A Report on the Massachusetts Film Industry Tax Incentives

Commonwealth of Massachusetts
Department of Revenue

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Executive Summary

Enacted in late 2005, film industry tax incentives have resulted in increased film production activity in Massachusetts. The main findings of the Department of Revenue's second annual report on the film industry tax incentive program are as follows:

- For productions completed between calendar years 2006 and 2008, a total of approximately $166 million in film tax credits were granted to 267 individual productions. Production activity generated tax credits of $16 million in calendar 2006, $38 million in 2007, and $113 million in 2008. Another 30 projects currently in pre-production, production, or post-production are expected to generate at least $98 million in additional tax credits;

- While commercial/advertising productions account for the largest number of tax credits awarded (54%), 37 feature films account for almost 91% of the total value of tax credits claimed;

- Production spending eligible for the tax credits totaled $72 million in calendar 2006, $152 million in 2007, and $452 million in 2008. DOR estimates that at least $45 million of this spending would have occurred even in the absence of the tax incentives;

- Wages paid on these productions totaled $429 million: $39 million in calendar 2006, $101 million in 2007, and $289 million in 2008. Approximately 18% of these wages were paid to Massachusetts residents and 82% were paid to non-residents, although these percentages include wages that would have been paid even in the absence of the tax incentives. For feature films, the percentage of total wages paid to Massachusetts residents was approximately 16%, with the remainder paid to non-residents;

- Of the $429 million in wages that qualified for the tax credits, approximately $177 million was paid to non-resident individuals working on feature films who earned $1 million or more per production. An additional $26 million to $30 million was for other "above-the-line" wages to non-residents (mostly actors) working on feature films;

- State gross domestic product (GDP), which includes wages paid to non-residents, increased by $52 million in calendar 2006, $115 million in 2007, and $343 million in 2008 as a result of the new economic activity resulting from Massachusetts productions;

- State personal income increased by $17.9 million in calendar 2006, $27.5 million in 2007, and $64.7 million in 2008 as a result of the new economic activity resulting from Massachusetts productions. Personal income excludes wages paid to non-residents;

- Feature films, television series, commercials, and documentaries produced in the Commonwealth generated an estimated 536 new full-time equivalent (FTE) jobs in 2006, 834 FTEs in 2007, and 1,807 FTEs in 2008, including jobs created by multiplier impacts. New direct employment (which excludes multiplier effects), mostly on feature film productions, totaled 205 FTEs in calendar 2006, 475 FTEs in 2007, and 1,196 FTEs in 2008. "Indirect" and "induced" jobs created through multiplier effects may have been as high as an additional 330 FTEs in 2006, 359 FTEs in 2007, and 611 FTEs in 2008, although the actual amount of additional jobs is likely to have been lower. An additional 164 net new indirect jobs were held by Massachusetts residents in other states over the 2006-2008 period. The amount of net economic activity and new full-time equivalent jobs generated by the increased film production activity is likely to decline in calendar 2009 as state expenditures are reduced to fund the delayed use of film tax credits;

- Approximately 41% of the additional direct full-time equivalent jobs on feature film productions generated between 2006 and 2008 were held by Massachusetts residents and 59% were held by non-residents. For all productions (including commercials/advertising, television series, and documentaries), DOR estimates that 44% of new direct jobs and approximately 88% of the indirect and induced jobs were held by Massachusetts residents;

- New economic activity resulting from productions generated additional state revenue of $2.6 million in calendar 2006, $5.9 million in 2007, and $17.5 million in 2008, mostly from income taxes on direct film production activity. The amount of state revenue generated is likely to decline in 2009 as the economy responds to state expenditure reductions needed to offset the loss of state tax revenues resulting from delayed use of the tax credits;

- Tax credits reduced state tax collections by an estimated $11.9 million in FY07 and $10.5 million in FY08, and will reduce tax collections by between $125 million and $130 million in FY09 and at least $112 million to $117 million in FY10, depending on when already-approved credits are used and when films currently in pre-production, production, and post-production are completed and the tax credits generated by those films are approved and used;

- Of the $166 million in tax credits approved, $149 million have been sold to third parties – primarily insurance companies, financial institutions, and corporations, which have used or will use the credits to offset their tax liabilities or to claim refunds.

Background

Effective for taxable years beginning January 1, 2006, Massachusetts enacted tax incentives for motion picture productions, creating a 20% tax credit for payroll expenses, a 25% credit for production expenses, and an exemption from sales tax on sales of tangible personal property[1] to a qualifying motion picture production company ("production company")[2]. To qualify for the 20% payroll credit and sales tax exemption incentives, a production company was required to have incurred at least $250,000 of qualified expenses during a twelve-month period. A production company was also allowed an additional credit equal to 25% of all Massachusetts production expenses, not including eligible payroll expenses, if Massachusetts production expenses exceeded 50% of total production expenses or at least 50% of the total principal photography days of the film had taken place in the Commonwealth. There was a $7,000,000 limit on the amount of total credits that could be taken in connection with any one motion picture. Any unused credits could be transferred to another taxpayer or carried forward for up to 5 years, but were not refundable.

Legislation enacted in July 2007 modified the motion picture incentives by making the following changes, effective for taxable years beginning on January 1, 2007: the minimum expenditure threshold required to be met in a twelve-month period was lowered from $250,000 to $50,000; the payroll credit was increased to 25% of a production's qualifying expenditures; the $7,000,000 limit on the amount of credits for any one motion picture was eliminated; a "digital media project"[3] was included in the definition of a "motion picture"; and the sunset date for the incentives was extended from January 1, 2013 to January 1, 2023.[4] In addition, under the new provisions, 90% of any payroll and production expense credits not used in the year claimed can now be refunded to the production company, at the production company's election[5].

Chapter 63 of the Acts of 2007 requires that the Massachusetts Department of Revenue prepare an annual report "…on the status of the film tax credit…[which] shall include, but not be limited to, the motion picture production activity generated by the tax credits and the net revenue impact of the tax credits."

In March 2008, DOR issued its first annual report on the film industry tax incentives. That report relied mainly on data from sales tax exemption applications (the first step in qualifying for tax incentives), as a relatively small number of film productions had been completed and tax credit applications received up to that point. With many more film productions now completed, this year's report relies more heavily on tax credit applications and their supporting documentation, as well as data gathered from the Department of Revenue's tax return and transaction processing databases. In order to estimate the net economic and fiscal impacts of the tax incentive program, as required by Chapter 63, this report provides in-depth

[1] To qualify for the sales tax exemption, the tangible personal property must be used in the production of the motion picture. In general, the definition of tangible personal property is "personal property of any nature consisting of any produce, goods, wares, merchandise and commodities whatsoever, brought into, produced, manufactured or being in the commonwealth, but shall not include rights and credits, insurance policies, bills of exchange, stocks and bonds and similar evidences of indebtedness or ownerships." M.G.L. c. 64H, § 1. The sales tax exemption also applies to meals used in the production of the motion picture. M.G.L. c. 64H, §§ 1, 6(h); 830 CMR 64H.6.5, *Sales Tax on Meals*.

[2] *See* St. 2005, c. 158; amended by St. 2005, c. 167; adding M.G.L. c. 62, § 6(l), c. 63, § 38T, c. 64H, § 6(ww).

[3] The inclusion of the term "digital media project" within the definition of a "motion picture" that is made for theatrical or television viewing clarifies that the term "motion picture" includes digitally enhanced films. This term does not reference electronic games, computer or video games, video game consoles, or other productions unrelated to commercial filmmaking.

[4] *See* St. 2007, c. 63.

[5] See DOR's TIR 07-15 for a full description of the film credit.

statistical data from applications and estimates economically relevant variables. Specifically, this report contains the following information:

- The total amount of tax credits generated and claimed, by calendar and fiscal year;
- The types of productions claiming the tax credits;
- An estimate of the production activity that would have occurred in the Commonwealth even in the absence of the tax incentives;
- The dollar amount of wage and non-wage spending for productions that claimed the tax incentives;
- The dollar amount of wage and salaries that were paid to Massachusetts residents and non-residents;
- The number of new jobs generated by productions that claimed the tax incentives, for both residents and non-residents; and
- The net increase in the amount of spending that occurred in Massachusetts as a result of the film tax credits.

