The Film Industry in Pittsburgh, Pennsylvania

Economic Contribution and Capacity for Growth

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Sponsored by Pittsburgh Film Office
In this report, we examine the film industry’s economic contribution to Pittsburgh, Pennsylvania, and to the state of Pennsylvania more broadly. In doing so, we address how film locations are selected and the requirements and capacity for regional and state industry growth. We took a mixed-methods approach to this study with the following components: (1) an environmental scan (consisting of a review of peer-reviewed, industry, and gray literature, as well as a scan of state film production incentives); (2) semi-structured interviews of state and local film industry stakeholders and experts; (3) an assessment of quantitative evidence from input-output models that describe the linkages between sectors of the economy and that estimate the economic impacts of spending; and (4) an analysis of workforce and education or training data describing film industry occupations, workforce pipelines, and the capacity for industry growth. The results of the study describe a nuanced picture of how film locations are determined, the economic contribution of the film industry (specifically in Pittsburgh, Pennsylvania), and recommendations to retain or enhance the competitiveness of the film industry in Pennsylvania. This report is intended to inform the decisionmaking of stakeholders at the state level (e.g., state legislators) and at the local level (e.g., local film office staff, workforce development boards).

RAND Education and Labor

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Feature films and television shows generate billions of dollars in annual revenue and have a profound impact on culture. While certain regions in the United States, such as Southern California, are hubs of film production, a large proportion of each production can be filmed anywhere, making the film industry footloose (i.e., not tied to any particular location). The potential impact of this footloose industry and the jobs it might bring are very appealing to many state governments seeking to achieve economic development objectives. Consequently, states have attempted to attract the film industry to locate within their borders, using incentives that lower the cost of productions. One of these states is Pennsylvania, which has attracted numerous film productions, ranging from The Silence of the Lambs to Rocky to The Dark Knight Rises. Each film brings jobs and increases the demand for goods and services offered by other industries. Nevertheless, the magnitude of the local economic contribution of film productions is uncertain.

Despite this uncertainty, the governor of Pennsylvania has expressed support for expanding the state’s Film Production Tax Credit (FPTC; Shapiro, 2022). However, the steep competition between states and other nations for film productions means that the incentives offered to attract them may exceed their contribution to the local economy. In addition, there remains uncertainty around how Pennsylvania, specifically, can remain competitive in attracting film productions and what resources may enhance the growth of the film industry in the state. To address these uncertainties, we conducted a mixed-methods study consisting of an environmental scan, semi-structured interviews, and quantitative analysis. The findings of our study describe a nuanced picture of how film locations are determined and the contribution of the film industry to local economies in general and, more specifically, in Pittsburgh, Pennsylvania. Drawing on these findings, we recommend strategies to retain or enhance the competitiveness of the film industry in Pennsylvania. The results and recommendations of this report are intended to inform the decisionmaking of stakeholders both at the state level (including state legislators and government officials) and at the local level (including officials in the state’s film offices, city and county economic development offices, local workforce development boards, and local educational institutions).

Issue

With the goal of creating job opportunities that would otherwise not exist, many states, including Pennsylvania, have attracted film production by offering competing incentives that lower costs. Although Pennsylvania’s FPTC has attracted film productions to Pennsylvania and, specifically, to Pittsburgh, the economic contribution of the resulting industry and the factors
restricting or catalyzing the industry’s growth are unclear. Understanding how filming location decisions are made, the economic contribution of the film industry, and the factors that either restrict or catalyze the industry’s growth should inform future policy debates.

**Approach**

We conducted a mixed-methods study of the filming location decision, the economic contribution of the film industry, and the factors related to maintaining and growing the film industry in Pennsylvania and, specifically, in Pittsburgh. Our mixed-methods approach began with an environmental scan consisting of a review of peer-reviewed, industry, and gray literature, as well as a scan of the film production incentives currently offered by states. As part of the literature review, we examined previous assessments of the film industry both in Pittsburgh and, more broadly, in the state of Pennsylvania. The literature review also consisted of national and other state studies of the film industry; articles on the history of the motion picture industry, contemporary filmmaking, and the filming location decision; and studies of cultural industries. Next, we conducted semi-structured interviews. We used the environmental scan to develop interview protocols designed to elicit information about film production decisionmaking (e.g., how incentives are weighed against other characteristics or a location), as well as local resources, conditions, and supports for the film industry. We conducted the semi-structured interviews with state, local, and national representatives of the film industry, individuals from the local film industry workforce, and individuals who have studied state film tax credit programs. We then performed a quantitative analysis of the economic contribution of the film industry by using the well-established IMPLAN modeling software. IMPLAN consists of input-output models that describe the linkages between sectors of the economy and can be used to estimate the direct and indirect economic impacts of spending. Finally, we analyzed workforce data from the U.S. Bureau of Labor Statistics describing film industry occupations and compared these data with U.S. Department of Education data to assess workforce pipelines influencing local capacity for growth in the industry.

**Key Findings**

The results of this study provide insights into how film locations are determined, the economic contribution of the film industry to local economies and how to contextualize this contribution, and the factors that help attract film productions and grow the film industry in an area. These findings are framed in the context of Pittsburgh, Pennsylvania, but they have broader implications. For instance, our findings have implications for statewide economic development policy, specifically Pennsylvania’s Film Tax Credit Program, which offers incentives to attract film production. Below we list our key findings in four main areas: (1) filming location decision, (2) economic contribution of the film industry, (3) film industry workforce, and (4) state film
policy. Each of these key findings is informed by our analyses and discussed in detail later in this report.

Filming Location Decision

- Three factors influence the filming location decision: creative fit, cost, and local resources. Creative fit receives the first consideration in the location decision, followed by cost, which weighs heavily on the location decision.
- Pittsburgh is a strong creative fit for many film productions because of its natural and built diversity, which enables the city and its environs to look like many different places. Furthermore, the state offers competitive film incentives that lower production costs, and the Pittsburgh area, in particular, has low costs of labor and other resources. Pittsburgh’s constraints include a smaller and relatively non-diverse film industry workforce and its limited film production infrastructure.

Economic Contribution of the Film Industry

- The contribution of the film industry in Pittsburgh to the local economy (both in output and employment) is comparable to the industry’s contribution to the economies of other midsize cities with which Pittsburgh competes for film productions.
- The work created by the film industry in Pittsburgh spills over, supporting jobs and increasing the demand for goods and services offered by other industries in the area.
- While the film industry’s economic contribution is smaller than those of other industries, it either exceeds or is comparable to the contributions of other footloose industries that may relocate to an area in response to incentives, such as Pennsylvania’s FPTC.

Film Industry Workforce

- The film industry offers relatively high-paying and flexible career opportunities to a diverse population.
- The set of workers and occupations currently in Pittsburgh, as well as the existing educational and training opportunities, offers the potential to grow this workforce and increase the number of film productions the region can support.
- Factors that may limit the growth of Pittsburgh’s film industry workforce and potentially reduce the number of productions and work in the industry locally include (1) a lack of workforce diversity, which is attractive to film production companies; and (2) coordination between the film industry and local stakeholders that could enhance the film workforce pipeline and attract additional productions.

State Film Policy

- Pennsylvania’s FPTC is vital to the film industry in the state.
- Although expanding the FPTC would increase the number of feature films and television shows produced in the state, doing so has the potential to continue the race-to-the-bottom competition between Pennsylvania and other states also offering film production incentives.
• There are multiple ways that the FPTC could be revised to enhance Pennsylvania’s competitiveness and focus its benefits more toward the state and its residents.

Recommendations

Drawing on these key findings, we have developed the following set of recommendations for state and local stakeholders to consider. These recommendations relate to the growth and impact of the film industry in Pennsylvania overall and in Pittsburgh specifically. The recommendations address the structure of the film production incentives and suggest ideas for how to enhance the attractiveness of the area to film productions.

State Film Policy

• State legislators and involved stakeholders should consider altering the payment model of Pennsylvania’s FPTC to nontransferable, refundable tax credits to convey greater benefits to film production companies.

• While the recently revised FPTC reduces the current uncertainty around the availability of tax credits by extending the program to sunset in 2025, if left unaddressed, the uncertainty will return as 2025 approaches. Because uncertainty does not benefit film production companies and limits the stability of the state’s film industry, we recommend that state legislators decide whether the policy will be renewed well in advance of its sunset date.

• To enhance the competitiveness of future iterations of the FPTC, state legislators and involved stakeholders should consider including incentives targeted toward certain types of productions. For instance, our results demonstrate that television productions contribute more to local economies than feature film production does and, due to their length, offer greater employment stability. To attract more television productions, state policy could include bonuses for television shows or other serialized productions with longer-term commitments to film in the state. However, state legislators and involved stakeholders should also note that other states (e.g., Maryland, New Mexico) currently offer bonuses for television productions, and adding similar bonuses in Pennsylvania may further the race-to-the-bottom competition between states.

• State legislators and involved stakeholders should consider including targeted incentives aimed at addressing current gaps in the film industry workforce.

  – Currently, film workforce statistics in Pittsburgh demonstrate a limited supply of individuals in (1) certain below-the-line positions (e.g., camera operators), (2) creative above-the-line positions (e.g., producers, directors), and (3) post-production positions (e.g., film and video editors). Rather than offering blanket bonuses for all below- or above-the-line labor, which may benefit nonresidents or types of labor already in high supply, targeted bonuses for local labor in these key positions can aid in developing the diversity of the local workforce. However, the decision to include such targeted incentives must also consider that some of these positions are already well compensated.
• Additionally, state legislators and involved stakeholders should consider including incentives aimed at equitably distributing the benefits of the Film Tax Credit Program throughout the state in future iterations of the FPTC.
  – Currently, 15 other states (e.g., New York, Illinois) include bonuses for film production that occurs in certain rural or economically disadvantaged areas of the state. This approach has the advantage of generating economic activity in areas of the state in greater need of economic activity. The downside to developing the film industry in areas with economic need and local resources that attract film productions is that it requires geographically concentrated rather than dispersed investments.

