduction

Most states – at current count thirty-eight states and the District of Columbia – offer some sort of tax incentives to attract television, video and film productions to bolster their respective local economies.¹ As with any industry-specific tax treatment, there is debate about the benefits and

¹ J. Aldredge, *10 Best States for Film Production Tax Breaks*, PREMIUM BEAT (November 22, 2016) (available at: <https://www.premiumbeat.com/blog/10-top-states-with-best-film-production-tax-breaks>). Olsberg-SPI provides information on worldwide incentive programs. *The Global Incentives Index*, Olsberg-SPI (Oct 31, 2023) (available at: <https://www.o-spi.com/projects/blog-global-incentives-index>).

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costs of these programs, especially in states with generous tax credit budgets. The estimated returns on investment (“ROI”) of the programs (the ratio of benefits to costs), even within a single state, vary widely. In Georgia, for example, one study estimates a ROI of 6.3, another study reports a ROI of only 0.19, and a third estimates a ROI between 2.5 and 4.9.² This difference in the ROIs among studies of Georgia’s film tax credit arises largely from different definitions of the ROI that reflect a fundamental disagreement about the tax credit’s purpose—economic activity or tax revenues.

For the most part, the stated purpose of film tax credits is to stimulate economic activity, not tax revenue. The most effective way to increase tax revenues is to raise taxes. Georgia’s Department of Economic Development, for instance, describes the purpose of the state’s film tax incentive programs is to “spur job creation,”³ while New York states that its film tax credit “is designed to strengthen the film production industry in New York State and its positive impact on the State’s economy.”⁴ On the tax side, few, if any, government spending programs return more in taxes than they cost in the static models typically used for such analysis. Larger infrastructure projects, such as highway construction, require years to achieve a positive ROI.⁵ Economic development, therefore, seems to be the primary motivation of these tax credits, though the effect on tax revenues is a consideration as these revenues affect the ROI by most any definition.

In this BULLETIN, I outline a procedure for estimating the impacts of film tax incentives, describing three definitions of the return; two of these are typically found in studies of returns and a third based is on the Compensation Principle. I then estimate the economic impacts of New York’s film tax credit. Like most prior studies on this topic, I use the IMPLAN model to estimate

² C. Patrick, P. Bluestone, F.C. Carvajal, N. Farooq, and K. Shrestha, *Tax Incentive Evaluation: Georgia’s Film Tax Credit*, Fiscal Research Center, Andrew Young School, Georgia State University (December 2023) (available at: <https://www.audits.ga.gov/ReportSearch/download/30438>); *Economic Impact Study of Georgia’s Entertainment Industry Tax Credit*, Olsberg:SPI (November 6, 2023) (available at: https://www.gsecoalition.com/files/ugd/18ed45_c5ca9791ffde4f36a4ac705491f56538.pdf); G.S. Ford, *The Impacts of Georgia’s Film Tax Credit*, PHOENIX CENTER POLICY BULLETIN No. 66 (February 2024) (available at: <https://phoenix-center.org/PolicyBulletin/PCPB66Final.pdf>).

³ *Incentives*, Georgia Department of Economic Development (last visited December 20, 2023) (available at: <https://www.georgia.org/competitive-advantages/incentives>).

⁴ *New York State Film Tax Credit Program (Production)*, Empire State Development Office (last visited April 4, 2024) (available at: <https://esd.ny.gov/new-york-state-film-tax-credit-program-production>).

⁵ See, e.g., R.S. Chirinko and D.J. Wilson, *Job Creation Tax Credits, Fiscal Foresight, and Job Growth: Evidence from U.S. States*, Federal Reserve Bank of San Francisco Working Paper No. 2010-15 (2016) (available at: <http://www.frbsf.org/economic-research/publications/working-papers/wp10-25bk.pdf>).

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(a subset of) the economic and tax effects of the incentives.⁶ By all three measures, the film incentives in New York have a positive return.

II. Conceptual Framework

Efforts to estimate the economic effects of a film tax credit (or any tax program) take a variety of forms. To quantify the effects of a tax credit program, the causal effects of the program are desired. Thus, the observed economic contribution of an industry must be compared to a counterfactual. Say, for instance, the activity of an industry (*e.g.*, employment, value added, taxes, and so forth) with a state tax credit is Y_1 . Since industry activity is unlikely to be zero absent the credit, this activity level Y_1 is not the effect of the tax credit. The causal effect of the program on industry activity must be compared to a state of the world where the tax credit does not exist (labeled Y_0). The industry activity effect of the program is, therefore, $Y_1 - Y_0$.

