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MEMORANDUM

NEW ENGLAND PUBLIC POLICY CENTER

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To: Ellen Scalettar, Director of Policy, Research & Legislation for the Connecticut Senate Democrats
From: Jennifer Weiner, Policy Analyst
Date: January 19, 2009
Re: Cost-benefit analysis of Connecticut's film tax credit

You expressed interest in a cost-benefit analysis of Connecticut's tax expenditures, with a particular emphasis on corporate tax credits and other business benefits. This memorandum focuses on one of Connecticut's most prominent corporate tax credits, the film and digital media production credit ("film tax credit" or "film credit").[1]

Major points

- **The state is devoting considerable public resources to the film tax credit.** According to the state's 2008 tax expenditure report, the estimated cost of the film tax credit for fiscal year 2009 (FY 2009) will be $90 million—higher than estimates for any other corporate tax expenditure for this fiscal year including tax credits for fixed capital investment ($60 million), research and experimentation ($10 million), and general job creation ($10 million).

- **The economic benefits of the film tax credit extend beyond the film industry, but are offset to some degree by reductions in government spending necessary to keep the state's budget balanced.** As film production companies spend money in Connecticut new dollars are injected into the state's economy leading to increased income for individuals and businesses. These individuals and businesses will, in turn, spend some of this additional income in Connecticut, re-injecting dollars into the state economy and starting another round of what is known as the "multiplier" or "ripple" effect. Government spending also has positive multiplier effects. Because of this, any reductions in government spending necessary to maintain a balanced budget will offset some of the credit's economic benefits.

- **The credit does not "pay for itself."** Increases in economic activity spurred by the film credit generate some additional tax revenue for the state from a variety of tax sources. This additional revenue is likely to offset some, but not all, of the initial cost of the credit. Increased economic activity may also reduce government spending if it results in less need for government services. A study undertaken by Connecticut's Department of Economic and Community Development (DECD) estimated that in 2007 each initial dollar of film tax credit granted by the state was offset by about seven cents in new tax revenue and by about thirteen cents in

reduced government spending. Thus, on net, each dollar of film tax credit granted still cost the state roughly $0.80.

- **If a production company's tax credit exceeds the taxes it owes to Connecticut, the company can sell its unused credits to other taxpayers.** In other words, the film tax credit is a *transferable* credit. As such, its initial cost will tend to exceed the lost taxes that production companies would have paid themselves. The purchasers of the credits—who would have been paying additional state taxes to Connecticut—are instead making payments to film companies directly. Thus, transferable credits more closely resemble direct appropriations as compared with credits that are not transferable.

- **The economic benefits generated by the credit are likely to be short-lived.** The DECD study estimated that $16.5 million in film credits ultimately generated $20.7 million in new state gross domestic product (GDP), $6.6 million in new disposable personal income, and 395 new full-time equivalent (FTE) jobs in 2007. This implies that for each net dollar in tax credit the state enjoyed $1.57 in increased GDP and $0.50 in increased personal income in 2007 and that the net cost per FTE job was around $33,500. However, the study also projected that without additional credits granted in subsequent years, these increases in GDP, personal income, and employment would quickly disappear. This is not surprising given the short-term nature of most film projects. In order to continue to attract new film production activity and sustain these increases in GDP, income, and employment over time the state would likely need to continue to hand out film tax credits year after year.

- **Relative cost-effectiveness matters.** Ideally, the cost-effectiveness of the film tax credit should be compared to that of other initiatives targeted on economic development in order to determine which provides the biggest "bang for the buck." To our knowledge no study has done a side-by-side comparison of the film tax credit with other economic development initiatives. However, a rough comparison of evidence across studies that the film tax credit may be less cost-effective than certain other business tax incentives offered by the state such as the research and experimental expenditures credit.

- **Connecticut faces a lot of competition for film production activity.** Connecticut's film tax credit is generous—30 percent of in-state production expenses—but the state faces serious competition. About 40 U.S. states currently offer significant incentives to the film industry. With the potential for a "race to the bottom," it may be difficult for the state to establish a sustainable film industry with sustainable employment opportunities for Connecticut residents.

Introduction

Estimated to cost $90 million in FY 2009, the film credit represents the state's largest single corporate income tax expenditure (Table 1). It is also among the costliest of all of the state's tax expenditures for the current fiscal year (Table 2), ranking in the top fifteen of over 200 line items in the state's nearly $5 billion tax expenditure budget.[2] When also taking into account the separate tax credits for digital animation ($15 million tax expenditure in FY 2009) and motion picture infrastructure ($10 million in FY 2009), total tax incentives to the film industry are more than triple the $33.5 million FY

2009 budget appropriation for the DECD, the state's lead agency for attracting and retaining businesses and jobs.[3] These numbers certainly suggest that Connecticut has made attracting the film industry to the state an important priority.

This memorandum seeks to accomplish the following:

- To describe the film credit and the competitive landscape in which it is offered;
- To discuss the various considerations that should be made when assessing the benefits and costs of the film credit; and
- To analyze the findings of a recent DECD evaluation of the film credit in light of these considerations.

Connecticut's film tax credit

The Connecticut film tax credit, first enacted in 2006, is one of the most generous film incentives in the nation. In its current form, the credit equals 30 percent of qualified production expenses incurred in Connecticut by an eligible production company for a qualified production.[4] Total qualified production expenditures must exceed $50,000 in order for the production to be eligible. Certain types of productions are ineligible (e.g. live programming, news, weather or financial market reports, productions used for corporate training, etc.), as are certain types of expenses (e.g. compensation paid to any individual in excess of $15 million). There are no caps on the amount of film credits—either per-production or in aggregate—that may be granted in a given year.

