Report on the Impact of Massachusetts Film Industry Tax Incentives through Calendar Year 2017

Commonwealth of Massachusetts
Department of Revenue

Geoffrey E. Snyder
Commissioner of Revenue

Release Date: March 1, 2022

Key Findings

This is the Department of Revenue's (DOR) annual report of the Massachusetts film industry tax incentive program, produced as required by chapter 63 of the Acts of 2007. This report provides an estimate of the economic impact of the film tax incentives in Massachusetts. The Department relied on data provided in connection with the film tax incentives to estimate the amount of new Massachusetts spending generated by the film tax incentives and the positive multiplier effects on the Commonwealth's economy. Given that the state has a balanced budget requirement, the report also takes into account state budget cuts that are needed to offset tax expenditures on the film tax incentives, and the negative multiplier effects of such cuts to arrive at an estimate of the net impact on the state's economy.

This report is an analysis of the actual impact of the film credit on the state economy; as such, economic benefits are attributed to the year in which the filming activity occurred, while the costs of the credit are attributed to the year they are claimed and reduce state revenues (a cash-basis). This method provides the most accurate picture of the credit's impact on state finances. However, it does create a separation between the benefits and costs of the credit. For this reason, when evaluating the overall impact of the credit, it is recommended that readers note the multi-year impacts and averages, which smooth out these time lags.

The report's key findings are as follows:

2017 Film Productions and net tax impact:

- For productions filmed in calendar year 2017 that have thus far applied for film tax credits, a total of approximately $87.4 million in tax credits were generated by 148 individual productions. This compares to the $46.7 million of credits from 142 productions in 2016[1].

- In 2017, 14 feature films generated $61.9 million in credits, while the other 134 projects generated $25.5 million in credits. In 2017, feature films claimed 71% of all credits, less than that in a typical year[2].

- Massachusetts paid an estimated $65.0 million in fiscal year 2017 for film tax credits both for credits issued in calendar year 2017 and prior calendar years' credits that had not yet been used (see Table 3, page 16).

- In calendar year 2017, the film tax incentive program generated $10 million in new state revenue which partially offset the cost of the tax credits (see Table 5, page 20).

2017 Spending due to Film Tax Credits:

- Calendar year 2017 production spending eligible for the tax credits totaled $349.5 million. Of that spending, $337.0 million constituted new spending (see table below), as DOR estimates that at least $12.5 million in spending would have occurred even in the absence of film credits. Of the remaining $337.0 million of new 2017 spending attributable to the tax incentives, $152.8 million (45%) was paid to Massachusetts residents or businesses located in Massachusetts. $184.3 million (55%) was paid to non-residents or businesses located outside of Massachusetts (see Table 1, page 12).

---

[1] Note that as of our previous report (February, 2020), credits in 2016 totaled $45.7 million based on film spending of $182.6 million. Since then, an additional $4.2 million in spending has been claimed for 2016 productions; the estimates in this report reflect all additional projects.

[2] Feature films usually claim around 80% of all credits in a typical year.

$337.0 million in NEW Spending due to Credit (calendar year 2017)

	Massachusetts Spending	Non-Massachusetts Spending	Total
Wages	$74.1 million	$142.7 million	$216.8 million
Non-Wage Spending	$78.7 million	$41.6 million	$120.3 million
Total	$152.8 million	$184.3 million	$337.0 million

- Of the $337.0 million in new film production spending, $216.8 million was spent on wages and $120.3 million was non-wage spending. Approximately $74.1 million (34%) of wage spending was paid to residents and $142.7 million (66%) was paid to non-residents. Of the non-wage spending, approximately $78.7 million (65%) was paid to Massachusetts-based businesses, and $41.6 million (35%) was paid to non-Massachusetts based businesses (see Table 1, page 12).

- Of the wage spending, $81.9 million went to individuals paid over $1 million. All individuals paid over $1 million were non-residents.

Net economic impact

- After subtracting payments to non-residents and non-Massachusetts businesses, as well as state spending reductions required to fund the tax credits in order to maintain a balanced budget, the film tax credit program resulted in $85.5 million in net new spending in the Massachusetts economy during the calendar year 2017. Over the calendar year 2006 to 2017 period, the film incentive program resulted in $615.5 million in net new spending in the Massachusetts economy (see Table 4, page 18).

- Beyond the $85.5 million net new direct spending, estimating the net economic impact of film tax credits requires taking into account the additional economic activity generated by film spending (positive multiplier impact) and the cuts in state spending necessary to pay for the film credits (negative multiplier impact) (see page 6). After taking into account the full impacts, including the direct impact and the multiplier impact, the film incentive program generated net new Massachusetts Gross State Product (GSP) of $126.4 million, and $12 million in personal income (see Table 5, page 20).

Net impact on FTE's:

- In calendar year 2017 the film tax incentive program resulted in approximately 1,153 net new full time equivalent employees (FTEs). The gross number of FTEs created by film production and its multiplier effect was 2,599 (including the change in the number of jobs held by Massachusetts residents outside of the state); however, under the Commonwealth's balanced budget requirement, the tax expenditure for the film tax incentives must be offset by either tax increases or spending reductions. For purposes of analyzing the net economic impact of the film tax incentive, this report assumed that state budget expenditures were reduced to offset the film tax incentive, resulting in an estimated reduction of 1,446 FTEs (note from Table 6 that the 1,446 total is the sum of the lost jobs of 1,307 FTEs for Massachusetts residents and 139 for non-residents). The gross 2,599 FTEs gained, minus the 1,446 FTEs lost, result in the 1,153 net new FTEs (see Table 6, page 21).

- Of this net new figure in 2017, the number of jobs for Massachusetts residents is estimated to have increased by a net 585 as a result of the film incentives. This 585 figure includes an estimated 63 jobs held by Massachusetts residents in other states (see Table 6, page 21).

- For the period 2006 to 2017, one net new Massachusetts-resident job was created for every $102,945 in film incentive; including non-Massachusetts jobs, one job was created for every $79,896 in film incentive (see Table 5, page 20).

Film tax incentives from 2006 through 2017

- For productions completed between calendar years 2006 and 2017, approximately $759.4 million in total film tax credits were generated by 1,556 individual productions. Recent production activity generated tax credits of $46.7 million in 2016 and $87.4 million in 2017 (see Table 3, page 16).

- Of the $759.4 million in film credits generated between calendar years 2006 and 2017, Massachusetts has paid out an estimated aggregate of $740.4 million in issued film tax credits to production companies and other Massachusetts taxpayers in fiscal years 2007 through 2018 (see Table 3, page 16).

- Of the $759.4 million in film credits generated between calendar years 2006 and 2017, $3.3 million was refunded, $1.2 million are in the final stages of approval, $105.3 million have been retained by film production companies, and $649.6 million were sold directly to other Massachusetts taxpayers or to tax credit brokers. For the credits sold (with total face value of $649.6 million): Film production companies received $574.9 million ($324.8 million from brokers, $250.1 million from others); $12.9 million was gross profit of tax credit brokers; and $61.8 million benefited other Massachusetts taxpayers in the form of reduced net tax payments to the Commonwealth (see Table 7A, page 24).

Film activity in 2018 and 2019

- Prior to beginning filming, projects are allowed to apply for an exemption from the sales tax; in this application, they state their expected spending and completion dates. For a major feature film, DOR may receive the sales tax application one to two years prior to any eventual filing for film credits. While not all projects meet their tentative schedule (or anticipated spending), the data in these applications provide insight into filming activity that will eventually claim credits.
- Based on an analysis of sales tax exemption applications received, 128 projects had projected to complete filming in Massachusetts during 2018. If they are all approved, spending from these projects in calendar year 2018 will total over $325 million, resulting in lost tax revenue from tax credit claims of over $80 million.
- In addition, 104 productions have also filed sales tax exemptions for films expected to have been completed during calendar year 2019; if all of these projects go forward as planned, the known spending for 2019 would already total over $392.9 million, resulting in lost tax revenue of $98 million.

Important Note Concerning Comparisons to the Massachusetts Tax Credit Transparency Report

- In December of 2018 (and later updated in March 2020 and April 2021), in compliance with Massachusetts legislation enacted in 2010 requiring agencies that administer refundable and transferable tax credit programs to submit an annual public report, the Massachusetts Department of Revenue released its 2017 Tax Credit Transparency Report.[3] The report provides a detailed list of approved refundable or

---

[3] The Calendar Year 2017 Transparency Report, which explains the reporting requirements and lists all 2017 credits awarded or issued, can be found at https://www.mass.gov/lists/massachusetts-dor-tax-credit-transparency-reports. Note that the Calendar Year 2017 Transparency Report was updated in March 2020 and April 2021.

transferable credits that were awarded or issued in 2017, including film credits. It is important to note that there may be differences between the figures presented in the Transparency Report and the aggregate figures presented in this report. This is due to the fact that this report focuses on the economic impact that occurred when the filming took place, while the Transparency Report focused on when a credit was issued for the film project. Take for example a production company that filmed a television series in 2017 but did not apply for and receive the credit until 2018; this project would appear in the Transparency Report as a “2018-issued credit”. However, all of the economic impacts from this project would have occurred in 2017. As such, for the purpose of assessing its economic impact, the Film Industry Tax Incentives Report would classify the project as a “2017 project”. The tables and figures in this report are based on the calendar year in which the economic activity took place, unless otherwise noted.

Introduction

This is the eleventh annual report on the Massachusetts film tax incentives issued by the Massachusetts Department of Revenue. As previous years' reports explained in detail how the film incentives work and the methodologies underlying the Department's analysis of the program's economic and fiscal impacts, this year's study forgoes those background and methodological discussions and, where appropriate, refers readers to the relevant sections of prior years' reports available on the Department's website.[4] While this report will summarize overall credit activity, it spotlights the calendar year 2017 film spending's economic impact.

The Massachusetts film tax incentives[5], as amended by the FY2022 budget[6] are composed of a tax credit equal to 25% of a film's production cost, 25% of a film's payroll costs and an exemption from sales tax[7] for film productions. The tax credits can be used to reduce the production company's tax liability and/or they may receive cash refunds from the Department of Revenue equal to 90% of the amount of the tax credit. The tax credits may also be transferred or sold by production companies to third parties; these purchasers may use the tax credits to reduce their Massachusetts corporate, insurance, financial institution, or personal income tax liabilities. Roughly half of all sales are to third parties directly from the production company; the other half of sales are made to tax credit brokers, who in turn may resell the credits to Massachusetts taxpayers who'll use the credits to reduce their state tax payments.

Economic Impact Methodology

As required by law, one of the primary purposes of this report is to estimate the Massachusetts economic impact of the film tax incentives. Conceptually, the immediate net economic impact of the incentives is relatively straightforward, and calculated as shown in the following diagram:

---

[4] These reports can be found at https://www.mass.gov/lists/other-dor-reports#massachusetts-film-industry-tax-incentive-reports-.

[5] *See* M.G.L. c. 62, § 6 (l),M.G.L. c. 63, § 38X, and Chapter 63 of the Acts of 2007; also *see* DOR's TIR 07-15 for a full description of the film credit.

