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Memorandum

To: Senator Rucho
Jim Blaine, Chief of Staff, Senate President Pro Tempore

From: Patrick McHugh, Ph.D.
Fiscal Analyst, Fiscal Research Division

Date: 4/09/2013

Subject: Film Tax Credits

Summary
Per your request, we have summarized the process and estimated the economic impact of the Film Production Credit.

For the 2011 tax year, in which $30.3 million in Film Credits were claimed, the key impacts reported here include:

- Under the most plausible assumptions, the Film Credit likely attracted 55 to 70 new jobs to North Carolina in 2011.

- The Film Credit created 290 to 350 fewer jobs than would have been created through an across-the-board tax reduction of the same magnitude.

The analysis reported here was conducted using the Regional Economic Models Incorporated (REMI) PI$^+$ model. The REMI model estimates how the economic system would react to changes in the policy environment, so the results are only estimates. However, as there is no way to directly measure the economic impact of the Film Credit, the REMI model provides an informed estimate of how the Film Credit impacts business activity in North Carolina.

The remainder of this memo provides background information on the Film Credit, reports additional results, and discusses the assumptions and methodology used in producing this analysis.

Overview of the Film Credit

Under G.S. 105-130.47 and G.S. 105-151.29, film or television productions that spend at least $250,000 qualify to be reimbursed for up to 25 percent of qualifying expenses. Spending that qualifies for the credit includes goods and services purchased from North Carolina companies during the production and post-production processes. In addition, employee compensation qualifies if withholding is remitted to the North Carolina Department of Revenue. Purchases and employee compensation occurring outside of North Carolina do not qualify for the Film Credit.

When originally enacted in 2005, the Film Credit allowed productions to recover 15 percent of qualifying expenses. The Credit was then increased to 25 percent in 2009. The Film Credit is capped at $20 million for any single feature film production.

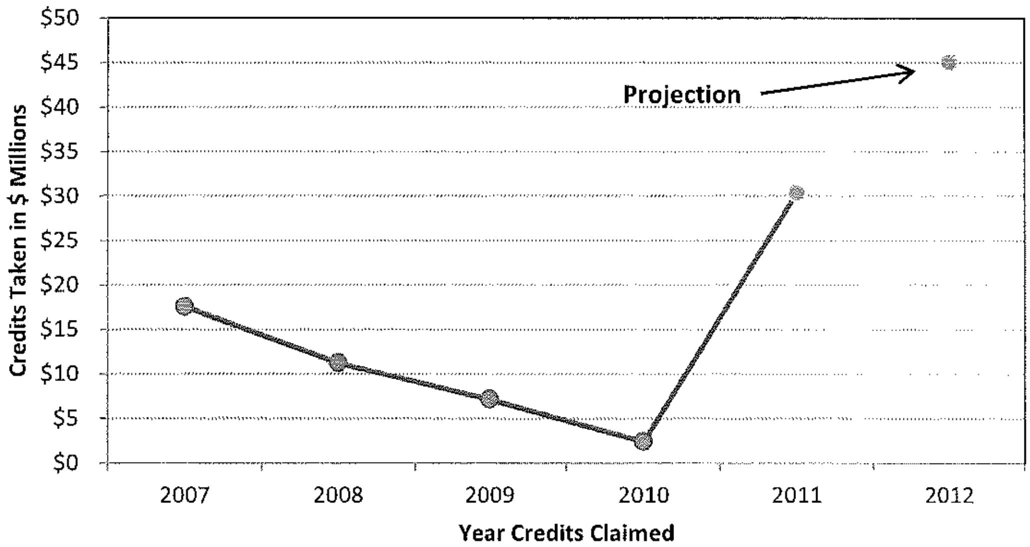
There is a four step process for claiming film credits:

1. A production company must file an "Intent to Film" form with the North Carolina Film Office in the Department of Commerce. This form is filled out once a production has financing in place and has made its final decision to film in North Carolina.
2. The production must be completed in North Carolina. If part of a production is done in North Carolina, and part outside the state, only purchases made in North Carolina qualify for the Film Credit.
3. The production must file a NC-415 form with the Department of Revenue. The NC-415 lists the total expenses incurred during production that qualify under the Film Credit, along with the total number of people employed during production.
4. The Department of Revenue conducts an audit of the production's claimed expenses and validates which expenses qualify under the Film Credit.

