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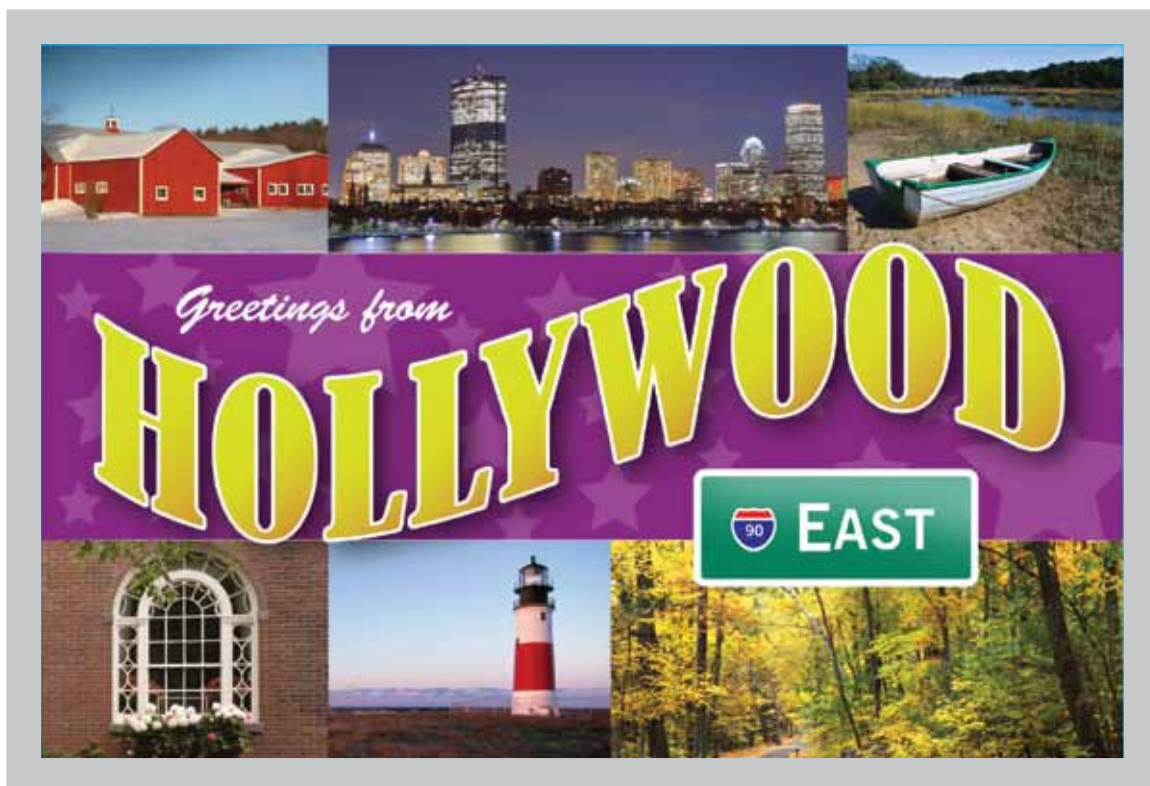


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Film and Television Production in Massachusetts: The Beginning of Hollywood East?

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A FILM TAX CREDIT OF 25% HAS HELPED ENERGIZE FILM AND TELEVISION PRODUCTION IN THE BAY STATE WITH IMPLICATIONS FOR EMPLOYMENT AND GROSS DOMESTIC PRODUCT.

After declining in the 1990s (Laubacher, 2006), the Massachusetts film and television industry reached a nadir with the closing of the Massachusetts Film Office in 2002.¹ To revitalize this once-thriving local creative industry, in 2005 the state legislature passed a tax incentive plan that provided a bankable tax credit for qualifying motion picture and television productions in Massachusetts. As updated in 2007, the Massachusetts Film Tax Credit (FTC) provides a refundable/transferrable tax credit for 25% of qualifying wage and non-wage production expenses and

a sales tax exemption for qualifying in-state spending. Massachusetts joined, at the maximum, 43 other states in offering some sort of a tax incentive for film production companies. As many states are now facing severe budgetary challenges, these credits are being reexamined and in some cases suspended or even rescinded. There have been several hearings recently at the Massachusetts statehouse related to the credit and the Massachusetts Department of Revenue released a study in 2009 that carefully assessed its annual costs and benefits in terms of tax revenues (DOR,

2009). However, at the bottom of much of the debate is whether or not Massachusetts has a niche in film production and whether the credit has helped to create or expand this niche.

The primary purpose of the film tax credit is to stimulate film and television production in Massachusetts. However, to build a permanent and stable film and television industry requires that policy makers consider annual returns on investment as well as aggregate industry trends, local workforce development and career paths, infrastructure development and the growth of local film service industries. They should also address variations in production practices and linkages among the industry’s subsectors within this industry and employment trends in each. Finally, it is important to identify whether the Commonwealth has a set of unique resources that can put substance behind the aspiration of becoming a permanent center of film and television production in the United States.