[6] *See* sections 25, 36, 68, and 147 of the FY2022 budget (https://malegislature.gov/Laws/SessionLaws/Acts/2021/Chapter24). Under this legislation, the credits with respect to certain payroll expenses and certain production expenses due to expire on January 1, 2023 were made permanent. The legislation also amended credit eligibility with respect to production expenses. For taxable years beginning on or after January 1, 2022, a taxpayer must incur at least 75% of its production expenses in Massachusetts for a film project to qualify for the credit. A 50% threshold applies to prior taxable years. These changes are not retroactive and therefore have no effect on the economic impact from film spending in calendar year 2017.

[7] Applies to sales of tangible personal property, including meals, to a qualifying motion picture production company or to an accredited film school student for the production expenses related to a school film project.

Amount of *New* Massachusetts Wage and Non-Wage Spending Generated by the Tax Incentives

And

Additional Massachusetts Economic Activity Generated by New Wage and Non-Wage Spending (Positive "Multiplier" Impact)

Minus

State Spending Cuts or Tax/Fee Increases Required to Maintain a Balanced Budget (Negative Economic Impact)

And

Additional Massachusetts Economic Impact of Those State Spending Cuts or Tax/Fee Increases (Negative "Multiplier" Impact)

In order to estimate the net economic and fiscal impacts of the tax incentive program, this report provides in-depth statistical data from film tax credit applications and uses this data to estimate economically relevant variables. This report includes the following statistical information:

- The total amount of tax credits generated, claimed, and paid by calendar and fiscal year;
- The types of productions claiming the tax credits;
- An estimate of the film 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 film productions that claimed the tax incentives;
- The dollar amount of wages and salaries that were paid to Massachusetts residents and non-residents;
- The dollar amount of non-wage spending that was paid to Massachusetts-based and out-of-state businesses;
- The number of new jobs generated by film 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.

This study employs a dynamic model of the Massachusetts economy developed by Regional Economic Models Incorporated ("REMI"). This model is used to estimate the net economic and fiscal impacts of the film tax incentive program using the aforementioned statistical information. A dynamic analysis estimates 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 term "film" 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.

Production Spending in the Absence of Tax Incentives Because this report is attempting to measure only *new* Massachusetts economic activity that results from the film production tax incentives, we do not include economic activity that, while eligible for the film tax incentives, was already taking place before the tax incentives were implemented and presumably would have continued to take place had the incentives not been enacted. In particular, Massachusetts has been an important center for public television productions, with stations from the Commonwealth providing significant national and local programming. That said, it should be noted that we have credited the vast majority of projects to the existence of the incentive. Also, some film credit applications are made years after the production activity, particularly in the case of small documentary projects. We consider the activity on these older small projects as not related to the film credit, and in any case they do not materially affect our results.

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. We used the following methodology and assumptions to determine whether production activity was new:

Feature Films. We assumed that all 14 of the feature films that applied for the tax credit based on activity in 2017 were induced to film in Massachusetts due to the credit. Since spending on feature films made up 71% of all film spending in 2017, the vast majority of all spending will be treated as due to the film credit. This is a generous assumption considering that some feature films were required to shoot in Massachusetts, at least in part, for authenticity purposes. However, since many competing states currently have 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 smaller-budget films represent only a small portion of film production spending in the Commonwealth, they do not materially affect our results.

Commercials/Advertising Projects. 69 “commercial and advertising” projects applied for credits for 2017. While many of those commercials may have been produced in Massachusetts even without the credit, we have assumed that any commercial or advertising project made in 2017 were made here due to the tax incentives. While this probably overestimates the amount of spending due to the tax credits (there were a substantial number of advertising companies in Massachusetts responsible for national advertising campaigns prior to the enactment of the tax incentives), this assumption does not materially affect our calculation of the overall economic impact of the incentive program since advertising makes up a small portion (around 8%) of the value of production activity eligible for the tax incentives.

Television Series. We identified long-running shows and specifically local programming that claimed 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.[8]

Including the 49 television series produced in 2017, DOR has received 401 tax credit applications for television series produced in the years 2006 to 2017, claiming tax credits of $102 million. Based on an analysis of these applications, DOR estimates that in 2017 approximately 15% of the spending on these programs would have been produced in Massachusetts even without the credit, as they were long-running series produced by local stations. While these existing productions increased the amount of tax incentives attributable to these years, they were not

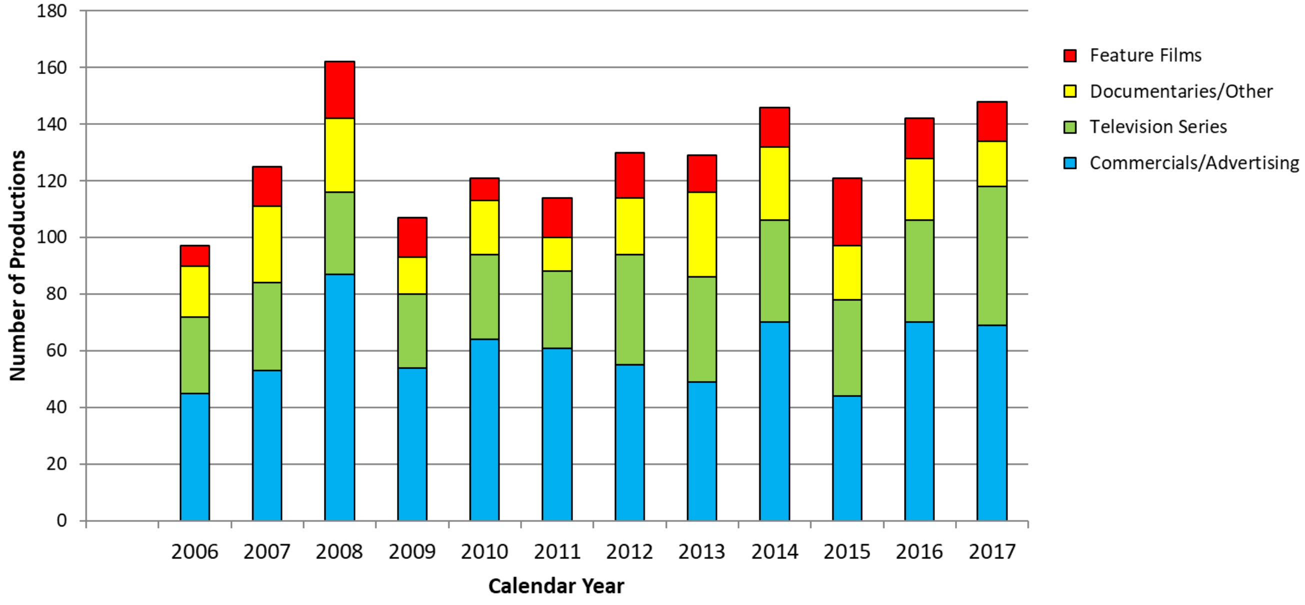
---

[8] If we could not conclusively identify the TV series as having been produced prior to the incentives becoming available, we assumed that such series would not have been produced in the absence of the tax incentives. Thus our estimate probably overestimates the amount of new television series production activity spurred by the incentives.

included in our estimates of new economic activity in those years, since they do not represent new spending resulting from the tax incentives. However, these existing TV programs represent only 15% of 2017 film spending.

Documentaries. Because documentaries generally are one-time events, it was more difficult to estimate how many would have been made in the absence of the film tax incentives. While some documentaries that were produced in 2017 had local themes and may have been produced even without the film credit, for purposes of estimating the economic impact in 2017 we classified all documentaries as "new" projects that would not have been undertaken without the film tax incentives. Again, this assumption does not materially affect our calculation of the overall economic impact of the incentive program as Documentaries make up a small portion (around 1%) of the value of production activity eligible for the tax incentives.

Figure 1
Total Number of Massachusetts Productions by Type of Film Project
2006 - 2017



Payments to Non-Residents and Non-Massachusetts Vendors. Not all production spending benefits the Massachusetts economy or Massachusetts residents – spending "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 the state's 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, including them in Massachusetts's gross state product overstates the direct benefit of such spending to the Massachusetts economy. In contrast, measures of state personal income do not include non-resident wages (as such measures are based on the state of residence of workers, not the place where the work was performed), and thus are a better measure of economic benefit to Massachusetts citizens. 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, which in turn generates additional local economic activity. 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 generally 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 these payments are made to non-Massachusetts residents, including significant budgets for food, travel, entertainment, and living expenses.

- "Below-the-line" expenses include costs such as those for production crew, set designers, set construction, and extras. These payments generate economic activity in the Commonwealth, but only to the extent that they are made to Massachusetts residents.

Because most film budgets we reviewed included amounts for wages, 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, we follow previous studies in assuming that non-resident wages and salaries generate little additional economic activity in the Commonwealth. 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, including lodging, food, entertainment, and miscellaneous expenses, are covered in the production budgets. There is greater uncertainty about what portion of other non-resident wages and salaries (mostly, but not entirely, below-the-line costs) is spent locally. Because lodging and meals are provided/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 are spent in the Commonwealth. As most consumers' spending is generally for housing, transportation, food, health care, etc. (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.

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, 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]

Economic "Multipliers". Direct spending by productions also generates "multiplier" impacts of "indirect" spending. As money is spent on productions, these direct purchases stimulate indirect economic activity; payments to vendors result in payments to vendors' employees, which increase the personal income and spending of Massachusetts residents, resulting in additional "induced" economic activity. In this analysis, these positive multiplier impacts are simulated using a dynamic model of the Massachusetts economy constructed by Regional Economic Models, Inc. ("REMI") Conversely, negative multiplier impacts are also be included to account for the effect of state spending cuts required to maintain a balanced budget (see next section).

---

[9] An earlier 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.remi.com/wp-content/uploads/2018/01/179-CT-DECD-Film-Tax-Credit-FEB-2008.pdf.

Balanced Budget Requirement and Refundable/Transferable Tax Credits. Massachusetts has a balanced budget requirement, obliging the government to make spending reductions 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 a result of spending cuts that reduce employment and purchases in Massachusetts. If the tax credits were non-refundable and non-transferable, the cost to the state would be limited to the taxpayer's liability. However, since the film tax credits are refundable and transferable, the revenue loss to the state can (and usually does) exceed the tax liability of the taxpayers generating the tax credits. Where production companies that generate film tax credits have no Massachusetts tax liability and claim the credits under the 90% refundable option, the cash payments made by the Department of Revenue to film production companies are equivalent to direct cash grants from the Commonwealth.

A production company can alternatively transfer or sell film tax credits either directly to a taxpayer or to a tax credit broker who then may re-sell them to a taxpayer. The vast majority of credits are transferred in this way. These credits are then used to reduce or eliminate payments the purchaser would have otherwise made to the Commonwealth. The effect on the Commonwealth's cash flow and budget is again equivalent to that of a cash grant. The film production company receives a percentage of the credit amount, generally over the 90% they could have received from the state as a refund (see Table 7A on page 24) as the purchase price for the credit. The purchaser of the credit realizes its full value in the form of a refund or reduction in Massachusetts tax liability. In this case, the cash payment to the film production company is made by a third party (either a tax credit broker or a Massachusetts taxpayer) rather than the Commonwealth itself. The reduction in state tax revenue occurs between one and six months later when the buyer of the credit (typically an insurance company, financial institution, or other corporation) reduces its tax payments.