The report uses this statistical information to estimate the net economic and fiscal impacts of the tax incentive program, using a dynamic model of the Massachusetts economy developed by Regional Economic Models, Incorporated ("REMI"). A dynamic analysis attempts to calculate the full impact on the economy and the state's revenue stream of an increase or decrease in economic activity resulting from a tax law change, including the impacts of "multiplier" and displacement effects.

In this report we use the terms "film" and "film credit" to refer to production activity that is eligible for the Massachusetts motion picture credits and sales tax exemptions. This activity includes the production of motion pictures, certain television programs and commercials, as well as related activities.

Data from Tax Credit Applications

Table 1 – Aggregate Amount of Tax Credits Generated and Used shows the amount of tax credits claimed, categorized by the calendar year in which the production was completed and the fiscal year in which the tax credits were or are expected to be used to reduce tax payments. Through April 15, 2009, 267 productions had been approved for tax credits totaling $166.3 million, with another $98.4 million in credits expected for projects that are currently in pre-production, production, or post-production in the Commonwealth.

Table 1 - Aggregate Amount of Tax Credits Generated and Used

Year	Number of Tax Credits by Calendar Year In Which Production Took Place	$ Amount of Tax Credits Generated by Calendar Year in Which Production Took Place ($ millions)	Estimated Amount of Tax Credits Used By Fiscal Year ($ millions)
2006	68	$15.9	$0.0
2007	92	$37.8	$11.9
2008*	107	$112.6	$10.5
2009	0	$0.0	$125.0 to $130.0
Total Approved**	267	$166.3	$147.4 to $152.4
2009 Currently in Pre-Production, Production, or Post-Production***	30	$98.4	$112.4 to $117.4 in FY10
Approved and In Production	297	$264.8	$264.8

* Calendar year 2008 totals include 3 films that generated $35.8 million in tax credits where most filming was completed in 2008 but some production activities continued into early 2009

** Through April 15, 2009

*** Based on sales tax exemption applications submitted through June 30, 2009

Detail may not add to total due to rounding

There is a lag between the date tax credits are approved and the date they are actually used to reduce tax liability, partly due to the time it takes to provide documentation of expenses and gain approval from DOR, but mainly because virtually all the production companies that have thus far generated the tax credits have no declared tax liability in the Commonwealth. Such companies sell the credits to brokers (who then resell them to taxpayers) or taxpayers who can use the credits to offset their tax liabilities. (Approximately $100,000 in film credits have thus far been used to reduce tax liability of production companies and $1.7 million has been claimed under the 90% refundable option, while $148.9 million in credits have been sold or otherwise transferred. See pages 20 and 21 of this report for details on transfers.) The Department of Revenue estimates that of the $166.3 million in already approved film tax credits, $11.9 million was used to reduce tax payments in FY07, $10.5 million was used to reduce tax payments in FY08, and up to $130.0 million was used to reduce tax payments or increase refunds in FY09. Tax credits generated by projects currently in production, pre-production, or post-production are expected to reduce FY10 tax collections by $98.4 million, and FY10 collections will be further reduced by $13.9 million to $18.9 million by use of tax credits generated in FY09 but not used until FY10. Additional projects that have yet to file sales tax exemption applications but will be produced in the state during FY10 could further increase the amount of tax credits claimed in FY10.

It is important to distinguish among the types of productions generating the tax credits because different types of productions may have different incremental impacts on the local economy. In terms of the number of credit-eligible projects, most have been commercials and advertising, though they account for a small proportion of the value of credits generated. The largest amount of Massachusetts production spending and credits generated by that spending is attributable to feature films. Table 2 – Tax Credits Approved by Project Type, 2006-2008 shows the distribution of tax credits approved by type of project, and indicates that although the 37 feature films that were eligible for the tax credits accounted for only 13.9% of credit-eligible projects, they generated 90.7% of the value of tax credits. Television series accounted for 4.3% of the value of credits, commercials and advertising accounted for 3.1% of the value of credits, documentaries accounted for 1.7% of the value of tax credits; and “other” projects accounted for 0.2% of the value of tax credits.

Table 2 - Tax Credits Approved by Project Type, 2006-2008

Project Type	Number of Credit-Eligible Projects	% of Number	Value of Tax Credits Generated ($ millions)	% of Total Value
Feature Films	37	13.9%	$150.8	90.7%
Television Series	42	15.7%	$7.1	4.3%
Commercials/Advertising	144	53.9%	$5.1	3.1%
Documentaries	40	15.0%	$2.9	1.7%
Other	4	1.5%	$0.4	0.2%
Totals	267	100.0%	$166.3	100.0%

Detail may not add to total due to rounding

Within the feature film category, largest budget productions generated the great bulk of tax credits. Table 3 – Feature Films by Range of Massachusetts Production Spending, 2006-2008 shows that while Massachusetts production spending for the 37 feature film productions eligible for tax credits ranged from under $100,000 to close to $100 million, 71% of the tax credits attributable to feature films (and 64% of tax credits generated overall) were the result of 8 feature films with Massachusetts production budgets of more than $30 million.

Table 3 - Feature Films by Range of Massachusetts Production Spending, 2006-2008

Range of Credit-Eligible Production Spending	Number of Feature Films	% of Total Number of Credits Generated	Amount of Credit-Eligible Spending ($ millions)	Value Of Credits Generated ($ millions)*	% of Total Value of Credits Generated
Less Than $1 Million	12	32.4%	$3.5	$0.7	0.5%
Between $1M and $5M	8	21.6%	$21.3	$5.2	3.4%
Between $5M and $10M	4	10.8%	$46.9	$11.7	7.8%
Between $10M and $30M	5	13.5%	$111.4	$26.6	17.6%
Between $30M and $50M	5	13.5%	$194.2	$47.1	31.2%
$50M and Over	3	8.1%	$237.7	$59.4	39.4%
All	37	100.0%	$615.0	$150.8	100.0%

* A small number of payroll credits were claimed at the 20% rate that was in effect prior to January 1, 2007, when the tax credit rate was raised to 25%. As a result, the total amount of credits claimed is slightly less than 25% of total Massachusetts production spending.

Detail may not add to total due to rounding

Table 4 – Total Massachusetts Production Spending Eligible for Film Tax Credits shows the category of credit-eligible production spending by the year in which the productions took place. (Where the productions crossed calendar years, we allocated the spending to the year in which most of the production activity took place.) The amounts spent on location fees and set construction are taken directly from the tax credit applications submitted by production companies, while the estimates for the remaining categories are based on an analysis of detailed film budgets provided as backup information for each production. Where spending listed in those budgets did not fall into one of the other major categories, we classified it as “unclassified/other”, though it is likely that some of these expenses fall into one or more of the major spending areas. As the table shows, credit-eligible production activity increased significantly over the three year period, from $71.9 million in calendar year 2006 to $152.0 million in 2007 and $451.9 million in 2008. So far in 2009, sales tax exemption applications have been approved for 30 projects with estimated credit-eligible spending of $393.8 million.

Table 4 - Total Massachusetts Production Spending Eligible for Film Tax Credits
(All $ Amounts are in Millions)

Category of Spending	2006	2007	2008	Total 2006 to 2008	2009 - Currently in Pre-Production, Production or Post-Production (Estimated)*
Number of Productions	**68**	**92**	**107**	**267**	**30**
Feature Films	*5*	*15*	*17*	*37*	*13*
Commercials/Advertising	*41*	*46*	*57*	*144*	**
Television Series	*13*	*16*	*13*	*42*	**
Documentaries/Other	*9*	*15*	*20*	*44*	**
Total Wages	**$38.7**	**$101.4**	**$288.6**	**$428.8**	**$237.7**
Wages $1 Million & Over	**	**	*$139.0*	*$177.3*	*$100.8*
Wages Under $ 1 Million	**	**	*$149.6*	*$251.4*	*$136.9*
Location Fees	$8.5	$10.5	$37.8	$56.8	$20.4
Transportation	$5.2	$7.7	$22.9	$35.8	No Data
Fringe Benefits***	$4.9	$7.2	$21.4	$33.5	No Data
Hotel/Housing	$4.0	$5.9	$19.5	$29.3	No Data
Set Construction	$1.1	$5.0	$21.2	$27.2	$21.4
Food	$2.4	$3.5	$11.8	$17.7	No Data
Unclassified/Other****	$7.3	$10.8	$28.7	$46.8	$114.3
Totals	$71.9	$152.0	$451.9	$675.9	$393.8

*Based an sales tax exemption applications submitted through June 30, 2009

**Data hidden to protect taxpayer confidentiality

***Includes Social Security, unemployment insurance, and workers' compensation taxes

****May overlap with previous categories

Detail may not add to total due to rounding

The determination of total new economic activity resulting from gross film production spending eligible for the tax credits and sales tax exemptions is subject to the following four factors, each of which is discussed in greater detail in the remainder of this report:

- Some production spending would have taken place even without the tax incentives. In particular, there was significant commercial and advertising production activity in Massachusetts that pre-dated the tax incentives, and Massachusetts has been an important center for public television productions, with stations from the Commonwealth providing significant national and local programming. Massachusetts has also served as a base for documentary productions. In estimating the economic impact of the tax incentives it is important to establish a spending base for these activities and include only the incremental impact of spending that would not have occurred absent the tax incentives.