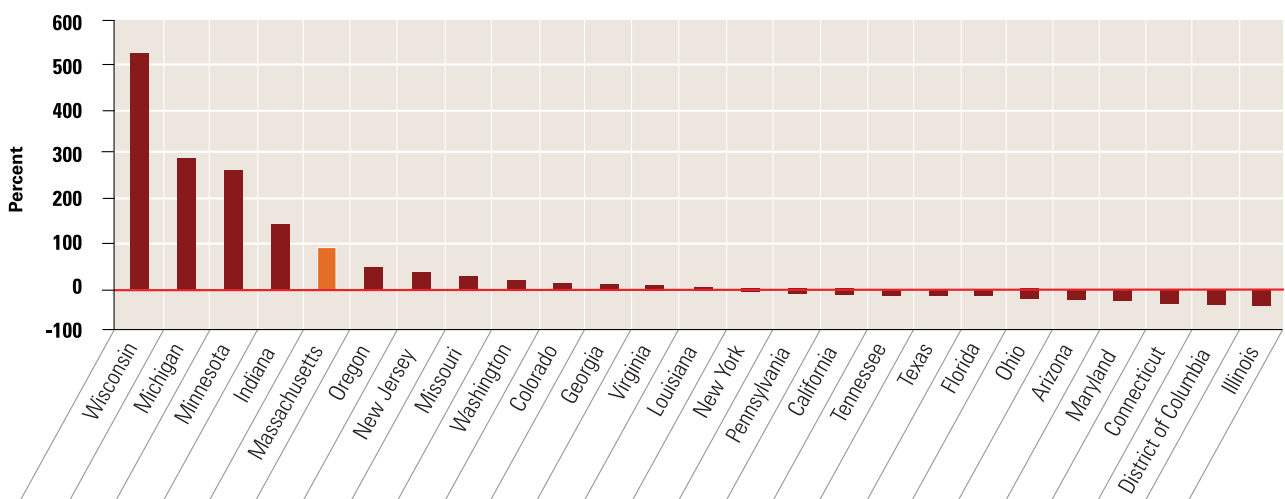
This paper is based on a much longer report that describes the structure and recent growth of the film and television industry in Massachusetts (Foster and Terkla, 2010). We begin with a discussion of national trends in this industry and find that Massachusetts is one of the fastest growing locations for film and television production in the United States. We then discuss recent employment trends in this sector and find that there has been significant recent growth in the number of local film and television production jobs — particularly among the unionized crew and actors who staff local productions. Examination of federal data reveals that between 2005 and 2008 there was 117% and 126% growth in Massachusetts employment in the motion picture and video production and postproduction industries, respectively. Using network and geographic modeling tools, we also identify novel patterns in the nonwage spending of local film and television

productions. We continue with a discussion of growth trends across several subsectors of the local film and television sector and find that several are growing rapidly. We conclude that it is reasonable to expect that Massachusetts could continue to develop a substantial niche in film and television production that builds on its existing active film and television sectors.

While Massachusetts does not currently capture a large percentage of national film and television production spending, the industry in Massachusetts seems to be growing more rapidly than in other states (some of which have more generous tax programs) and capturing work that might otherwise be taking place elsewhere. Figure 1 uses data from the Motion Picture Association of America (2009) to chart the percentage change in the number of film and television productions in the top 25 most active states in the United States between 2007 and 2008. During this time, work declined in traditional centers like California and New York and grew rapidly in states like Georgia, Indiana, Massachusetts, Michigan, Minnesota, and Wisconsin. According to these data, Massachusetts had the fifth largest growth rate among the top 25 most active states in the country. It is also clear that several states with active tax incentive and infrastructure development programs (and with more generous incentives than Massachusetts) are not among the top 25 most active states according to the MPAA (2009). Care is warranted in interpreting these data, given that the magnitude of changes in states like Wisconsin was driven in large part by their very small number of productions as a baseline in 2007.

National employment data provide additional support for the notion that Massachusetts is among the most active and rapidly growing states in the nation for film and television production. Using data from the *Quarterly Census of Employment and Wages*, published by the Bureau

Figure 1. Percentage Change in Film and Television Productions, 2007 – 2008



Source: Motion Picture Association of America

of Labor Statistics, we examined recent employment trends in the 15 states with the most film and television workers in 2008. Table 1 presents the average employment in these states between 2001 and 2008. During the period encompassing the enactment of the FTC in Massachusetts (2005-2008), total employment in the NAICS code 5121 (Motion Picture and Video Industries) in Massachusetts increased 33%. This represents the largest percentage growth between 2005 and 2008 of any state among the 15 with the most motion picture and video employees in 2008. This is notable given that states with much more generous credits like Michigan (which offers between 30-42% on qualified expenses) actually experienced a decline in film and television employment during this period.

These aggregate national employment and production data confirm the widespread reports from industry participants (as well as the frequent coverage of Hollywood star sightings in local papers) that Massachusetts is becoming a favored location for Hollywood productions. In this article, we look beneath these national trends to discuss local employment in the Massachusetts film and television industry.

Labor Market Structure

Before analyzing trends in Massachusetts film and television industry employment, it is important to first describe the primary labor pools used in film and television industry production. This is a highly unionized and project-based industry in which labor, services, and material are organized through loosely connected networks that coalesce temporarily around specific productions. While smaller and independent productions sometimes rely on non-unionized employees, large studio productions hire their technical employees from one of two international unions, the International Alliance of Theatrical Stage Employees (IATSE) and the International Brotherhood of Teamsters (IBT).

In each of these crafts, relatively senior craftspeople assemble crews who work together on a semi-regular basis and move from job to job. In this respect, the technical labor required for film production is organized like the construction industry and other trades. IATSE Local 481’s Massachusetts membership has more than doubled in recent years, increasing from 237 in 2005 to 585 in 2008. According to the IATSE, total annual wages earned by these workers increased ten-fold over the same