Other State-Level Actions

• To more strategically allocate incentives to the film productions that will produce greater contributions to the economy, officials in the state’s film offices should consider developing measures of economic impact and requiring data collection that uses them. Such measures could include the number of jobs created, the length or stability of the project, the length of worker employment, the percentage of the year employed, and others.
• After developing better measures and data on economic impact, officials in the state’s film offices should consider strategically allocating the limited tax credit resources to the applications that maximize the forecasted economic contribution of film productions in the state.

Local Actions

• Stakeholders in local economic development offices should consider developing a unified regional economic development strategy for the film industry that leverages the existing economic contribution of the film industry to build an organic (i.e., not tax credit-dependent) industry base. This strategy could include coordinated efforts to expand into different film industry sectors (e.g., post-production) and to promote diverse productions (e.g., independent and local filmmakers).
• Stakeholders from workforce development boards and educational institutions should consider developing a strategic plan to build the local film industry workforce through enhancements to the workforce pipelines. This plan could include expanding existing educational and training offerings, establishing new programs in areas that are currently lacking (e.g., film and video editing, camera operation), and starting workforce development efforts earlier in the pipeline (e.g., high schools).
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Chapter 1. Introduction

As a powerful medium for stories and ideas, films have a profound impact on culture, entertainment, and the economy. The film industry generates billions of dollars in annual revenue through box office sales, merchandise, and licensing agreements. To produce this economic impact, the film industry employs a large and diverse group, which includes on-screen talent, creators, and supporting positions in marketing, distribution, and other areas. According to a recent industry estimate, the film industry comprises approximately 2.4 million jobs and approximately $81 billion in wages paid annually (Motion Picture Association of America, 2021). However, most film productions are relatively footloose, or capable of being filmed in many different locations (Allen and Stone, 1992). The potential cultural and economic impacts of an industry whose products can be produced anywhere are very appealing to many state governments seeking to achieve economic development objectives. Consequently, many states (as well as other nations) offer incentives to attract film productions. However, the steep competition between states and other nations for film productions raises the costs of the incentives offered to levels that, potentially, exceed the economic contribution of the film industry.

Purpose of This Study

In this study, we examine the factors that influence the filming location decision and assess the contribution of the film industry to the state economy of Pennsylvania and, in particular, to the regional economy of Pittsburgh. Additionally, we examine factors that either restrict or catalyze the industry’s growth to inform our recommendations for state policymakers and local stakeholders. While the entertainment industry has a long history in Pennsylvania, the concentration of the film industry in southern California means that film production is not generally organic to Pennsylvania. Like many states, Pennsylvania implemented a film production tax credit to attract such business to its borders. Despite the legislative commitment the state has made to the film industry, including the expansion of Pennsylvania’s Film Production Tax Credit (FPTC) by Pennsylvania’s current governor (Shapiro, 2022), uncertainty surrounds the contribution of the film industry to the state’s economy and the benefits of the credits relative to their cost to the state.

Aims and Approach

This report first describes how film producers decide on filming locations. We canvas the elements of these decisions and document the relative weight of each. We did so by conducting an environmental scan and semi-structured interviews. The environmental scan consisted of a
review of peer-reviewed, industry, and gray literature, as well as a scan of the film production incentives currently offered by states. As part of the literature review, we examined previous assessments of the film industry in Pittsburgh, specifically, as well as in Pennsylvania, overall, and we examined other national and state studies of the film industry; articles on the history of the motion picture industry, contemporary filmmaking, and the filming location decision; and studies of cultural industries. We next present the findings from our semi-structured interviews with state, local, and national representatives of the film production industry; the local film workforce; and individuals who have studied state film tax credit programs. The protocols for the semi-structured interviews were informed by the environmental scan and designed to elicit information about production decisionmaking (e.g., how incentives are weighed against other regional characteristics), as well as local resources, conditions, and supports for the film industry. Details of these two approaches are provided in separate online appendixes (www.rand.org/t/RRA2617-1). Specifically, details on the environmental scan, including a table describing the film production incentives offered by each state, are provided in Appendix A. Appendix B provides the protocols that we used in our semi-structured interviews with film producers and local industry stakeholders.

After describing the filming location decision, the report includes an analysis of the film industry workforce (with additional details provided in the online Appendix C). In doing so, we focus on the film industry in Pittsburgh. We begin by describing wages, self-employment opportunities, and education and occupational training requirements. This analysis summarizes data from the U.S. Bureau of Labor Statistics. We then link this analysis to the previous chapters, exploring Pittsburgh’s capacity for film industry expansion if state and local stakeholders were to engage in making changes to the factors that determine the filming location decision. We assess the city’s current occupational distribution and examine postsecondary education and training programs in the area that prepare individuals for jobs in the film industry. This analysis draws on data from both the U.S. Bureau of Labor Statistics and the U.S. Department of Education.

Finally, we assess the economic contribution of the film industry—both in Pittsburgh, specifically, and in Pennsylvania, overall. The analysis of the film industry’s economic contribution represents the third approach of this mixed-methods study: input-output modeling. Specifically, we used the input-output model in the IMPLAN modeling software to describe the linkages between sectors of the economy. This approach allows us to estimate the direct and indirect economic contribution of the film industry in specified areas. We focus on the economic contribution of the film industry in Pittsburgh, but we also examine the contributions of the film industry in Pennsylvania more generally (including in Philadelphia), as well as in more-established film hubs (Los Angeles, Atlanta, and New Orleans) and among Pittsburgh competitors (e.g., Cincinnati, Boston) for comparison. Note that our assessment of the economic contribution of the film industry is informed by the results of both the environmental scan and the semi-structured interviews. The IMPLAN economic modeling leads to our focus on spillovers and comparing the film industry to other footloose industries.
It is important to note that the results of the environmental scan and the semi-structured interviews directed us away from certain analyses that are included in other studies on this topic. For instance, we did not attempt to measure the impacts of film-related tourism because, while there are anecdotes and some studies from industry-sponsored parties that suggest films spur local tourism (Shannon, 2023; Woolf, 2022), overall, the literature indicates that the film industry’s impacts on local tourism are negligible outside iconic film hubs like Los Angeles, California, and New York City (Independent Fiscal Office [IFO], 2019; Massachusetts Department of Revenue, 2016; Rehrmann et al., 2015). Moreover, tourism was not mentioned in any of our semi-structured interviews with film industry stakeholders.

**Organization of This Report**

This report presents a nuanced picture of the filming location decision, the film industry’s economic contribution, and the film industry workforce. Our findings inform recommendations to retain or enhance the competitiveness of the film industry in Pennsylvania. The results and recommendations of this report are intended to inform the decisionmaking of stakeholders at the state level (including state legislators and government officials) and at the local level (including officials of Pittsburgh, Philadelphia, and other film offices in the state, as well as individuals from city economic development offices, local workforce development boards, and local educational institutions).

Chapter 2 provides background on the film industry, both broadly and within Pennsylvania. Here we also introduce the topic of film production incentives. Chapter 3 describes the filming location decision. In this chapter, we provide details on creative issues, cost, and local resources that influence the filming location decision. We describe the order in which these factors are considered in making each film’s location decision, and we describe the weight of each factor. Chapter 4 describes the film industry workforce. We quantify employment, assess occupations in the film industry and synergies with non-film industry occupations, and assess strengths and weaknesses in the film industry workforce pipelines. In Chapter 5, we describe the economic contribution of the film industry in Pennsylvania and in Pittsburgh, in particular. This analysis includes our quantifying of the direct impacts of the film industry to spending and employment, as well as the indirect impacts of the film industry that spill over to other industries. While providing an overall assessment of the film industry, we provide a comparison focused on other footloose industries. In this chapter, we also refine the focus from the film industry to the film production incentives, quantifying their economic contribution and how their impact may be enhanced. Finally, in Chapter 6, we conclude with a summary of our findings and recommendations. Together, the results of this study provide an understanding of the economic contribution of the film industry and the factors that either restrict or catalyze the industry’s growth.
Note that throughout this report we discuss Pennsylvania’s FPTC. While this tax credit is a critical contextual element of the film industry in Pennsylvania, we did not explicitly evaluate its efficiency or effectiveness. Therefore, this study should not be seen as either an endorsement or a critique of the FPTC. Instead, we consider the FPTC as a reflection of the values of and information available to Pennsylvania voters and their representatives regarding the state’s economic development objectives. In this way, this study aims to inform how the FPTCs and the film industry they support contribute to the economy. Thus, we focus on the use of economic development funds and compare the economic contribution of the film industry with that of other potential tax credit–recipient industries.
Chapter 2. Film Industry Background

The beginning of the motion picture industry was right here in Pittsburgh. In 1905, Edison thought all the money was in kinetoscopes. Someone else put up a sheet and sold tickets for shows; they charged 5 cents. It was a blue-collar thing. . . . Two people who were selling pants at Kauffman’s saw a movie and decided to get out of the family business, and they opened the first movie theater in New Castle—the Warner Brothers. They left for California and [set up the] Warner Brothers Studios.

—Local production representative

U.S. Film Industry

According to industry estimates, the U.S. film industry was recently reported to comprise approximately 2.4 million jobs and 122,000 firms. The wages paid in the film industry total approximately $81 billion annually, with spillovers producing over $100 billion in additional wages outside the film industry (Motion Picture Association of America, 2021). While firms and jobs in the film industry are spread across the country, the U.S. film industry is highly concentrated in Southern California. Nearly 50 percent of the film industry’s jobs are located in Los Angeles County (Button, 2021). This spatial concentration is common in many industries and can create benefits for both firms and employees. Industries concentrated in certain areas can take advantage of resources with high fixed costs (e.g., sound stages) and a specialized workforce that can more rapidly be matched with job opportunities and disseminate expertise (Christopherson and Rightor, 2010).