The film credit can be applied to a production company's state corporate business tax or insurance premium tax liability.[5] The credit is non-refundable, meaning that a production company cannot receive cash back from the state for any portion of a credit that cannot be taken against an existing tax liability. If a production company's tax credit tends to exceed the taxes it owes to Connecticut in a given year it can carry the unused credits forward for up to three years or it can "transfer" or sell its unused credits to other taxpayers. Because of this feature, the initial cost of the film credit exceeds the lost taxes that production companies would have paid themselves. The purchasers of the credits, who would have been paying additional state taxes to Connecticut, are instead making payments to film companies directly. Thus, transferable credits more closely resemble direct appropriations as compared with credits that are not transferable.

In 2007 the state added separate tax credits for film infrastructure investment and digital animation production activity. The infrastructure credit is a transferable credit against the corporate business or insurance premium tax for investments in capital projects such as buildings, facilities, or installations that the film and digital media industry requires to function in Connecticut. The amount of the credit ranges from 10 percent of investment for projects costing between $15,000 and $150,000 to up to 20 percent of investment for projects costing over $1 million. These credits may also be carried forward for three years.

The digital animation credit is a transferable credit equal to 30 percent of digital animation expenses. As with the original film credit, a production must have expenses in excess of $50,000 in order to qualify, but eligibility requirements for the digital animation production company are stricter. For example, a company must maintain a studio in Connecticut and employ at least 200 full-time

employees in order to receive the credit. There is also a $15 million cap on the total amount of credits that can be claimed in any given year.

Connecticut is far from alone in offering incentives to the film industry. There has been a proliferation of state-level film tax credits in recent years, as states have competed with one another—as well as with Canadian provinces and countries outside of North America—to attract a film industry that is relatively footloose. An October 2008 *New York Times* article reported that about 40 U.S. states are currently offering significant incentives to the film industry.[6]

Table 3 summarizes the key provisions of Connecticut's film credit as well as the film incentives offered by seven other states—Massachusetts, Rhode Island, New Jersey, Louisiana, New Mexico, and Michigan—that may, in our opinion, represent Connecticut's most direct competition.[7] As we will discuss later, the ultimate success of Connecticut's program will depend not only on the state's own tax incentives and other amenities, but also on those offered by other jurisdictions.

Considerations for cost-benefit analyses of film tax credits

There are various challenges inherent in performing cost-benefit analyses of film tax credits. We will next discuss some key considerations for an analyst attempting to evaluate Connecticut's film credit.

First, it is important to note that the benefits associated with a film tax credit cannot be measured simply by adding up the in-state production expenditures for projects receiving credits. As production companies spend money in Connecticut new dollars are injected into the state's economy leading to increased income for individuals and businesses. These individuals and businesses will, in turn, spend some of this additional income in Connecticut, re-injecting dollars into the state economy and starting another round of what is known as the "multiplier" or "ripple" effect. Any evaluation of a film tax credit should take this multiplier effect into account or run the risk of underestimating the credit's overall economic impact. However, there are few adjustments worth considering at the outset.

For one, film production activity that was actually induced by the credit should be distinguished from activity that would have taken place even without the credit. While induced and non-induced film production expenditures will both ripple through the economy, only economic activity stemming from *induced* film production should really be attributed to the credit. Unfortunately, because we can only observe what actually happened with the credit in place, the analyst must make assumptions about what film production activity—if any—would have occurred in the credit's absence. This is sometimes referred to as the "counter-factual" or the baseline. The counter-factual might, for example, be based on pre-credit levels of film production activity in the state.

Another consideration is that some production expenses that are eligible for—and induced by—the film credit may not have multiplier effects that benefit Connecticut households. For example, salaries paid to out-of-state residents may be less likely to feed into the Connecticut economy than other production expenses because these individuals will probably not spend a significant portion of their earnings in-state. On the other hand, dollars associated with salaries paid to Connecticut residents or purchases made from Connecticut companies that employ Connecticut residents are more likely to stay in-state, generating additional economic benefits through the multiplier effect.

Other potential benefits of film tax credits—such as the effects of increased publicity for the state—may be difficult to quantify. A 2008 study of Massachusetts' film tax credit acknowledged the challenges associated with measuring the impacts of increased publicity: "We are not aware of any economic model that can project such impacts, which depend on several variables, including how many people view the films made in Massachusetts, the demographics of the audience, whether particular motion pictures are set in Massachusetts and include recognizable Commonwealth scenery, and whether the films portray the state in a positive, negative, or neutral light."[8] Any evaluation of Connecticut's film tax credit that attempts to measure the economic impact of additional publicity for the state stemming from filming would also need to take these issues into consideration.

It is also important to consider the impact of Connecticut's balanced budget requirement on the benefits of a film tax credit. Under a balanced budget scenario, the state government will have to either cut spending or increase other taxes to offset the loss in tax revenues attributable to the credit. These actions are likely to have negative multiplier effects that offset the economic benefits of the credit. Government expenditures, like private, generate income which leads to subsequent rounds of spending by individuals and businesses. When a state government cuts its expenditures, such as by eliminating state jobs or reducing purchases, the negative impact on the economy will likely exceed the amount of the initial reduction in government spending because these additional rounds of economic activity will also be curtailed. Tax increases can also have negative multiplier effects by reducing disposable personal income which otherwise would be available to cycle through the economy.

Choosing an appropriate metric for the benefits of a film tax credit is another key concern. The number of productions occurring in-state following the enactment of a tax credit or the combined gross budgets of those productions, while perhaps straightforward to measure, do not necessarily reflect the credit's aggregate impact on the state economy. The benefits of film tax credits are perhaps better captured by changes in broader measures of economic activity that result from new film activity, such as state output, gross domestic product (GDP), personal income, or total employment. Employment, in particular, is a common metric used in evaluations of tax credits, perhaps because job creation is a widely-embraced goal of economic development. While the focus tends to be on the number of jobs created, the quality of those jobs—including whether they are short-term or permanent—is also important.