Figure 1. Motion Picture and Video Industries: Average Annual Employment

State	2001	2002	2003	2004	2005	2006	2007	2008	% Change '05-'08
CA	118,889	142,027	137,728	155,656	146,635	145,830	145,627	149,778	2.14
NY	51,399	46,198	41,202	40,137	41,821	41,827	41,717	43,393	3.76
TX	15,057	15,717	16,312	15,190	14,914	15,079	14,631	14,548	(2.45)
FL	14,943	14,646	14,112	13,128	13,395	13,121	13,580	12,390	(7.50)
IL	10,098	9,899	9,431	9,155	9,391	9,267	9,432	9,233	(1.68)
PA	6,756	6,837	6,858	6,705	6,690	6,465	6,665	7,007	4.74
TN	6,869	6,574	6,751	6,606	6,592	6,666	6,699	6,998	6.16
NJ	6,289	6,900	6,305	6,480	6,679	6,831	6,813	6,475	(3.05)
MA	5,381	5,214	4,903	4,802	4,530	4,390	4,885	6,048	33.51
GA	6,517	7,744	6,446	6,124	6,037	5,926	5,834	5,820	(3.59)
MI	6,587	6,843	6,584	6,560	6,341	6,061	5,976	5,807	(8.42)
OH	7,115	6,577	6,276	6,107	6,003	5,835	5,837	5,496	(8.45)
WA	4,757	4,441	4,390	4,507	4,571	4,858	5,013	5,228	14.37
LA	2,120	2,140	2,843	3,448	3,941	3,454	4,358	5,196	31.84
VA	5,075	5,057	4,764	4,867	4,720	4,805	5,146	4,431	(6.12)
AZ	3,645	4,009	3,852	3,848	3,868	3,919	4,239	4,413	14.09
MD	3,245	3,544	3,715	4,106	4,192	4,169	4,463	4,372	4.29
NC	4,430	4,147	4,240	4,267	4,200	4,161	4,292	4,245	1.07
UT	4,896	4,822	4,730	4,320	4,569	4,414	3,931	4,092	(10.44)
MN	5,025	4,886	4,749	4,590	4,423	4,252	4,124	4,023	(9.04)

Source: Bureau of Labor Statistics, Quarterly Census of Employment and Wages, NAICS 5121

period, growing from approximately \$3 million in 2005 to \$30 million in 2008. There have been similar rates of membership and wage growth in other Massachusetts IATSE locals.

Aggregate State Employment Trends

Four five-digit NAICS codes make up the 5121 Motion Picture and Video Industries category analyzed above. Of these, two capture production activities (Motion Picture and Video Production 51211 and Post Production Services and Other Motion Picture and Video industries 51219). We focus on these two primary codes below. In addition to the two primary film industry NAICS codes, we also explore employment trends in two sectors that likely contain significant numbers of film and television industry workers — 541214 (Payroll Services) and 71151 (Independent Artists, Writers & Performers). Because of the large number of freelance employees in this sector, film and television productions typically use payroll services to manage withholdings and distribute wages to the cast and crew.²

Between 2008 and 2009, Massachusetts experienced significant job losses (with the state unemployment rate increasing from 4.9% in May 2008 to over 8% in May 2009) caused by contraction in the local and national economies. Although overall employment in Massachusetts dropped 3.2% between March 2008 and March

2009, jobs in the film and television production sector grew rapidly during the same period.

Between 2005 and the third quarter of 2008, the number of motion picture production employees (NAICS 51212), postproduction and other employees (NAICS 51219), and independent artists (NAICS 7115) in the Commonwealth grew 117%, 126% and 8%, respectively (Table 2 and Figure 2 below). The substantial growth in NAICS 51219 (postproduction and other) is notable, because established local companies are doing some of this work. In addition, the Payroll Services sector grew substantially into 2007, which was before relevant firms were reclassified into NAICS 51212, so some of this growth may reflect growth in the film industry. Moreover, as noted above, reclassification is still ongoing, which means that some of the 2008 figures for NAICS 541214 still represent film industry activity.

Although the number of establishments has not grown as rapidly as employment, this may be caused by the widespread use of freelance labor in this sector and because local film service companies have grown to meet new demand. Also, motion picture production and independent artists are very high-wage sectors and postproduction has vacillated between high and relatively low average wages.

Some caveats are in order when interpreting these data. First, because QCEW data do not contain free-

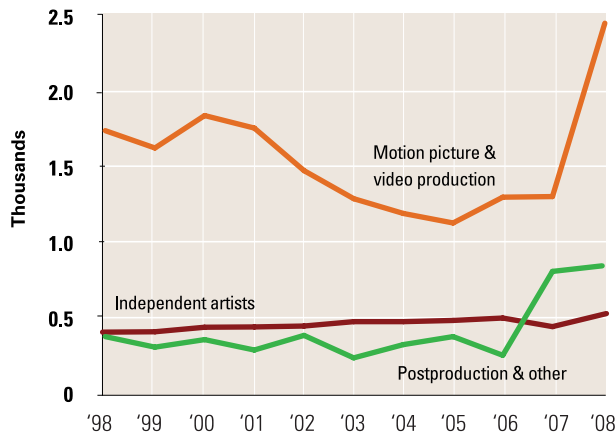
Table 2. Film and Television Industry in Massachusetts: Average Annual Establishments, Employment and Wages

	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	% Change '05-'08
Average Annual Establishments												
Motion picture & video	319	316	326	311	308	293	297	297	272	273	298	0
Postproduction	34	31	35	36	33	30	30	32	28	30	31	(3)
Payroll services	182	160	162	172	163	164	180	177	172	190	187	6
Independent artists	169	178	188	196	213	236	259	255	240	249	258	1
Annual Average Employment												
Motion picture & video	1,736	1,621	1,836	1,753	1,471	1,285	1,187	1,124	1,295	1,299	2,439	117
Postproduction	371	301	351	282	379	230	318	371	247	803	840	126
Payroll services	5,637	5,106	5,171	4,950	4,436	3,857	4,038	2,524	2,945	3,207	3,250	29
Independent artists	404	403	433	435	441	470	470	478	494	437	514	8
Annual Average Wages												
Motion picture & video	42,840	45,453	50,103	50,700	48,624	51,370	54,415	57,695	60,527	60,598	61,225	6
Postproduction	31,648	39,477	46,471	49,301	30,932	49,953	35,728	34,953	51,986	18,086	19,437	(44)
Payroll services	53,483	55,172	60,328	64,280	62,116	62,017	63,511	59,807	59,353	68,066	75,789	27
Independent artists	51,932	53,316	49,426	72,815	58,239	57,321	65,151	64,733	63,995	78,538	94,316	46

Note: Abbreviated NAICS category names are used in this table. Their full descriptions and codes are as follows: motion picture & video production (51211), postproduction & other (51219), payroll services (541214) and independent artists (7115).