Despite the concentration of the film industry in Southern California, many scenes in movies or television shows can be filmed anywhere. As a result, the film industry is considered to be footloose; in other words, the film industry is relatively insensitive to location-specific characteristics (Allen and Stone, 1992). Although iconic landmarks of specific locations may be included in movies and shows to establish the geographic setting for the audience, productions typically do not rely on backgrounds that are tied to certain locations. For instance, many well-known television shows, such as “Seinfeld” and “Friends,” were set in New York City; however, the bulk of filming did not include shots of New York’s iconic skyline and actually took place within studios located in California (Blake, 2021; Trivedi, 2021).

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1 Local film production representative, telephone interview with the authors, September 8, 2022.
Pennsylvania Film Industry

Although Warner Brothers started in Pittsburgh, the local growth of film production in Pennsylvania appears to be not entirely organic but rather attributable, at least in part, to film production incentives offered by the state. Film production is expensive and highly competitive: Production costs average approximately $100 million for major movies. Consequently, film producers seek ways to lower costs. Film production incentives work because film production can be relocated where the costs are lowest. As an example of films produced in Pennsylvania, Table 2.1 lists productions that were filmed in the Philadelphia and Pittsburgh regions and were awarded over $1 million in state tax credits in fiscal year (FY) 2019–2020, the most-recent data available at the time of this writing (Pennsylvania Department of Community and Economic Development [DCED], 2020). The table also includes the in-state production expenses reported by each production.

Table 2.1. Productions Awarded $1 Million or More in FPTCs, FY 2019–2020

<table>
<thead>
<tr>
<th>Location</th>
<th>Production</th>
<th>Tax Credit Awards</th>
<th>Pennsylvania Production Expenses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Philadelphia region</td>
<td>Creed II (film)</td>
<td>$15,873,875</td>
<td>$53,529,782</td>
</tr>
<tr>
<td></td>
<td>17 Bridges (film, renamed 21 Bridges)</td>
<td>$8,999,890</td>
<td>$31,816,948</td>
</tr>
<tr>
<td></td>
<td>QVC (TV programming)</td>
<td>$7,800,000</td>
<td>$93,130,729</td>
</tr>
<tr>
<td></td>
<td>Tanked (Season 7) (TV show)</td>
<td>$1,148,648</td>
<td>$5,807,707</td>
</tr>
<tr>
<td>Region total</td>
<td></td>
<td>$33,822,413</td>
<td>$184,285,166</td>
</tr>
<tr>
<td>Pittsburgh region</td>
<td>One Dollar (TV show)</td>
<td>$12,909,568</td>
<td>$43,031,892</td>
</tr>
<tr>
<td></td>
<td>Where’d You Go, Bernadette? (film)</td>
<td>$8,547,529</td>
<td>$28,491,762</td>
</tr>
<tr>
<td></td>
<td>You Are My Friend (Mr. Rogers) (film, renamed A Beautiful Day in the Neighborhood)</td>
<td>$8,449,934</td>
<td>$28,166,446</td>
</tr>
<tr>
<td>Region total</td>
<td></td>
<td>$29,907,031</td>
<td>$99,690,100</td>
</tr>
<tr>
<td>State total</td>
<td></td>
<td>$67,247,572</td>
<td>$299,405,310</td>
</tr>
</tbody>
</table>

NOTE: Tax credits awarded in FY 2019–2020 were awarded from Pennsylvania’s film tax credit budget during one or more prior years. The state total includes productions filmed outside the Philadelphia and Pittsburgh regions.

In addition to the film industry, states offer tax credits to other footloose industries, such as manufacturing and technology, which are common recipients of state tax credits as location incentives. The high-tech industry (e.g., Intel and Amazon) is the most comparable footloose industry to film, because it relies on the skill of the workforce rather than any location-specific
physical resources. In recent decades, the high-tech industry has received a number of high-profile tax incentives to locate facilities within certain jurisdictions across the United States (Francis, 2016). Recent estimates of the total value of these tax incentives across all U.S. industries approach $50 billion annually (Bartik, 2019).

The logic of film production incentives is that by attracting productions that would not otherwise take place in the area, jobs will be created, and physical assets will be developed to establish the industry (Workman, 2021). Tax incentives offered by governments to businesses with the aim of spurring economic development have existed for centuries (Chi and Hoffman, 2000), but targeting tax credits to film productions specifically is a relatively recent strategy. In the 1990s, Canada began offering tax incentives for film productions that led to runaway production (or productions that are filmed in another country but intended for initial release in the United States). Noticing the success of these tax incentives, states began offering similar incentives (Workman, 2021). During the early 2000s, the number of states offering tax incentives and the value of these incentives offered to film productions and other businesses grew rapidly. However, over time, questions arose about the efficiency of such incentives and, as a result, several states eliminated or restricted them (National Conference of State Legislatures, 2018).

Pennsylvania began incentivizing film productions in 2004 with a $10-million grant program. However, the total value of this incentive and the implied value to each production was much smaller than the incentives offered by other states. The relatively small value of the incentive limited the availability of funds to support multiple productions each year and thereby curtailed the development of the film industry workforce and associated infrastructure. Consequently, in 2007, the state legislature increased the incentives to a $75-million tax credit. Since 2007, the cap has been revised multiple times; it was raised to $100 million in 2022. While the overall annual cap is $100 million, the project-specific cap is $12 million. Productions are eligible for the tax credit only if they incur at least 60 percent of their total production expenses in Pennsylvania. If the production is allocated a proportion of the overall tax credit and meets the eligibility criteria, the amount of the tax credits equates to 25 percent of qualified expenses, up to $12 million. The production receives a bonus of 5 percent if it builds and films at a qualified production facility.

To make these incentives more concrete and to illustrate the complexity and competitiveness of the financial considerations that production companies face when making location decisions, consider the following highly simplified example of a feature film in the planning phase. Begin by assuming that Pennsylvania, Georgia, Indiana, Kentucky, and Louisiana meet the aesthetic parameters of the film and have available tax credits. In this example, the film production company does not have tax liability in any of the states under consideration, meaning that it would have to sell—or transfer—the credits for cash. Additionally, assume that the film has a budget of $50 million in qualified labor and other expenditures that breaks down as follows: $25 million in non-labor expenses and $25 million in labor-related expenses divided up with $15 million for actors, directors, and others with creative influence; $5 million for other skilled
crew brought in from other locations; and $5 million for crew hired on location. Table 2.2 shows the incentives that each state could offer to the film production company based on this notional budget.

### Table 2.2. Example of Notional Incentives Offered, by Select States

<table>
<thead>
<tr>
<th>State</th>
<th>Tax Credits from Spending</th>
<th>Tax Credits from Labor</th>
<th>Total Eligible Tax Credits</th>
<th>Project Cap</th>
<th>Discount Due to Payment Model</th>
<th>Total Cash to Production Company</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pennsylvania</td>
<td>$6.25M</td>
<td>$6.25M</td>
<td>$12.5M</td>
<td>$12M/year</td>
<td>10%</td>
<td>$11.6M</td>
</tr>
<tr>
<td>Georgia</td>
<td>$5M</td>
<td>$5M</td>
<td>$10M</td>
<td>N/A</td>
<td>10%</td>
<td>$9M</td>
</tr>
<tr>
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<td>$15M</td>
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<td></td>
<td>(resident) $2M</td>
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SOURCE: Features data accessed in March 2023 from Media Services, undated. NOTE: For additional details on the state film production incentives that formed the basis for these calculations, see Table A.3 in Appendix A (Peet et al., 2023). M = million; N/A = not applicable.

If filmed in Pennsylvania, this production would accrue $12.5 million in incentives. If the company had Pennsylvania tax liability, $12.5 million could be readily accessed, but lacking tax liability, the company will need to sell the credits at a discount. In Pennsylvania, credits typically sell for a 5- to 10-percent discount. Assuming the midpoint of that range (7.5 percent), the final (cash) amount that the film production company would receive from these qualified expenses in Pennsylvania would be approximately $11.6 million. Compare this amount with the incentives offered by Georgia, Indiana, Kentucky, and Louisiana. Georgia’s incentives are less generous, but uncapped, and after sale, they would yield $9 million in cash. Indiana’s incentives are more generous than Pennsylvania’s and uncapped, but Indiana’s tax credits can only be used to reduce tax liability and cannot be sold. Thus, if the production company has no tax liability in Indiana, the credits have no value. Kentucky’s incentives are the most generous of the five select states and fully refundable in cash. However, Kentucky has a project cap of $10 million per year, meaning that the $15.25 million in credits accrued would be paid out in installments: $10 million in the year the credits were accrued and $5.25 million in the subsequent year. Finally, Louisiana would offer $13.25 million in tax credits (under its $20-million project cap), which are partially (88 percent) refundable in cash, netting a total of $11.7 million. Therefore, Kentucky’s incentives are the largest among this group of states under the aforementioned assumptions.
As illustrated, Pennsylvania’s FPTCs are competitive, but they may not be the most generous (depending on the budgetary allocation) relative to other states competing for the economic contribution and jobs offered by the film industry. Pennsylvania’s incentives have led to many feature films being produced in the state, such as *Creed, A Beautiful Day in the Neighborhood, Marley and Me, Fences, Jack Reacher, Concussion*, and *The Dark Knight Rises*; and many television shows being filmed in Pennsylvania, including “The Marvelous Mrs. Maisel,” “American Rust,” “Mindhunter,” “Mayor of Kingstown,” and “The Chair.”