If a state has a film tax credit, then only Y_1 is observed, so Y_0 must be estimated. Various methods may be used to construct such an estimate. In some studies, industry experts are surveyed about amount of activity resulting from a film tax credit.⁷ Button (2021) and The Fiscal Research Center at Georgia State University (2023, “*FRC Report*”) use the method of Synthetic Counterfactual (“SC”) to estimate Y_0 , thus providing a plausibly “causal” effect in movie and film activity due to the incentives.⁸ In Georgia, for instance, the *FRC Report* found that about 85% of the state’s movie and film industry employment was caused by the film tax credit, while survey of experts estimated the contribution of the tax credit was 92.1% in the state.⁹ In this instance, the different approaches provide comparable results.

Typically, a return-on-investment (“ROI”) is the summary measure of the relative costs and benefits of the film tax credit. Generally, the ROI is the ratio of benefits to costs,

$$ROI = \frac{\Delta \text{Benefits}}{\Delta \text{Costs}}, \quad (1)$$

where benefits are measured in assorted and inconsistent ways, though the costs are typically measured as the size of the tax credit. A breakeven scenario occurs when $ROI = 1.0$, where an ROI of 0.50 indicates that the benefits are \$0.50 per dollar of cost and an ROI of 2.5 indicates the

⁶ For the most part, IMPLAN estimates the effect on the supply-side alone. So, the effect on tourism or the construction of soundstages and studio support infrastructure, for instance, would require additional analysis. Both reports do so, though these downstream effects are ignored here.

⁷ See, *e.g.*, *Economic Impact Study of Georgia’s Entertainment Industry Tax Credit*, Olsberg-SPI, *supra* n. 2.

⁸ Patrick, Bluestone, *et al.* *supra* n. 2.

⁹ *Id.* at pp. 19-21.

benefits are \$2.50 per dollar of cost. In percentage terms (as returns are typically measured), the return on investment is $ROI - 1$. Properly defined, the ROI in Equation (1), which is used in most studies, is the ratio of benefits to costs rather than a return on investment, but the standard terminology is retained in this analysis.

A. Standard Measure of ROI

Quantifying the benefits of the tax credit may be summarized as follows. To nest the typical measures of ROI in a single framework, let total economic activity in a state be Y , which comprises economic activity E and tax funds T available for the state (and its subdivisions) to spend on various programs (possibly including a portion of federal taxes returned to the state). The difference in economic contributions between a scenario with and without a tax credit is,

$$Y_1 - Y_0 = (E_1 - E_0) + (T_1 - T_0) = \Delta E + \Delta T. \quad (2)$$

Studies that find positive returns of the film tax credit typically define the ROI in terms of economic development (ROI_E),

$$ROI_E = \frac{\Delta E + \Delta T}{C}, \quad (3)$$

where the numerator measures benefits (economic activity and taxes) and the denominator is the amount of spending by the state to fund the tax credit.¹⁰ For the broad financial returns ostensibly pursued by the tax program (labor income and so forth), the numerator is often measured by the change in Value Added (which includes both E and T in IMPLAN), which is akin to a state-level measure of Gross Domestic Product.

Studies that claim the film tax credits do not have a positive ROI adopt a more restricted view of benefits, calculating the ROI solely in terms of local and state tax revenues. The tax ROI (ROI_T) is,

$$ROI_T = \frac{\Delta t_s + \phi \Delta t_f}{C}. \quad (4)$$

¹⁰ An alternative specification seen in some studies is $\Delta E / (\Delta T - C)$, where the denominator is the net tax effect. This approach will tend to produce a larger ROI_E .

where t_s measures state and local taxes, t_f measures federal taxes, and ϕ is a share (on the unit interval) of federal taxes relevant to the state.¹¹ Most studies using ROI_T ignore federal taxes, though states receive some portion of federal taxes back as federal spending. New York receives about \$1 back for every \$4 in federal taxes ($\phi = 0.25$).¹²

There are several problems with the ROI_T approach to measuring returns. First, a film tax credit is typically viewed as an *economic development program*, not a *tax revenue program*. The purpose of the program is to “spur job creation” or to “bring jobs and investment” to the state.¹³ Second, to equal or exceed unity, the ROI_T requires that the tax credit program be “self-funding,” an unlikely scenario in the sorts of static models used to estimate the effects of the film tax credits. Even highway construction would not satisfy the requirement, though the returns to transportation are presumably large over time for many such projects. Ford (2024) estimates the ROI_T for the construction of new highways and streets (IMPLAN industry 54) is only 0.10 in Georgia.¹⁴ Plainly, the ROI_E and ROI_T are entirely different measures of the ROI and are not directly comparable.