Source: Bureau of Labor Statistics, Quarterly Census of Employment and Wages

Figure 2. Film and Television Industry in Massachusetts: Average Annual Employment, 1998 – 2008



Source: Bureau of Labor Statistics, Quarterly Census of Employment and Wages

lance employees (which account for a large proportion of the workforce in this industry), they may underestimate aggregate employment in the sector. Second, some of the large percentage increases are partially a reflection of the small base of employees in these sectors and thus do not represent large absolute increases.

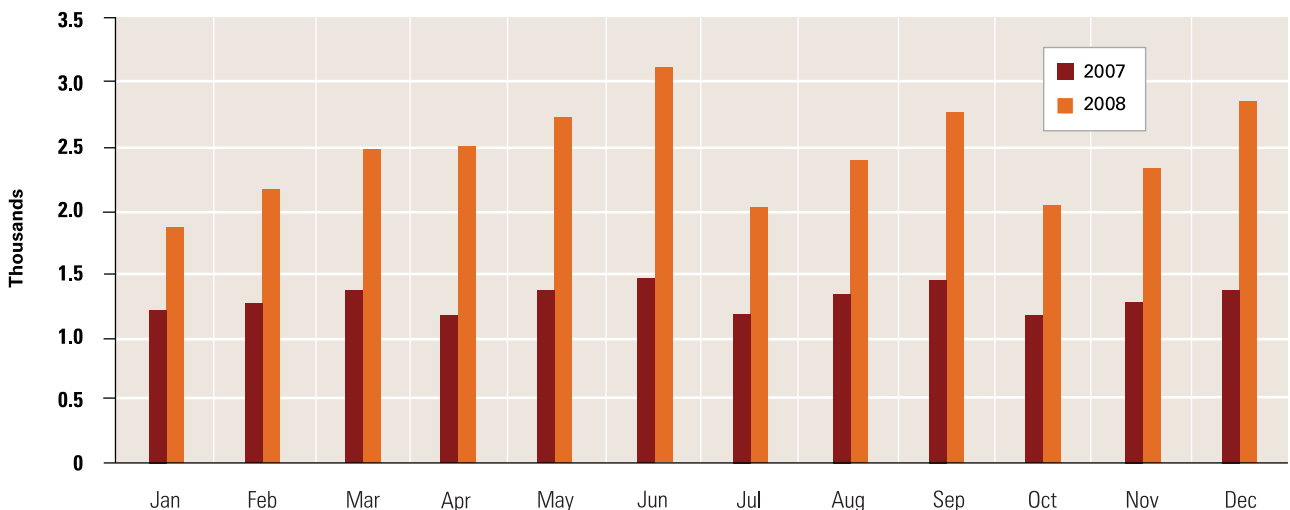
Third, both motion picture & video production and postproduction & other services experience large fluctuations in employment during the year, reflecting the differing intensities of moviemaking activities in the Commonwealth. Figures 3 and 4 plot monthly employment in NAICS 51211 (motion picture and television production) and NAICS 51219 (postproduction and other) for 2007 and 2008. In motion picture and video production (NAICS 51211), employment in 2007 ranged from

1,162 to 1,462 and in 2008 from 1,869 to 3,126. Even given this range, there has still been a significant (61%) increase in the minimum level of employment in this sector across the two years. Fluctuation of monthly employment in the postproduction sector (NAICS 51211) has been even more dramatic, ranging from 230 to 1,505 in 2007 and 314 to 2,480 in 2008. Therefore, while there appears to have been significant growth in core employment in this sector (the minimum employment level in 2008 was almost 40% higher than in 2007), it is less dramatic than what is implied by the annual employment numbers in Table 2.

These dynamics also help to explain the significant drop in wages in postproduction beginning in 2007. One contributing factor seems to be the hiring of a large number of temporary employees in support of large film productions in Massachusetts. Another is the growth of the local nonfiction television and postproduction sector, which has also been hiring large numbers of relatively lower paid new entrants. Many of these hires have been local college graduates who are finding new career ladders in local television production. Because barriers to entry are lower in television and postproduction than they are in studio film production, these jobs are particularly important for developing the local workforce.

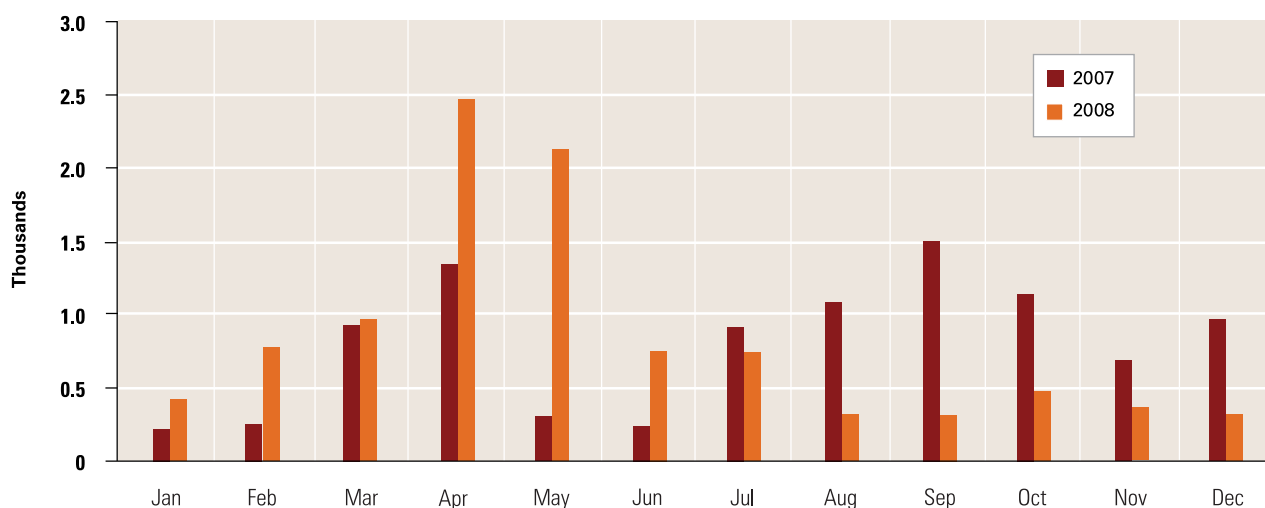
Many of the jobs in the film industry consist of a crew and skilled workers who build the sets and run the lights, cameras, and other equipment used in film and television production. These trades use many of the same skills that are required in construction and similar trades that experienced the fastest rate of job losses in Massachusetts in 2008 (employment in the construction industry dropped 12.8% between March 2008 and March 2009 [Bureau of