Conversely, our interviewees indicated that many other feature films and television shows considered filming in Pennsylvania but chose other locations because the state’s incentives were exhausted, less generous, or more uncertain than the incentives offered by other states. According to the Pittsburgh Film Office (PFO), three productions with budgets of $4 million or more considered filming in Pittsburgh but did not receive FPTCs and opted to film elsewhere.² One interviewee reported,

> The show “Blacklist” was set in D.C. They were going to film in Philly since you can’t film in D.C. That year, Pennsylvania hadn’t approved its budget, so it was less stable in terms of tax credits. The show’s producer decided that they could do [the] pilot in New York City instead and they haven’t left. For ten years, the show has been in New York when it could have been in Pennsylvania.³

Although states use tax credit programs to compete for film productions, offering a more generous incentive package may or may not benefit the state. Many studies have examined the impact of incentives offered to film and other industries and have documented varying effects on economic outcomes (e.g., spending, employment) (Lee, 2008; Wu, 2008; Strauss-Kahn and Vives, 2009; Wilson, 2009; Taylor, 2012; Hanson and Rohlin, 2013; Prillaman and Meier, 2014; Zhang, Chen, and He, 2018; Button, 2021; Workman, 2021). Nevertheless, the competition of film production incentives between states represents a classic “race to the bottom.” In other words, if Pennsylvania increased the amount of tax credits it offers or made the terms more generous, it would undoubtedly attract more film productions and increase the number of jobs the industry supported. But there is nothing stopping other states from also expanding their incentive programs.

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² PFO representative, interview with the authors, May 23, 2022.
³ National film industry representative, telephone interview with the authors, September 6, 2022.
Chapter 3. Filming Location Decision

The first question about locations is does it fit creatively. We have to be where it will work creatively. The next step is finance, which would include tax credits. We also look for local infrastructure and film crew. We try to work with as much local crew as possible.

—National film industry representative

The availability of tax credits is definitely a make-or-break thing. The costs have climbed so high, the box office is so uncertain. Most studios aren’t making money and haven’t for the past few years, and shareholders are looking at them. There’s lots of attention on spending. If you can get 30 percent of spending back, it’s very attractive.

—National film industry representative

In this chapter, we examine how film producers decide on filming locations. Using the results of an environmental scan and semi-structured interviews, we identified three main factors: creative fit, cost, and local resources. While each of these factors plays a role in the location decision, they do not always receive the same weight. Our results indicate that when producers initially consider where a film or television show might be set, the first question is whether the location meets the aesthetic requirements for the production. However, because of growing competition and the uncertainty of box office returns, cost often carries the greatest weight in the location decision, and state film production incentives are one of the main determinants of production costs (Christopherson and Rightor, 2010). After both aesthetic and cost considerations, local resources are the final factor determining where to film.

Creative Fit

When producers initially consider where a film or television show might be set, the first question is whether the location meets the aesthetic requirements for the production. When producers want the filming location to provide a certain aesthetic (e.g., a modern city, a tropical beach, a suburban lifestyle), they will be more sensitive to (i.e., give more weight to) aesthetic requirements in their location decisions. However, aesthetic features are to some extent interchangeable. This interchangeability does not eliminate the importance of the creative fit

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4 National film industry representative, telephone interview with the authors, September 6, 2022.
5 National film industry representative, second telephone interview with the authors, October 3, 2022.
6 National film industry representative, telephone interview with the authors, September 6, 2022; state film workforce representative, interview with the authors, September 12, 2022.
7 National film industry representative, telephone interview with the authors, September 6, 2022; state film workforce representative, interview with the authors, September 12, 2022.
factor, but it may allow for some flexibility in location. Aesthetics are more important for some productions than for others. Television productions, which may be primarily or even exclusively filmed on sound stages, often give less consideration to location aesthetics than film productions.

This aesthetic flexibility, coupled with a lack of reliance on a permanent physical capital investment or a local labor force, often yields multiple viable location options and, thus, various suitable choices for a filming location (Button, 2019). In these instances, other factors may weigh more heavily in decisionmaking. In fact, producers will sometimes adapt their aesthetic requirements to work in a location that is significantly less expensive than their initial vision. Georgia, for instance, which has a generous and uncapped film tax credit program, along with a robust local crew base and expansive filming facilities, often is an attractive alternative location for producers (Lindahl, 2021). “Stranger Things” creators Matt and Ross Duffer originally planned to set the show on coastal Long Island. However, after visiting Georgia, they changed the setting:

We lost our beach and lighthouse, but we gained this American heartland aesthetic which now defines the show. We needed suburban neighborhoods that look unchanged since the ’80s—Atlanta had them. We needed urban streets and skyscrapers for a Chicago set piece—Atlanta had those. We needed a quarry with a steep cliff—Atlanta had it, less than 10 miles from our soundstages.

(Dockterman, 2018)

Fortunately for Pittsburgh, it has a diverse aesthetic that meets the creative needs of many film productions: “Pittsburgh can be anything: New York, Chicago in the 1930s, turn of the century, Iraq. The neighborhoods all look different.” As an example, the Pittsburgh skyline became Gotham City in The Dark Knight Rises. Interviewees reported that “the only thing Pittsburgh can’t do is beach or desert. We have mountains, hills, a walkable uptown feel, neighborhoods, forests, old steel mills.”

Cost

The major film studios of Hollywood’s so-called Golden Age (the 1930s and 1940s) were vertically integrated: They controlled and funded film production (including producers, writers, actors, crew, and sound stages), marketing and distribution, and exhibition (Doeringer et al., 2012). However, the business model of the industry has involved over time. Now the major U.S. film companies (e.g., Walt Disney Company, Universal Pictures, Warner Brothers Entertainment, 20th Century Fox, Paramount Pictures, and Sony Pictures Entertainment) own multiple media services (such as radio and television), and the film division is typically not the most profitable one (Chan, 2020). Now these companies primarily back and distribute films while outsourcing their production (Doeringer et al., 2012).

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8 Local film workforce representative, telephone interview with the authors, September 6, 2022.
9 Local film production representative, telephone interview with the authors, August 30, 2022.
Once a production company has obtained the rights to a story and financing, the project goes into pre-production. During this time, key staff, such as the director, leading and supporting cast, and heads of production teams are assembled (Doeringer et al., 2012). Film production itself is very cost sensitive. Because producers often work on contract (i.e., for a set amount of money), they are pushed to reduce production costs wherever possible; some companies even require cost-control measures (Chan, 2021; Christopherson and Rightor, 2010). The salaries of talent (i.e., actors, directors, and writers) are high, but they are often considered essential for the success of a production. The costs of marketing and distribution across multiple media (such as in theaters, on network and cable television, and online) are also high and largely unavoidable, and commercial success is not guaranteed. Therefore, the push to reduce costs typically targets the filming portion of production (Christopherson and Rightor, 2010).

State Film Production Incentives

A national film industry representative noted,

If I wanted to film in Pittsburgh and there was no tax credit, I would probably be elsewhere.10

Film production incentives can significantly lower production costs, making their availability a critical component of the filming location decision. According to a national industry representative we interviewed, once location options have been determined based on important creative factors, the production company develops mockup budgets for each location option, estimating all assorted costs and factoring in the film production incentives offered by states.11 Because these production incentives can offset millions of dollars of production costs, their availability is a major determinant of the film’s total production costs.

State film production incentive programs vary in terms of the type of payment model, funding available (overall and by project), eligibility criteria, and the terms of the benefits. These differences can affect the value of the incentives to potential recipients. Currently, 37 states and the District of Columbia offer film production incentives, down from a maximum group of 41 that also included Alaska, Iowa, and Kansas, where the incentive programs have expired (Brainerd and Jimenez, 2022). The incentives currently offered (as of March 2023) by each state are described in Table A.3 in Appendix A (see Peet et al., 2023).

Payment Models

Three broad payment models for film production incentives are offered by states and the District of Columbia: rebates, grants, and tax credits. Rebates are percentages of a production company’s spending, distributed to production companies after filming. Grants are prespecified

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10 National film industry representative, telephone interview with the authors, September 6, 2022.
11 National film industry representative, telephone interview with the authors, September 6, 2022.
amounts distributed to production companies before the beginning of production. Grants can be award based or mandated depending on the project contents. The most common type of film production incentive is *tax credits*, which represent an amount of money that taxpayers can subtract, dollar for dollar, from owed income taxes. Thus, tax credits reduce the amount of tax due and thereby represent a larger reduction in tax burden than tax deductions, which reduce taxable income. Figure 3.1 describes the current (as of March 2023) frequency of each of these payment models. Twenty-two states offer tax credits, seven states and the District of Columbia offer rebates, five states offer a combination of tax credits and rebates, and three states offer grants.

**Figure 3.1. Number of States Offering Film Production Incentive Payment Models, by Type**

![Graph showing the number of states offering various types of film production incentives.]