Technically, if a film production company is awarded tax credits and does not have sufficient tax liability to use them, then the refundable or transferable credits do not constitute any new tax revenue foregone, since there is in fact no tax revenue to forgo. They are, however, equivalent to cash outlays by the Commonwealth in the form of reduced tax payments from other filers whose economic activity is entirely unrelated to film productions. Thus film credits, like any tax credits which can be monetized by either refunding or selling them in the absence of sufficient tax liability, are functionally identical to state spending.

Analysis of Film Spending

One important consideration in this economic analysis is that the Massachusetts film credit *does not* require non-wage expenditures to be purchased from a Massachusetts-based business in order to qualify for a film tax credit. As long as a production otherwise qualifies, payments made to out-of-state vendors are eligible for the full 25% film credit. This is significant as payments made to non-Massachusetts vendors have very different economic impacts than those made locally: Purchases generally stimulate economic activity *only* in the state or area where the purchase is made, and not elsewhere.

As of December 31, 2020 there were 148 productions (see Table 2A on page 13) filmed in calendar year 2017 that had been approved for tax credits or were in the final stages of the approval process. Total 2017 film production spending eligible for tax credits was $349.5 million, generating $87.4 million in film credits (see Table 3 on page 16). Total spending was made up of $229.0 million in wage spending and $120.5 in non-wage spending.

Table 1 – 2017 Film Production Spending: Massachusetts vs. Out-of-State

The upper section of Table 1 (page 12) breaks out the distribution of wage expenditures by Massachusetts residents ("MA") and non-residents ("NON-MA"); non-wage expenditures by location of vendor follow below this. Of the $349.5 million spending (see column "A"), DOR estimates that $12.5 million in spending would have occurred even in the absence of the tax incentives (column "B"), leaving $337.0 million in new spending generated by the tax incentives (column "C").

Of the $337.0 million in new spending, $152.8 million (45%) was paid to Massachusetts residents or Massachusetts-based businesses (dollar figures in column "D"; see column "E" for percentage of total). Details of the $184.3 million (55%) that was paid to non-residents or non-Massachusetts vendors are shown in column "F" (see column "G" for percentages).

Wages: Of the $229.0 million in wage spending in 2017, an estimated $12.3 million would have occurred in the absence of incentives, leaving $216.8 million in net-new spending on wages. Of this, $74.1 million (34%) was paid to Massachusetts residents, and $142.7 million (66%) paid to non-residents. Note that wage spending on salaries of over $1 million, which totaled $81.9 million, was paid entirely to non-Massachusetts residents.

Vendor spending: The detailed breakout of non-wage (Vendor) spending is based on a DOR analysis of thousands of individual expenditures totaling $120.5 million, documentation for which was submitted as part of film credit applications. Of that $120.5 million, it is estimated that less than $0.2 million would have occurred in the credit's absence. Of the $120.3 million in new non-wage spending, $78.7 million (65%) was paid to Massachusetts-based businesses and $41.6 million (35%) was paid to out-of-state vendors.

The largest categories of non-wage spending (see column A) were fringe benefit/taxes ($34.1 million), Production and Prof. Services ($13.0), Hotel/Motel ($10.9 million), Location Fees ($8.5 million), Costumes/Clothing/Props ($6.6 million), Cameras/Film ($5.8 million), and Special Effects ($5.3 million).

The categories of primarily in-state expenditures include Location Fees and Hotel/Motel spending, where purchases were 100% local; Extras (89% local), Private Security/Police Details, which were 87% local; Cleaning and Repair (83% local); Special Effects (81% local); Local Travel/Car Rental (79% local), Office Rent/Supply/Supp. (75% local), and Food/Restaurant/Catering (75% local). The largest categories by percentage of non-local purchases were Mobile Dressing Rooms at 70% non-local ($1.5 million) and Cameras/Film at 69% non-local ($4.0 million). Note that the percentages shown in the table include estimates of local purchases by non-local vendors, such as where out of state caterers are assumed to purchase food in Massachusetts and out of state transportation services, which are assumed to purchase fuel in Massachusetts.

Table 1 - 2017 Production Spending By State of Residence or Location of Vendor *
(Dollar Amounts are in Millions)

Category of Spending	(A) Total Spending Eligible for Tax Credits	(B) Spending in the Absence of Incentives	(C) Net-New Spending from Tax Incentives (A-B)	(D) Net-New MA Resident Wages or MA Vendor Sales	(E) MA Resident Wages/MA Vendor Sales as % of New Spending	(F) NON-MA Resident Wages or NON-MA Vendor Sales	(G) NON-MA Resident Wages/Vendor Sales as % New Spending
Wage Spending	**$229.0**	**$12.3**	**$216.8**	**$74.1**	**34%**	**$142.7**	**66%**
Wages $1 Million & Over	$81.9	$0.0	**$81.9**	$0.0	0%	$81.9	**100%**
Wages Under $ 1 Million	$147.1	$12.3	**$134.8**	$74.1	55%	$60.8	45%
Non-Wage Spending	**$120.5**	**$0.2**	**$120.3**	**$78.7**	**65%**	**$41.6**	**35%**
Fringe Benefits / Taxes **	$34.1	$0.06	**$34.0**	$17.8	52%	$16.2	48%
Production + Prof. Services	$13.0	$0.03	**$13.0**	$8.1	62%	$4.9	38%
Hotel / Motel	$10.9	$0.02	**$10.9**	$10.9	100%	$0.0	0%
Location Fees	$8.5	$0.02	**$8.5**	$8.5	100%	$0.0	0%
Costumes / Clothing / Props	$6.6	$0.01	**$6.6**	$3.2	49%	$3.4	51%
Cameras / Film	$5.8	$0.01	**$5.8**	$1.8	31%	$4.0	69%
Special Effects	$5.3	$0.01	**$5.3**	$4.3	81%	$1.0	19%
Set Lighting/Electrical	$5.0	$0.01	**$5.0**	$2.3	46%	$2.7	54%
Food / Restaurant / Catering	$4.6	$0.01	**$4.6**	$3.4	75%	$1.1	25%
Miscellaneous / Other	$4.3	$0.01	**$4.3**	$2.9	67%	$1.4	33%
Set Construction	$3.8	$0.02	**$3.8**	$2.7	71%	$1.1	29%
Priv. Security/Police Details	$3.1	$0.01	**$3.1**	$2.7	87%	$0.4	13%
Parking, Fuel, Auto Repair	$2.7	$0.01	**$2.7**	$1.9	69%	$0.8	31%
Transportation / Moving Serv.	$2.4	$0.00	**$2.4**	$1.7	73%	$0.6	27%
Computer / Telecom Equip	$2.4	$0.00	**$2.4**	$1.1	47%	$1.3	53%
Mobile Dressing Rms	$2.1	$0.00	**$2.1**	$0.6	30%	$1.5	70%
Office Rent / Supply / Supp.	$1.4	$0.00	**$1.4**	$1.1	75%	$0.4	25%
Local Travel / Car Rental	$1.4	$0.00	**$1.4**	$1.1	79%	$0.3	21%
Cleaning and Repair	$1.4	$0.00	**$1.4**	$1.2	83%	$0.2	17%
Other Lodging	$0.7	$0.00	**$0.7**	$0.7	100%	$0.0	0%
Producer / Director Fees	$0.5	$0.00	**$0.5**	$0.3	52%	$0.2	48%
Extras	$0.4	$0.00	**$0.4**	$0.3	89%	$0.0	11%
Total Spending	**$349.5**	**$12.5**	**$337.0**	**$152.8**	**45%**	**$184.3**	**55%**
Resulting Tax Credits	**$87.4**	**$3.1**		**$38.2**		**$46.1**	

*   Based on film credit applications received through December 31, 2020

** Fringe benefits and employment taxes are allocated to the state of residence of the wage earner

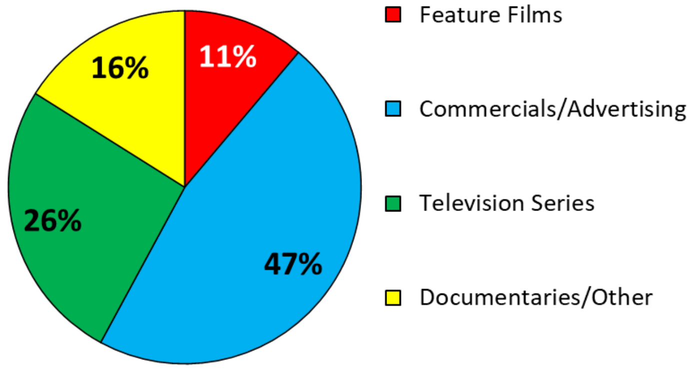
Detail may not add to total due to rounding

Tables 2A, 2B and 2C - Total Massachusetts Production Spending Eligible for Film Tax Credits below are high-level summaries of spending data for the calendar years in which the Massachusetts film credits were available (2006-2017). As Table 2A shows, over the 12 years in which the tax incentive program was in effect through calendar year 2017, 1,542 productions claimed film tax credits. Table 2B[10] shows total credit-eligible spending of $3,045.1 million, of which $1,195.5 million (39%) was paid to Massachusetts residents and Massachusetts-based businesses while $1,849.5 million (61%) was paid to non-residents or non-Massachusetts businesses.

Table 2A - Total Number of Massachusetts Productions by Type of Film Project, 2013 - 2017

	Calendar Years					
Type of Film Projects	2013	2014	2015	2016	2017	**2006 to 2017**
Total Productions by Year	**129**	**146**	**121**	**142**	**148**	**1542**
Feature Films	*13*	*14*	*24*	*14*	*14*	***172***
Commercials/Advertising	*49*	*70*	*44*	*70*	*69*	***721***
Television Series	*37*	*36*	*34*	*36*	*49*	***401***
Documentaries/Other	*30*	*26*	*19*	*22*	*16*	***248***

Figure 2A
Type of Film Project as % of Total Number of Massachusetts Productions, 2006-2017



---

[10] It should be noted that "Location Fees" in Table 2B reflect the expense as reported by the production companies which often place various expense types in this category. However, the "Location Fees" in Table 1 are those which have been approved by an audit.