The value of credits that can be taken can exceed a company's tax liability in North Carolina. The credit is first used to offset a production's tax income liability (corporate or personal), and the remainder of the value of the credit is issued as a reimbursement check. By comparison, most of the targeted incentive credits that North Carolina offers (e.g. Job Development Investment Grant and Article 3J) cannot exceed a certain percentage of a company's tax liability.

As shown in Figure 1, the total value of Film Credits taken has fluctuated since its inception. These data represent the year in which Film Credits were processed and taken, not the year in which the credits were generated. For the 2006-07 tax year, approximately $17.5 million in film credits were taken, a figure that declined to $2.4 million for the 2009-10 tax year. In 2010-11, total film credits taken increased to over $30 million, with at least a part of this increase driven by the credit increasing to 25 percent. Based on preliminary information received from the Department of Revenue, payouts of Film Credits in 2012 surpassed $45 million. Overall, it is clear that there is a significant amount of volatility in amount of Film Credit activity from year to year. Because the size of possible credits is not limited by the North Carolina tax liability of production companies, there is little to restrain the potential growth of this tax expenditure.

Figure 1: Total Value of Film Production Credits Taken



Source: North Carolina Department of Revenue, *2012 Economic Incentives Report*.

While relatively small in size for the first several years of its existence, the Film Credit has come to rival the size of several other economic incentive credit programs. As shown in Table 1, the total fiscal cost of the Film Credit surpassed the cost of Articles 3J, 3B, 3D, 3H, and 3C.

Table 1: Film Credits Compared to Other Economic Incentive Credits

Statutory Credit	**Credits Dispersed in 2011** (In Millions)
Art 3A (Various business expenses)	$61.3
Art 3E (Low-income housing)	$38.3
Art 3F (Research and development)	$36.1
Film Industry Production Credit	**$30.3**
Art 3J (Job creation and business investment)	$25.4
Art 3B (Business investment and donations)	$24.1
Art 3D (Historical rehabilitation)	$10.8
Art 3H (Mill rehabilitation)	$3.2
Art 3C (Investment in recycling facilities)	$0.7

Source: North Carolina Department of Revenue, *2012 Economic Incentives Report*.

Effect of the Film Credit in Attracting New Economic Activity

The economic impact of the Film Credit depends on how much *new* economic activity it attracts to North Carolina. The key question is how much film activity is attracted to the State specifically because the Film Credit makes it less expensive to shoot productions in North Carolina. This section estimates how much new economic activity has been attracted to North Carolina by the Film Credit.

The REMI model addresses this issue by estimating how the Film Credit changes the cost of production, thus the attractiveness of North Carolina as a place to produce films.[1] It is impossible to know precisely how many jobs came to North Carolina as a direct result of the Film Credit. Lacking perfect knowledge, the estimates reported here provide an informed expectation of how much business would have been lost if the cost of making movies and television shows had been higher because the Film Production Credit did not exist.

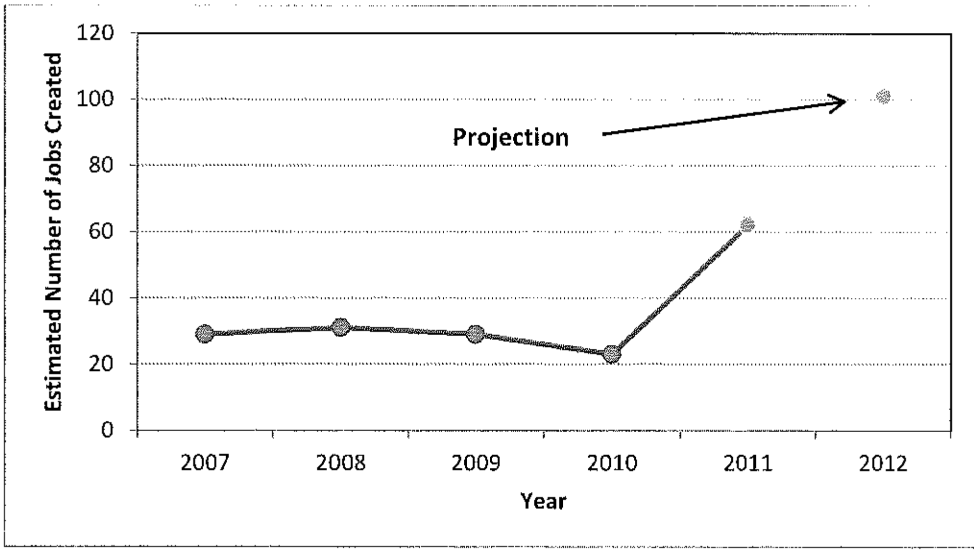
Table 2: Estimated New Business Activity Attracted by Film Credit in 2011