While much of the discussion thus far has focused on the measurement of benefits, care must also be taken on the cost side. It is overly simplistic to consider only the foregone revenue captured by tax expenditure estimates when measuring a credit's cost. While the estimated $90 million tax expenditure projected for Connecticut's film credit in FY 2009 does, in some sense, represent the state's commitment to fostering the film industry, it is a static measure, meaning that it does not take into account the fiscal implications of changes in economic activity spawned by the credit. For example, the static revenue loss is not adjusted for increased income tax revenues the state will receive if new jobs are created or additional sales tax revenues generated by successive rounds of spending spurred by the multiplier effect. These new revenues would offset the static revenue loss by some amount.

Ideally, estimates of the net cost of a film tax credit would also account for changes in public spending resulting from the credit, though it is not possible to predict the net direction of such changes. Increased economic activity in the state could, for example, lead to fewer Medicaid enrollees and

fewer unemployment insurance claims. If this were the case, public spending might decrease, which would effectively lower the cost of the credit. On the other hand, if higher levels of economic activity generated by the credit induce population growth, public spending may need to increase to meet new needs for infrastructure, public safety, and other government services. These higher expenditures could offset the incremental tax revenues gained, though in reality local governments may bear the largest share of such costs rather than the state.

It is worth noting that, in an ideal world, any evaluation of a film tax credit—or any type of tax credit—would not just compare the credit's own costs and benefits, but would also examine these costs and benefits relative to those of other policies designed to achieve a similar purpose. A credit with a favorable cost-benefit ratio may ultimately not be the best deal for the state if there is another policy that would yield a bigger "bang for the buck." Thus, the cost-effectiveness of film tax credits should ideally be measured relative to that of other economic development initiatives.

An evaluation of Connecticut's film credit: the DECD study

To our knowledge, the only existing rigorous evaluation of the Connecticut film tax credit is an analysis carried out by the state's DECD in early 2008.[9] The study, which was mandated in the original film credit legislation and covered the period from July 2006 through September 2007, evaluated the credit in its earliest form; legislative changes to the credit enacted after 2006 were not evaluated, nor were the newer digital animation or film infrastructure credits. During the study period 13 productions (five feature films, five television shows, and three commercials/infomercials) filed for the film credit with a total of $57.9 million in in-state production-related expenditures. Of this amount, $55.1 million was deemed eligible for the tax credit, leading to total credits of $16.5 million.

To estimate the economic and fiscal impacts of the credit the DECD used a detailed econometric model of the Connecticut economy developed by Regional Economic Modeling, Inc. (REMI). The REMI model is a dynamic, multi-sector, regional model that is designed to relate spending in one sector of the economy to spending in other sectors. Thus, the model can capture how increases in film production expenditures—and any decreases in government spending necessary to maintain a balanced budget—ripple through the rest of the state's economy.

Key assumptions and adjustments

How did the DECD study attempt to account for the various considerations noted above? First, the DECD authors assumed that all film productions filing for the tax credit represented "net new" industry activity in the state. Productions not filing for the credit were assumed to represent baseline industry activity. In other words, the analysis assumed that that none of the film productions filing for the credit would have taken place without the credit.

The authors also made explicit assumptions about what types of production expenses would or would not feed into the Connecticut economy and thereby generate economic benefits for the state. For example, because many "above-the-line" workers (e.g. producers, directors, and principal actors) reside out-of-state and would not be likely to spend their earnings in Connecticut, the authors excluded salaries for these individuals—totaling close to $14 million—from their calculation of in-state production expenses.[10] On the other hand, certain non-qualifying in-state production

expenditures *were* included, with the rationale being that although these payments were not eligible for the tax credit, they do still exert a positive effect on the Connecticut economy and—based on the authors' assumptions—would not have taken place in absence of the credit.

After making these adjustments, the film credit was assumed to inject about $43 million in new spending into the Connecticut economy, including items for materials, salaries and benefits (except as excluded above), and travel and living expenses—essentially "below-the-line" expenditures. The authors used information from the tax credit applications to apportion these expenditures to the various sectors of the Connecticut economy (e.g. wholesale, retail, specialized manufacturing, lodging, etc.) for input into the REMI model. The authors did not try to capture the economic effects of increased publicity to the state, though they noted that there could be economic benefits from increased tourism. In light of Connecticut's balanced budget requirement, the authors assumed that the $16.5 million in tax credits would be exactly offset by a $16.5 million reduction in state government spending.

The DECD authors reported the following outcomes for 2007 and each of the subsequent five years: state GDP, state disposable personal income, employment, state government revenues and spending, and population. All outcomes were measured as estimated changes from baseline, so as to capture the incremental effects of the credit. The authors assumed no additional tax credits were granted after 2007; thus projections for 2008 and beyond were meant to isolate the longer-term effects of the original credits granted.

DECD findings and their implications

On the benefits side, the REMI model estimated that the film credit resulted in $20.7 million in new state GDP in 2007, $6.6 million in new disposable personal income and 395 new FTE positions. The model also projected that these outcomes would dissipate rapidly over the next five years. It is important to note that this dissipation occurs because the DECD chose to model the impact of the credits through a one-time injection into the state economy. If the state continues to attract film production activity—which has indeed been the case in the time since the study period ended—we would expect the outcome levels projected by the DECD to be sustained or to grow.

On the cost side, the model estimated that the $16.5 million static revenue loss associated with the credit would be offset by $1.1 million in new state government revenues in 2007 stemming from the expansion in economic activity. The model also estimated that state government expenditures would fall in 2007 by $2.2 million beyond the original $16.5 million reduction. The authors inferred that this reduction is the result of a reduced need for programs such as Medicaid, unemployment insurance, and retirement benefits in the face of increased employment. Combining the static revenue loss of $16.5 million with both the incremental increase in revenues and the incremental decrease in state government spending suggests a net program cost of $13.2 million for 2007. In other words, each dollar of film tax credit granted cost the state roughly $0.80 on net.