B. Compensating ROI

Ford (2024) proposes an alternative measure of the ROI based on the economic concept of the *Compensation Principle*, which requires that the total net benefits of a policy change are positive across all affected groups.¹⁵ This approach is a hybrid of ROI_E and ROI_T . Let λ (which lies on the unit interval) represent some share of economic gains useful for compensation. For instance, the change in Gross State Product includes labor compensation, proprietor income and other property income, and a portion of taxes, not all of which may be viewed as a source of compensation income. The compensating ROI (ROI_C) is defined as,

¹¹ Some portions of federal taxes are returned to the state. See, e.g., J. DeJohn, *Where Your Tax Dollars Go: States Most Dependent on the Federal Government--2023 Study*, SmartAsset Advisors (April 14, 2023) (available at: <https://smartasset.com/data-studies/states-most-dependent-federal-government-2023>).

¹² SmartAsset Advisors, *id.*

¹³ *Incentives*, Georgia Department of Economic Development (last visited December 20, 2023) (available at: <https://www.georgia.org/competitive-advantages/incentives>); W. Cho, *New York to Make Major Changes to Tax Incentive Program*, HOLLYWOOD REPORTER (April 28, 2023) (available at: <https://www.hollywoodreporter.com/business/business-news/new-york-changes-tax-incentive-program-1235406052>).

¹⁴ Ford (2024), *supra* n. 2.

¹⁵ See, e.g., Ford (2024), *id.*; J. Black, N. Hashimzade and G. Myles, *A DICTIONARY OF ECONOMICS* (2009) (“The welfare criterion that a change in the economy is beneficial if the gainers could afford to compensate the losers.”).

$$ROI_C = \frac{\lambda\Delta E + \Delta t_s + \phi\Delta t_f}{C}, \quad (4)$$

which is bounded by ROI_T and ROI_E since $0 \leq \lambda \leq 1$. Proprietor and property income is a sensible measure of relevant economic gain that may be used for compensation, though some share of labor compensation may also be used for compensation. Since workers are selling time for wages, all gains to labor useful for compensation would be inframarginal. The elasticity of labor supply would be required to estimate such gains, which is unavailable. In the interest of a conservative estimate, labor compensation is excluded from ROI_C , thus limiting the economic gains (ΔE) to various measures of additional income.

C. Quantifying the ROI

In most studies of the economic effects of a film tax credit, the input-output model IMPLAN is used to quantify economic effects, which quantifies the direct, indirect, and induced effects (the multiplier effects). IMPLAN is a widely used and respected model of economic impacts and contributions and permits both simple and complex scenarios. Here, for reproducibility, a somewhat simple approach is used based on the above conceptual framework.¹⁶ First, the economic contribution of the film and movie industry is estimated using an Industry Contribution Analysis, setting the share at 100% of the industry (measuring Y_1). This scenario measures the full effect of the industry on the economy. Second, the counterfactual Y_0 is estimated by adjusting the contribution percentage to reflect the industry's size absent the film tax credit (so $Y_0 = \omega Y_1$), where ω is the share of the industry's activity that would exist "but for" the film tax credit. The difference between the two effect sizes measures the economic contribution of the tax credit. Alternately, the effects of the tax credit may be estimated directly by adjusting the contribution share in IMPLAN to the estimated employment effect share $[(1 - \omega)Y_1]$.