Figure 3. Motion Picture and Video Production, Monthly Employment, Massachusetts



Source: Bureau of Labor Statistics, Quarterly Census of Employment and Wages, NAICS 51211

Figure 4. Postproduction and Other Activities: Monthly Employment, Massachusetts



Source: Bureau of Labor Statistics, Quarterly Census of Employment and Wages, NAICS 51219

Labor Statistics, 2009]). Thus, the film industry was able to absorb some of these workers during this period.

Contribution to the Massachusetts Economy

Formal modeling of the film industry’s contribution to the Massachusetts economy is difficult because of the industry’s structure, fluidity, and the difficulty in obtaining an accurate snapshot of its current state. However, it is still worth knowing what standard economic models calculate as the economic impact of the industry on the Commonwealth, given the best available employment data.

Table 3 shows the results of the economic contribution analysis for the film industry sectors that we have focused upon.³ The first column represents the numbers that were used as inputs in the model, with the employment number derived from the total of the three primary sectors described previously. (We did not include payroll services because it is not clear that all employees in this sector in 2008 are film-industry related, but as noted previously, some employees probably are, so our employment number is most likely an underestimate.) The output number is based on the IMPLAN model assumptions that employees in these film sectors on average generate \$119,101 per worker. Note that this is associated with assumed relatively low average

wages of between \$26,000 and \$32,000. However, as noted previously, two of the industry sectors that we examined had much higher average wages in 2008 of \$61,225 and \$94,316. Thus, IMPLAN could be significantly underestimating the impact of this sector on the economy.

This employment (3,793) and the expenditures associated with it (i.e., employee wages and the value of production produced by these workers) then generates additional employment and expenditures in industries that supply products to these film sectors. This is measured in the column labeled “indirect.” The next column, labeled “induced,” measures the additional employment and spending generated by the expenditures of the direct and indirect employees. These impacts are then aggregated in the “total” column. The final column, labeled “multiplier,” reflects the total additional impact generated by the film sector on the economy. The output multiplier of 1.95 means that an additional dollar generated by the film sector will produce an additional \$.95 of output value in the Commonwealth. The employment multiplier of 1.79 means that a new job generated in the film sector produces .79 additional jobs in the Commonwealth.

To explore the indirect effect in more depth, we examine the nonwage spending patterns associated with

Table 3. Economic Contributions of Massachusetts Film Industry, 2008

	Direct	Indirect	Induced	Total	Multiplier
Output	\$451,749,958	\$268,463,348	\$159,959,092	\$880,172,401	\$1.95
Employment	3,793	1,821	1,171	6,785	1.79

Source: Data from Bureau of Labor Statistics, Quarterly Census of Employment and Wages; calculations by UMass Donahue Institute; MIG, Inc., IMPLAN System

film production in the Commonwealth. According to the Massachusetts Department of Revenue (2009:8), 36% (e.g., \$247M) of film industry spending in the Commonwealth between 2006 and 2008 was on nonwage items. The largest categories among these items were location fees (\$56.8M), transportation (\$35.8M), fringe benefits (\$33.5M), hotels and housing (\$29.3M), set construction (\$27.2M) and food (\$17.7M).