Taken together, the DECD's results imply that, for 2007, each net dollar spent on the film credit yields $1.57 in new state GDP and 50 cents in new disposable personal income. The net cost per FTE job was around $33,500.

To gauge the longer-term effects of the credit, the DECD authors also estimated the impacts of the stimulated film production over each of the next five years and discounted back to 2007 to get results in present value terms. In the absence of additional credits, incremental state revenues were projected to fall dramatically over the next four years and turn slightly negative in year 2012. Incremental government spending was projected to increase in subsequent years without the support of additional credits. As a result of these longer-run impacts, in combination with the effects of discounting, the present value of the net fiscal impact of the film credits granted in 2007 is about $14.7 million, not the $13.2 million estimated for 2007 alone. Thus, looking at the whole period from 2007 to 2012 the state only recovers—through incremental revenues and altered spending—only about 11 cents in total for each dollar of credit granted.

The productions induced by the film credit in this study exerted mildly negative impacts in subsequent years on GDP and disposable personal income. Those negative impacts, again combined with the effects of discounting, produced estimates of only $1.20 in additional GDP over the entire six-year period per net dollar spent on the film credit, but only slightly less—$0.49 versus $0.50—in additional disposable personal income.[11] All the job impacts essentially take place in 2007. Thus the estimated net cost per FTE job in 2007 in present value terms, after taking into account fiscal effects generated during the whole six-year estimation period, is approximately $37,200.

To get a sense for the plausibility of the DECD findings we can look at similar analyses of film tax credits in other states. At least two other states have used simulations based on the REMI model to evaluate their own film tax credits. In 2008 the Massachusetts Department of Revenue (DOR) used the REMI model to estimate the economic and fiscal impacts of a hypothetical $100 million film tax credit.[12] The DOR estimated that under a balanced budget scenario a $100 million tax credit would create $349 million in new state GDP and between 2,388 and 3,658 new jobs at a net cost of $82.1 million. These results imply that each net dollar spent on the Massachusetts film credit yields $4.25 in GDP for the state and a net cost per FTE job ranging from $22,443 to $34,380. Although the GDP impact appears to be considerably higher for Massachusetts than for Connecticut, this could stem from a variety of factors including differences in the two state economies as captured in their respective REMI models or variations in modeling approaches employed by the two sets of authors. In contrast, the net cost per job estimates are in the same ballpark.[13]

A 2005 REMI study conducted by the Legislative Fiscal Office for the state of Louisiana projected that film tax credits worth $59.0 million in 2007 would lead to 3,414 new jobs at a net cost of $48.3 million, implying a net cost per job of $14,156.[14] The Louisiana study's author noted that "(T)he estimates generated by dynamic analysis tend to be generous, and a number of aspects of this particular analysis work to overestimate the likely true impact of the program." At least one assumption made in the Louisiana study that biases the results in favor of the program—the assumption that that all productions claiming tax credits represent "net new" film production in the state—was also employed by the DECD authors. However others—such as the assumption that personal taxes in Louisiana would be reduced by the amount of the film tax credit claimed, thus raising disposable income—have no counterpart in the Connecticut study.[15] It also unclear whether the employment figures cited in the Louisiana study represent FTEs as opposed to a total count of full- and part-time jobs.[16] These factors could explain, at least in part, the lower estimated net cost per job associated with the Louisiana film credit. Regardless, the findings from both the Massachusetts and Louisiana studies suggest that the DECD's estimates are indeed plausible.

In their report the DECD authors conclude that while the film tax credit does not "pay for itself"—meaning that there is still a net revenue loss—it does increase economy-wide activity (e.g. state GDP) by a greater amount than the cost of implementation. But is this the appropriate standard by which to judge the film credit's cost-effectiveness? One potential drawback of using state GDP in assessing cost-effectiveness is that some of the economic benefits associated with the increase in output may not accrue to state residents, but instead to non-resident owners or workers. Personal income may be a more appropriate measure for gauging benefits to Connecticut residents because it takes into account where income recipients live rather than where the income was generated. The DECD authors found that disposable personal income increased by only about half of the net cost of the credit.

As mentioned above, job creation is often touted as a key goal of economic development efforts, and hence is commonly used in cost-effectiveness measures.[17] While there is no set standard for an acceptable cost per job created, the federal government has established guidelines for some of its programs. For example, regulations for the Community Development Block Grant (CDBG) program administered by the Department of Housing and Urban Development (HUD) set a cap of $35,000 per permanent FTE job created or retained.[18] At first glance, the $33,500 calculated from the DECD study would appear to fall within this threshold. However, note that the HUD regulations call for the creation (or retention) of *permanent* jobs. In the DECD analysis, the REMI model projects that with no additional tax credits employment will fall back to baseline levels after an initial spike in the first year. This is not surprising given the short term nature of many film productions—the opportunities for work created by one production can disappear if there is not another production to take its place.[19] If additional tax credits are necessary to sustain film production activity and its related employment, the cost per permanent FTE is likely to exceed $35,000.

As noted, another standard by which any film tax credit can and should be judged is how it compares to other measures designed to foster economic development. While the DECD study does not analyze the economic or fiscal impact of alternative programs or policies, findings from a 2005 study by researchers from the Connecticut Center for Economic Analysis (CCEA) at the University of Connecticut may serve as rough comparison.[20]

Employing a variety of assumptions, the CCEA authors used the REMI model to project employment changes and net costs associated with 27 different tax programs enacted in Connecticut since the early 1990s, including corporate tax rate reductions, tax exemptions, and credits. Of the 27 programs examined there were eight projected to lead to private sector employment gains of at least 50 FTE jobs in 2007.[21] Among these eight, the net cost per private sector FTE job ranged from under $6,000 for the research and experimental expenditures credit to nearly $190,000 for the sales tax exemption on data processing services (See Table 4).[22] If changes to public sector employment are also taken into account, only two of these eight programs show positive net employment gains—the research and experimental expenditures credit (1,029 net FTE jobs at a net cost per job of $6,078) and the corporate tax rate reduction (4,700 net FTE jobs at a net cost per job of $29,339).[23]