Economic Indicator	Estimated 2011 Impact
Employment	55 - 70 jobs
Personal Income	$2 million
Output	$7 million

REMI analysis indicates that the Film Production Credit likely created between 55 and 70 jobs in North Carolina and generated approximately $2 million in personal income in the State. The economic impact of the Film Production Credit increased in 2011 compared to previous years. As shown in Figure 2 below, between 20 and 30 jobs were added to the North Carolina economy as a result of the film credit each year from 2007 through 2010. With the number of credits taken in 2011 increasing to over $30 million, estimates show the economic impacts increasing accordingly.

[1] For more detailed discussion of the modeling tools and approach, see the Assumptions and Methodology section.

Figure 2: Analysis of North Carolina Jobs Created by Film Industry Production Credits



Opportunity Costs of the Film Credit

This section reports REMI model estimates of what would have occurred if the funds expended through the Film Credit had been used instead to reduce business taxes across the board. The purpose here is to provide some basis for evaluating the opportunity cost inherent in the Film Credit.

REMI analysis indicates that reducing business taxes across the board would generate more new economic activity in North Carolina than is likely generated through the Film Credit. As shown in Table 3, the $30.3 million in film credits claimed in 2011 likely created between 55 and 70 jobs, which generated approximately $2 million in personal income. By comparison, this analysis indicates that an across-the-board tax reduction of $30.3 million would have yielded between 370 and 450 new jobs and $14 million in personal income.

Table 3: Estimated 2011 Economic Impacts of Film Tax Credit and General Business Tax Reduction

Economic Indicator	Film Credit	General Business Tax Reduction
Jobs	55 - 70	370 - 450[2]
Personal Income	$2 million	$21 million
Output	$7 million	$54 million

[2] Because these data are estimates, it is more appropriate to report a range than a specific number. Therefore, all employment results presented in this analysis are reported as the range between 10 percent lower than and 10 percent higher than the specific estimate produced by the model.

Finally, Table 4 below shows the net impact of reallocating expenditures that were devoted to the Film Credit in 2011 to reducing business taxes across-the-board. Analysis indicates that reallocating Film Credit funds to an across the board business tax reduction would have yielded 290 to 350 net new jobs.

Table 4: Net Impact of Reallocating 2011 Film Credits to Alternative Tax Reductions

Economic Indicator	Net Impact or Reallocating Film Credits to General Business Tax Reduction
Jobs	290 - 350
Personal Income	$17 million
Output	$45 million

Economic Footprint of All Spending by Productions that Received Credits

Some studies of film tax credits estimate the economic impact of spending by productions that receive a credit. Such an approach is prone to overstating the economic benefits of incentive credits, but it does provide some background for evaluating the impact of the Film Credit. This section estimates the economic impact of all film and television productions that received the Film Credit in 2010[3].

This analysis indicates that productions that received the Film Credit in 2010 supported 1650 to 2000 jobs in North Carolina. However, it is also essential to consider the employment losses that result from reducing other governmental expenditures to pay for the Film Credit program. Once the losses in employment that result from reducing other governmental spending are considered, the net impact of the film productions that received a credit in 2010 was likely a gain of 850 to 1000 jobs.

Table 5: Economic Impact of All Productions that Received Film Credits in 2011

Economic Indicator	Film Credit	Reduced State Government Spending	Net Impact
Jobs	1650 - 2000	(800 - 900)	850 - 1000
Personal Income	$52 million	($45 million)	$7 million
Output	$187 million	($80 million)	$107 million

Limitations of this Approach

While some studies have pursued this approach, modeling the full impact of all spending by productions that received the Film Credit may overstate the economic benefits of the Credit. This approach assumes that none of the productions that received a credit would have shot in North Carolina if the credit had not been available, which is extremely unlikely. While there is not a