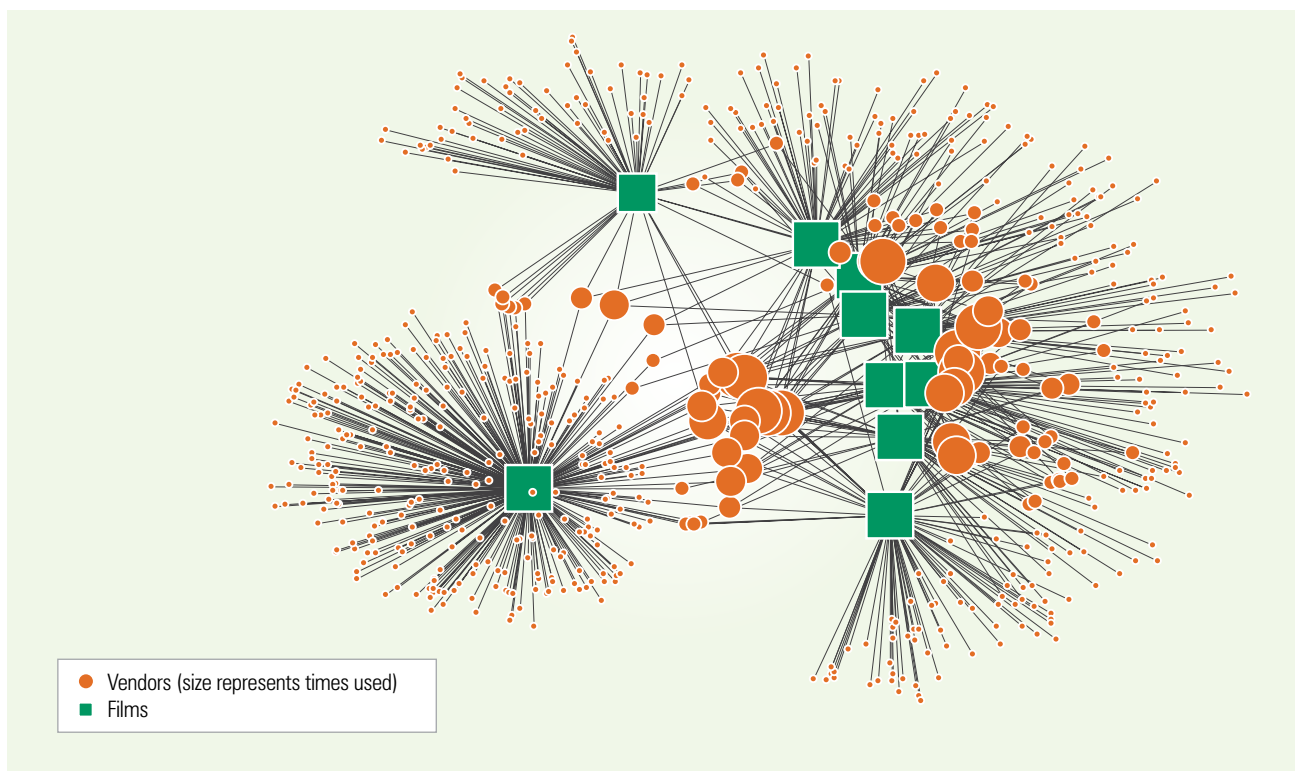
Figure 5 represents a network analysis of the vendors used by ten motion pictures filmed in Massachusetts in 2008. Using data provided by one a local union, we created this diagram by importing lists of films and their vendors into a network analysis program called UCINET (Borgatti, Everett, & Freeman, 1996). The diagram represents films as green squares and vendors as orange circles. This analysis clearly shows two dynamics in the nonwage spending patterns in the local film industry. The two clusters of large black circles surrounding the films represent the rapidly growing core of vendors that provide specialized services and equipment to film and television productions. Each film is also surrounded by a cluster of unique vendors that are not shared with other firms. In other words, while most films rely on a small core of firms that provide specialized services and material, each film also has its own unique set of vendors. This pattern is explained by interviews with industry participants and

press reports which suggest that a significant proportion of nonwage spending is clustered around the locations in which filming takes place.

To explore the geographic distribution of spending, we plotted the addresses of the vendor list on a map of the state (Figure 6).⁴ This map shows that while nonwage spending is located primarily in the eastern half of the state, it is also clustered around production locations. This makes sense given the rapid pace and logistical and material requirements of these productions.

Film and television productions are material-intensive and often require rapid service from local vendors. For example, costumes typically come in duplicate and often need to be laundered overnight. This kind of work is typically done by local vendors. Moreover, because film and television productions have high labor costs, production delays can be extremely costly. As a result, productions are sometimes required to make large unexpected expenditures at local vendors to keep working. A local line producer described one production that spent over \$3,000 at a small local sporting goods store to buy rain gear so that the crew could keep working through an unexpected storm. While such expenditures may not represent a large proportion of the total spending for a large production, they can represent significant revenue streams for local merchants.

Figure 5. Vendor Network of Ten Massachusetts Films in 2008



Source: Authors' network analysis.

Developments in Specific Subsectors

Interviews with industry participants and analysis of archival data helped us identify recent developments in several important subsectors of the local television and film production industry other than feature films. We next describe the production practices and trends in television production, commercials, documentary production, and postproduction and special effects.

According to the Massachusetts Department of Revenue (2009:6), television production generated 70% (186) of all credit-eligible projects from 2006-2008. However, because of the relatively smaller size of these productions, the sector used only 7% of the total value of the credits issued during that period. Compared with feature films, television productions (especially commercials and nonfiction programs) typically use a much smaller proportion of above-the-line talent. As a result, these productions may make a larger proportional (though a much smaller total) contribution to local wage and nonwage spending.

In fact, the television production sector in Massachusetts itself comprises at least three different subsectors. Dramatic and scripted can generate consistent employment for as many as one hundred cast and crew members. Television pilots and series have recently been filmed in Massachusetts and captured 16% of the total credits issued between 2006 and 2008. However, because scripted television is typically produced in a stu-