- Not all production spending benefits the Massachusetts economy or Massachusetts residents in the same way – some "leaks" out of the Commonwealth's economy if spent on imports of goods or services or employment of non-residents. Money spent on imports by definition is not included in state gross domestic product (GDP) although wages paid to non-residents are included in that measure. To the extent that non-resident wages are a significant share of film industry spending, they may overstate the direct benefit of such spending to the Massachusetts economy. In contrast, measures of state personal income *do not* include non-resident wages (as they are based on the residence of workers, not the place where the work was performed), and thus may be a better measure of economic benefit to Massachusetts citizens.

- The gross production spending amounts do not take into account "multiplier" impacts of the initial "direct" spending. As money is spent on productions, these direct purchases stimulate "indirect" economic activity of vendors, and payments to employees increase personal income and spending of Massachusetts residents, resulting in additional "induced" economic activity. These multiplier impacts, which in this report are simulated using a dynamic model of the Massachusetts economy constructed by Regional Economic Models Inc. ("REMI"), must also be taken into account.

- Massachusetts has a balanced budget requirement, so government spending reductions must be made (or other revenue raised) to maintain a balanced budget when film tax credits and sales tax exemptions reduce state revenues. In the same way that production spending has positive multiplier impacts, government spending reductions have negative multiplier effects, as government spending cuts reduce employment and purchases in Massachusetts.

Production Spending that Would Have Occurred in the Absence of Tax Incentives

Feature Films. Although a small number of feature films were produced in Massachusetts prior to enactment of tax incentives in 2005, in this analysis we have assumed that there would have been no feature films produced in the Commonwealth had it not been for the tax incentives. With some 40 states now having adopted tax incentives to encourage film production, it is reasonable to assume that no major movie productions would have been filmed in the Commonwealth in the absence of the Massachusetts tax incentives. While some smaller-budget filming might have occurred here, we have no way to distinguish these and assume in this analysis that they represent new economic activity. Since these films represent only a small proportion of film production spending in the Commonwealth, they do not materially affect our results.

Commercials/Advertising. For commercials and advertising projects, we analyzed withholding payments of all commercial production and advertising companies that claimed the film credits before and after the tax incentives were implemented. (All tax credit claimants are required to withhold tax for wages and salaries of those for whom credits are being claimed, even if those individuals are contract employees.) We calculated the growth in withholding for these companies, and compared it to wage and salary growth in the advertising industry nationwide. For Massachusetts commercial production companies that claimed the film tax credits, withholding grew by 4.2% from tax year 2005 to tax year 2006, an identical 4.2% from tax year 2006 to tax year 2007, and 8.5% from tax year 2007 to tax year 2008. For the advertising industry nationally, wage and salaries grew by 7.3% in 2006, 6.7% in 2007, and, as estimated by the economic forecasting firm Moody's Economy.com, 6.4% in calendar 2008 (actual wage and salary growth for 2008 will not be available for several months). Though not definitive, we conclude from these data that the tax credits had little or no impact on wages and salaries in the local commercial/advertising industry in 2006 and 2007 (since national wages and salaries grew faster than state withholding), but may have had a positive impact in 2008, with wages and salaries in 2008 approximately 2.1% higher than they would have been in the of absence the tax incentives. Applying this to credit-eligible spending over the 2006 to 2008 period, we estimate that approximately $22.7 million of the $22.9 million (99.3%) in production activity that was eligible for the tax incentives would have occurred even in the absence of incentives, though as indicated by the 2008 data, the proportion of total activity that is new may be higher in the future.

An analysis of individual applications confirms the likelihood that almost all advertising spending eligible for tax credits would have occurred even in the absence of tax incentives. Most commercial/advertising productions that claimed tax credits were made either by or for locally owned businesses, sports teams, health organizations, non-profits, or Massachusetts government entities.

Television Series. We also identified television series that would have occurred even in the absence of the tax incentives. We analyzed each tax credit application, identifying long-running shows and specifically local programming that were eligible for the tax incentives, and assumed that these would have continued to be produced even without the incentives. For the most part, these consisted of educational, public affairs, and sports-themed productions connected to long-established local institutions.[6] Using this method, we estimate that of the 42 productions that identified themselves as television series, 27 projects would have occurred without the tax credits. Those 27 productions accounted for $20.7 million of the $30.6 million (67.5%) in production expenses that qualified for the tax incentives, and $5.0 million of the $7.1 million in tax credits granted.

Documentaries. Because documentaries are generally one-time events, it was more difficult to estimate how many would have been made in the absence of the film tax incentives. However, some documentaries that were produced between 2006 and 2009 were made for local television stations or had local themes, and the production companies that produced them had created similar programs in the Commonwealth in the past. Where this was the case, we classified the documentaries as those that would have been made even without incentives. Of the 40 productions that identified themselves as documentaries, we identified 7 as those that would have been made even without the tax incentives, accounting for $2.7 million of the $10.1 million (26.0%) in credit-eligible production and $0.6 million of the $2.6 million in tax credits attributable to documentaries. Due to our conservative approach in identifying documentaries that would have been made even in the absence of tax incentives, this method likely overstates the new documentary activity resulting from the incentives.

Based on the above assumptions, we estimate that the tax incentives were responsible for approximately $8.8 million in new commercial advertising, television series and documentary wage and salary spending in the period 2006 to 2008, generating approximately 80-120 direct new full-time equivalent (FTE)[7] employees on these productions. In addition, based on the above assumptions, the tax incentives were responsible for approximately $8.3 million in new non-wage production spending. With the high bar we have set for classifying a production as spending that would have occurred even in the absence of tax incentives, these estimates of new production activity are more likely to be high rather than low.

[6] Where we could not conclusively identify the series as having been produced prior to the incentives becoming available, we assumed that they would not have been produced in the absence of the tax incentives. Thus our estimate almost certainly overestimates the amount of new television series production activity spurred by the credits.

[7] See pages 12-13 for an explanation of how we calculated full-time equivalent employees.

Feature Film Wage and Salary Payments to Residents and Non-Residents

As almost all feature films are by definition short-term projects that spend at most several months shooting in Massachusetts, an important consideration is whether the work on those productions is done by Massachusetts residents or non-resident actors and movie industry professionals. Payments to Massachusetts residents have much higher "multiplier" effects than payments to non-residents, as a significantly higher proportion of income earned by residents is spent on local businesses and in turn generates additional local economic activity. On the other hand, payments made to non-residents – especially workers who spend only a short time in the Commonwealth on film projects – will be spent almost entirely outside of Massachusetts, likely in the state or states where the worker regularly resides. This is particularly true of wages paid to highly-compensated actors, directors, producers, writers, and their staff, whose local expenses – including in-state travel, food, lodging, entertainment, and ancillary expenses – are already included in the film production budget (and are themselves eligible for the 25% production credit), thereby reducing the amount of income that such highly-compensated non-residents need to spend in Massachusetts.

In this context it is useful to distinguish between so-called "above-the-line" and "below-the-line" film production expenses:

- Above-the-line spending includes the costs of the primary cast, director, producer, and screenwriter (to the extent that any rewrites are done in Massachusetts during the course of production), virtually all of which are payments made to non-Massachusetts residents, including significant budgets for food, travel, entertainment, and living expenses.