Table 2B - Total Massachusetts Production Spending Eligible for Film Tax Credits, 2006-2017
(Dollar Amounts are in Millions)

	Calendar Years					
Category of Spending	2013	2014	2015	2016	2017	**2006 to 2017**
Total Wages	$186.8	$182.7	$190.1	$118.9	$229.0	**$1,973.7**
Wages $1 Million & Over	*$62.2*	*$60.2*	*$69.0*	*$29.9*	*$81.9*	***$706.0***
Wages Under $ 1 Million	*$124.6*	*$122.5*	*$121.0*	*$89.0*	*$147.1*	***$1,267.6***
Set Construction	$2.6	$3.7	$3.9	$2.8	$3.8	**$77.1**
Location Fees	$31.1	$30.8	$29.7	$22.8	$42.7	**$311.6**
Unclassified/Other	$63.3	$56.7	$60.7	$42.3	$74.0	**$682.7**
Totals	**$283.8**	**$274.0**	**$284.3**	**$186.8**	**$349.5**	**$3,045.1**
Of Which Spent on:						
MA Resident/Business ($)	**$119.9**	**$124.9**	**$122.9**	**$96.2**	**$163.2**	**$1,195.5**
Non-MA Resident/Business ($)	**$163.9**	**$149.1**	**$161.4**	**$90.5**	**$186.3**	**$1,849.5**
MA Resident/Business (%)	**42%**	**46%**	**43%**	**52%**	**47%**	**39%**
Non-MA Resident/Business (%)	**58%**	**54%**	**57%**	**48%**	**53%**	**61%**

*Data hidden to protect taxpayer confidentiality
Detail may not add to total due to rounding

Figure 2B
Wage Spending Eligible for Film Tax Credits
2008 - 2017 (Dollar Amounts are in Millions)

* 2010 shows only "Total Wages" to maintain filer confidentiality.

Note: For 2010 (total wages were only $47.2 million), wages over $1 million not shown to maintain filer's confidentiality.

Figure 2Bb
Total Massachusetts Production Spending by State Eligible for Film Tax Credits 2006-2017 (Dollar Amounts are in Millions)

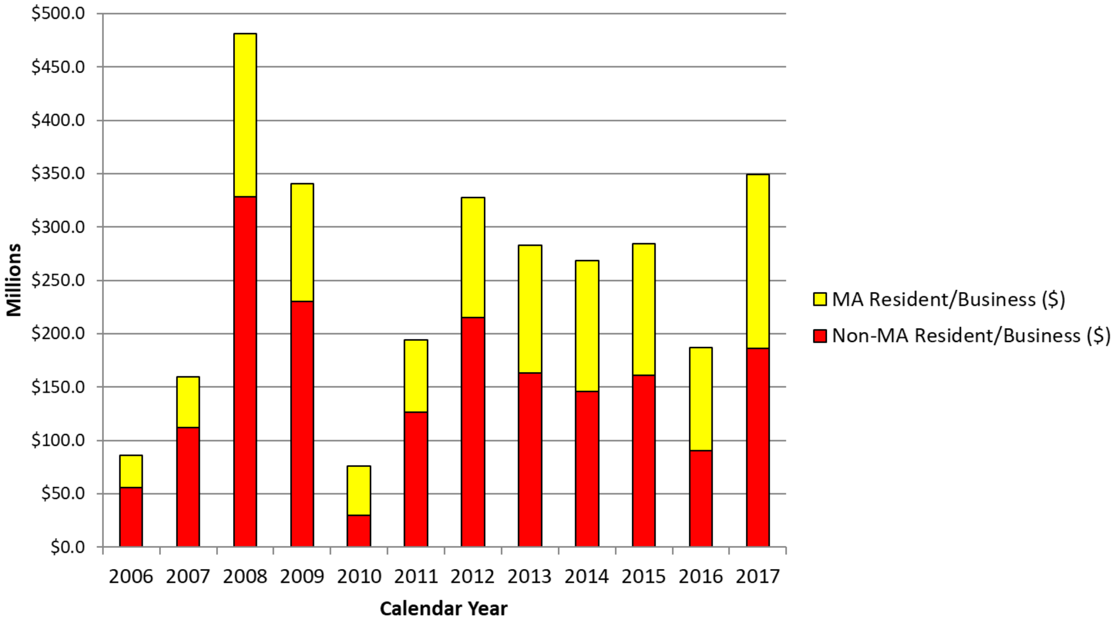


Table 2C - % of Total Production Spending by Type of Film Project, 2013-2017
(Dollar Amounts are in Millions)

	Calendar Years					
	2013	2014	2015	2016	2017	2006 to 2017
Total Productions Spending	$283.6	$274.0	$284.3	$186.8	$349.5	$3,047.5
Feature Films	**78%**	**79%**	**82%**	**82%**	**71%**	**80%**
Commercials/Advertising	3%	4%	3%	6%	4%	4%
Television Series	16%	16%	13%	10%	24%	13%
Documentaries/Other	3%	2%	2%	2%	1%	2%

Table 2C shows total production spending by type of film project. Typically, feature films account for around 80% of total spending eligible for the film tax credit. These tables are accompanied by figures which highlight reported statistics.

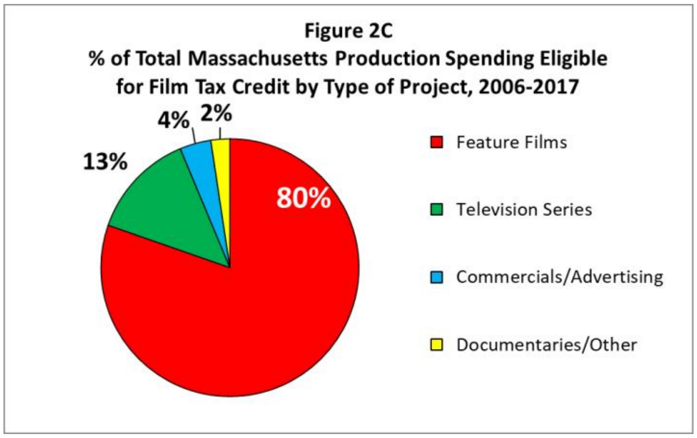


Table 3 – Aggregate Amount of Tax Credits Generated and Used below shows the amount of tax credits claimed, categorized by the calendar year in which the production was completed and the fiscal year in which the tax credits were used to reduce tax payments. Through December 31, 2020, a total of 1,556 productions had been approved or were in the process of being approved for tax credits totaling $759.4 million.

Table 3 - Aggregate Amount of Tax Credits Generated and Used

(Dollar amounts are in millions)

Year	Number of Productions / calendar year	$ Amount of Tax Credits / calendar year	Estimated $ Amount of Tax Credits Used By Fiscal Year
2006*	97	$19.4	$0.0
2007	125	$39.9	$11.9
2008	162	$120.4	$10.5
2009	107	$85.3	$110.0
2010	122	$19.2	$90.8
2011	114	$48.6	$45.9
2012	128	$81.9	$55.7
2013	135	$71.0	$80.1
2014	150	$68.5	$41.8
2015	127	$71.1	$77.6
2016	141	$46.7	$71.1
2017	148	$87.4	$65.0
2018	N/A	N/A	$80.0
Total Approved / Pending**	1,556	$759.4	$740.4

* For tax year 2006, the payroll credit was only 20% and credits were capped at $7 million for any one production

** Through December 31, 2020; some projects in final states of approval.

Detail may not add to total due to rounding.

There is a lag between the date tax credits are applied for and the date they are actually used to reduce tax liability. This occurs partly due to the time it takes to provide documentation of expenses and gain verification 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 directly to taxpayers who can use the credits to offset their tax liabilities.

The Department of Revenue estimates that of the $759.4 million in film tax credits for productions through calendar year 2017, $740.4 million has been used to reduce tax payments or increase refunds, including $65 million in FY17 and $80 million in FY18.

Preview of 2018/2019

Up to 2 years may elapse between the start of filming and the application for the film credit of a major feature film. An additional 6 months may be required for the auditing process. While not all projects will be approved for the full amount, based on an analysis of sales tax exemptions applications already received , there are at least 128 film productions in Massachusetts that are planning to be complete by the end of 2018. If all of these projects actually spent their claimed amounts within the time frame reported on their applications, qualifying film credit spending will total at least $325.3 million for 2018, resulting in credit claims of over $81.3 million. In addition 104 productions have also applied for film credits for projects that filmed in calendar year 2019; if all of these projects are approved by DOR, their claimed spending would total over $392.9 million, ultimately resulting in tax credits of over $98.2 million.

Total New Massachusetts Direct Spending

Table 4 – Calculation of Increase in Massachusetts Local Spending Due to Film Tax Incentives below shows the calculation of new direct local spending from film production activity. These totals are arrived at after adjusting for projects that would have occurred in the absence of tax incentives, wage and non-wage spending paid to non-residents, and state spending cuts required to fund the tax credits and maintain a balanced budget. Figure 4 is a visual representation displaying the increase in Massachusetts local spending due to film production spending by calendar year

Table 4 - Calculation of Increase in Massachusetts Local Spending Due to Film Tax Incentives
(Dollar Amounts are in Millions)

	Calendar Years					
	2013	**2014**	**2015**	**2016**	**2017**	**2006 to 2017**
Film Production Total Spending	**$283.8**	**$274.0**	**$284.3**	**$186.8**	**$349.5**	**$3,045.1**
Minus Spending In Absence of Tax Incentives	($16.4)	($12.8)	($21.5)	($11.1)	($12.5)	($246.3)
Minus Adjustment for Non-Resident Wages[1]	($114.5)	($103.9)	($111.5)	($63.3)	($139.7)	($1,254.4)
Minus Non-Wage Spending on Non-MA Vendors	($38.1)	($33.6)	($36.8)	($23.0)	($41.6)	($447.4)
New Massachusetts Film Spending from Incentives	**$114.7**	**$123.6**	**$114.5**	**$89.4**	**$155.8**	**$1,097.0**
Minus Reduced MA Spending to Balance Budget[2]	($44.8)	($43.6)	($54.4)	($34.1)	($70.3)	**($481.4)**
Net Increase in Massachusetts Local Spending	**$69.9**	**$80.0**	**$60.0**	**$55.2**	**$85.5**	**$615.5**
New Massachusetts Spending as a % of Total	40.4%	45.1%	40.3%	47.9%	44.6%	**36.0%**

[1] Includes all non-resident wages over $1 million per person plus 95% of non-resident wages under $1 million per person.

[2] Net of taxes generated by film production and state spending cuts borne by non-residents or out-of-state businesses.