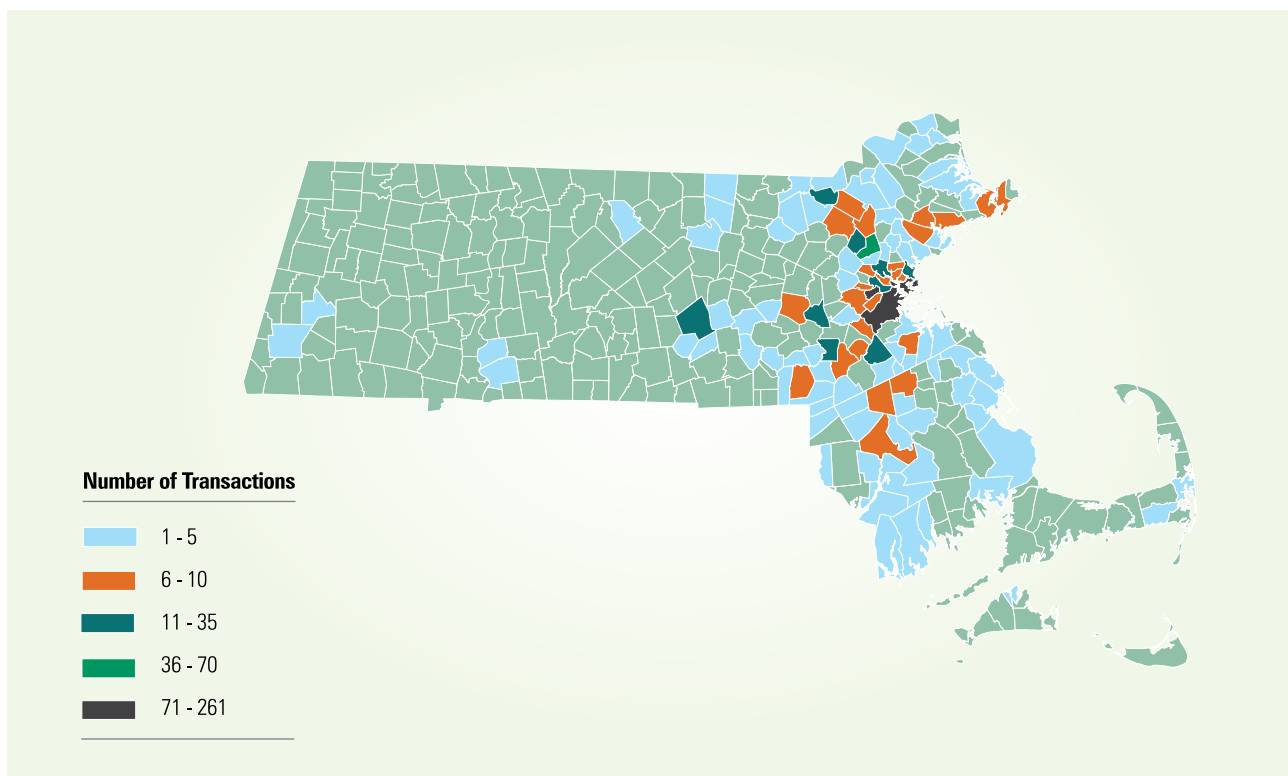
dio, Massachusetts currently lacks a critical resource for the growth of this sector.

The second subsector, nonfiction cable television production, is the fastest-growing and most profitable part of the television industry. Industry representatives suggest that Massachusetts has the potential to be the nation's third largest center for this because the labor pool contains experienced documentary producers, videographers, and sound recordists as well as a large pool of students. In addition, the state is home to a national leader in video editing equipment, Tewksbury-based AVID, as well as a rapidly growing digital gaming industry. Also, because the Boston area has a large concentration of research universities, high technology and biotechnology firms, many of the stories that make up the content for nonfiction television programs can be found locally.

The third sector is public television. As home to the public television station WGBH, Boston has long been a national center for nonfiction television production.

A majority of the television commercials produced in Massachusetts are made by a handful of firms. The research team talked with three of the largest. These firms reported that their overall business remained stable between 2005 and 2008, when production of commercials in the U.S. as a whole was on the decline. Moreover, a growing percentage of these firms' work is now being produced in Massachusetts. One company reported that

Figure 6. Geographic Distribution of Spending for Ten Films Made in Massachusetts in 2008



Source: Authors' network analysis.

70% of its commercials were produced in the Commonwealth in 2008 compared with only 40% in 2005. In addition, commercial production companies have recently lured out-of-state advertisers to shoot commercials in the Commonwealth.

Documentary filmmaking has long been a distinctive strength of Massachusetts. Many of the pioneers of 16 millimeter documentary film making were based here, and WGBH's role as the flagship PBS station allowed the Commonwealth to establish and maintain a leadership

position in both series and long-form television documentaries. Because these films are often made using grants and other donations, independent filmmakers rely on fiscal sponsors who provide the 501c3 status needed to qualify for major grants. Among the many fiscal sponsors in the Commonwealth, three work with a large number of local productions and assist filmmakers in researching, applying for, and administering grants. Interviews with the executive directors of three such organizations helped us to understand recent trends in this sector.

Giving Credits Where Credits Are Due

Foster and Terkla's article in this issue admirably explores the utility of the state's transferable film and production tax credits¹ in an invigorated film industry in Massachusetts. For a focus that gives greater emphasis to the costs (i.e., budget line) that accompany that utility, the Department of Revenue's (DOR) annual report on the *Massachusetts Film Industry Tax Incentives*² is instructive. Like its predecessors, the third and current annual report, published in January of 2011, is required by state law. It covers "calendar" year 2009 (i.e., June 2009-May 2010) and provides updated information on calendar years 2006-2008.

Cutting to the chase, the DOR study gauges the net direct economic impact of the 2009 film tax credit program at \$32.6 million in new spending in the Massachusetts economy. (For the program's entire three-year run [2006-2009], the composite figure is \$161.2 million.) In arriving at the 2009 figure, the report incorporates several considerations that offset the year's gross revenues (\$329.7m) from the Bay State's film industry. These include deducting estimates of spending that would have occurred in the absence of the credits prior to the program (\$10.7 million). More substantially, it subtracts payments to nonresidents of Massachusetts and non-Massachusetts businesses (\$215.2 million or 67% of the remainder). Finally, in step with the state's balanced budget requirement, it accounts for the state budget cuts needed to offset state expenditures on the film tax incentives.

To capture the program's total net economic impact on the state economy, the report employed a REMI (Regional Economic Models, Inc.) model that incorporated multiplier and displacement effects. With

those inputs, the film incentive program in 2009 generated additional Massachusetts Gross Domestic Product (GDP) of \$168.5 million and personal income of \$25 million.

Finally, the DOR report measured the film tax incentive program's net creation of new full-time equivalent employees (FTEs) at 222 (1,683 from 1996-1999), a figure that incorporates state budget cuts needed to offset tax expenditures on the incentives. Without the offset, the gross number of FTEs created was approximately 1,897, the product of a multiplier effect stemming from the direct creation of 586 new FTEs.

According to Bruce Deichl,³ founder and president of Tax Credits LLC and the Tax Transfer Corporation in New Jersey, 15 states currently offer transferrable tax credits to film studios. The practice, a recent phenomenon, began in Louisiana in 2002. With the competition intensifying, will Massachusetts need its credit program just to run in place? Have the Commonwealth and competing states achieved a competitive equilibrium in their percentages assigned to the film tax credit? If not, where might that equilibrium lie on the story board ahead?