- Below-the-line expenses include costs such as the production crew, set designers, set construction, and extras, and it is these payments that generate economic activity in the Commonwealth, but mainly to the extent that they are made to Massachusetts residents.

Because all film budgets we reviewed included amounts for travel, lodging, meals, and entertainment for non-resident production employees (including below-the-line workers), and because the work on most film projects is intensive, requiring long work hours that leave little time for other activities, we follow previous studies in assuming that non-resident wages and salaries generate little additional economic activity in the Commonwealth. As is the case in most other studies, we assume that none of the (above-the-line) wages of those earning $1 million or over is spent in Massachusetts because virtually all their local expenses are typically covered in the production budgets. There is greater uncertainty about what proportion of other non-resident wages and salaries (mostly, but not entirely, below-the-line costs) is spent locally. However, because lodging is provided and meals are catered or otherwise covered by per diems for these non-resident employees, we assume that only 5% of wage and salary payments to non-residents earning less than $1 million per production (which includes a portion of above-the-line employees who are paid high salaries) is spent in the Commonwealth. This assumption implies that after non-resident employees working on Massachusetts film productions have federal, state, and Social Security taxes deducted from their wages, they would spend locally 8%-9% of the disposable income they earn during their short time here. As most consumer spending generally is for housing (33.8%), transportation (17.6%), food (12.6%), pensions (10.2%), health care (5.7%), and entertainment (4.9%)[8], almost all of which is provided for in the production budgets themselves, our assumed local spending level for non-resident employees is most likely a high-end estimate.

[8] These percentages are derived from the most recent U.S Consumer Expenditure Survey, *Consumer Expenditures in 2006*, U.S. Department o f Labor, Bureau of Labor Statistics, October 2008, available at: http://www.bls.gov/cex/csxann06.pdf.

Our assumption that only a small amount of non-resident earnings is spent in Massachusetts does *not* imply that the presence of non-resident employees creates no economic activity, but rather that the economic activity is already accounted for in the travel, lodging, meals, and entertainment allowances and per diems that are included in the film production budgets themselves. To count additional indirect spending from wages and salaries of non-residents would be to double-count this economic activity, and thus overestimate the economic impact of film productions.[9]

Table 5 - Estimated Wages and Full-Time Equivalent Employees (FTEs) Employed on Massachusetts Feature Films, Resident and Non-Resident, 2006-2008 on page 13 shows resident and non-resident wages for feature film productions, and full-time equivalent employees (FTEs) for those productions. In order to distinguish between resident and non-resident payroll expenses, DOR analyzed detailed payroll records of twelve feature films accounting for $305.9 million of the $395.4 million (77%) in Massachusetts payroll spending for feature films, including the four films with the largest payrolls. These records included state of residence information for each employee. Wage and salary spending for these 12 films (which we consider representative of all feature film spending) ranged from less than $600,000 to almost $60 million, with an average payroll of $25.5 million and a median payroll of $21.3 million. For these productions, the proportion of wages and salaries paid to Massachusetts residents ranged from 9.1% to 28.2%, with a weighted average of 14.8% and a median of 14.6%. For films with wage and salary spending of more than $1 million, the percentage of Massachusetts resident expenditures ranged from 9.1% to 24.5%, with a weighted average of 14.8% and a median of 13.4%. In general, the smaller the production budget, the higher the proportion of wages paid to Massachusetts residents, as more expensive productions have higher above-the-line expenses and non-resident labor. For these twelve productions, 28.5% of wages for those earning less than $1 million per production were paid to Massachusetts residents.

Of the remaining $89.5 million in feature film wage and salary spending for which detailed payroll data were not available, $29.5 million was for wages and salaries paid to employees earning more than $1 million per production, all of whom we were able to identify as non-residents, which brought the total wage and salary spending for which we had residence information to $335.4 million, or 84.8% of total wage and salary payments for feature films. For the remaining $60.0 million, we applied the resident/non resident proportion (28.5%) for those earning less than $1 million from the productions for which we did have information, except for films with production budgets of less than $1 million, where we assumed that Massachusetts resident labor accounted for 60% of total wages. After applying this formula, we estimate that of the $395.4 million in total payroll expenses of feature films produced in Massachusetts since 2006, $62.9 million or 15.9% was paid to Massachusetts residents. Of the estimated $332.5 million paid to non-residents, $177.3 million was accounted for by wages and salaries of 36 individual actors, directors and producers who were paid more than $1 million per production, an estimated $26 to $30 million was for other "above-the-line" wages and salaries for non-residents who were paid less than $1 million per production (mainly non-resident actors), and the remaining $125.2 million to $129.2 million was for wages paid to "below-the-line" non-resident employees who worked in Massachusetts on specific productions.

[9] Another study that excludes both above-the-line and below-the-line non-resident wage and salary spending in calculating multiplier effects is Steven B. Miller and Abdul Abdulkadri, "The Economic Impact of Michigan's Motion Picture Production Industry and the Motion, Picture Production Credit," Center for Economic Analysis, Michigan State University, February 6, 2009, p. 4, available at: http://www.michigan.gov/documents/filmoffice/MSU_Economic_Impact_Study_269263_7.pdf. Two other studies exclude all above-the-line wages and salaries but do not explicitly address non-resident below-the line wages. See Connecticut Department of Economic and Community Development, "The Economic and Fiscal Impacts of Connecticut's Film Tax Credit", February 2008, at http://www.ct.gov/cct/lib/cct/Film_Tax_Credit_Study_-_Final.pdf and Community Opportunities Groups, Inc. and Jeffrey Donohoe Associates, "Plymouth Rock Studios: Economic and Fiscal Analysis", October 2008, p.23 available at: http://www.plymouthrockstudios.com/PDFPresentations/Plymouoth%20Rock%20Studios%20Report.pdf.

Payroll records covering $219.3 million of the $395.4 million (55.5%) in wage and salary spending also included information on the number of hours worked for each employee. From this information, we were able to calculate the average and median annualized salaries for employees who worked on those productions, as well as the number of full-time equivalent (FTE) jobs generated by the productions. (Following the standard definition established by the U.S. Bureau of Labor Statistics (BLS), we assumed an FTE to be an individual who worked 40 hours per week and 52 weeks per year.) We calculate that the total number of FTEs employed by film productions was 1,777, with 727 of those being Massachusetts residents[10]. The median annualized non-resident wage for these productions was $98,598 and the median annualized wage for Massachusetts residents was $67,775.

Table 5 - Estimated Wages and Full-Time Equivalent Employees (FTEs) Employed on Massachusetts Feature Films, Resident and Non-Resident, 2006-2008

	Estimated Amount of Wages Paid (in $ millions)	Number of Full-Time Equivalent Positions (FTEs)	% of Total Wages	% of Total FTEs	Median Annualized Wage Excluding Employees Paid $1 Million and Over
$1 Million and Over Wages	$177.3	NA*	44.8%	NA*	NA*
Under $1 Million Wages					
Massachusetts Residents	$62.9	727	15.9%	40.9%	$67,775
Non-Residents	$155.2	1,050	39.3%	59.1%	$98,598
Totals	$395.4	1,777	100.0%	100.0%	$76,758

*Individuals paid $1 million or more per production were paid on a per-production, and not on an hourly or daily basis, so were not converted to FTEs or annualized median wages. There were 36 individuals paid more than $1 million per production.

Detail may not add to total due to rounding

It is not surprising that a high percentage of wages and salaries for Massachusetts film productions are currently paid to non-residents. Until recently, few films were shot in Massachusetts and the skilled labor for those productions resided in states – particularly California – where films were most likely to be made. Based on payroll data, between 50% and 60% of wages for Massachusetts film productions are paid to California residents (including at least 71% of wages paid to those earning $1 million or more per production and 31% of wages paid to those earning less than $1 million per production). To the extent that the film industry builds up a more extensive production infrastructure in Massachusetts, the non-resident proportion of wage and salary payments should decrease, though at this point it is difficult to predict by how much.