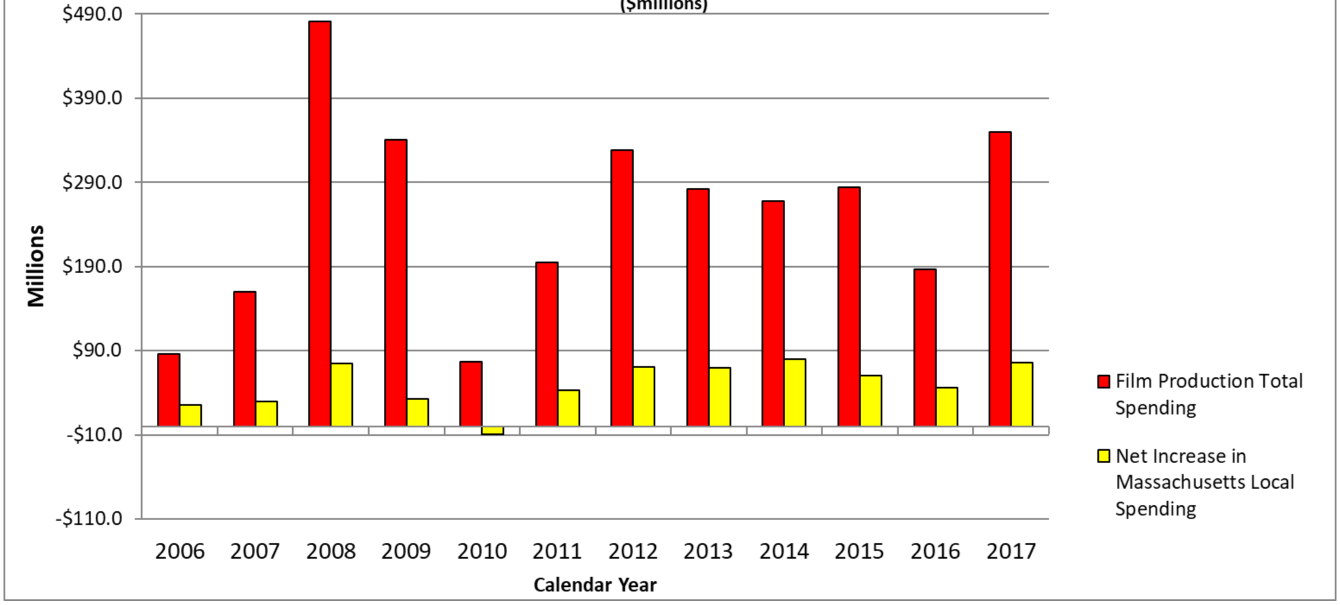
First, we calculated total production spending of $3,045.1 million for the period of 2006 through 2017. Next, we subtracted $246.3 million for productions that would have occurred in the absence of tax incentives, $1,254.4 million in wages paid to non-residents (which includes all payments to non-residents earning more than $1 million per production and 95% of wages under $1 million paid to other non-residents for feature films and all other productions), $447.4 million in non-wage spending paid to non-Massachusetts vendors, and $481.4 million in state spending cuts to maintain a balanced budget. This leaves a total of $615.5 million in *net* new Massachusetts spending activity. Figure 4 summarizes the relationship of total film production spending to the ultimate net new spending that ultimately occurs in Massachusetts.

For calendar year 2017, out of the total production spending of $349.5 million, the net new spending in the Massachusetts economy was $85.5 million. The total spending's impact on the state economy was reduced due primarily to spending on out of state wages. The net new spending totals are used as inputs for the REMI model to estimate multiplier effects.

Figure 4

Film Production Total Spending vs. Net Increase in MA Spending, 2006 - 2017

($millions)



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. In this way, it captures 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 estimate the impacts of a tax law change on state economic activity and tax revenue collections. The tax revenue changes calculated using the REMI model output can then be compared to the initial cost of the tax incentives to arrive at a net cost to the state.

Table 5 – Dynamic Economic Impacts of Film Incentives 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.

Based on the inputs, as detailed in Table 4, the REMI simulation estimates that Massachusetts state GDP (the most useful measure of economic activity, sometimes called Gross State Product or GSP) increased by $69.9 million in 2016 and $126.4 million in 2017. This was the net gain from the gain due to new film production spending less the loss from state spending cuts resulting from the tax credits. Economic output (a broader, less useful measure of economic activity roughly equivalent to sales, including "sales" of labor) grew by $107.8 million in 2016 and $196.0 million in 2017. The REMI model estimates that the net new economic activity generated by increased film production and reduced state spending required to maintain a balanced budget resulted in additional Massachusetts personal income of $17.0 million in 2016 and $12.0 million in 2017. The significant difference between growth in state GDP and economic output and state personal income ($196.0 million for economic output vs. $126.4 million for state GDP vs. $12.0 million for state personal income in 2017) is caused almost entirely by the large proportion of wage and non-wage spending paid to non-resident employees and non-Massachusetts businesses, which are included in state GDP and state output but not in state personal income. Including the estimated changes for Massachusetts residents employed in other states, estimated full time equivalent employment (FTEs) increased by 737 in 2016 and 1,153 in 2017 (see Table 6), with increases in film-related industries offset by reductions in other industries caused by state spending cuts required to maintain a balanced budget. For Massachusetts residents, full time equivalent employment is estimated to have increased by 409 in 2016 and 585 in 2017.

Table 5 - Dynamic Economic Impacts of Film Incentives - REMI Model Results
Massachusetts Changes from Baseline
(Dollar Amounts are in Millions, Except Where Noted)

		Calendar Years					
		2013	**2014**	**2015**	**2016**	**2017**	**2006-2017**
REMI Inputs - Calculation of Net New MA Spending							
Net New Massachusetts Spending for REMI Input (from Table 4)		**$69.9**	**$80.0**	**$60.0**	**$55.2**	**$85.5**	**$615.5**
REMI Results - Changes from Baseline							
Employment (Resident - Includes Jobs Held in Other States)	a	822	800	731	409	585	**6,341**
Employment (Non-Resident)	b	453.5	506	369	328	569	**4,819**
State GDP[1]	c	134.1	$133.8	$143.0	$69.9	$126.4	**$1,554.5**
Economic Output[2]	d	207.6	$212.2	$223.5	$107.8	$196.0	**$2,516.4**
State Personal Income[3]	e	35.0	$60.1	$63.7	$17.0	$12.0	**$366.9**
State Taxes	**f**	**9.9**	**$11.7**	**$9.8**	**$5.4**	**$9.9**	**$98.9**
From Direct Spending	*f1*	8.4	$8.3	$8.7	$5.5	$10.5	**$92.0**
From Indirect/Induced Spending	*f2*	1.5	$3.3	$1.1	-$0.2	-$0.6	**$6.9**
State Non-Tax Revenue	**g**	0.3	$0.8	$0.5	$0.1	$0.2	**$4.3**
Total State Revenue	**h=f+g**	**10.2**	**$12.4**	**$10.3**	**$5.4**	**$10.0**	**$103.1**
Tax Credits Generated (Not from REMI)	**i**	**$70.6**	**$67.0**	**$69.7**	**$45.7**	**$87.4**	**$755.2**
Additional Tax Loss from Sales Tax Exemption (not from REMI)	**j**	**$0.0**	**$0.0**	**$0.0**	**$0.0**	**$0.0**	**$0.8**
Total Tax Expenditure (not from REMI)	**k=i+j**	**$70.7**	**$67.0**	**$69.7**	**$45.7**	**$87.4**	**$756.0**
$ in State Revenue Per $ of Total Tax Expenditure	**h/k**	**$0.14**	**$0.19**	**$0.15**	**$0.12**	**$0.11**	**$0.14**
Net $ Cost to State	**k-h**	**$60.5**	**$54.6**	**$59.4**	**$40.2**	**$77.4**	**$652.8**
Net Cost to State Per MA Resident Job Created ($)[4]	(k-h)/a	$73,538	$68,211	$81,287	$98,452	$132,362	**$102,945**
Net Cost to State Per MA & Non-MA Job Created ($)[4]	(k-h)/(a+b)	$47,125	$41,205	$54,040	$66,485	$67,100	**$79,896**

[1,2] State GDP and state economic output include non-resident earnings

[3] State personal income excludes non-resident earnings

[4] Includes jobs held by Massachusetts residents working in other states; in dollars per job

Totals may not add due to rounding

Table 6 - Estimated Wages and Number of Full-Time Equivalent Employees (FTEs) Generated by Film Incentives

Gains

Table 6 shows the details of the employment and associated total and median wages. It is estimated that the film credit increased number of FTE Massachusetts residents employed *directly* on film productions by 409 in 2016 and 585 in 2017 as a result of the film incentives (these results are not from the REMI model, but from an analysis of film budgets). Film spending also created 328 direct jobs in 2016 and 567 in 2017 for non-residents. The REMI simulation estimates the number of additional net indirect and induced jobs due to film spending but offset by state spending cuts. Film production spending created an estimated 630 indirect jobs in 2016 and 909 in 2017 for Massachusetts residents, as well as 81 jobs in 2016 and 140 in 2017 for non-residents.

Losses

However, job creation by film spending was offset by the job losses due to state spending cuts to maintain a balanced budget. State spending cuts eliminated an estimated 767 jobs in 2016 and 1,307 jobs in 2017 held by Massachusetts residents, as well as 80 jobs in 2016 and 139 jobs in 2017 held by non-residents.

Table 6 - Estimated Wages and Number of Full-Time Equivalent Employees (FTEs) Generated by Film Incentives

	Calendar Years				
	2013	**2014**	**2015**	**2016**	**2017**
Employment					
Employment (Full-Time Equivalents)	**1,276**	**1,306**	**1,100**	**737**	**1,153**
Employment (Resident)	**822**	**800**	**731**	**409**	**585**
Direct Resident (Employed on Film Productions)	*751*	*699*	*683*	*510*	*920*
Indirect/Induced Jobs Held by MA Residents Due to Film Spending	*723*	*707*	*1019*	*630*	*909*
Indirect/Induced Jobs Lost by MA Residents Due to State Spending Cuts [1]	*-705*	*-624*	*-990*	*-767*	*-1307*
Indirect Jobs Held By MA Residents in Other States	*53*	*19*	*19*	*35*	*63*
Employment (Non-Resident)	**453**	**506**	**369**	**328**	**569**
Direct Non-Resident (Employed on Film Productions)	*450*	*490*	*385*	*328*	*567*
Indirect/Induced Jobs Held by Non-Residents Due to Film Spending	*138*	*134*	*134*	*81*	*140*
Indirect/Induced Jobs Lost by Non-Residents Due to State Spending Cuts [1]	*-134*	*-119*	*-150*	*-80*	*-139*
Total Wages ($ Million)					
Wages (Resident)	**$44.1**	**$60.0**	**$62.6**	**$28.6**	**$35.0**
Direct Resident (Employed on Film Productions) [2]	$55.2	$66.1	$63.1	$45.1	$75.2
Indirect/Induced Jobs Held by MA Residents Due to Film Spending	$46.1	$46.9	$58.0	$48.7	$68.3
Indirect/Induced Jobs Lost by MA Residents Due to State Spending Cuts	-$57.1	-$52.9	-$58.5	-$65.2	-$108.5
Wages (Non-Resident)	**$53.8**	**$60.7**	**$46.8**	**$37.3**	**$60.3**
Direct Non-Resident (<$1 million per worker) [2]	$56.0	$61.9	$48.1	$37.8	$61.3
Indirect/Induced Jobs Held by Non-Residents Due to Film Spending	$8.8	$8.9	$7.6	$6.2	$10.5
Indirect/Induced Jobs Lost by Non-Residents Due to State Spending Cuts	-$10.9	-$10.1	-$8.8	-$6.8	-$11.5
Median Wages ($)[3]					
Direct Resident (Employed on Film Productions)	*$69,350*	*$68,780*	*$74,551*	*$72,299*	*$67,616*
Direct Non-Resident (<$1 million)	*$92,701*	*$92,336*	*$92,283*	*$87,550*	*$86,189*

[1] Film credit program did not require state spending cuts in 2006 due to lag in tax credit claims.