1.) Equal to 25% of a film's productions and payroll costs.

2.) See Massachusetts Department of Revenue, <http://www.mass.gov/Ador/docs/dor/News/2010FilmIncentiveReport.pdf>.

3.) Sarah Stodola, *The Fiscal Times*, March 21, 2011, <http://www.thefiscaltimes.com/Articles/2011/03/21/State-Tax-Credit-Trading.aspx?p=1>.

Together, these organizations supported approximately 150 projects in 2009. Although the numbers do not give us a clear sense of more recent funding changes, two of the fiscal sponsors reported that major funders are currently giving less. Several filmmakers echoed that it has become increasingly difficult to raise money from major foundations.

In terms of spending for independent documentary films in Massachusetts, no one reported any significant changes in spending patterns since 2005. All four documentary filmmakers reported that they typically shoot outside of the state, while postproduction is more often done in-state.

The increase in motion picture production has had a positive spillover effect in the local postproduction and special effects sector. Massachusetts seems to be developing a niche in this area of film production. Small companies have increased employment rapidly in recent years, drawing heavily from graduates of local colleges like Emerson College, Boston University, Fitchburg State, and the Massachusetts College of Art. One company began a relationship with Sony Pictures by preparing the first HD video dailies for the film *21*, which was shot mostly in Massachusetts. The company worked with a Canadian company to build specialty equipment to handle the processing of these digital dailies. These HD video dailies were produced overnight and then sent via fiber optic cable using proprietary internet software to Culver City, where DVDs were then produced for viewing by studio executives. This technological system and work flow is the first of its kind in the industry. Postproduction technology is also driven in large part by changes in information technology — a longstanding Massachusetts strength as related to the film and television industry. Massachusetts is the home of Avid Technology Inc., a global leader in editing hardware and software for television and film production.

In addition to these subsectors, film equipment rental and other specialized film-related service firms have been expanding in the Commonwealth. That includes the expanded presence of several nationally prominent firms. Local grip and electric companies have expanded their offerings and several national firms have opened Massachusetts offices. A national catering firm has opened an office in Massachusetts, filling a significant gap in the local industry's capabilities. These trends along with Figure 5 suggest a growing core of local film and television service firms emerging in the Commonwealth. If this trend continues, it might reduce leakage from nonwage spending that currently goes out of state to companies with skills and equipment that are unavailable locally.

Finally, sound stages and film studios are often described as critical lynchpins in the evolution of a perma-

nent local film industry in Massachusetts. In addition to providing large numbers of permanent supporting jobs, they become the home for film service companies and affiliated businesses. As a result, there are likely to be significant benefits from clustering of creative personnel co-located with their supporting industries. While it is hard to calculate those, there are more direct benefits associated with the specific needs and economics of television as opposed to feature film production.

A studio film might employ between 150 – 200 people, with its employees working intensively over a relatively short period of several weeks or months. In contrast, a television series might employ 100 people and film 22 episodes a year. At a cost of between \$2M and \$2.5M each, a TV series can contribute significantly to local employment and spending. Because scripted television shows require sound stages, industry members argue that a studio would increase television production work in Massachusetts. At present, even shows set in Boston (e.g., *Boston Legal*) have primarily been filmed elsewhere.

While several groups continue to try to develop sound stages and film studios in Massachusetts, the studio projects face the challenges of raising investment capital in a difficult environment. However, if even one of these projects proves successful, it could attract a television series to Massachusetts which provides more stable and longer-term employment for local workers.

Conclusion

This paper provides an overview of the current structure and recent growth of the film and television industry in Massachusetts. The growth in local film and television production has stimulated growth among a cluster of local film service companies that support these productions. It has also lured some larger national film service companies to the Commonwealth. There remains room for growth in this area as some specialized film and television production equipment is still not available in Massachusetts and currently needs to be sourced out of state. To the extent that the local film service sector continues to grow in response to increasing production activity, an increasing proportion of nonwage spending may remain in the Commonwealth.

Some argue that because of its unique combination of desirable locations, large numbers of universities and students, talented cast and crew, tax incentives, and its home to a world-class city attractive to talent, Massachusetts has the potential to become the third largest center of film and television production in the United States (behind California and New York). Indeed, if this sector grows to the point that Massachusetts becomes a new hub of film production (like Vancouver, British Columbia did in the 1990s), there will be future benefits from workforce

retention and attraction, infrastructure development, linkages between universities and industry, and new career ladders. Conversely, if film production leaves Massachusetts as soon as another state offers more attractive incentives, even a revenue-positive incentive program could fail to establish a new industry in the Commonwealth. Our study, however, has shown several sectors in the film industry where Massachusetts does seem to have a niche. And while those sectors have benefitted from recent activity generated by the film tax credit, they also seem resilient enough to stand on their own, even if there is a reduction in major film activity in the state. ◀

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Endnotes

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2.) Before 2008, these workers were not classified by the Bureau of Labor Statistics as being part of Motion Picture and Video Production (NAICS 51211). Therefore, some proportion of employment in local film and television production likely appeared in the category for 541214 (Payroll Services) and the process of recoding employment from this category to 51211 is ongoing.

3.) IMPLAN is an input-output model that quantifies in monetary terms the flow of goods and services among industries and households in the economy. This enables one to follow a particular expenditure as it impacts different sectors of the economy and trace the money as it is spent and respent. In this case, the path of a dollar that originates in the film sector ends when that dollar leaves the Commonwealth through domestic or foreign trade, or is collected as a tax. Likewise, this expenditure analysis enables us to trace employment impacts in these different sectors.

4.) Note that we were only able to generate geographic coordinates for 70% of the vendors for the ten films studied. Therefore, the diagram likely underestimates the concentration of spending in some locations.

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