While the findings from the CCEA study are interesting and can serve as source of rough comparison, we recommend caution in using them to judge the relative cost effectiveness of the film tax credit. There are a variety factors that may limit the suitability of a direct comparison of the results. For example, the evaluations were carried out at different points in time, both in terms of calendar years and in the relative maturity of the programs being assessed. Updates to the REMI model occurring between 2005—when the CCEA study was released—and 2008—when the DECD issued its study—

could impact projections for calendar year 2007. Also, the DECD study evaluated the film tax credit in its first year of existence, while many of the tax programs analyzed by the CCEA were at least a decade old. It is possible that the impacts of the film credit estimated by the DECD are not representative of the impacts the credit will have once it is more established, though this will depend in part on how well the film industry takes root in Connecticut—a point discussed further below.

In some cases a lack of descriptive detail in one or both study reports further complicates a comparison of results. Thus, apparent differences in cost-effectiveness may actually stem from differences in modeling approaches (see endnote 13). Furthermore, while the CCEA study clearly distinguishes between private sector employment changes and public employment changes, the DECD study does not—in fact, it is not entirely clear whether the employment figures reported by the DECD authors represent total employment or only private sector employment.

Finally, it is worth noting that the DECD does not report results from any sensitivity analyses. Demonstrating how economic and fiscal impacts change in response to changes in assumptions makes for a lengthier evaluation, but can provide valuable information for policy makers judging a credit's cost-effectiveness. Sensitivity analyses could address a variety of questions. For example, what if some of the productions claiming the film tax credit *would* have happened anyway even without the credit? What if some above-the-line employees *do* reside and spend their earnings in Connecticut? Or, conversely, what if some of the below-the-line expenditures *do not* stay in the state economy?

While the correct way to ascertain the sensitivity of the DECD's results would be to conduct separate REMI analyses using new sets of assumptions, a few back-of-the-envelope calculations such as those presented in Table 5 illustrate how the estimated impacts could potentially be affected. In these calculations we impose alternative assumptions that have been used by analysts studying the economic impact of film production activity in other states. In "Alternative Scenario 1" we assume that ten percent of above-the-line spending will stay in the Connecticut economy (versus zero percent assumed by the DECD)—an assumption that would favorably affect the impact of the film credit. In "Alternative Scenario 2" we employ two assumptions that would negatively affect the impact, namely that 7.5 percent of production spending would have taken place in the film credit's absence (versus zero percent) and that only 90 percent of below-the-line spending will stay in the Connecticut economy (versus 100 percent).[24] Both scenarios alter the amount of film production expenditures that flow into the Connecticut economy. If we suppose further that the relationship between these "inputs" and the various "outputs" reported in the DECD study (GDP, disposable personal income, employment, and net new revenues) are proportional—a big assumption—the estimated net cost per FTE job falls about four percent from the DECD result—from about $33,500 to $32,200—for Alternative Scenario 1. For Alternative Scenario 2 the estimate increases by roughly 25 percent—from $33,500 to about $41,900.

Summary and where go to from here

There has been a proliferation of film tax credits in U.S. states in recent years. Connecticut's film credit, first enacted in 2006, has emerged as one of the state's most sizable tax expenditures and is projected to be the largest corporate tax incentive in FY 2009.

A 2008 study by the Connecticut DECD estimated the benefits and costs associated with $16.5 million in film tax credits granted during the credit's first year of existence. The DECD authors estimated that these credits were responsible for almost 400 new FTE jobs in 2007, at a net cost per job of $33,500—a value in the range of estimates obtained for film tax credits in other states. Although data are not available to draw definitive conclusions about the film tax credit's relative cost effectiveness vis-à-vis alternative policies for economic development, a comparison with findings from a 2005 study by the CCEA suggests that the film credit is likely to be more cost effective than some tax incentives the state currently offers, but less cost effective than others.

It worth noting that the recent DECD study is already somewhat outdated; the incentives offered to the film industry in Connecticut have been expanded and refined since the study period captured by the DECD, and the magnitude of credits claimed has increased substantially. The competitive landscape has also changed. For example, other states such as New York and Michigan have increased the generosity of their credits. With states engaged in a potential "race to the bottom", film productions that previously would have gone to Connecticut may choose to go elsewhere, making it difficult for the state to establish a sustainable industry.

Will Connecticut's new film infrastructure credit help to combat this? As film credits become ubiquitous, it may be that only states early to offer incentives—such as Louisiana or New Mexico—will be successful in building a permanent industry, or it could be that those places that have traditionally fostered the film industry will reign. An assessment of New York's film production industry took the latter view, concluding, "Overall, there is a danger that [film] incentives will be too much of a good thing. With so many players in the game, the more they spread out the available action in a few product segments, the less the chance that anyone will build a sustainable industry—unless they already have one, like Los Angeles, or Canada, or New York."[25] On the other hand, plans for a film studio in Plymouth, Massachusetts are moving forward despite the fact that legislation designed to grant state-level tax credits for such construction failed to make it through the state senate.[26] This highlights the fact that state-sponsored tax breaks are not always the only factor influencing the decisions of film industry executives.

In the current period of economic stress, policy makers may be inclined to turn to tax incentives such as film tax credits as a means for creating jobs and spurring investment. Yet the fiscal difficulties that Connecticut is facing heighten the need for careful examination of the costs and benefits of these programs. State policy makers should take into account the various issues detailed in this memo when deciding what level of support to offer the film industry going forward. An updated cost-benefit analysis—especially one that examines the relative cost effectiveness of alternative economic development policies using consistent and well-documented methodologies and a range of assumptions—could be especially useful in informing such decisions.