[2] Including wage payments reported as non-wage spending.

[3] a) Indirect/induced jobs are generated from REMI output which does not include information necessary to calcuated median wages.

b) Wage payments reported as non-wage spending, which are not available for individuals, are excluded in calculating median wages.

c) Due to lack of available detailed data, median wages for 2006-2008 are for feature films and for all three years.

d) Median wages for 2009 - 2017 are calculated based on all new projects.

Totals may not add due to rounding.

Wages

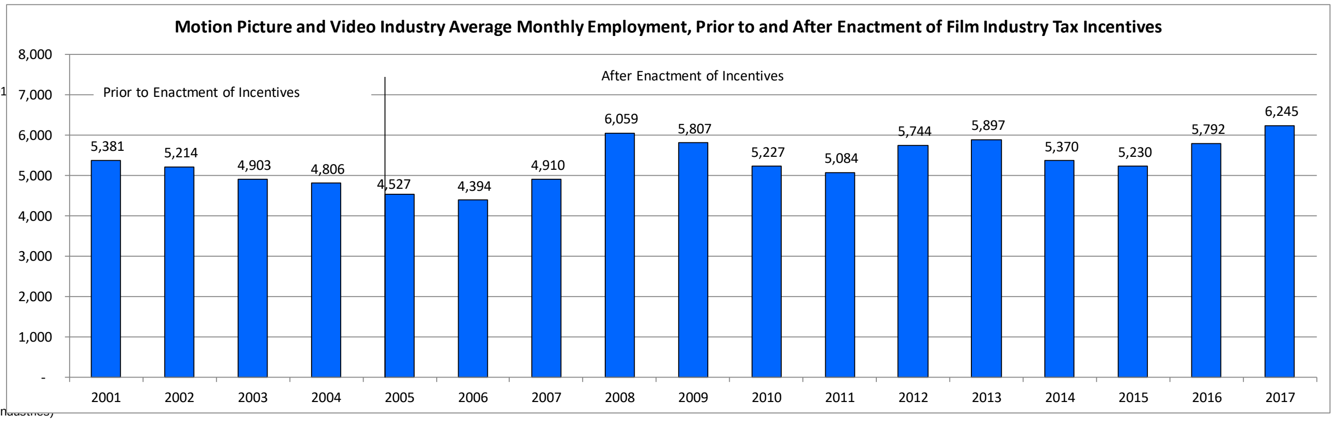
Table 6 shows median annualized wages for direct film jobs (excluding wages of $1 million or more). The median wage was $67,616 for Massachusetts and $86,189 for non-Massachusetts residents in 2017[11]. It should be noted that these annualized wage calculations are considerably higher than the amounts actually paid to employees on film productions, as those employees were generally employed for periods of three months or less, since all film productions are by their nature short-term projects. In many cases, workers on film productions are employed only for a few weeks, or even days.

---

[11] Due to lack of available detailed data for calendar years 2006-2008, median annualized wages for those years are for feature films only and are not available for each year separately. Median wages for 2009 to 2017 are calculated based on all new projects.

To confirm the job 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 particular 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[12]. 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. Starting in January 2008, Screen Actors Guild members were included in the motion picture category, accounting for some of the growth seen in the first half of calendar year 2008. 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, so making comparisons between the pre- and post-January 2008 periods more suggestive than precise.

The chart below shows trends in average monthly film industry employment before and after the film incentives were enacted. Prior to 2006 when the film incentives were implemented, film industry employment had declined from 5,381 in 2001 to 4,527 in 2005. That downward trend continued in 2006 with employment of 4,394. From 2006 to 2008 film industry employment rose, reaching a peak average monthly employment of 6,059 in 2008. Since then film industry employment has increased to 6,245 in 2017, an increase of 3.1%. Over the same time period, 2008-2017, total Massachusetts private employment increased from 2.83 million in 2008 to 3.11 million in 2017, an increase of 10.1%. As noted above, comparisons before and after January 2008 exaggerate growth after 2007. What can be stated is that according to Workforce Development data, film industry employment in Massachusetts (for both residents and non-residents) in 2017 increased by a maximum of 1,851 jobs compared to 2006, and most likely by a smaller amount.



---

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

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 applied known effective tax rates based on those employees' average annualized wages. In calendar year 2017, for employees who were not Massachusetts residents, we estimate that the Commonwealth received approximately $7.0 million in income taxes (mostly withholding taxes) on wages of $142.7 million[13]. For Massachusetts residents we estimate an additional $3.7 million in income taxes was collected on taxable income of $74.1 million[14]. As shown in Table 5 on page 19, taxes on direct film production spending – consisting almost entirely of income tax withholding – totaled $10.5 million in calendar year 2017, and for the 2006-2017 period totaled $92.0 million. In addition to taxes on direct production activity, the REMI model estimates that there was a tax revenue loss of $0.6 million in 2017 from indirect and induced spending impacts (primarily from cuts in state spending), but a tax revenue gain of $6.9 million for the entire 2006-2017 period due to indirect impacts. The REMI model also estimates that $4.3 million in new non-tax revenue was received over the 2006-2017 period, mostly from state fees related to increased economic activity. Total new state revenue (tax and non-tax) is estimated to have been $10.0 million in 2017 and $103.1 million over the 2006-2017 period. Since state tax expenditures totaled $87.4 million in 2017, (virtually all in the $87.4 million in tax credits, as sales tax revenue losses were negligible in 2017), this implies that in calendar year 2017 the state received $0.11 in offsetting revenue for each dollar of tax expenditure. As this figure can be volatile for any one year, overall averages are more meaningful for this statistic; over the 2006-2017 period, total revenues were $103.1 million versus tax expenditures of $756.0 million, implying $0.14 in offsetting revenue for each dollar of tax expenditure[15]. In calendar year 2017, net costs to the state were $77.4 million ($87.4 million in tax expenditures minus $10.0 million in revenue generated). For the 2006-2017 period the cost per net new Massachusetts-resident job created was $102,945 (the net cost to the state divided by the number of net new Massachusetts jobs).

Revenue Loss from 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, commercials, or documentaries 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 the TV productions we assume would have been made in Massachusetts even in the absence of the tax credits. Based on an analysis of the non-wage spending by existing projects, we estimate that sales tax revenue loss was minimal, less than $4,000 in 2017, and only $0.8 million for the 2006 to 2017 period as a result of the sales tax exemption.

Transfers and Refunds of Tax Credits

Distribution of Film Tax Credit Beneficiaries

Table 7A below shows the distribution of tax credit sales by type of end-user. Through December 31, 2018, $649.6 million of the $759.4 million (85.5%) in tax credits generated have been sold to other parties, $324.8 million (42.8%) through tax credit brokers. On average, final users purchased the credits for approximately 90.4% of their face value (see Table 7C). Of the credits applied for through December 31, 2018, $1.2 million (0.2%) were still pending with the Department of Revenue, and had not been issued to production companies for transfer or sale.

---

[13] Including wage payments reported as non-wage spending, such as per diem, petty cash card advances, paid holidays and so on.

[14] Also include wage payments reported as non-wage spending.

[15] The $668.6 million is the rounded sum of $667.8 million in credits claimed plus $0.8 million in sales tax loss (see Table 5).

Table 7A - Distribution of the Benefits of Film Tax Credits Generated During 2006-2017 (in $ Millions)

	Net Benefit ($ Millions)
Total Film Credits Generated	$759.4
Pending Credits Claimed by Production Companies	$1.2
Credits Retained by Production Companies for Tax Refund or Sale*	$105.3
Credits Refunded to Production Companies at 90% of Face Value	$3.3
Face-Value of Credits Sold by Production Companies	**$649.6**
Disposition of Credits Sold by Production Companies	
Face-Value of Credits Sold by Production Companies	$649.6
Sale Proceeds Paid to Production Companies from Brokers	$324.8
All other Sale Proceeds Paid to Production Companies	$250.1
Sale Proceeds of Credits Paid to Production Companies	**$574.9**
**Credit Value Accruing to Final Purchasers of Tax Credits	$61.8

*Through 12/31/18. May be sold / used in future transactions.

**Does not include estimated $12.9 million in benefits accruing to Brokers, see Table 7B.

Totals may not add due to rounding

Transfers vs. Refunds of Tax Credits

As noted earlier in this report, production companies shooting films in the Commonwealth frequently report little or no tax liability in Massachusetts. Typically, claimants sell their tax credits to taxpayers who can then use them. While filers also have the option of claiming a refund for their credits at 90% of their face value, only $3.3 million in credits have been submitted for a refund. This use of the 90% refundable option reduced the state's revenue loss by $0.3 million 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%).

Table 7B - Benefits Accruing to Brokers for Film Tax Credits Generated During 2006-2017 (in $ Millions)

	Credits Used	Credits Resold	Total Benefits
Face Value Credits Purchased	$397.2		
Face Value Credits Re-sold	$390.0		
Credits Retained/Used by Brokers	$7.1		
Brokers Selling Price		$365.6	
Brokers Buying Price		$359.8	
Broker Net Profit on Re-sold Credits		$5.8	
Benefits Accruing to Brokers:	$7.1	$5.8	**$12.9**

Benefits Accruing to Final Purchaser
As Table 7C shows, insurance companies have been the primary final user of film credits.

Table 7C - Benefits Accruing to Final Purchasers for Film Tax Credits Generated During 2006-2017 (in $ Millions)

	Credit Value:	Purchase Price:	Net Benefit:	Price/credit:
Insurance Companies	$374.6	$353.1	$21.4	94.3%
Financial Institutions	$57.6	$52.7	$4.9	91.5%
Corporations	$186.3	$159.4	$26.9	85.6%
Individuals	$24.1	$15.5	$8.6	64.2%
***Total**	**$642.5**	**$580.7**	**$61.8**	**90.4%**

*"Total" of $642.5 million, plus Broker-used credits of $7.1 million equals
the $649.6 million sold by Production companies in Table 7A

Other Considerations

Studio Construction within Massachusetts

According to the media reports, construction of a production facility, the New England Studio (the Studio), was begun in Devens, Massachusetts towards the end of 2012, and completed by September of 2013.[16] According to published reports, the studio had total construction costs of $36 million. Construction of a studio would have two levels of economic impact:

- A short term impact from the actual constructions; and
- A longer term impact on film production, possibly attracting more spending in state.

---

[15] See the description of the New England Studio project at https://www.massdevelopment.com/news/new-england-studios-breaks-ground-on-devens-state-of-the-art-film-and-telev/ and at http://www.telegram.com/article/20131126/NEWS/311269794/1101

It has been suggested that the construction of filming studios within Massachusetts would make the state more attractive to film producers, increasing filming activity.