*Source: Authors’ analysis of data accessed in March 2023 from Media Services, undated.*

While rebates and grants are fairly straightforward, the types of film tax credits offered vary. Tax credits can be refundable or nonrefundable, as well as transferable or nontransferable, and combinations of each. Figure 3.2 describes the types of film tax credits (excluding rebates and grants) offered by states and their frequency.
If film credits are *refundable*, the credits will first go to reducing the film production company’s state tax liability, then the remaining tax credits will be converted to cash and directly refunded to the production company (recall the example of Kentucky in Chapter 2). When asked about their preferred tax credit structure, film producers reported strongly preferring refundable tax credits because they are easier to access and have a higher value to film producers.\(^1\) While 100 percent of the benefits from refundable tax credits go to the film production company, other payment models return a smaller percentage of the benefits to the company. *Partially refundable* tax credits are first applied against state tax liability; then, if tax liability has been reduced to zero and credits remain, a percentage of the remaining tax credits are converted to cash and refunded. Different from refundable tax credits, partially refundable tax credits are not necessarily paid out in full (recall the example of Louisiana in Chapter 2). *Nonrefundable* tax credits must only be applied against state tax liability, reducing the amount of tax due. If there are credits that remain after tax liabilities have been addressed, the remaining credits are not refunded (recall the example of Indiana in Chapter 2). Finally, *transferable* tax credits can be transferred (i.e., sold) from the entity that generated the credit to a third party (recall the examples of Pennsylvania and Georgia in Chapter 2). When these tax credits are transferred, the transactions are typically managed by a broker who charges a fee. This brokerage fee reduces the value of the tax credit to the film production company. For example, previous analyses of the sale of FPTCs in Pennsylvania show that, on average, brokers charge a fee of ranging from 5 to 10 percent (Holmberg, 2017; Stuhldreher, 2013). As a result, film production companies receive

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\(^1\) National film industry representatives, telephone interviews with the authors, September 6 and October 3, 2022.
approximately 90 to 95 percent of the benefits allocated to them by transferable, nonrefundable
tax credits. The remainder of the benefits from transferable, nonrefundable tax credits are
distributed among the purchasers and brokerages.

Available Funding

Most states, including Pennsylvania, cap the amount of funding available to the Film Tax
Credit Program. Figure 3.3 describes the range of funding caps offered by states and their
frequency.

**Figure 3.3. Number of States with Film Production Incentive Funding Caps**

![Bar chart showing the number of states with different funding caps.]

- **SOURCE:** Authors’ analysis of data accessed in March 2023 from Media Services, undated.

The most common range for film production incentive funding caps is $10 million–$25
million. Such states as Colorado, Washington, and Mississippi offer incentives in this range.
Among the nine states that have this funding cap range, five of them offer rebates for their
payment model. Only three other states with funding caps outside the $10 million–$25 million
range offer the rebate payment model. Pennsylvania ($100 million) is at the top of the
$50 million–$100 million range. The three other states in that range are Arizona ($75 million),
Kentucky ($75 million), and New Jersey ($100 million). Four states have incentive funding caps
above $100 million: New Mexico ($160 million), Louisiana ($150 million), California ($222.5
million), and New York ($700 million). The other notable group of states is those that do not
have incentive funding caps: Connecticut, Georgia, Illinois, Maine, Massachusetts, and West
Virginia.

Film production incentive funding caps limit the number of productions that can receive
credits. Caps may be considered desirable by some elected officials and others not affiliated with
the industry because of concerns about cost-effectiveness (Meares et al., 2020) and to limit
spending on the program (McDonald, 2011). However, local film industry representatives who
we interviewed almost unanimously preferred uncapped programs and said that caps limit local industry growth.\textsuperscript{13} Industry representatives we interviewed also preferred uncapped programs and said that caps limited local industry growth;\textsuperscript{14} we found concurring sentiments in the literature (Klowden and Jackson, 2018; Handfield, 2014). Local interviewees saw a clear connection between the tax credits and the amount of work in the state. One local interviewee noted, “Without consistent funding, work is erratic. Once the money runs out, productions are less likely to come here.”\textsuperscript{15} A national representative of the industry said, “The [funding] cap has capped the size of the industry in Pittsburgh.”\textsuperscript{16}

Other interviewees noted that smaller productions are less likely to receive tax credits because they are allocated to larger films first.\textsuperscript{17} Per year project caps attempt to address this issue by limiting the amount of the overall cap that goes to each project each year. However, currently 25 of the 37 states and District of Columbia that offer film production incentives do not include project caps. In the 13 states with project caps, the maximum each project can receive ranges from $4 million to $25 million. Project caps mean that such states as Nevada ($6-million per year project cap, $10-million overall cap) can support a maximum of two projects annually, and other states, such as Pennsylvania ($20-million per year project cap, $100-million overall cap), can support up to ten projects annually.

The uncertainty surrounding the year-to-year availability of the film production incentives also varies by state. Some states have sunset dates on their film production incentive laws (e.g., Minnesota and Washington), while others have no sunset dates (e.g., Georgia). Uncertainty regarding the availability of incentives in the next year can be a disincentive for productions that may be filmed across two years and for television shows that hope to film in the same location year after year. A national industry representative that we interviewed stated, “If you’re doing a feature, you just have to think of the financing for one event. For a TV series, you want to be there year after year. It would be devastating to set up for the first year and then there’s no guarantee that they’d get the money for the subsequent years.”

Eligibility Criteria and Benefit Terms

A national film industry representative noted,

\begin{quote}
If Ohio gives me 5 percent extra, I’m going to Ohio. That’s part of the business.\textsuperscript{18}
\end{quote}

\textsuperscript{13} Local film industry representatives, interviews with the authors, August 30, 2022 to October 21, 2022.
\textsuperscript{14} National film industry representatives, interviews with the authors, September 6, 2022 to October 28, 2022.
\textsuperscript{15} Local film production representative, telephone interview with the authors, August 30, 2022; local film workforce representative, telephone interview with the authors, September 6, 2022.
\textsuperscript{16} National film industry representative, second telephone interview with the authors, October 3, 2022.
\textsuperscript{17} State film workforce representative, telephone interview with the authors, September 12, 2022.
\textsuperscript{18} National film industry representative, telephone interview with the authors, October 28, 2022.
States specify eligibility criteria for the film productions that can receive incentives to ensure that the benefits of the productions stay in state. As seen in Table A.3 in Appendix A (Peet et al., 2023), the most common criteria for film productions to be eligible for incentives is an in-state spending minimum. These minimums range up to $1.5 million (North Carolina) with variation by type of production. Alternatively, other states, such as Pennsylvania, do not set a minimum spending threshold; rather, they specify a minimum percentage of days for in-state filming. Other eligibility criteria employed by states include training requirements, such as the apprenticeship program in Oklahoma, or diversity in hiring requirements, as in Oregon.

Similarly, many of the benefit terms offered by states are designed to incentivize in-state spending, hiring, and filming. For instance, the tax credits received from hiring resident labor are often 5 percent (Kentucky), 10 percent (Alabama), or 15 percent (Louisiana) greater than they are for nonresident labor. And some states go even further, offering no tax credits for nonresident labor (Tennessee and Utah) or for subsets of nonresident labor, such as above-the-line positions (Washington and Nevada). Additionally, some states include additional benefits for filming in certain locations within the state. For instance, Virginia offers a 5-percent bonus for filming done in prespecified, economically disadvantaged areas. Other states, such as Pennsylvania, offer additional tax credits for certain types of local spending. Specifically, Pennsylvania offers a 5-percent tax credit increase if a certain amount of filming occurs at a qualified production facility. When asked about the various “bumps” that states provide to their base tax credits, one interviewee noted, “They are kind of like icing. The exception in Pennsylvania is the 5 percent [bonus for filming in local] facilities. That elevates the entire tax credit to 30 percent. That gives you a real leg up.”

Finally, states offer benefits for specific types of productions. For example, Tennessee and Washington offer additional tax credits for television series. The logic for promoting television shows is that they run longer than films and may enhance the stability of the industry in the area.

Other Cost Factors

A local film production representative noted,

Local costs make a difference. For instance, Pittsburgh is cheaper than New York City for housing.¹⁹

Another local film production representative explained,

Philly is a competitor [of Pittsburgh’s]. We have the same tax incentives, but the cost of filming in Philly is more expensive. . . . Crew in Philly gets the NYC rate, which is higher than the rate they get in Pittsburgh.²¹

¹⁹ National film industry representative, second telephone interview with the authors, October 3, 2022.
²⁰ Local film production representative, telephone interview with the authors, September 21, 2022.
²¹ Local film production representative, telephone interview with the authors, September 21, 2022.
Although the availability of film production incentives may have the biggest impacts on film production costs, other costs can also influence the filming location decision. The two other cost drivers mentioned most frequently by our interviewees were labor and housing. Labor costs include salaries and, for people who are brought in (typically crew, not talent), transportation, housing, and per diem costs. For staffing crew, productions tend to bring in a few key senior people for certain positions, but they will generally hire locally, when possible, to keep these costs down. Additionally, when competing against a foreign location, the exchange rate can significantly affect the budget.22

Within-state differences in labor, housing, food, and material costs can influence where in a state the film is produced. For instance, using IMPLAN data, we estimate that film industry labor costs are approximately 3 percent lower in Pittsburgh than in Philadelphia—what a film industry representative called a “very affordable rate structure.”23 This difference is, in part, due to local unions and because union members in Philadelphia are part of the New York City chapter. Additionally, the cost of living in Pittsburgh is 5 percent less than in Philadelphia (NerdWallet, undated). Local film workforce representatives with whom we spoke were aware of these cost differences and reported that “costs in Pittsburgh are low relative to D.C., LA, and Philly,”24 and national film industry representatives noted that “food and housing costs are better in Pittsburgh than [in] major cities.”25

Local Resources

After creative fit and cost, the availability and quality of local resources can inform the location decision for a film. Physical resources (such as sound stages), in particular, can influence where in a state the film production occurs. However, according to interviewees, aesthetic fit and cost were the dominant factors driving decisions. In practice, what typically happens is multiple locations that meet a production’s creative needs and can potentially work for their budget will be considered, and then producers consider local resources when making a final decision on location. The two local resources that interviewees mentioned most frequently were skilled crew and production infrastructure. The response we received from interviewees regarding other local resources, such as transportation, location proximity, and permitting (e.g., for road closures) was consistent: Although these attributes are nice to have and can make a

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22 National film industry representative, first and second telephone interviews with the authors, September 6 and October 3, 2022.
23 National film industry representative, second telephone interview with the authors, October 3, 2022.
24 Local film workforce representative, telephone interview with the authors, September 6, 2022.
25 National film industry representative, telephone interview with the authors, September 6, 2022.
location more convenient, the consensus from our interviews with national film industry representatives is that they do not drive decisionmaking.26