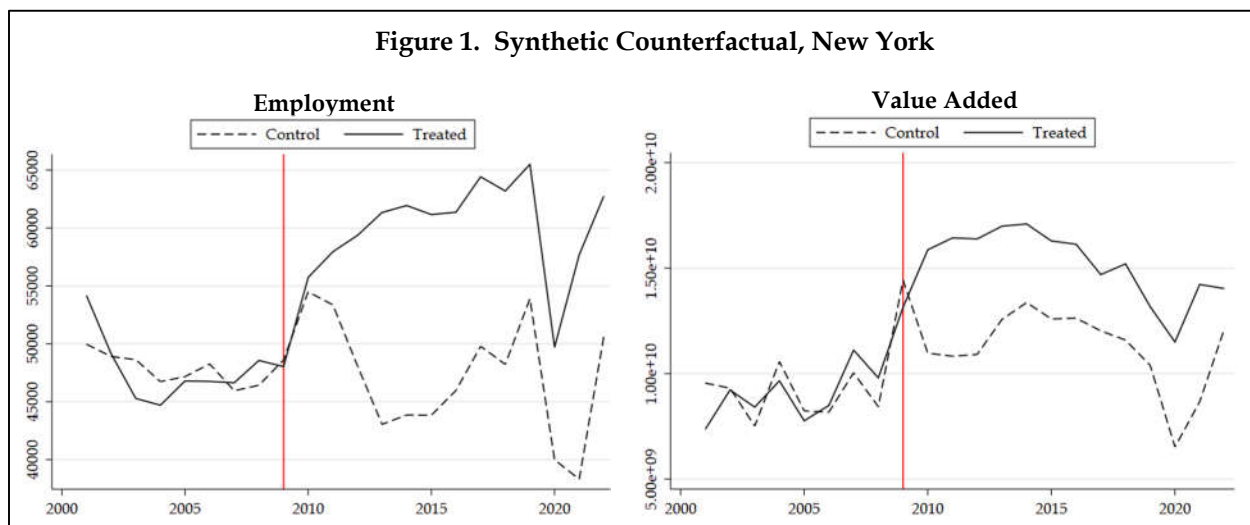
Consistent with prior studies, the numerator of ROI_E is Value Added, and the numerator of ROI_T is state and local taxes (and possibly some positive share of federal taxes).¹⁷ Following Ford (2024), the numerator of ROI_C is measured as the sum of Proprietor Income, Other Property Income, and the tax effect. The denominator of the ROI is the state funds used to support the film tax credit.

¹⁶ Ford (2024), *supra* n. 2, uses an Industry Employment Event, but this approach is essentially its equivalent.

¹⁷ In IMPLAN, Value Added includes Labor Income, Other Property Income, and Taxes on Production and Imports. Details available at: <https://support.implan.com/hc/en-us/articles/360017144753-Understanding-Value-Added-VA>. Not all taxes in IMPLAN are included in the measure of Value Added. Details available at: <https://support.implan.com/hc/en-us/articles/360041584233-Taxes-Where-s-the-Tax>.

III. Quantifying the Employment Effect of the Film Tax Credit

Quantifying the employment effect of the film tax credit relies on industry employment and Value Added data from IMPLAN for years 2001 through 2022.¹⁸ New York had a small film tax credit in 2004 (10% for production), but increased the credit to 30% in 2008, added a 10% post-production credit in 2010, increased the post-production credit to 30% in 2012, and decreased both credits to 25% in 2020. As such, year 2009 is considered the treatment date. The control group consists of five states without a film tax credit over the relevant years and here include Delaware, Nebraska, New Hampshire, North Dakota, and Vermont. The counterfactual outcome in New York is measured as a weighted combination of these control states using the method of Synthetic Counterfactual.¹⁹



Results from the Synthetic Counterfactual for New York are illustrated in Figure 1 over the years 2001-2022.²⁰ Following the implementation of a more substantial and competitive tax credit in 2008, movie and film employment rose substantially in New York (both absolutely and relatively), while the counterfactual employment was stable if not declining. The effects of the Covid Pandemic are apparent with steep declines in activity in 2020. In 2021 and 2022, approximately 26% of industry employment ($1 - \omega$) in New York may be attributed to the film tax

¹⁸ Data available at: <https://www.bls.gov/cew/downloadable-data-files.htm>.

¹⁹ See, e.g., S. Cunningham, *CAUSAL INFERENCE: THE MIXTAPE* (2021).

²⁰ The estimation uses the `-sdid-` command in Stata 18. The control data is scaled to match the levels of New York. All the weight is assigned to Vermont.

credit.²¹ An increase in Value Added is likewise observed, with Value Added also being 26% higher than the counterfactual in 2021 and 2022. Thus, the value of ω is set at 74%, and $1 - \omega$ is 0.26.

IV. Estimating the ROI of the Film Tax Credit

The IMPLAN model is used to measure the economic contributions of the film tax credit. The analysis is for IMPLAN Sector 429 using 2022 data and 2024 dollars.²² IMPLAN is a supply-side model measuring how some specified change in economic or government activity affects the economics of the supply chain; it does not measure any downstream economic growth resulting from the change in economic activity. For instance, a change in the film industry's size is certain to affect tourism, but such downstream effects must be separately modeled. Such effects are ignored here, so the results are conservative.

A. New York

My analysis relies on what IMPLAN defines as an Industry Contribution event, which can be scaled to measure the counterfactual and the effect. The actual level of economic activity supported by the film and television industry is estimated by setting the industry contribution share to 100%. A counterfactual is estimated by setting the industry contribution share to 74%, and the effect size is measured using a share of 26%.