As for the short term impact, unlike the data provided by applicants for the film credit, DOR does not have direct access to this project's construction data. However, using information in public reports, we employed the REMI model to estimate what the economic impact might have been of a construction project of this type, if it had in fact spent $36 million. Construction projects tend to have more local impact than big film projects as a relatively higher portion of wage and material spending occurs in the local economy. A typical construction project of $36 million would be expected to increase the state's output by $64.7 million which includes a personal income increase of $28.0 million. Income, sales and other taxes would typically increase by $1.9 million as a result of this level of activity. These would be one-time increases, for the duration of the construction project. Note that these estimates are not a full analysis of the studio's impact, which requires more detailed data on the studio, but are presented to provide context.

The construction potential impacts outlined here would be in addition to the actual economic impacts such as those evaluated in tables 5 and 6 of this report. For these longer term impact of a new studio, it should be noted that the methodology used for this report already captures all of the in-state economic activity generated by new filming wage and non-wage spending. This is because our data methodology begins with the detailed spending data submitted by the film projects themselves. Therefore, any increase in filming activity that results from new studio activity will automatically be incorporated into the current report's results.

Economic Activity Generated by Movie-Induced Tourism

As was the case in DOR's previous analyses, we have not included the impact of potential increase in economic activity resulting from greater exposure of the Commonwealth through films and other productions that are made in Massachusetts. It has been suggested that having high-profile movie and television actors in the Commonwealth for extended periods of time might be tantamount to advertising. However, DOR is not aware of any published and peer-reviewed study from a non-interested party, measuring the direct and indirect impact of film credit-induced tourism in an unbiased, objective manner. In fact, there have been some reports indicating that the findings and methodologies of those that do exist are found to be controversial or "biased" (for example see http://www.cbpp.org/files/11-17-10sfp.pdf).

As we outlined and explained in great detail in an earlier film credit report (Pages 22 and 23 of https://www.mass.gov/doc/dor-report-on-the-impact-of-massachusetts-film-industry-tax-incentives-through-calendar-year-5/download), we are not aware of any model that can reliably estimate such impacts. The actual impact would 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. Obviously, such a study would also have the task of accurately measuring these and other important factors affecting tourism industry, and be able to isolate impacts due to a particular film and/or films on tourism. We would welcome such studies that take into account of all these factors, addressing all these concerns and measurement issues, as well some other issues that we addressed in our earlier reports (location considerations, correlation between the success of a movie to particular visitor, and its net dollar impact, etc.).

Appendix

Summary Tables and Graphs displaying All Years

Tables 2A, 2B and 2C - Total Massachusetts Production Spending Eligible for Film Tax Credits

Table 2A - Total Number of Massachusetts Productions by Type of Film Project, 2006 - 2017

	Calendar Years												
Type of Film Projects	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2006 to 2017
Total Productions by Year	**97**	**125**	**162**	**107**	**121**	**114**	**130**	**129**	**146**	**121**	**142**	**148**	**1,542**
Feature Films	*7*	*14*	*20*	*14*	*8*	*14*	*16*	*13*	*14*	*24*	*14*	*14*	***172***
Commercials/Advertising	*45*	*53*	*87*	*54*	*64*	*61*	*55*	*49*	*70*	*44*	*70*	*69*	***721***
Television Series	*27*	*31*	*29*	*26*	*30*	*27*	*39*	*37*	*36*	*34*	*36*	*49*	***401***
Documentaries/Other	*18*	*27*	*26*	*13*	*19*	*12*	*20*	*30*	*26*	*19*	*22*	*16*	***248***

Table 2B - Total Massachusetts Production Spending Eligible for Film Tax Credits, 2006-2017
(Dollar Amounts are in Millions)

	Calendar Years												
Category of Spending	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2006 to 2017
Total Wages	$45.1	$113.7	$306.2	$209.4	$47.2	$130.0	$214.4	$186.8	$182.7	$190.1	$118.9	$229.0	**$1,973.7**
Wages $1 Million & Over	*	*	*$133.6*	*$82.0*	*	*$54.3*	*$83.5*	*$62.2*	*$60.2*	*$69.0*	*$29.9*	*$81.9*	**$706.0**
Wages Under $ 1 Million	*	*	*$172.6*	*$127.4*	*	*$75.7*	*$130.9*	*$124.6*	*$122.5*	*$121.0*	*$89.0*	*$147.1*	**$1,267.6**
Set Construction	$1.2	$4.7	$23.7	$19.4	$1.0	$4.2	$6.2	*$2.6*	*$3.7*	*$3.9*	*$2.8*	*$3.8*	**$77.1**
Location Fees	$9.3	$10.7	$42.0	$37.3	$8.4	$13.0	$33.7	*$31.1*	*$30.8*	*$29.7*	*$22.8*	*$42.7*	**$311.6**
Unclassified/Other	$30.8	$30.6	$109.0	$74.8	$19.7	$47.3	$73.5	*$63.3*	*$56.7*	*$60.7*	*$42.3*	*$74.0*	**$682.7**
Totals	**$86.4**	**$159.8**	**$481.0**	**$340.9**	**$76.3**	**$194.5**	**$327.8**	**$283.8**	**$274.0**	**$284.3**	**$186.8**	**$349.5**	**$3,045.1**
Of Which Spent on:													
MA Resident/Business ($)	**$30.3**	**$47.5**	**$153.0**	**$110.6**	**$46.7**	**$67.9**	**$112.4**	**$119.9**	**$124.9**	**$122.9**	**$96.2**	**$163.2**	**$1,195.5**
Non-MA Resident/Business ($)	**$56.1**	**$112.3**	**$328.0**	**$230.3**	**$29.6**	**$126.6**	**$215.4**	**$163.9**	**$149.1**	**$161.4**	**$90.5**	**$186.3**	**$1,849.5**
MA Resident/Business (%)	**35%**	**30%**	**32%**	**32%**	**61%**	**35%**	**34%**	**42%**	**46%**	**43%**	**52%**	**47%**	**39%**
Non-MA Resident/Business (%)	**65%**	**70%**	**68%**	**68%**	**39%**	**65%**	**66%**	**58%**	**54%**	**57%**	**48%**	**53%**	**61%**

*Data hidden to protect taxpayer confidentiality
Detail may not add to total due to rounding

Table 2C - % of Total Production Spending by Type of Film Project, 2006-2017
(Dollar Amounts are in Millions)

	Calendar Years												
	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2006 to 2017
Total Productions Spending	**$90.0**	**$158.8**	**$482.8**	**$337.4**	**$77.1**	**$195.5**	**$327.6**	**$283.6**	**$274.0**	**$284.3**	**$186.8**	**$349.5**	**$3,047.5**
Feature Films	65%	79%	89%	90%	35%	83%	83%	78%	79%	82%	82%	71%	80%
Commercials/Advertising	8%	6%	3%	3%	13%	4%	3%	3%	4%	3%	6%	4%	4%
Television Series	21%	12%	6%	6%	35%	11%	13%	16%	16%	13%	10%	24%	13%
Documentaries/Other	6%	4%	2%	1%	17%	1%	2%	3%	2%	2%	2%	1%	2%

Table 4 – Calculation of Increase in Massachusetts Local Spending Due to Film Tax Incentives

Table 4 - Calculation of Increase in Massachusetts Local Spending Due to Film Tax Incentives
(Dollar Amounts are in Millions)

	Calendar Years												
	2006	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2006 to 2017**
Film Production Total Spending	**$86.4**	**$159.8**	**$481.0**	**$340.9**	**$76.3**	**$194.5**	**$327.8**	**$283.8**	**$274.0**	**$284.3**	**$186.8**	**$349.5**	**$3,045.1**
Minus Spending In Absence of Tax Incentives	($25.5)	($27.1)	($32.1)	($21.9)	($30.0)	($16.9)	($18.5)	($16.4)	($12.8)	($21.5)	($11.1)	($12.5)	**($246.3)**
Minus Adjustment for Non-Resident Wages[1]	($19.9)	($78.4)	($236.1)	($148.8)	($9.1)	($84.8)	($144.5)	($114.5)	($103.9)	($111.5)	($63.3)	($139.7)	**($1,254.4)**
Minus Non-Wage Spending on Non-MA Vendors	($17.2)	($18.6)	($83.0)	($62.9)	($6.2)	($27.4)	($59.0)	($38.1)	($33.6)	($36.8)	($23.0)	($41.6)	**($447.4)**
New Massachusetts Film Spending from Incentives	**$23.9**	**$35.7**	**$129.8**	**$107.3**	**$31.1**	**$65.4**	**$105.9**	**$114.7**	**$123.6**	**$114.5**	**$89.4**	**$155.8**	**$1,097.0**
Minus Reduced MA Spending to Balance Budget[2]	$1.4	($6.6)	($55.4)	($74.8)	($40.8)	($22.5)	($35.3)	($44.8)	($43.6)	($54.4)	($34.1)	($70.3)	**($481.4)**
Net Increase in Massachusetts Local Spending	**$25.2**	**$29.1**	**$74.3**	**$32.6**	**($9.8)**	**$42.8**	**$70.6**	**$69.9**	**$80.0**	**$60.0**	**$55.2**	**$85.5**	**$615.5**
New Massachusetts Spending as a % of Total	27.6%	22.3%	27.0%	31.5%	40.7%	33.6%	32.3%	40.4%	45.1%	40.3%	47.9%	44.6%	**36.0%**

[1] Includes all non-resident wages over $1 million per person plus 95% of non-resident wages under $1 million per person.

[2] Net of taxes generated by film production and state spending cuts borne by non-residents or out-of-state businesses.

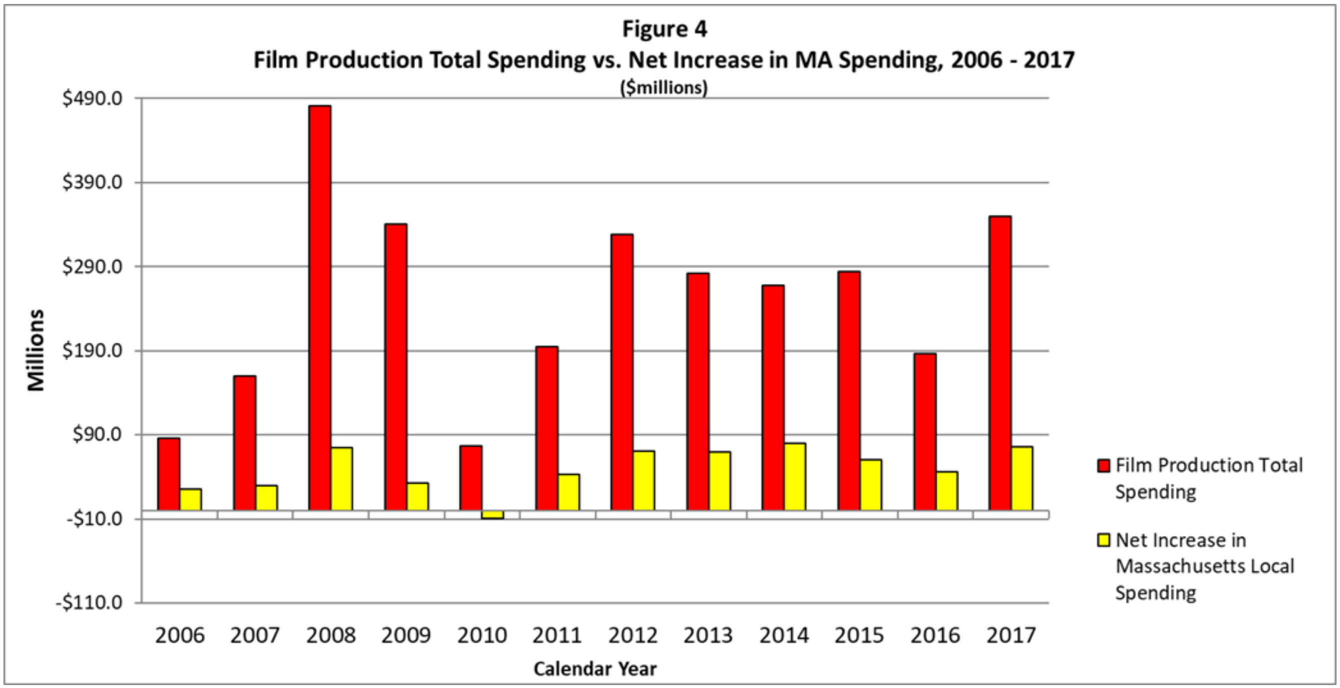


Figure 4
Film Production Total Spending vs. Net Increase in MA Spending, 2006 - 2017
($millions)