The availability of local skilled crew does not just affect production costs as described above; evidence from the literature and from interviews indicates that film productions find it easier, logistically, to use local crew than to pull together crew from multiple locations. Production infrastructure primarily refers to sound stages. Some states and localities that try to compete for productions—including Pennsylvania and New Mexico27—have funded the construction of new sound stages (McNutt, 2015). According to our interviewees and other research, most productions prefer purpose-built sound stages instead of repurposed former industrial or warehouse space, because they are better equipped for a production’s needs (Klowden, Harris, and Lin, 2015).28 Production infrastructure can also include businesses that provide services and amenities that productions need, particularly those that are industry-specific (e.g., companies that rent professional lighting equipment, props, and furniture); accessibility to building supply companies is also important to productions because they often need to purchase materials to build sets (Dockterman, 2018; Handfield, 2014).29

Pittsburgh faces several challenges related to local resources in attracting film productions. The first challenge is the quantity and diversity of its labor force. According to several interviewees, the small size of the film workforce in Pittsburgh means that only three to five major projects can be supported at a time.30 Additionally, interviewees reported that film production companies are increasingly seeking diversity in their crews,31 and with Pittsburgh’s population being relatively less diverse than Philadelphia’s, interviewees reported that it has been a challenge to recruit, train, and connect a diverse crew.32 The second challenge that Pittsburgh faces is its lack of high-quality production infrastructure. Pittsburgh currently lacks studio space (although there have been several investments made to address this gap, such as the

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26 National film industry representatives, interviews with the authors, September 6, 2022 to October 28, 2022.
27 Local film workforce representative, telephone interview with the authors, October 21, 2022; national film industry representative, first telephone interview with the authors, October 3, 2022.
28 National film industry representatives, telephone interviews with the authors, September 6, October 3, and October 28, 2022; local film workforce representative, telephone interviews with the authors, October 21, 2022.
29 Local film production representatives, telephone interviews with the authors, August 30 and September 21, 2022; local film workforce representatives, telephone interviews with the authors, September 6 and October 21, 2022; national industry representatives, first and second telephone interviews with the authors, September 6 and October 3, 2022.
30 Local film production representative, telephone interview with the authors, August 30 and September 21, 2022; national film industry representative, telephone interview with the authors, September 6, 2022; local film workforce representative, telephone interview with the authors, September 6, 2022.
31 National film industry representative, telephone interview with the authors, September 6, 2022; local film production representative, telephone interview with the authors, September 8, 2022.
32 Local film workforce representatives, telephone interview with the authors, September 6 and October 21, 2022.
sound stage development at the Carrie Furnace), and existing studios—many of which are converted warehouses—have odd spatial configurations that can constrain productions.

Another type of local resource is reputation—in particular, the reputation of the area’s film industry workforce and the region overall as a filming location. Several interviewees spoke of the positive reputation of Pittsburgh’s workforce and the positive reputation of the city as a filming location as a whole, although the latter may not be widely known. One national film industry representative with an affinity for Pittsburgh suggested that the city or state should do more to let film executives know what a great place Pittsburgh is to film in:

Pittsburgh still has a reputation as a dirty old city—it has an image issue. That’s an issue to be thought about. How do you improve people’s knowledge of the city, so they know it’s not like that? . . . You want to make sure people in my position know how good things are.  

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Similarly, if a producer has had a good experience with a location and its crew in past productions, it is more likely that they will select that location in the future, because of their confidence in the crew, their knowledge of available resources, and available intermediaries between the location and Hollywood (Doeringer et al., 2012; Handfield, 2014).  

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Also, if a production decisionmaker has local connections to the area, that affinity may also increase the likelihood of their choosing it as a place to film. For example, director George Romero grew up in Pittsburgh and attended Carnegie Mellon University, later returning numerous times to film zombie movies in the region in the 1960s, 1970s, and 1980s. More recently, Pittsburgh native Billy Porter returned to the city in 2021 for his directorial debut filming Anything’s Possible. When promoting the film, Porter was quoted as saying, “It’s a love letter to Pittsburgh. Many people don’t really realize that Pittsburgh is actually the place to be” (Tate and Jones, 2022). A local film production representative talked about the importance of supporting local talent and engaging individuals from Pittsburgh who have gone on to be successful in the industry: “People will come back for the region, not because they need the work, but because of their ties here.”  

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33 National film industry representative, telephone interview with the authors, September 6, 2022.
34 National film industry representative, second telephone interview with the authors, October 3, 2022; local film workforce representative, telephone interview with the authors, October 21, 2022.
35 Local film production representative, telephone interview with the authors, September 8, 2022.
Chapter 4. Film Industry Workforce

In the previous chapter, we described factors that affect the filming location decision. The film industry workforce is an important determinant of both the cost and local resource factors. In this chapter, we examine the film industry workforce—in particular, the nearly 2,400 people that work in the film industry in Pittsburgh, Pennsylvania. We begin by describing occupations in the film industry, including their wages, self-employment opportunities, and education and training requirements. Using these characteristics, we examine whether film industry jobs represent good career opportunities. Noting that film industry employment in Pittsburgh represents 42 percent of film industry employment statewide and 0.17 percent of all regional employment, 36 we then examine Pittsburgh’s capacity for film industry expansion based on current occupational distribution. Finally, we examine the film workforce pipeline through postsecondary education and training programs that help prepare individuals for jobs in the film industry.

Film Industry Occupations

In this section, we describe occupations in the film industry, including their wages, self-employment opportunities, and education and training requirements. Table 4.1 displays the top 20 occupations in the film industry (using national data because Pittsburgh metropolitan statistical area [MSA] and state-level data are unavailable), ranked by share of employment among wage and salary workers (i.e., excluding the self-employed). Collectively, these occupations account for about two-thirds of national (salaried) employment in the film industry. Additional columns show (1) the median annual wage for wage and salary workers in these occupations, (2) the annual wage at the 10th percentile of the wage distribution in the occupation (which may offer a better sense of typical starting wages), (3) the percentage of workers in these occupations who are self-employed, (4) the typical level of education required for entry to the occupation, and (5) the typical amount of on-the-job training needed to attain competency in the occupation. Note, however, that Table 4.1 reflects characteristics for these occupations across all industries (except for the percentage of film industry employment); industry-specific wage and education data are unavailable.

36 See the online Appendix C for a description of how this estimate was obtained and trends in regional film industry employment (Peet et al., 2023).
<table>
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<th>Occupation</th>
<th>% of Film Industry Employment</th>
<th>Median Annual Wage, All Industries ($ 2021)</th>
<th>10th Percentile Annual Wage, All Industries ($ 2021)</th>
<th>% Self-Employed in Occupation, All Industries</th>
<th>Typical Education Required for Entry</th>
<th>Typical On-the-Job Training Needed for Competency</th>
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<tbody>
<tr>
<td>All occupations, all industries</td>
<td>N/A</td>
<td>$45,760</td>
<td>$23,980</td>
<td>6.3%</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Producers and directors</td>
<td>19.4%</td>
<td>$79,000</td>
<td>$38,210</td>
<td>10.0%</td>
<td>Bachelor’s</td>
<td>None</td>
</tr>
<tr>
<td>Film and video editors</td>
<td>6.7%</td>
<td>$62,680</td>
<td>$37,060</td>
<td>35.8%</td>
<td>Bachelor’s</td>
<td>None</td>
</tr>
<tr>
<td>Actors</td>
<td>6.2%</td>
<td>N/A</td>
<td>N/A</td>
<td>33.2%</td>
<td>Some college, no degree</td>
<td>&gt; 1 year</td>
</tr>
<tr>
<td>General and operations managers</td>
<td>4.2%</td>
<td>$97,970</td>
<td>$43,260</td>
<td>0.4%</td>
<td>Bachelor’s</td>
<td>None</td>
</tr>
<tr>
<td>Camera operators, television, video, and film</td>
<td>3.0%</td>
<td>$49,230</td>
<td>$30,160</td>
<td>35.3%</td>
<td>Bachelor’s</td>
<td>None</td>
</tr>
<tr>
<td>Audio and video technicians</td>
<td>2.8%</td>
<td>$48,820</td>
<td>$30,160</td>
<td>12.3%</td>
<td>Postsecondary nondegree award</td>
<td>&lt; 1 month</td>
</tr>
<tr>
<td>Accountants and auditors</td>
<td>2.7%</td>
<td>$77,250</td>
<td>$47,970</td>
<td>4.2%</td>
<td>Bachelor’s</td>
<td>None</td>
</tr>
<tr>
<td>Special effects artists and animators</td>
<td>2.5%</td>
<td>$78,790</td>
<td>$46,000</td>
<td>63.3%</td>
<td>Bachelor’s</td>
<td>None</td>
</tr>
<tr>
<td>Media and communication equipment workers, all other</td>
<td>2.4%</td>
<td>$63,250</td>
<td>$29,120</td>
<td>10.3%</td>
<td>High school only</td>
<td>&lt; 1 month</td>
</tr>
<tr>
<td>Production, planning, and expediting clerks</td>
<td>2.0%</td>
<td>$48,040</td>
<td>$31,550</td>
<td>0.4%</td>
<td>High school only</td>
<td>1–12 months</td>
</tr>
<tr>
<td>Project management specialists</td>
<td>1.8%</td>
<td>$94,500</td>
<td>$49,750</td>
<td>1.3%</td>
<td>Bachelor’s</td>
<td>None</td>
</tr>
<tr>
<td>Executive secretaries and executive administrative assistants</td>
<td>1.7%</td>
<td>$62,060</td>
<td>$38,620</td>
<td>0.3%</td>
<td>High school only</td>
<td>None</td>
</tr>
<tr>
<td>Market research analysts and marketing specialists</td>
<td>1.7%</td>
<td>$63,920</td>
<td>$37,570</td>
<td>4.0%</td>
<td>Bachelor’s</td>
<td>None</td>
</tr>
<tr>
<td>Editors</td>
<td>1.7%</td>
<td>$63,350</td>
<td>$36,970</td>
<td>11.9%</td>
<td>Bachelor’s</td>
<td>None</td>
</tr>
<tr>
<td>Marketing managers</td>
<td>1.6%</td>
<td>$135,030</td>
<td>$77,680</td>
<td>8.7%</td>
<td>Bachelor’s</td>
<td>None</td>
</tr>
<tr>
<td>Media and communication workers, all other</td>
<td>1.6%</td>
<td>$49,900</td>
<td>$29,080</td>
<td>9.3%</td>
<td>High school only</td>
<td>&lt; 1 month</td>
</tr>
<tr>
<td>Art directors</td>
<td>1.4%</td>
<td>$100,890</td>
<td>$57,220</td>
<td>63.7%</td>
<td>Bachelor’s</td>
<td>None</td>
</tr>
<tr>
<td>Software developers</td>
<td>1.3%</td>
<td>$120,730</td>
<td>$64,470</td>
<td>1.5%</td>
<td>Bachelor’s</td>
<td>None</td>
</tr>
<tr>
<td>Graphic designers</td>
<td>1.3%</td>
<td>$50,710</td>
<td>$31,310</td>
<td>18.9%</td>
<td>Bachelor’s</td>
<td>None</td>
</tr>
</tbody>
</table>
### Office clerks, general