Endnotes

[1] The author would like to thank Robert Tannenwald, Director, and Richard Woodbury, Visiting Scholar, of the New England Public Policy Center and Stan McMillen of the Connecticut Department of Economic and Community Development for their thoughtful comments and suggestions.

[2] Connecticut General Assembly Office of Fiscal Analysis. 2008. "Connecticut Tax Expenditure Report."Hartford, CT.

[3] Connecticut Office of Policy and Management, Budget and Financial Management Division. 2007. "FY2008-FY2009 Governor's Budget, Part I, Budget-in-Brief." Hartford, CT.

[4] Detailed descriptions of Connecticut's film, film infrastructure, and digital animation credits can be found in: Rute Pinhel. 2008. "Film Industry Tax Credit." OLR Research Report. 2008-R-0410. Hartford, CT, or on the website of the Connecticut Commission on Culture and Tourism, http://www.cultureandtourism.org.

[5] The estimated FY 2009 tax expenditure against the insurance premium tax is $0.5 million.

[6] Michael Cieply. October 12, 2008. "States' film production incentives cause jitters." *The New York Times*.

[7] Massachusetts, Rhode Island, and New York were included because they border Connecticut. New Jersey was chosen because it—along with Connecticut and New York—is part of the well-known "tri-state region." Louisiana and New Mexico were selected because they were among the first U.S. states to enact film incentive programs. Lastly Michigan was included because its film incentive program is one of the nation's most generous.

[8] Massachusetts Department of Revenue. May 19, 1998. Letter to Representative Steven D'Amico.

[9] Stanley McMillen, Kathryn Parr, and Troy Helming. February 2008. "The Economic and Fiscal Impacts of Connecticut's Film Tax Credit." Hartford, CT: Department of Economic and Community Development.

[10] The authors also excluded the "loss and damages" category that appears on tax credit applications which itemizes expenditures that were lost or damaged during the filming process. This category amounted to less than $0.2 million for the 13 productions captured in the study period.

[11] The estimate of $1.20 is obtained by dividing the net present value of GDP increases, $17.68 million, by the net present value of net costs, $14.7 million. The net present value of GDP increases per *gross* dollar spent on the tax credit is $1.07—a figure cited by in the DECD report.

[12] Massachusetts Department of Revenue. May 19, 2008. Letter to Representative Steven D'Amico. An update of the analysis presented in this letter was slated for release in December 2008.

[13] Two analysts, each using the same REMI model, can arrive at different estimates because the model itself is not designed to simulate tax policy changes as industry-specific as the introduction or expansion of film tax credits. The analyst must decide how to constrain the model in a manner that captures the initial economic changes introduced by the policy. There can be more than one way to effect these initial impacts. The model then simulates subsequent economic effects, including multiplier effects.

[14] Greg Albrecht. March 2005. "Film and Video Tax Incentives: Estimated Economic and Fiscal Impacts." Baton Rouge, LA: State of Louisiana Legislative Fiscal Office.

[15] In Louisiana most film tax credits are claimed against the personal income tax by individual taxpayers who purchase them from production companies. In reality, the net disposable personal income for these individuals would not increase by the full amount of the credits because the individual taxpayers must pay some amount to obtain them.

[16] The Louisiana report states, "The job estimates, especially those for the motion picture industry itself, should be viewed with some qualification. The economic activity being examined, film and video production shooting, is a collection of discrete projects that purchase goods and services, and employs labor for each individual project. To the model however, a series of these projects is essentially similar to a factory starting up in the state with a one-time increase in permanent employment. To the model, each unit of job count gained is equivalent to a person becoming permanently employed in that particular job. In reality, a series of these projects are each generating job count gains that will, to some extent, be held by the same persons moving from one job opening to the next on different projects. Depending on the size of the project, preproduction activity days can range from 10 days to 40 days, and production activity days can range from 12 days to 60 days on any particular project. Thus, the job count gains estimated in this analysis will tend to overstate the actual gains in persons employed. Since the income gains result in large part from the job gains, they are also likely to

be overstated in this analysis." One would expect estimates of FTEs to *understate* the number of persons employed, as multiple individual part-time workers can comprise one FTE.

[17] Though the employment could suffer from the same drawbacks as state GDP in measuring the benefits of tax credits for a cost effectiveness evaluation if many of the newly created jobs are filled by non-resident workers.

[18] 24 CFR 570.209, Subpart B.

[19] The short term nature of film production employment was acknowledged in the Louisiana study (see endnote 16, above) as well as in a descriptive analysis by the Massachusetts DOR which found that the average duration for a job created by production companies taking advantage of the Commonwealth's film tax credit was 3.2 months and the weighted average duration was 1.4 months if larger productions are given greater weight. See Massachusetts Department of Revenue. March 2008. "A Report on the Massachusetts Film Industry Tax Incentives." Boston, MA.

[20] William F. Lott and Stan McMillen. December 2005. "The Economic Impact of Connecticut's Corporate Tax Policy Changes: 1995-2012." Storrs, CT: Connecticut Center for Economic Analysis, University of Connecticut.

[21] The CCEA study reports employment estimates in "job-years" which we take to be equivalent to FTEs.

[22] CCEA reported net costs in 2001 dollars. Here, costs have been converted to 2007 dollars using the CPI-U.

[23] These also represent one year net costs per net job and thus also cannot be directly compared to the HUD $35,000/job threshold.

[24] The Massachusetts DOR study assumed that 7.5 percent of film production would have occurred but-for the film tax credit and that ten percent of above-the-line earnings would stay in the state economy. An analysis of the economic impact of a film production in the city of Chicago assumed that only 90 percent of below-the-line spending would stay in the local economy. See Arthur Andersen LLP. September 1997. "Economic Impact Study for the Chicago Film, Television & Commercial Economic Development Coalition." Chicago, IL. While these particular assumptions may not be as appropriate for an analysis of Connecticut's film tax credit, they can be used to illustrate the potential sensitivity of the DECD findings.