The data to-date do not indicate a significant increase in the proportion of wages and salaries or FTE's accounted for by resident labor over time. An analysis of film payrolls for which we have full residence data indicates that the Massachusetts resident share of wages was 14.7% for movies filmed in calendar

[10] As most below-the-line wage rates are determined by union wage scales, it is reasonable to assume that wage rates (as well as overtime hours worked) are similar on all film productions, thus allowing us to calculate FTE levels including productions for which we did not have detailed hours worked data.

year 2007 and 14.9% for movies filmed in calendar year 2008 (no residence data were available for 2006), though the resident share of wages did rise to 16.9% in the fourth quarter of calendar year 2008. While some films with the lowest resident labor share were filmed just after the tax incentives were implemented, there have been recent films that had below-average resident labor shares as well. At this point, the resident labor share seems to be inversely related to the proportion of the budget spent on above-the-line costs. This could change over time, as the film industry matures in Massachusetts. DOR will continue to monitor the data to see if any such trends emerge.

There are a number of caveats that should be kept in mind with respect to the median annualized wage calculations shown in Table 5. First, they include the effects of overtime, which in many cases is substantial and increases the median wage above what it would be if only base hourly or daily wage rates were annualized. Second, median annualized wage calculations in the motion picture industry could be considered artificial constructs, since all film productions are short-term, with most employees on the projects working from a few days to at most a few months. To earn the calculated median wage, individuals would have to work on different films in succession over the course of a year. Despite the distortions caused by these factors, the median wage calculations in Table 5 do provide a useful metric to gauge the level of actual wage payments to film production workers by allowing comparisons to other full-time jobs in Massachusetts.

It should also be pointed out that all direct film production jobs estimated in this report are temporary and cease when the productions end. This makes film production incentives that support such jobs difficult to compare to other incentives, which are intended to generate permanent employment, while film incentives by their nature need to be renewed indefinitely to sustain employment at the estimated levels.

Although DOR does not yet have payroll data for the seven feature films that have applied for sales tax exemptions and are currently in production, those productions provided DOR with information indicating that their total Massachusetts spending would be approximately $393.2 million, including $237.4 million in estimated wages and salaries, $100.8 million of which (42.4%) are payments to non-resident individuals earning more than $1 million per production. This indicates that movies currently filming in the Commonwealth probably have a proportion of wages paid to Massachusetts residents similar to that shown in Table 5, which indicates that 44.8% of total wages are paid to non-resident individuals earning more than $1 million per production.

Total New Massachusetts Direct Spending

Table 6 – Calculation of Increase in Massachusetts Local Spending Due to Film Tax Incentives, 2006-2008 on page 15 summarizes the above discussion and shows the calculation of new direct local spending from film production activity after adjusting for projects that would have occurred in the absence of tax incentives and wages paid to non-residents. Starting from 2006-2008 total credit-eligible spending of $675.9 million ($428.8 million in wages and salaries and $247.1 million in non-wage spending), we subtract $45.0 million for productions that would have occurred in the absence of tax incentives and $328.6 million in wages paid to non-residents (the entire $177.3 million in payments to non-residents earning more than $1 million per production and an additional $151.3 million, which represents 95% of under $1 million wages paid to other non-residents for feature films all other productions), which leaves a total of $302.3 million in net new Massachusetts spending activity ($75.5 million in wages and salaries and $226.8 million in non-wage spending). These remaining amounts are the net new spending totals used as inputs for the REMI model to estimate multiplier effects.

Table 6 - Calculation of Increase in Massachusetts Local Spending Due to Film Tax Incentives, 2006-2008 (Used as Inputs for REMI Model)

Category of Spending	Total Spending ($ Millions)	Spending That Would Have Occurred Without Tax Incentives ($ Millions)*	Adjustment for Wages and Salaries Paid to Non-Residents**	Net New Spending ($ Millions)	% of Total New Spending
Wages & Salaries	$428.8	-$24.6	-$328.6	$75.5	25.0%
Location Fees	$56.8	-$5.4	NA	$51.4	17.0%
Transportation	$35.8	-$3.3	NA	$32.6	10.8%
Fringe Benefits***	$33.5	-$3.0	NA	$30.4	10.1%
Hotels/Housing	$29.3	-$2.5	NA	$26.8	8.9%
Set Construction	$27.2	-$0.2	NA	$27.0	8.9%
Food	$17.7	-$1.5	NA	$16.3	5.4%
Unclassified/Other****	$46.8	-$4.5	NA	$42.2	14.0%
Total	$675.9	-$45.0	-$328.6	$302.3	100.0%

*For commercials/advertising, television series, and documentaries. All spending on feature films is assumed to be new, i.e., the result of the tax incentives.

**All wages paid to those earning $1 million and over and 95% of other non-resident wages were excluded from local spending for the purpose of calculating multiplier impacts

***Includes Social Security, unemployment insurance, and workers' compensation taxes

****May overlap with previous categories

Detail may not add to total due to rounding

REMI Model Results

A dynamic analysis attempts to calculate the full impact on the state economy and revenue stream of an increase or decrease in economic activity resulting from a tax law change, including the impacts of “multiplier” and displacement effects. The REMI model simulates the structure of and interrelationships among the various parts of the Massachusetts economy, and can be used to calculate the impacts of a tax law change on state economic activity and tax revenue collections. The tax revenue changes calculated by the REMI model can then be compared to the initial cost of the tax incentives to arrive at a net cost to the state.

Table 7 – Dynamic Economic Impacts of Film Incentives on page 17 combines the results of DOR's payroll analysis (for direct employment) and the REMI simulation for indirect and induced employment (i.e., employment resulting from "multiplier" impacts) and other measures of economic activity. In addition to the film industry spending assumptions shown in Table 6, we assumed that state government spending was reduced by the amounts of the tax expenditures shown in Table 1 minus the amount of increased tax revenue generated from withholding on wages of new production spending. Converted to tax years for use in the REMI simulation, this resulted in a budget *increase* of $1.3 million in calendar year 2006 (since no credits had yet been used but additional withholding tax revenue had been received from 2006 film productions), an $8.4 million spending cut in calendar year 2007, and a $60.2 million spending reduction in calendar year 2008. Since there has been a lag between when the production activity takes place and the tax credits are used, spending cuts required to maintain a balanced state budget by the end of calendar 2008 had yet to catch up with the amount of credits generated over that same time period. Between calendar years 2006 and 2008, the Commonwealth reduced its revenue estimates (and thereby spending) by $86.7 million to account for the film tax credits, compared to the $166.3 million in film tax credits generated by the end of calendar 2008. DOR estimates that most of the remaining tax credits were used in FY09 or will be used in FY10, as insurance companies, banks, public utilities, and other corporations purchase the tax credits and reduce their estimated tax payments and/or receive increased refunds.

This lag in use of the tax credits to reduce tax payments or increase refunds means that while the positive economic impact of the new film production activity was felt in the period between calendar year 2006 and 2008, the full negative economic impact of revenue reductions and state spending cuts required to offset them was delayed, and will occur throughout calendar year 2009. Because the REMI model estimates are only through the end of calendar 2008 and therefore exclude the spending cuts required in the first half of calendar year 2009 to maintain a balanced budget, the REMI results overstate the net positive economic impact of the increased film industry economic activity compared to an analysis that takes into account calendar year 2009 economic activity.

With that qualification, the REMI simulation estimates that Massachusetts state GDP (the most useful measure of economic activity) increased by $52.3 million in calendar 2006, $115.3 million in calendar 2007, and $342.9 million in calendar 2008 due to new film production spending resulting from the tax credits, while economic output (a broader, less useful measure of economic activity roughly equivalent to sales, including "sales" of labor) grew by $92.4 million in 2006, $183.3 million in 2007, and $594.5 million in 2008). Estimated employment (FTEs) increased by 536 in 2006, 834 in 2007, and 1,807 in 2008, including the 100 estimated new FTEs in commercial, television series, and documentary productions, and taking into account multiplier impacts. The number of Massachusetts residents employed directly on film productions is estimated to have increased by 100 in 2006, 190 in 2007, and 537 in 2008 (these results are not from the REMI model, but from an analysis of film budgets, as shown in Table 5, but broken out by year). The REMI simulation estimates that there were additional indirect and induced jobs of 331 in 2006, 358 in 2007, and 611 in 2008, of which about 88% were held by Massachusetts residents.