<table>
<thead>
<tr>
<th>Occupation</th>
<th>% of Film Industry Employment</th>
<th>Median Annual Wage, All Industries ($ 2021)</th>
<th>10th Percentile Annual Wage, All Industries ($ 2021)</th>
<th>% Self-Employed in Occupation, All Industries</th>
<th>Typical Education Required for Entry</th>
<th>Typical On-the-Job Training Needed for Competency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Office clerks, general</td>
<td>1.2%</td>
<td>$37,030</td>
<td>$23,500</td>
<td>0.4%</td>
<td>High school only</td>
<td>&lt; 1 month</td>
</tr>
</tbody>
</table>


NOTES: “N/A” indicates that data are not applicable or not reported; “percentage of film industry employment” refers to the share of employment in the motion picture and video industries (per the North American Industry Classification System [NAICS] code 5121), excluding workers in motion picture and video exhibition (NAICS 51213).

Several points merit emphasis. First, the film industry offers opportunities for workers at all levels of education and training, from graduates of bachelor’s or advanced degree programs to those with a high school diploma. Second, we see that median annual wages for occupations accounting for among the largest shares of film industry employment tend to be higher than the median across all occupations. Not until the 20th most-common occupation, office clerks, does a key film industry occupation pay wages below the national median. Notably, occupations paying wages above the national median include a mix of those typically requiring a bachelor’s degree for entry, such as producers, directors, and managerial roles. In contrast, jobs that require only a high school diploma or subbaccalaureate postsecondary credentials (e.g., technician) pay wages closer to the median. We see similar patterns for wages as measured by the 10th percentile wage in each occupation. Third, among occupations requiring less than a bachelor’s degree for entry, the amount of on-the-job training needed to gain competency (i.e., to learn occupation-specific but not necessarily position-specific skills) ranges from less than a month (e.g., office clerk) to more than a year (e.g., actor). Last, many occupations common to the film industry have much higher-than-average rates of self-employment.

## Capacity for Expansion

We now examine Pittsburgh’s capacity for film industry expansion. We first assess the current occupational distribution in Pittsburgh and then explore potential occupational synergies that may enable shared employment in film and other industries or job transitions from other industries to the film industry.

### Current Occupational Distribution

Table 4.2 displays the set of occupations that account for the largest shares of national film industry employment, along with data on the size of and typical wages in these occupations in the Pittsburgh region. Although the data are not limited to employment in the film industry, they shed light on the capacity of the pool of labor in the Pittsburgh region to support the film industry at present and in the context of a potential expansion of the sector. The data are sorted
by location quotient, a measure of the relative concentration of the occupation in the Pittsburgh MSA. Location quotients above 1.00 indicate that the occupation composes a larger share of Pittsburgh MSA employment than of national employment; location quotients below 1.00 indicate that the occupation is less prevalent in the Pittsburgh MSA than it is nationally. To enable comparisons between Pittsburgh-area wages and typical national wages in these occupations, the rightmost column lists the median annual wage nationally (from Table 4.1). However, we caution that the national median includes workers in nonmetropolitan areas, who typically earn less than workers in metropolitan areas (Fayer and Watson, 2020). As a result, the lower median wages for most occupations in the Pittsburgh MSA relative to national median wages likely understate the magnitude of this difference relative to median wages for workers in metropolitan areas.

Table 4.2. Employment in Key Film Industry Occupations, All Industries, Pittsburgh MSA, 2021

<table>
<thead>
<tr>
<th>Occupation</th>
<th>Pittsburgh MSA Employment, All Industries</th>
<th>Pittsburgh MSA Location Quotient</th>
<th>Pittsburgh MSA Median Annual Wage, All Industries ($ 2021)</th>
<th>National Median Annual Wage, All Industries ($ 2021)</th>
</tr>
</thead>
<tbody>
<tr>
<td>All occupations, all industries</td>
<td>1,043,000</td>
<td>1.00</td>
<td>$46,210</td>
<td>$45,760</td>
</tr>
<tr>
<td>Actors</td>
<td>480</td>
<td>2.14</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Audio and video technicians</td>
<td>610</td>
<td>1.64</td>
<td>$44,790</td>
<td>$48,820</td>
</tr>
<tr>
<td>Accountants and auditors</td>
<td>11,670</td>
<td>1.20</td>
<td>$66,190</td>
<td>$77,250</td>
</tr>
<tr>
<td>Art directors</td>
<td>360</td>
<td>1.15</td>
<td>$78,560</td>
<td>$100,890</td>
</tr>
<tr>
<td>Office clerks, general</td>
<td>21,650</td>
<td>1.13</td>
<td>$37,450</td>
<td>$37,030</td>
</tr>
<tr>
<td>Market research analysts and marketing specialists</td>
<td>5,850</td>
<td>1.09</td>
<td>$61,850</td>
<td>$63,920</td>
</tr>
<tr>
<td>General and operations managers</td>
<td>23,690</td>
<td>1.07</td>
<td>$97,740</td>
<td>$97,970</td>
</tr>
<tr>
<td>Project management specialists</td>
<td>5,660</td>
<td>1.03</td>
<td>$80,120</td>
<td>$94,500</td>
</tr>
<tr>
<td>Graphic designers</td>
<td>1,550</td>
<td>1.03</td>
<td>$49,230</td>
<td>$50,710</td>
</tr>
<tr>
<td>Marketing managers</td>
<td>1,980</td>
<td>0.96</td>
<td>$127,690</td>
<td>$135,030</td>
</tr>
<tr>
<td>Editors</td>
<td>590</td>
<td>0.90</td>
<td>$59,680</td>
<td>$63,350</td>
</tr>
<tr>
<td>Software developers</td>
<td>8,720</td>
<td>0.86</td>
<td>$99,880</td>
<td>$120,730</td>
</tr>
<tr>
<td>Film and video editors</td>
<td>150</td>
<td>0.71</td>
<td>$47,230</td>
<td>$62,680</td>
</tr>
<tr>
<td>Camera operators, television, video, and film</td>
<td>100</td>
<td>0.69</td>
<td>$37,050</td>
<td>$49,230</td>
</tr>
<tr>
<td>Occupation</td>
<td>Pittsburgh MSA Employment, All Industries</td>
<td>Pittsburgh MSA Location Quotient</td>
<td>Pittsburgh MSA Median Annual Wage, All Industries ($ 2021)</td>
<td>National Median Annual Wage, All Industries ($ 2021)</td>
</tr>
<tr>
<td>--------------------------------------------------------</td>
<td>------------------------------------------</td>
<td>----------------------------------</td>
<td>----------------------------------------------------------</td>
<td>-----------------------------------------------------</td>
</tr>
<tr>
<td>Executive secretaries and executive administrative assistants</td>
<td>2,220</td>
<td>0.64</td>
<td>$61,190</td>
<td>$62,060</td>
</tr>
<tr>
<td>Production, planning, and expediting clerks</td>
<td>1,640</td>
<td>0.60</td>
<td>$48,670</td>
<td>$48,040</td>
</tr>
<tr>
<td>Producers and directors</td>
<td>540</td>
<td>0.53</td>
<td>$61,680</td>
<td>$79,000</td>
</tr>
<tr>
<td>Special effects artists and animators</td>
<td>50</td>
<td>0.32</td>
<td>$60,820</td>
<td>$78,790</td>
</tr>
</tbody>
</table>

SOURCE: Features BLS data from the Occupational Employment and Wages program (BLS, undated-b). NOTES: "N/A" indicates that data are not applicable or not reported; “key film industry occupations” refers to the top 20 occupations by national share of employment in the motion picture and video industries (NAICS 5121), excluding workers in motion picture and video exhibition (NAICS 51213). Data on media and communication equipment workers, all other, and media and communication workers, all other were not available for the Pittsburgh MSA in 2021.

From a magnitude standpoint, ten of the 20 occupations accounting for the largest shares of film industry employment nationally employ at least 1,000 people in the Pittsburgh MSA (as of 2021), while the other ten occupations employ fewer than 1,000 (including two instances for which local employment in the occupation was not reported by BLS, likely due to the small number of workers in those occupations). Relative to the nation, the Pittsburgh MSA has a larger share of its workforce employed as actors, as well as several other occupations typically needed to support the business and financial operations of the film industry (e.g., accountants, marketing research analysts, and general managers) and a few technical or creative positions (e.g., audio and video technicians, art directors, and graphic designers). As is the case nationally, workers in key film industry occupations tend to earn wages above the national median across all occupations in the Pittsburgh MSA. However, for two occupations—audio and video technicians and camera operators—national wages exceed the national median, while local wages fall short of the local median. With respect to both national and local wages, it is important to note that median annual wages are calculated by BLS as the median hourly wage multiplied by 2,080, reflecting full-time (40 hours), full-year (52 weeks) employment. Workers earning typical wages for the occupation but working less than full time could expect to earn less annually.