Table 5 – Dynamic Economic Impacts of Film Incentives

Table 5 - Dynamic Economic Impacts of Film Incentives - REMI Model Results
Massachusetts Changes from Baseline
(Dollar Amounts are in Millions, Except Where Noted)

		Calendar Years												
		2006	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2006-2017**
REMI Inputs - Calculation of Net New MA Spending														
Net New Massachusetts Spending for REMI Input (from Table 4)		**$25.2**	**$29.1**	**$74.3**	**$32.6**	**-$9.8**	**$42.8**	**$70.6**	**$69.9**	**$80.0**	**$60.0**	**$55.2**	**$85.5**	**$615.5**
REMI Results - Changes from Baseline														
Employment (Resident - Includes Jobs Held in Other States)	a	314	352	795	222	50	538	724	822	800	731	409	585	**6,341**
Employment (Non-Resident)	b	137	308	679	364	40	383	684	453	506	369	328	569	**4,819**
State GDP[1]	c	$48.9	$107.3	$311.1	$168.9	$4.4	$120.5	$186.1	$134.1	$133.8	$143.0	$69.9	$126.4	**$1,554.5**
Economic Output[2]	d	$85.0	$152.0	$507.6	$327.8	$56.5	$199.4	$241.0	$207.6	$212.2	$223.5	$107.8	$196.0	**$2,516.4**
State Personal Income[3]	e	$16.5	$22.9	$51.1	$25.4	-$0.3	$27.5	$36.0	$35.0	$60.1	$63.7	$17.0	$12.0	**$366.9**
State Taxes	**f**	**$2.4**	**$5.5**	**$16.7**	**$10.0**	**$1.0**	**$6.7**	**$10.1**	**$9.9**	**$11.7**	**$9.8**	**$5.4**	**$9.9**	**$98.9**
From Direct Spending	*f1*	$1.6	$5.0	$15.6	$11.1	$1.4	$6.1	$9.7	$8.4	$8.3	$8.7	$5.5	$10.5	**$92.0**
From Indirect/Induced Spending	*f2*	$0.7	$0.5	$1.1	-$1.1	-$0.4	$0.6	$0.3	$1.5	$3.3	$1.1	-$0.2	-$0.6	**$6.9**
State Non-Tax Revenue	**g**	$0.3	$0.3	$0.8	$0.4	$0.1	$0.4	$0.2	$0.3	$0.8	$0.5	$0.1	$0.2	**$4.3**
Total State Revenue	**h=f+g**	**$2.6**	**$5.9**	**$17.5**	**$10.4**	**$1.0**	**$7.1**	**$10.3**	**$10.2**	**$12.4**	**$10.3**	**$5.4**	**$10.0**	**$103.1**
Tax Credits Generated (Not from REMI)	**i**	**$19.4**	**$39.9**	**$120.4**	**$85.3**	**$19.2**	**$48.6**	**$82.0**	**$70.6**	**$67.0**	**$69.7**	**$45.7**	**$87.4**	**$755.2**
Additional Tax Loss from Sales Tax Exemption (not from REMI)	**j**	**$0.0**	**$0.1**	**$0.3**	**$0.1**	**$0.1**	**$0.1**	**$0.1**	**$0.0**	**$0.0**	**$0.0**	**$0.0**	**$0.0**	**$0.8**
Total Tax Expenditure (not from REMI)	**k=i+j**	**$19.5**	**$40.0**	**$120.7**	**$85.4**	**$19.3**	**$48.6**	**$82.0**	**$70.7**	**$67.0**	**$69.7**	**$45.7**	**$87.4**	**$756.0**
$ in State Revenue Per $ of Total Tax Expenditure	**h/k**	**$0.13**	**$0.15**	**$0.14**	**$0.12**	**$0.05**	**$0.15**	**$0.13**	**$0.14**	**$0.19**	**$0.15**	**$0.12**	**$0.11**	**$0.14**
Net $ Cost to State	**k-h**	**$16.9**	**$34.1**	**$103.2**	**$75.0**	**$18.2**	**$41.5**	**$71.8**	**$60.5**	**$54.6**	**$59.4**	**$40.2**	**$77.4**	**$652.8**
Net Cost to State Per MA Resident Job Created ($)[4]	(k-h)/a	$53,695	$97,014	$129,733	$337,923	$367,207	$77,232	$99,131	$73,538	$68,211	$81,287	$98,452	$132,362	**$102,945**
Net Cost to State Per MA & Non-MA Job Created ($)[4]	(k-h)/ (a+b)	$37,419	$51,738	$70,003	$128,090	$204,167	$45,101	$50,866	$47,125	$41,205	$54,040	$66,485	$67,100	**$79,896**

[1,2] State GDP and state economic output include non-resident earnings

[3] State personal income excludes non-resident earnings

[4] Includes jobs held by Massachusetts residents working in other states; in dollars per job

Totals may not add due to rounding

Table 6 - Estimated Wages and Number of Full-Time Equivalent Employees (FTEs) Generated by Film Incentives

Table 6 - Estimated Wages and Number of Full-Time Equivalent Employees (FTEs) Generated by Film Incentives

	Calendar Years											
	2006	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**
Employment												
Employment (Full-Time Equivalents)	**450**	**660**	**1,474**	**586**	**89**	**921**	**1,408**	**1,276**	**1,306**	**1,100**	**737**	**1,153**
Employment (Resident)	**314**	**352**	**795**	**222**	**50**	**538**	**724**	**822**	**800**	**731**	**409**	**585**
Direct Resident (Employed on Film Productions)	*100*	*190*	*600*	*473*	*188*	*415*	*679*	*751*	*699*	*683*	*510*	*920*
Indirect/Induced Jobs Held by MA Residents Due to F	*207*	*291*	*1088*	*876*	*429*	*447*	*581*	*723*	*707*	*1019*	*630*	*909*
Indirect/Induced Jobs Lost by MA Residents Due to St	*28*	*-133*	*-1085*	*-1421*	*-749*	*-394*	*-569*	*-705*	*-624*	*-990*	*-767*	*-1307*
Indirect Jobs Held By MA Residents in Other States	*-21*	*4*	*193*	*294*	*181*	*70*	*34*	*53*	*19*	*19*	*35*	*63*
Employment (Non-Resident)	**137**	**308**	**679**	**364**	**40**	**383**	**684**	**453**	**506**	**369**	**328**	**569**
Direct Non-Resident (Employed on Film Productions)	*105*	*286*	*673*	*430*	*82*	*380*	*682*	*450*	*490*	*385*	*328*	*567*
Indirect/Induced Jobs Held by Non-Residents Due to I	*28*	*40*	*147*	*118*	*55*	*54*	*110*	*138*	*134*	*134*	*81*	*140*
Indirect/Induced Jobs Lost by Non-Residents Due to S	*4*	*-17*	*-141*	*-185*	*-97*	*-51*	*-108*	*-134*	*-119*	*-150*	*-80*	*-139*
Total Wages ($ Million)												
Wages (Resident)	**$16.7**	**$24.4**	**$56.6**	**$32.3**	**$1.4**	**$30.2**	**$44.5**	**$44.1**	**$60.0**	**$62.6**	**$28.6**	**$35.0**
Direct Resident (Employed on Film Productions) [2]	$8.7	$18.2	$55.2	$51.4	$13.8	$28.4	$52.6	$55.2	$66.1	$63.1	$45.1	$75.2
Indirect/Induced Jobs Held by MA Residents Due to Fil	$7.0	$10.8	$41.3	$36.4	$19.8	$20.2	$37.3	$46.1	$46.9	$58.0	$48.7	$68.3
Indirect/Induced Jobs Lost by MA Residents Due to Stat	$1.0	-$4.7	-$39.9	-$55.6	-$32.2	-$18.4	-$45.4	-$57.1	-$52.9	-$58.5	-$65.2	-$108.5
Wages (Non-Resident)	**$22.3**	**$45.7**	**$135.3**	**$88.4**	**$7.8**	**$34.9**	**$62.5**	**$53.8**	**$60.7**	**$46.8**	**$37.3**	**$60.3**
Direct Non-Resident (<$1 million per worker) [2]	$21.2	$44.8	$134.9	$90.7	$9.5	$34.9	$64.0	$56.0	$61.9	$48.1	$37.8	$61.3
Indirect/Induced Jobs Held by Non-Residents Due to Fi	$0.9	$1.5	$5.6	$4.9	$2.5	$2.4	$7.1	$8.8	$8.9	$7.6	$6.2	$10.5
Indirect/Induced Jobs Lost by Non-Residents Due to Sta	$0.1	-$0.6	-$5.2	-$7.2	-$4.2	-$2.4	-$8.6	-$10.9	-$10.1	-$8.8	-$6.8	-$11.5
Median Wages ($) [3]												
Direct Resident (Employed on Film Productions)	*$67,775 for the 2006-2008 Period*			*$51,116*	*$74,880*	*$70,657*	*$61,176*	*$69,350*	*$68,780*	*$74,551*	*$72,299*	*$67,616*
Direct Non-Resident (<$1 million)	*$98,598 for the 2006-2008 Period*			*$104,637*	*$86,667*	*$72,808*	*$71,500*	*$92,701*	*$92,336*	*$92,283*	*$87,550*	*$86,189*

[1] Film credit program did not require state spending cuts in 2006 due to lag in tax credit claims.

[2] Including wage payments reported as non-wage spending.

[3] a) Indirect/induced jobs are generated from REMI output which does not include information necessary to calcuated median wages.

b) Wage payments reported as non-wage spending, which are not available for individuals, are excluded in calculating median wages.

c) Due to lack of available detailed data, median wages for 2006-2008 are for feature films and for all three years.

d) Median wages for 2009 - 2016 are calculated based on all new projects.

Totals may not add due to rounding.