Table 7 - Dynamic Economic Impacts of Film Incentives - REMI Model Results
Massachusetts Changes from Baseline
(Dollar Amounts are in Millions)

	Calendar Years		
	2006	**2007**	**2008**
Tax Credits Generated	**$15.9**	**$37.8**	**$112.6**
Additional Sales Tax Loss from Exemption	**$0.1**	**$0.1**	**$0.3**
REMI Inputs			
Film Production Total Spending	$71.9	$152.0	$451.9
Minus Spending In Absence of Tax Incentives	-$15.2	-$17.1	-$12.7
Minus Adjustment for Wages Paid to Non-Residents*	-$20.6	-$74.2	-$233.8
Minus Spending Reductions to Maintain Balanced Budget	$1.3	-$8.4	-$60.2
Net New Massachusetts Spending for REMI Input	**$37.4**	**$52.3**	**$145.2**
REMI Results - Changes from Baseline			
Employment (Full-Time Equivalents)	**536**	**834**	**1,807**
Direct Resident (Employed on Film Productions)	***100***	***190***	***537***
Direct Non-Resident (Employed on Film Productions)	*105*	*286*	*659*
Indirect/Induced Held by MA Residents	***292***	***317***	***539***
Indirect/Induced Jobs Held by Non-Residents	*38*	*42*	*72*
State GDP**	$52.3	$115.3	$342.9
Economic Output**	$92.4	$183.3	$594.5
State Personal Income* **	**$17.9**	**$27.5**	**$64.7**
State Taxes	**$2.3**	**$5.5**	**$16.5**
From Direct Spending	*$1.4*	*$4.4*	*$13.6*
From Indirect/Induced Spending	*$0.9*	*$1.1*	*$2.9*
State Non-Tax Revenue	$0.3	$0.4	$1.0
Total State Revenue	**$2.6**	**$5.9**	**$17.5**
$ in State Revenue Per $ of Tax Credit Generated	**$0.16**	**$0.16**	**$0.16**
Memo: Indirect Jobs Held By MA Residents in Other States	-20	6	178

*All wages paid to those earning $1 million and over and 95% of other non-resident wages were excluded from local spending for the purpose of calculating multiplier impacts

**State GDP and state economic output include non-resident earnings

***State personal income excludes non-resident earnings

Detail may not add to total due to rounding

The REMI model estimates that the new economic activity generated by increased film production resulted in additional Massachusetts personal income of $17.9 million in 2006, $27.5 million in 2007, and $64.7 million in 2008. The significant difference between growth in state GDP and economic output on the one hand and state personal income on the other (+$342.9 million for state GDP vs. +$64.7 million for state personal income in 2008) is caused almost entirely by the large proportion of wages paid to non-resident employees of film productions, with wages paid to non-residents included in state GDP and state output but excluded from state personal income. The REMI model also estimates that a total of 164 additional indirect jobs were held by Massachusetts residents in other states over the 2006-2008 period.

As noted above, the estimates of net economic gain and offsetting tax revenues received by the state are overstated for a long-run analysis because through the end of calendar year 2008 the tax credits used to reduce tax payments lagged behind the film production spending that generated them. To estimate the longer-run impact of the film incentives, we ran a simulation for calendar year 2009 predicated on the same amount of film production spending as occurred in 2008, but assumed that tax collections before offsetting revenues would be reduced by $125 million through the use of tax credits (which would necessitate cuts in government spending), rather than by the 2008 reduction amount of $73.5 million. The results of the simulation indicate that net economic activity would be reduced such that non-production indirect and induced employment, instead of rising by 611 full-time equivalent employees in 2008, would *fall* by 348 FTEs in 2009, a net change of 959, meaning that the increase in full-time equivalent employment would fall from 1,807 in calendar year 2008 to 848 in 2009.

To confirm the jobs estimates derived from the film budgets and the REMI model, DOR examined data reported by the state's Department of Labor and Workforce Development. DOR's FTE calculations are not strictly comparable to the Workforce Development data, since the latter are not FTE counts but rather snapshots of the number of employees (including short-term employees) working at a point in time. However, an analysis of the Workforce Development data can tell us whether the employment trends are consistent between the two sources. Data on industry employment are included in the Department of Workforce Development's "ES-202" employment and wage reports[11]. Prior to January 2008, employees in the motion picture category were undercounted in the ES-202 reports because the category excluded employment for members of the Screen Actors Guild, who were included in the "temporary employment" category of those reports. In 2007, according to the ES-202 data, average monthly motion picture industry employment was 581 higher than it was in 2006, representing growth of 12.5%, and total annual wages grew by 1.8%. This compares to DOR's estimates of an increase of 476 direct film production jobs and 834 new jobs overall including jobs resulting from indirect and induced economic activity. Starting in January 2008, Screen Actors Guild members were included in the motion picture category, accounting for some growth of the growth seen in the first half of calendar 2008. Unfortunately the Department of Labor and Workforce Development is not able to estimate how many employees moved from the temporary employment to the motion picture category, making comparisons between the pre- and post-January 2008 periods impossible. Through June 2008, average monthly employment under the motion picture industry definition averaged 1,377 higher than in the year earlier period. While the change in definition results in overstated growth in film industry employment, it appears to be consistent with the estimates of direct film industry employment shown in Table 7, which indicate 1,196 direct new jobs from film productions in 2008 (most of which would be classified as belonging to the film industry) and 1,807 new jobs overall in 2008.

[11] The ES-202 reports do not distinguish among full-time, part-time, and temporary employment.

Accuracy of REMI Model Local Non-Wage Spending Assumptions

One potential problem with using the REMI model to generate multiplier effects in the film industry is that because the model is based on outdated assumptions about the structure of a minimally developed film industry in Massachusetts, it may underestimate local non-wage spending and therefore multiplier effects. We attempted to avoid this problem by directly estimating the components of film industry spending from film budgets (as shown in Tables 4 and 6), and thus have not had to use the REMI assumptions regarding the structure of the local film industry. We are aware that our approach runs the risk of overestimating multiplier effects, since the model assumes that all spending in these categories is made up of local purchases. While a 100% local content assumption may be reasonable for spending on location fees and lodging (which are by definition local), it is not an accurate assumption for other categories of spending, most of which have non-local components. Unfortunately, we have no information that would permit us to break out spending in these categories between local and non-local purchases, so our multiplier estimates may be too high.

For film production expenditures that we were not able to categorize ($42.2 million, or 14.0% of total new production spending and 18.6% of new non-wage production spending, as shown in Table 6 on page 15) we used a national “input-output matrix” which estimates spending in different industry sectors according to the spending patterns of the film industry nationally. The REMI model then estimates how the increased demand in these sectors ripples through the Massachusetts economy. There is no reason to believe that this method will either under- or overestimate local spending. However, based on an analysis of the budgets of several big-budget films, it appears that a significant amount of uncategorized spending is for specialized services – such as film production accounting and payroll services, and production and staging equipment rentals – provided by companies located outside of Massachusetts. These specialized services are probably not counted as non-local expenses in the REMI simulation. If that is the case, it is possible that the REMI model is overestimating the multiplier impact of film production spending. In any event, because the amount of uncategorized spending is relatively small, it is not likely to have a significant impact on the simulation results.

Sales Tax Exemptions

The amount of state revenue forgone due to sales tax exemptions is calculated from the production expense data included in the tax credit and sales tax exemption applications. Because we assume that no feature films would have been made in Massachusetts in the absence of the tax incentives, sales tax revenue forgone on purchases made by those productions does not result in lost tax revenue. Our estimate of tax revenue lost is therefore calculated using expenditure data only for productions we assume would have been made in Massachusetts even in the absence of the tax credits. Based on an analysis of commercials, television series, and documentaries, we estimate that spending ordinarily subject to the Massachusetts sales tax ranged from 20% to 30% of non-wage production expenditures for those productions, or approximately $526,000 for the 2006 to 2008 period.