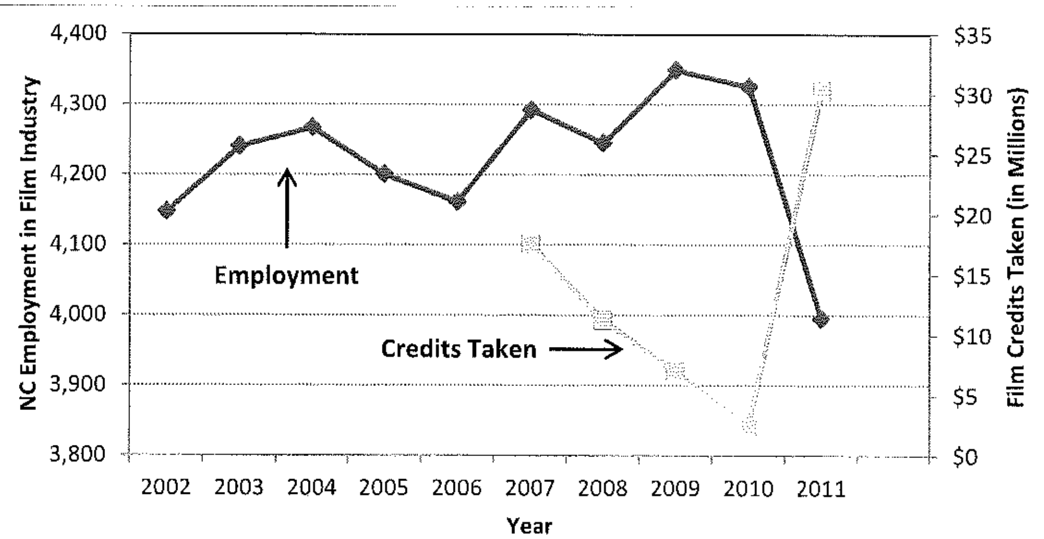
[3] For a discussion of the modeling tools and approach used here, see the Assumptions and Methodology section.

great deal of research on the effect of film credits specifically, most of the evidence on credit incentives generally finds that they only make a deciding difference in a limited number of cases. Some percentage of the shows and movies that received film credits would have shot in North Carolina regardless. In addition, this approach still relies on estimating the economic impact. It is impossible to go back and count how many people were hired because of productions that received the Film Credit, so this approach still relies on a model to estimate the total impact.

Therefore, modeling the impact of the spending by every production that received a credit is a generous assumption, prone to overstating the actual economic impact of the Credit. Because the impact of the Film Credit is closely tied to how much *new* economic activity it attracts to North Carolina, Fiscal Research strongly favors the approach used in previous sections of this memo.

Film Credit Activity and Total Employment in the Motion Picture Industries
While it is always difficult to isolate the direct impact of a particular tax measure on economic activity, it is still informative to examine how value of film tax credits claimed compares to employment gains and losses in motion picture industries. If the Film Credit is a key driver of employment in motion picture industries, increases in the amount of credits claimed should correlate with increases in employment in motion picture industries. As shown in Figure 3, changes in the amount of Film Credits claimed in North Carolina do not closely mirror State employment trends in motion picture industries.

Figure 3: Employment in Motion Picture Industries and Value of Film Credits Taken



Sources: Employment Data from Bureau of Labor Statistics, *Quarterly Census of Employment and Wages*, Motion Picture and Video Industries (NAICS 5121). Film Credits Taken from North Carolina Department of Revenue, *2012 Economic Incentives Report*.

Employment in motion picture industries generally increased from 2007 to 2009, a period that saw a decline in the amount of film credits taken. In contrast, 2011 saw a major increase in film credits taken while North Carolina employment levels in motion picture industries actually declined. While more analysis would be required to rigorously assess the effectiveness of film credits at creating jobs in North Carolina, these data do not point to a particularly strong connection.

Assumptions and Methodology

This section provides additional detail on the different modeling exercises pursued here.

The Regional Economic Models Incorporated Model

All of the analyses presented here use the Regional Economic Models Incorporated (REMI) PI+ software, one of the leading economic impact tools in the United States, with a substantial track record of use across the nation[4]. The REMI model incorporates a host of historical data on employment, how industries are linked together, what consumers purchase, how costs of production influence market share, and a variety of other vital economic data. Based on this foundation, the REMI software creates a dynamic model of how the North Carolina economy is linked to the national and international economies.

REMI's dynamic structure makes it possible to estimate the impact of potential changes in North Carolina's economy. Economic impacts are captured through comparing the economic outcomes of a hypothetical condition against the status quo. As with any economic impact model, the results produced by the REMI software are only estimates. Measuring the economic impact of events or decisions that have not taken place is inherently inexact, even using the best tools available. In spite of the uncertainty involved, the REMI model provides informed estimates about the likely impact of alternate economic conditions.