Table 1 summarizes the IMPLAN results from two scenarios and the difference (the effect). First, the economic contribution of the movie and television industry with the FTC is estimated. According to IMPLAN's data, there are 62,767 movie and film jobs in the state, and the industry supports a total of 127,392 jobs. In all, the industry supports \$14.3 billion in labor income (including proprietor income), \$24.1 billion in Value Added, \$39.8 billion in economic transactions, and \$3.1 billion in state and local taxes.²³ As for the counterfactual, industry employment in the industry is estimated to be 46,448 absent the film tax credit with total supported employment of 94,270 jobs. Value Added and taxes in the counterfactual are \$10.56 billion and \$2.3 billion.²⁴

²¹ This figure is simply the percentage difference between the observed employment and the counterfactual employment.

²² The NAICS codes included in Sector 429 are: 512110, 512120, 512131, 512132, 512191, and 512199.

²³ New York receives back 25% of federal taxes paid. SmartAsset Advisors, *supra* n. 11.

²⁴ The IMPLAN model is linear, so everything scales by the same amount (57.5%).

**Table 1. IMPLAN Calculation of Film Tax Credit Impacts
New York**

	Employment	Labor Income	Value Added	Output	State/Local Taxes
<i>Actual, with FTC</i>					
Direct	62,767	8.85	14.09	24.48	1,787.1
Indirect	25,358	2.39	4.54	7.06	512.4
Induced	39,267	3.03	5.44	8.22	819.1
Total	127,395	14.28	24.07	39.77	3,118.6
<i>Counterfactual, No FTC</i>					
Direct	46,448	6.55	10.43	18.12	1,322.5
Indirect	18,765	1.77	3.36	5.23	379.2
Induced	29,057	2.24	4.03	6.08	606.1
Total	94,270	10.56	17.81	29.43	2,307.8
<i>Effect of the FTC</i>					
Direct	16,319	2.30	3.66	6.37	464.6
Indirect	6,593	0.62	1.18	1.84	133.2
Induced	10,209	0.79	1.41	2.14	213.0
Total	33,122	3.71	6.26	10.34	810.8

The economic contributions of the FTC to New York's economy are sizable. Relative to the counterfactual, the FTC supports 33,122 jobs across the economy, \$3.7 billion in labor compensation, \$6.3 billion in Value Added (GDP), and \$10.3 billion in economic transactions in the state.²⁵ Also, the FTC increased taxes paid in the state by \$811 million. With tax credits averaging \$583 million in 2021 and 2022 (\$693.8 million and \$472.3 million, respectively), the tax effects of the film tax are sufficient to cover the cost of the program.

Using the definitions of ROI set forth above, the ROI_E is from Table 1 is 10.73 [= 6.26/0.583], a very large return. The ROI_T is 1.39 [0.811/0.583], which exceeds 1.0. Finally, the ROI_C is calculated to be 6.03 [= 3.51/0.583], so the gains from the program in profits and taxes easily cover its costs.²⁶ The model can be used to compute the breakeven counterfactual impact share (ω) for ROI_C , which is arguably the most sensible measure of return. This breakeven share is 95.7% ($1 - \omega = 0.043$), so a much smaller effect size (4.3% versus 26%) is required for the program to breakeven.

²⁵ Other input-output models, such as REMI, will provide different estimates of the economic effects. These results are limited to the economic contribution estimates from IMPLAN.

²⁶ Taxes are \$3.12 billion and proprietor and other property income are \$10.4 billion, so the effect of the incentive is 0.26(3.1 + 10.4).

V. Conclusion

In this BULLETIN, I provide a methodology to measure returns on film tax credits. My estimation approach begins with a causal estimate of the effect of the tax credit on industry employment and Value Added, which is used to feed the IMPLAN model to produce estimates of economic contribution. The results are conservative as the model is a static, supply-side model and downstream effects (e.g., tourism) and capital investments in studio infrastructure are ignored. Three measures of return are quantified, including broad economic returns and tax returns, two measures commonly used in these types of studies, and a third based on the compensation principle.

Over the last decade, the movie and television production industry in New York experienced remarkable growth, which empirical analysis suggests is a result of their film tax credit. If the goal of the tax credit is to increase jobs and economic activity, then the film incentive program in New York is successful. Even limiting the analysis to tax revenues, which is too limited in scope, the increase in state and local taxes in the state is sufficient to cover the program's costs. By all measures of ROI, New York has positive returns from their film tax incentives, so the gains from the program are sufficient to cover their costs.

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