Offsetting State Revenues

Both DOR's own calculations and the REMI simulation were used to estimate the amount of additional state revenue generated by new film production activity. For tax revenue from direct film production employment, DOR examined withholding records and tax returns of individuals paid $1 million or more per production; for other employees, for whom we did not have withholding records and tax returns, we applied known effective tax rates based on those employees' average annualized wages. For employees earning more than $1 million per production, we estimate that over the 2006-2008 period, the Commonwealth received approximately $8.9 million in income taxes (mostly withholding taxes) on wages of $177.3 million, implying an effective tax rate of 5.0%. For non-resident employees earning less than $1 million, we assumed an effective tax rate of 4.8%, which yielded an estimate of $7.6 million in income taxes on wages of $159.2 million. For employees who were Massachusetts residents, and had lower average wages, we applied an effective tax rate of 4.0%, which resulted in an estimate of $2.7 million in income taxes on wages of $67.6 million. As shown in Table 7, taxes on direct film production spending -- consisting almost entirely of income tax withholding -- rose from $1.4 million in 2006 to $13.6 million in 2008. In addition to taxes on direct production activity, the REMI model estimates that there were additional taxes of $0.9 million in 2006, $1.1 million in 2007, and $2.9 million in 2008, consisting of sales, corporate, and rooms taxes. (We also estimate that a small amount of revenue was generated from taxation of profits from the sale of credits, about $149,000 over the three year period.) The REMI model also estimates that $1.8 million in new non-tax revenue was received over the 2006-2008 period, mostly from state fees related to increased economic activity. Total new state revenue (tax and non-tax) is estimated to have been $2.6 million in 2006, $5.9 million in 2007, and $17.5 million in 2008. Since state tax expenditures totaled $166.8 million over the same three year period ($166.3 million in tax credits plus $0.5 million in sales tax revenue losses), this implies that the state received $0.16 in offsetting tax revenue for each dollar of tax expenditure.

Under the calendar year 2009 simulation described earlier which takes into account the lagged impact of the use of tax credits to reduce tax payments (and thus state spending), net economic activity would be reduced such that the amount of state revenue generated would fall from $17.5 million in 2008 to $14.8 million in 2009, and the return per dollar of tax credit generated would decline from $0.16 to $0.14.

Other Issues

Transfers vs. Refunds of Tax Credits. Production companies shooting films in the Commonwealth frequently report little or no tax liability in Massachusetts, so they either sell the tax credits to taxpayers who can use them or claim them as refundable credits at 90% of their face value. Through June 30, 2009, $148.9 million of the $166.3 million (89.5%) in tax credits generated have been sold to other parties, $77 million through tax credit brokers. Table 8 – Tax Credit Transfers by Tax Type shows the distribution of tax credit sales by type of end-user. On average, credits have been sold for approximately 90% of their face value, meaning that 90% of the value of the credits ($134.0 million) has been captured by the film production companies and the remaining 10% ($14.9 million) has been split between credit brokers (who profit from the difference between the prices at which they buy and sell the credits) and the end-user of the credits in the form of reduced tax payments to the state. For credits being sold through brokers, on average approximately 4% of the value of the tax credits is being captured by the brokers, with 6% of the value benefiting the final user of the tax credit. It should be noted that although the tax credits have reduced revenues in each tax category by the amounts shown below, the net savings to individual companies purchasing the credits are far lower than the reduction in tax payments to the state, because those companies are paying on average between 90% and 94% of the value of tax credits to either the film production companies that generated the credits or the brokers that have acquired them for resale.

Table 8 - Tax Credit Transfers by Tax Type

Tax Type of Final Purchaser	Amount Sold ($ millions)
Insurance Companies	$76.7
Financial Institutions	$35.7
Corporations	$29.6
Individual	$4.8
Still Held by Brokers*	$2.1
Total	**$148.9**

*Through 6/30/09. May be sold in future transactions.

Detail may not add to total due to rounding

As of June 30, 2009, in addition to the $148.9 million in tax credits that had been sold, film tax credits totaling approximately $100,000 had been used to offset the Massachusetts tax liability of production companies that earned those credits, and approximately $1.7 million in tax credits had been claimed under the 90% refundable option by production companies whose tax credits exceeded their tax liabilities. Use of the 90% refundable option reduced the state's revenue loss by $170,000 below what would have been the revenue reduction had the credits been used to offset tax liability at 100% of their face value (e.g., in the case of transferred credits, where the buyers offset tax liability at 100%). As of June 30, 2009, $15.6 million of the $166.3 million in approved film credits had been neither transferred nor used or refunded by production companies themselves. To the extent that the remaining $15.6 million in film credits are refunded at 90% of their value, the revenue loss to the Commonwealth would be reduced, though based on previous experience it is likely that most tax credits will be sold and used by third parties.

Taxation of Income from Residuals

The estimates for 2006-2008 do not reflect revenue generated from income taxes on earnings of actors or directors who, as part of their compensation, participate in the revenues or profits of the motion pictures after release, because the Commonwealth does not appear to have received tax revenue from any such residuals for films produced in the Commonwealth during that period. Although there are no legal decisions on this point, residual income on movies filmed in Massachusetts and received by non-resident actors or producers may be taxable in the Commonwealth as income derived from a trade or business carried on in the state (subject to offset by credit for income taxes paid to other jurisdictions). In practice, such income appears to have been rarely reported by non-residents, especially non-residents who have no other taxable business interests in the Commonwealth and who are not otherwise required to file tax returns in Massachusetts. In connection with the current study, the Department analyzed tax year 2007 non-resident tax in an attempt to determine whether actors known to have made movies in Massachusetts in the past have been paying taxes on residual income. We have not been able to identify any significant tax payments on residuals from non-resident actors, very few of whom appear to have filed Massachusetts tax returns.

Economic Activity Generated by Movie-Induced Tourism

As was the case in DOR's previous analyses, we have not included the impact of potential increased economic activity resulting from greater exposure of the Commonwealth through films and other productions that are made in Massachusetts, or the potential economic benefits of having high-profile movie and television actors in the Commonwealth for extended periods of time, which in some cases might be tantamount to advertising. As we have noted previously, we are not aware of any economic model that can reliably estimate 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. Perhaps the most commonly cited analysis of movie-induced tourism is a 1998 study by Riley, *et al*. [12], which attempts to estimate the impact that specific films had on tourism in a number of locations in the United States. The study concluded that certain films, under certain conditions, may result in increased tourist visits to specific locations. (In the movies and locations analyzed, the study concluded that tourism increased by 54% from levels seen before the films were released.) It should be noted that the study did not conclude that films in general lead to an increase in tourism. The study analyzed films and the locations featured in them: those locations included six national or state parks, a historic fort, a baseball field, a book depository, a railroad, a small historic town, and the home of a famous author. The study did not estimate the impact of films on the number of tourists visiting a state (as opposed to the number of tourists visiting a particular location within a state, some of whom may have been residents of that state), nor did it estimate the total volume of increased tourism, as opposed to the percentage increase in tourism. The films that the study concluded caused increases in tourism were all critical and/or commercial successes, with nine of the ten having either been nominated for or won Academy Awards.

Perhaps most importantly, the main conclusion in the 1998 study is that for a film to induce tourism at specific locations, it must establish what the authors refer to as a strong "iconic" identification with a particular location (such as Devil's Tower in *Close Encounters of the Third Kind*, Badlands National Park in *Dances With Wolves*, and the Texas Book Depository in *JFK*, to cite three locations where tourism is said to have increased due to their connections with the themes of those films). Such iconic locations are not part of every – or even most – movies, whether they are filmed in Massachusetts or elsewhere. In any event, films that are made but not set in Massachusetts would not be expected to result in any increase in tourism, as they lack this connection with local "icons". Of the ten major films produced in Massachusetts that have been released since the 2006 implementation of the film credit, four were set in Massachusetts (*The Game Plan*, *Gone Baby Gone*, *My Best Friend's Girl*, and *21*, though many scenes in *21* were set in Las Vegas). Two others were set in New York (*The Women* and *Bride Wars*), one was set in New Jersey *(Paul Blart: Mall Cop*), one was set in Newport, Rhode Island (*Ghosts of Girlfriends Past*), one was set in Paris (*Pink Panther II*), and one was set in New York and Alaska (*The Proposal*). It is open to question whether the four films set in Massachusetts featured the necessary "iconic" locations or enjoyed the requisite box office success (or will enjoy future commercial video success) that the 1998 study concludes are necessary to induce increased tourism.[13]

[12] Roger Riley, Dwayne Baker, and Carlton S. Van Doren, "Movie Induced Tourism", *Annals of Tourism Research*, Vol. 25, No.4, pp. 919-935, 1998