For this project, the hypothetical condition was the absence of the Film Credit. Because the Film Credit has existed for several years, its presence is already captured in the historical data contained in the REMI model. Therefore, the approach was to create hypothetical conditions in which the Film Credit did not exist and compare the economic outcomes under those conditions to the baseline in which the Film Credit does exist. More detail on how each model was constructed is provided below.

Modeling Impact of Film Credit's Effect in Attracting New Production Activity

This exercise was designed to capture the likely effect of the Film Credit in attracting new television and film production activity to North Carolina. The Film Credit essentially reduces the cost of producing films and television shows in North Carolina, so the challenge is to estimate how much business would have been lost if the cost of production were higher in the absence of the Film Credit. Because the REMI software is based on a dynamic model of how the North Carolina economy is connected to the national economy, it is possible to estimate how much production activity would have gone to other states if the Film Credit had not existed.

A simulated scenario was created in which the cost of production in the "Motion Picture and Sound Recording" sector was increased by the amount of Film Credits dispensed in each year from 2007 through 2011. The difference between this simulation and the status quo baseline provides an estimate of how much film and television production activity would have been lost if the cost of production had been higher in the absence of the Film Credit.

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[4] For more information on the REMI software, visit http://www.remi.com/

Modeling Opportunity Costs of the Film Tax Credit

An alternate model was constructed to gauge the opportunity costs and effectiveness of the Film Credit. The purpose was to assess how business activity would have changed if the funds that were devoted to the Film Credit had been used finance an across-the-board reduction of businesses taxes.

First, an alternative model was constructed in which the value of the Film Credits dispensed was instead devoted reducing business taxes across-the-board. The same procedure was followed as in the previous section where the value of Credits taken was entered as negative costs of production. This provides a simple comparison of how much new business activity likely attracted by the Film Credit to how much new business would have been attracted through lowering business taxes across-the-board.

Second, another model was constructed to capture the net effect of reallocating the funds devoted to the Film Credit to an across-the-board reduction of business taxes. The value of Film Credits was entered as an increase in the cost of production for the film industry and then entered as a reduction in the cost of production for the entire private sector. This provides an estimate of the net impact of reallocating the Film Credit to an across-the-board reduction of business taxes.

Modeling Impact of All Spending that Received a Film Credit

The REMI model was used to estimate the total amount of economic activity associated with productions that received Film Credits. Given that the status quo baseline captures the impact of the Film Credit in existence, an alternative model was constructed in which none of the productions that received the Film Credit had taken place in North Carolina.

This model consisted of two key components:

1. Eliminate industry spending eligible for the Film Credit: Based on the value of credits dispersed, the total value of qualifying spending was calculated. The REMI model was then instructed to reduce spending in the "Motion Picture and Sound Recording" sector by the total amount of spending that qualified for the Film Credit. Because the REMI software contains data on what the film industries historically purchase, the model can estimate how this reduction in spending would impact other industries and employment in the State.
2. Increasing government spending by the amount of the Film Credits dispersed: On the other side of the ledger, the absence of the Film Credit would have allowed those funds to be used for other purposes. Therefore, the REMI model was instructed to increase government spending by the amount of the Film Credits dispersed.

These two components were then used together to create a simulated scenario in which the Film Credit did not exist. The economic impact of the Film Credit is captured in the difference between this simulated scenario and the status quo based on historical data.

Economic Impact of Tourism Not Included in this Study

While some studies maintain that successful films attract subsequent tourism business to filming locations, there is no rigorous method for estimating the magnitude of those economic benefits. First, the tourism benefits generated by any particular film largely depend on a host of idiosyncratic factors such as the popularity of the film, whether the filming location is shown in an attractive way, and the accessibility of the filming location. As such, there is no way to extrapolate from evidence about any specific film to an average expectation of film-based tourism. It is even more difficult to assess how much new economic activity is generated in North Carolina because of movies and television shows filmed in the State. Some tourists may visit filming locations, but if they were attracted to North Carolina for other reasons, it would be inaccurate to attribute their tourist spending solely to film production activity. Moreover, much of the income spent on visiting filming location by residents of North Carolina would likely have been spent on other recreational activities in the State. Additionally, if a North Carolina family visits a filming location instead of another tourism attraction within the State, the resulting economic activity cannot be identified as a truly new contribution to the State economy.