[25] Susan M. Christopherson, Maria C. Figueroa, Lois Spier Gray, James Parrott, Damone Richardson, and Ned Rightor. August 2006. "New York's Big Picture: Assessing New York's Position in Film, Television and Commercial Production." A Report to the New York Film, Television and Commercial Initiative. Ithaca, NY: Cornell University and the Fiscal Policy Institute.

[26] The legislation in question, House Bill 4784, did pass in the Massachusetts House of Representatives, but was not taken up by the state senate by the close of the 2008 legislative session.

Tables

Table 1: Connecticut corporate business tax expenditure estimates: Fiscal year 2009

Provisions with tax expenditures ≥ $10 million	Provision type	Estimated tax expenditure ($ millions)	Share of total
Film and digital media production	Credit	90.0	16.2
Net capital loss carry-over	Deduction	65.0	11.7
Fixed capital investment	Credit	60.0	10.8
Net operating loss carry-forward	Deduction	50.0	9.0
Mixed use historic structure	Credit	50.0	9.0
Subchapter S corporations	Exemption	26.0	4.7
EDP equipment property tax	Credit	25.0	4.5
Dividends from DISCs or FSCs	Deduction	25.0	4.5
Income from FSCs	Exemption	25.0	4.5
Domestic insurance companies	Exemption	20.0	3.6
Passive investment companies	Exemption	20.0	3.6
Digital animation production	Credit	15.0	2.7
Foreign insurance companies	Exemption	10.0	1.8
Job creation	Credit	10.0	1.8
Motion picture infrastructure	Credit	10.0	1.8
Research & experimentation	Credit	10.0	1.8
Sum of provisions ≥ $10.0 million		511.0	91.9
Sum of provisions < $10.0 million		45.2	8.1
Total corporate business tax expenditures		**556.2**	**100.0**

Source: Connecticut Tax Expenditure Report, January 2008.

Notes: The tax expenditure report does not include provisions with tax expenditures less than $0.1 million. The report also states: "This report estimates each provision in isolation, with other provisions in that tax and other taxes held constant. The secondary impact of one provision over another provision is not taken into account." Thus, the summing together of different tax expenditure items implicitly assumes that the various provisions are independent of one another. In reality, this is probably not a realistic assumption.

EDP = electronic data processing; DISC = domestic international sales corporation; FSC = foreign sales corporation.

Table 2: Top 15 tax expenditure estimates for Connecticut:
Fiscal year 2009

Rank	Provision	Provision type	Applicable tax	Estimated tax expenditure ($ millions)	Share of total
1	Fuel distributors	Exemption	Motor fuels/motor carrier	750.0	15.0
2	Sales to non-profit organizations	Exemption	Sales and use	700.0	14.0
3	Food products for human consumption	Exemption	Sales and use	373.0	7.5
4	Property taxes paid	Credit	Personal income	350.0	7.0
4	Motor vehicle fuel	Exemption	Sales and use	350.0	7.0
6	Rx medications, syringes, & needles	Exemption	Sales and use	250.0	5.0
7	#2 heating oil used for heating purposes	Exemption	Petroleum companies	180.0	3.6
8	Fuel for heating purposes	Exemption	Sales and use	140.0	2.8
9	Clothing under $50	Exemption	Sales and use	130.0	2.6
10	Fuel exported out of state	Exemption	Motor fuels/motor carrier	120.0	2.4
11	Machinery used in manufacturing	Exemption	Sales and use	100.0	2.0
12	Film and digital media production	Credit	Corporate business	90.0	1.8
13	Sales for resale	Deduction	Public service companies	75.0	1.5
14	Net capital loss carry-over	Deduction	Corporate business	65.0	1.3
15	Computer and data processing services	Exemption	Sales and use	64.0	1.3
	Sum of top 15 provisions			3,737.0	74.9
	Sum of other provisions			1,254.0	25.1
Total tax expenditures, all provision types, all taxes				**4,991.0**	**100.0**

Source: Connecticut Tax Expenditure Report, January 2008.

Notes: The tax expenditure report does not include provisions with tax expenditures less than $0.1 million.
The report also states: "This report estimates each provision in isolation, with other provisions in that tax and other taxes held constant. The secondary impact of one provision over another provision is not taken into account." Thus, the summing together of different tax expenditure items implicitly assumes that the various provisions are independent of one another. In reality, this is probably not a realistic assumption.

Taxes for petroleum companies and public services companies are gross earnings taxes.

Table 3: Comparison of film tax incentives for selected states

State	Rate	Requirements	Features	Caps/Exclusions
Connecticut	30%	≥ $50,000 in qualified production expenditures.	Transferable, three-year carry-forward.	Compensation over $15 million for any individual is excluded.
Louisiana	25% plus an additional 10% of payroll for Louisiana residents	≥ $300,000 in base investment (defined as production expenditures or investment in film infrastructure).	Transferable, ten-year carry-forward.	Salary for any Louisiana resident earning over $1 million is excluded from 10% payroll credit.
Massachusetts	25% (payroll); 25% (production expenses)	≥ $50,000 in Massachusetts production expenses in a 12-month period for payroll credit; ≥ 50% of expenses or ≥ 50% of principal photography days must take place in Massachusetts for production expense credit.	Transferable, refundable at 90%, five-year carry-forward.	Salaries for individuals earning more than $1 million are ineligible for payroll credit, but are eligible for the production expense credit.
Michigan	40% plus an additional 2% if filming in one of 103 "Core Communities"	≥ $50,000 in Michigan expenditures.	Refundable at 100%.	Credit only applies to up to $2 million paid to any individual employee; earnings of non-resident below-the-line personnel are only eligible for a 30% credit.