[13] A recent Ernst & Young study of New Mexico film credits concluded that tourism has increased in that state due to motion picture production. However, the study relies on an email-based tourist survey that is of questionable statistical validity, as the survey did not use a random sample of New Mexico visitors, had a very low response rate, and may have been affected by self-selection bias in its respondents. The study also appears to incorrectly use responses about how films affected the decision to visit the state and how films affected length of stay to calculate increases in aggregate tourist expenditures. See Ernst & Young, "*Economic and Fiscal Impacts of the New Mexico Film Production Tax Credit*", January 2009, available at the following URL: http://www.nmfilm.com/locals/downloads/nmfilmCreditImpactAnalysis.pdf, and Southwest Planning & Marketing and CRC & Associates, *The Impact of Film Tourism on the State of New Mexico*, prepared for The New Mexico Tourism Department,

This is not to say that films produced in Massachusetts are not capable of generating increased tourist visits to the Commonwealth (though to generate increased tourist visits, the film would have to be *set* in Massachusetts and include recognizable Massachusetts locations), but only that it should not be assumed that an increase in Massachusetts film production generally will necessarily result in new tourism. The Department of Revenue believes that additional research on this topic is needed before it is possible to quantify the amount of movie-induced tourism and the revenues it might generate for the Commonwealth.

Comparison with Other Film Incentive Studies

The results of this report are consistent with most other studies on film tax incentives. Table 9 – Fiscal Impact Estimates of State Film Tax Credits lists the publicly released studies of which we are aware that estimate the fiscal impacts of film tax incentives. The table shows the date of the study, who produced it, and the estimated amount of state revenue for each dollar of tax credit generated. Other than those carried out by the consulting firm Ernst & Young, the studies estimated that state revenues generated by new film production activity ranged from $0.07 to $0.28 per dollar of tax credit granted, although some of the studies did not assume that film tax credits needed to be funded by spending cuts or revenue increases, despite balanced budget requirements in virtually all those states. Because those studies do not account for the negative multiplier impacts of required state spending cuts or revenue increases, they tend to overestimate net economic activity and state revenue generated by the tax incentives. In calculating multiplier impacts, some of the studies also appear not to have made adjustments for wages paid to non-resident employees.

While the return-on-investment estimates in these studies are not always comparable between states due to different tax credit programs (e.g., the higher the tax credit rate, the lower the rate of return tends to be, and not all states allow a sales tax exemption for production-related purchases, and such an exemption tends to reduce the rate of return), different tax systems, and divergent local economic interrelationships, the studies generally are consistent with each other. The two Ernst & Young studies estimated much higher rates of tax revenues generated, but as pointed out in a recent Federal Reserve Bank of Boston report,[14] those studies assumed that all above-the-line and below-the-line non-resident wages would be spent locally, did not make adjustments for production activity that would have occurred even in the absence of the tax incentives, did not assume a balanced budget requirement, and in the case of the New Mexico study, based its estimates of increased tourism expenditures on a seemingly questionable tourism survey. For these reasons, we believe that the Ernst & Young studies are not relevant to an analysis of the Massachusetts film incentives program.

December 2008 (no internet link). For an analysis of the Ernst and Young New Mexico study, see Jennifer Weiner, *Ernst & Young Analyses of New Mexico and New York Film Tax Credits*, Federal Reserve Bank of Boston, April 2009, available at http://www.bos.frb.org/economic/neppc/memos/2009/weiner040209.pdf

[14] Jennifer Weiner, *Ernst & Young Analyses of New Mexico and New York Film Tax Credits*, Federal Reserve Bank of Boston, April 2009, at http://www.bos.frb.org/economic/neppc/memos/2009/weiner040209.pdf

Table 9 - Fiscal Impact Estimates of State Film Tax Credits

Date	**State**	**Source of Study/Estimate**	**State Revenues Generated Per $ of Tax Credit**
March 2005	LA	Louisiana Legislative Fiscal Office	$0.17
February 2008	CT	CT Dept of Economic & Comm. Development	$0.07
June 2008	PA	PA Dept of Comm. & Economic Development	$0.24*
July 2008	RI	Rhode Island Department of Revenue	$0.28*
August 2008	NM	Arrowhead Center - NM State University	$0.14*
January 2009	MI	MI Department of the Treasury/Legislature	$0.19*
January 2009	NM	Ernst & Young	$0.94*
February 2009	NY	Ernst & Young	$1.10*
February 2009	LA	Economics Research Associates	$0.13*
May 2009	PA	Economics Research Associates	$0.28**
June 2009	MA	Massachusetts Department of Revenue	$0.14 to $0.16

* No balanced budget requirement assumed

** No balance budget requirement assumed - includes state and local revenues

Planned Production Studios

As this analysis focuses on economic activity that occurred in calendar years 2006 through 2008, it does not estimate the impact of potential new economic activity from the proposed sound stages in Plymouth and elsewhere in the Commonwealth. Such facilities, if they are built, are likely to increase the Massachusetts local film production base, which would mean that less labor would have to be imported from outside the Commonwealth to provide the services needed on productions. They should lead to increased local spending and higher multiplier impacts than in the 2006-2008 period. Year-round sound stage facilities might also attract more television series to Massachusetts, which provide longer-term employment than individual film productions that spend one to four months in the Commonwealth. The construction of the facilities would also generate economic activity and tax revenue.

State Government Expenditure Impacts

Although the Department of Revenue does not normally assess the impact of state tax policies on government expenditures, the REMI model does estimate the impact of increased economic activity on required state expenditures. According to the REMI simulation, the increase in economic activity over the 2006-2008 period reduced the need for government expenditures by $4.9 million, almost all of which was in the “Public Welfare” category. Though the REMI simulation results are not broken down any further for this category, Public Welfare includes health care spending, and the simulation could indicate that needed spending declined due to additional paid private sector health insurance coverage that is gained by Massachusetts residents when the economy expands. Though we have not formally included this result in our analysis, it is worth noting.

Unitary Combined Reporting

Beginning with the 2009 taxable year (which is subsequent to the periods considered in this report), Massachusetts has adopted a unitary combined reporting statute for determining corporate tax liability. Combined reporting will apply to all industries, but it has been suggested that the new reporting method will disproportionately increase Massachusetts corporate tax paid by the film and entertainment industry. The reason for this anticipated increase is that non-Massachusetts affiliates of film producers receive substantial revenues from royalties ("affiliate fee revenue") which, in general, has not been reported as taxable income in Massachusetts under prior law, but which will be included in the Massachusetts tax base under combined reporting. The hypothesized revenue increase from combined reporting in the film and entertainment industry would occur so long as any member of the combined group is required to file returns in Massachusetts due to offices or business activities in the state (including the licensing of intangibles for use in Massachusetts), whether or not that member is engaged in film production activities in Massachusetts associated with the film credit.

Comparison with Other State Tax Incentives

As we have pointed out in previous studies, it is important to place film tax incentives in the context of tax incentives generally. Most studies of tax incentives show that increases in economic activity induced by the incentives produce tax revenue that is lower than the amount of the tax expenditures themselves. For example, recent studies of the Massachusetts investment and research tax credits conducted for the Associated Industries of Massachusetts by Ernst & Young (which also used the REMI model) estimated that the dynamic impact of those tax incentives lead to increased tax and non-tax revenue equal to 54% and 11%, respectively, of the amount of tax expenditures.[15] (These estimates of offsetting tax revenue may be too high, as it is not clear that a balanced budget requirement was imposed or whether non-budgetary revenues were counted in the analyses.) Whether a tax incentive program is desirable is not solely a function of how much revenue it generates, but also whether the economic activity that it causes is judged to be favorable for the Commonwealth. The Department does not take any position on the desirability of particular tax incentive programs.

[15] See "The Economic and Fiscal Effects of the Massachusetts Investment Tax Credit" and "The Economic and Fiscal Effects of the Massachusetts Research Credit". Both reports can be accessed at the web site of the Associated Industries of Massachusetts, at the following URL:
http://www.aimnet.org/AM/AMTemplate.cfm?Section=Foundation_Reports&Template=/TaggedPage/TaggedPageDisplay.cfm&TPLID=67&ContentID=4240.