Table 3 (continued)

State	Rate	Requirements	Features	Caps/Exclusions
New Jersey	20%	≥ 60% of total project expenses (exclusive of post-production costs) must be for services performed and/or goods used or consumed in New Jersey.	Transferable, seven-year carry-forward.	Cannot exceed 50 percent of a taxpayer's tax liability when combined with other credits; total value all credits cannot exceed $10 million in any fiscal year.
New Mexico	25%	No minimum level of expenditures or filming days.	Refundable at 100%.	$5 million credit cap per production on services provided by performing artists.
New York	30% plus an additional 5% for NYC	For films shot in a facility: ≥ 75% of facility expenses must be incurred at a qualified New York facility; for location work, post production and other non-facility work: ≥ 75% of location days must be shot in New York or production must spend ≥ $3 million in a qualified facility.	Refundable at 100%.	Generally excludes above-the-line costs. State cap ranges from $65 million in CY 2008 to $110 million in CY 2013. NYC allocated $30 million per year through 2011 for the additional 5% credit.
Rhode Island	25%	≥ $300,000 in Rhode Island production expenses and ≥ 51% of principal photography days must take place in Rhode Island.	Transferable, three-year carry-forward.	Total of all credits may not exceed $15 million per year.

Table 3 (continued)

Sources: Connecticut Commission on Culture and Tourism website, http://www.cultureandtourism.org;
Louisiana Office of Entertainment Industry Development website, http://lafilm.org;
Massachusetts Department of Revenue, TIR 07-15: An Act Providing Incentives to the Motion Picture Industry;
Michigan Film Office website, http://www.michigan.gov/filmoffice;
New Jersey Motion Picture & Television Commission website, http://www.njfilm.org;
New Mexico Film Office website, http://www.nmfilm.com;
New York State Governor's Office for Motion Picture and Television Development website, http://www.nylovesfilm.org;
Rhode Island Film & TV Office website, http://www.film.ri.gov; Steve Peoples. August 12, 2008. "Reviews for state's film tax credit aren't good," *The Providence Journal.*
All websites visited November 3, 2008.

Note: this chart details the film incentive offered by each state that is most directly comparable to Connecticut's film tax credit (i.e. generally a credit equal to some percentage of in-state production expenses). Some of these states offer additional incentives related to film production including infrastructure credits, sales tax exemptions, workforce development credits and/or loan/loan guarantee programs, or separate tax credits for specific types of projects.

Table 4: Cost per job estimates for selected Connecticut tax programs

Tax program	Private sector employment gain (loss)	Public sector employment gain (loss)	Implied net employment gain (loss)	Net cost per private sector job gained (lost)	Implied net cost per net job gained (lost)
Corporate tax rate reduction	6,609	(1,909)	4,700	$20,865	$29,339
Electronic data processing property tax credit	256	(404)	(148)	$156,621	($270,912)
Fixed capital investment credit	330	(520)	(190)	$148,015	($257,079)
Machinery & equipment expenditure credit	62	(103)	(41)	$164,465	($248,704)
Research & development credit	209	(210)	(1)	$90,319	($18,876,649)
Research & experimental expenditures credit	1,029	(83)	946	$5,588	$6,078
Sales tax exemption on data processing services	359	(614)	(255)	$187,830	($264,435)
Property tax exemption on machinery & equipment	948	(1,047)	(99)	$96,530	($924,346)

Sources: Lott and McMillen, Table 6; United States Bureau of Labor Statistics, Consumer Price Index - All Urban Consumers.
Implied values are author's calculations.

Notes: Only tax programs projected to create at least 50 new private sector jobs in 2007 are included in table.
All dollar figures have been converted to 2007 dollars using the CPI-U. Farm sector employment is included in public sector employment figures.
Employment figures are full-time equivalents.

Implied net employment gain (loss) = private sector employment gain (loss) + public sector employment gain (loss)
Implied net cost per net job gained (lost) = [private sector employment gain (loss) x net cost per private sector job gained (lost)]/implied net employment gain (loss)

Table 5: Cost-benefit analysis of Connecticut film tax credit under alternative scenarios: Two illustrative examples

	DECD Study	Alternative Scenario 1	Alternative Scenario 2
Connecticut expenditures ($ millions)			
Above-the-line	13.8	13.8	13.8
Below-the-line	43.0	43.0	43.0
Total	56.8	56.8	56.8
Percentage of expenditures assumed to take place in absence of credit			
Above-the-line	0.0	0.0	7.5
Below-the-line	0.0	0.0	7.5
"Net new" Connecticut expenditures ($ millions)			
Above-the-line	13.8	13.8	12.8
Below-the-line	43.0	43.0	39.8
Total	56.8	56.8	52.5
Percentage of expenditures assumed to stay in-state			
Above-the-line	0.0	10.0	0.0
Below-the-line	100.0	100.0	90.0
"Net new" Connecticut expenditures assumed to stay in-state ($ millions)			
Above-the-line	0.0	1.4	0.0
Below-the-line	43.0	43.0	35.8
Total	43.0	44.4	35.8
Estimated outcomes (2007)			
GDP ($ millions)	20.7	21.4	17.2
Disposable PI ($ millions)	6.6	6.8	5.5
Employment (FTE jobs)	394	407	328
Net new revenue ($ millions)	3.3	3.4	2.7
Net cost ($ millions, 2007)	13.2	13.1	13.8
Cost-benefit ratios			
GDP per dollar net cost ($)	1.57	1.63	1.25
Disposable PI per dollar net cost ($)	0.50	0.52	0.40
Net cost per FTE job ($)	33,503	32,200	41,928

Table 5 (continued)

Source: McMillen et al., 2008 and author's calculations.

Notes: The "loss and damages" category is excluded from this calculation.

Estimated outcomes for the alternative scenarios are calculated by multiplying the DECD study outcomes by the ratio of "net new" Connecticut expenditures assumed to stay in-state for the alternative scenarios to that for the DECD study (i.e. 44.3/43.0 and 35.8/43.0).

Net cost is calculated as gross forgone revenue ($16.5 million) minus net new revenues.

FTE = full time equivalent; GDP = gross domestic product; PI = personal income.