These data also illustrate current gaps in the Pittsburgh film industry workforce. These gaps span both below- and above-the-line positions, as well as post-production positions. For instance, a relatively low share of the Pittsburgh MSA workforce is employed in the below-the-line occupation of camera operators (television, video, and film). Furthermore, a relatively low share of the Pittsburgh MSA workforce is employed in the above-the-line occupation of producers and directors. These above-the-line and creative positions are key factors in the organic growth and sustainability of the local film industry. Additionally, the data show that Pittsburgh MSA lacks a
concentration of post-production workforce in such occupations as film and video editors and special effects artists and animators.

In the long term, these gaps in the Pittsburgh film industry workforce likely need to be filled to improve the sustainability of the local industry. In the short term, with the ebbs and flows of film production schedules and working in the industry, it may be advantageous for current or aspiring film industry workers to consider opportunities in other sectors to help fill any gaps in their schedules that they are seeking to fill. Relatedly, other industries that employ workers in these occupations could stand to benefit from a shared talent pool to the extent it exists or could be cultivated. We turn now to these potential occupational synergies.

**Potential Occupational Synergies Across Industries**

The same data we used to identify key film industry occupations can also be used to identify which *other industries* account for large shares of employment in an occupation. Identifying occupations in these other industries is helpful in assessing the potential for film industry expansion because doing so describes potential shared employment across industries or job transitions from other industries to the film industry. To do so, we grouped occupations that collectively account for the majority of film industry employment nationally into the following sets of occupations, identified by their Standard Occupational Classification (SOC) codes:

- actors, producers, and directors (SOC code 27-2010)
- media and communication equipment workers (SOC code 27-4000), which includes several occupations in the top 20 list (see Tables 4.1 and 4.2), such as film and video editors; actors; camera operators, television, video, and film; audio and video technicians; and media and communication equipment workers, all other. This group also includes sound engineering technicians, lighting technicians, and broadcast technicians.
- general and operations managers (SOC code 11-2021)
- accountants and auditors (SOC code 13-2011)
- special effects artists and animators (SOC code 27-1014).

Table 4.3 displays the top five industries outside the film industry that employ workers in each of these occupational groups. The table also shows the level of employment and share of all occupational employment in the industry. For reference, we also include this information for the film industry itself (excluding exhibition).\(^{37}\)

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\(^{37}\) Industries are identified at the four-digit level of NAICS codes, which strikes a balance between higher levels of aggregation (i.e., two- or three-digit NAICS codes) that may be insufficiently granular to identify occupational synergies and lower levels of aggregation (i.e., five- or six-digit NAICS codes) that may be too small to identify occupational overlap.
Table 4.3. Top Industries by Employment in Key Film Industry Occupational Groups, National, 2021

<table>
<thead>
<tr>
<th>Industry</th>
<th>Number of Employees</th>
<th>% of Occupation Employment in Industry</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Actors, producers, and directors</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Radio and television broadcasting</td>
<td>30,810</td>
<td>18.3%</td>
</tr>
<tr>
<td>Independent artists, writers, and performers</td>
<td>9,790</td>
<td>5.8%</td>
</tr>
<tr>
<td>Advertising, public relations, and related services</td>
<td>8,510</td>
<td>5.1%</td>
</tr>
<tr>
<td>Colleges, universities, and professional schools</td>
<td>6,510</td>
<td>3.9%</td>
</tr>
<tr>
<td>Performing arts companies</td>
<td>6,230</td>
<td>3.7%</td>
</tr>
<tr>
<td>Film industry</td>
<td>66,330</td>
<td>39.4%</td>
</tr>
<tr>
<td><strong>Media and communication equipment workers</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Radio and television broadcasting</td>
<td>31,480</td>
<td>16.2%</td>
</tr>
<tr>
<td>Other professional, scientific, and technical services</td>
<td>21,480</td>
<td>11.1%</td>
</tr>
<tr>
<td>Rental and leasing services</td>
<td>9,170</td>
<td>4.7%</td>
</tr>
<tr>
<td>Colleges, universities, and professional schools</td>
<td>7,980</td>
<td>4.1%</td>
</tr>
<tr>
<td>Cable and other subscription programming</td>
<td>4,220</td>
<td>2.2%</td>
</tr>
<tr>
<td>Film industry</td>
<td>42,490</td>
<td>21.9%</td>
</tr>
<tr>
<td><strong>General and operations managers</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Restaurants and other eating places</td>
<td>122,440</td>
<td>4.1%</td>
</tr>
<tr>
<td>Management, scientific, and technical consulting services</td>
<td>108,670</td>
<td>3.6%</td>
</tr>
<tr>
<td>Management of companies and enterprises</td>
<td>103,380</td>
<td>3.5%</td>
</tr>
<tr>
<td>Computer systems design and related services</td>
<td>79,450</td>
<td>2.7%</td>
</tr>
<tr>
<td>Merchant wholesalers, durable goods</td>
<td>69,860</td>
<td>2.3%</td>
</tr>
<tr>
<td>Film industry</td>
<td>10,900</td>
<td>0.4%</td>
</tr>
<tr>
<td><strong>Accountants and auditors</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Accounting, tax preparation, bookkeeping, and payroll services</td>
<td>326,570</td>
<td>24.8%</td>
</tr>
<tr>
<td>Management of companies and enterprises</td>
<td>104,760</td>
<td>7.9%</td>
</tr>
<tr>
<td>Real estate</td>
<td>38,290</td>
<td>2.9%</td>
</tr>
<tr>
<td>Management, scientific, and technical consulting services</td>
<td>33,970</td>
<td>2.6%</td>
</tr>
<tr>
<td>Securities, commodity contracts, and other financial investments and related activities</td>
<td>30,990</td>
<td>2.4%</td>
</tr>
<tr>
<td>Film industry</td>
<td>7,040</td>
<td>0.5%</td>
</tr>
<tr>
<td><strong>Special effects artists and animators</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Software publishers</td>
<td>2,930</td>
<td>14.3%</td>
</tr>
<tr>
<td>Computer systems design and related services</td>
<td>2,660</td>
<td>13.0%</td>
</tr>
</tbody>
</table>
Unsurprisingly, these results show that a large portion of actors, producers, and directors and of media and communication equipment workers are employed in the radio and television broadcasting industry. However, the results also show that media and communication equipment workers are also frequently employed in other professional, scientific, and technical services. Furthermore, these results show that special effects artists and animators—32.2 percent of whom are employed in the film industry—are also frequently employed by software publishers or the computer systems design and related services industry. The two other occupational groups that account for the largest shares of film production employment are more commonly employed in other industries. For instance, the film industry represents only a small portion of occupational employment for accountants and auditors, the largest portion of whom work in accounting, tax preparation, bookkeeping, and payroll services.

Among the industries that employ large numbers of workers in occupations important to the film industry, some are more prevalent in the Pittsburgh area than others. Table 4.4 displays BLS industry employment and local establishment count (i.e., physical locations of businesses) data for the Pittsburgh MSA. The table is sorted by industry employment location quotient, which functions similarly to an occupation location quotient. A value greater than 1.00 indicates that the industry accounts for a higher share of local employment than nationally; for example, the share of employment at colleges, universities, and professional schools is more than three times greater in the Pittsburgh MSA than in the U.S. economy overall.

<table>
<thead>
<tr>
<th>Occupation</th>
<th>Employment, All Occupations</th>
<th>Employment Location Quotient</th>
<th>Count of Local Establishments</th>
</tr>
</thead>
<tbody>
<tr>
<td>All private industry</td>
<td>938,042</td>
<td>1.05</td>
<td>61,495</td>
</tr>
<tr>
<td>Colleges, universities, and professional schools</td>
<td>26,308</td>
<td>3.02</td>
<td>32</td>
</tr>
<tr>
<td>Management of companies and enterprises</td>
<td>37,404</td>
<td>2.19</td>
<td>795</td>
</tr>
<tr>
<td>Performing arts companies</td>
<td>727</td>
<td>1.16</td>
<td>72</td>
</tr>
<tr>
<td>Occupation</td>
<td>Employment, All Occupations</td>
<td>Employment Location Quotient</td>
<td>Count of Local Establishments</td>
</tr>
<tr>
<td>---------------------------------------------------------------------------</td>
<td>-----------------------------</td>
<td>-----------------------------</td>
<td>------------------------------</td>
</tr>
<tr>
<td>Accounting, tax preparation, bookkeeping, and payroll services</td>
<td>7,766</td>
<td>1.01</td>
<td>913</td>
</tr>
<tr>
<td>Merchant wholesalers, durable goods</td>
<td>21,945</td>
<td>0.96</td>
<td>1638</td>
</tr>
<tr>
<td>Other professional, scientific, and technical services</td>
<td>5,536</td>
<td>0.96</td>
<td>715</td>
</tr>
<tr>
<td>Securities, commodity contracts, and other financial investments and related activities</td>
<td>6,695</td>
<td>0.95</td>
<td>876</td>
</tr>
<tr>
<td>Restaurants and other eating places</td>
<td>66,948</td>
<td>0.94</td>
<td>4,125</td>
</tr>
<tr>
<td>Other professional, scientific, and technical services</td>
<td>5,536</td>
<td>0.96</td>
<td>715</td>
</tr>
<tr>
<td>Real estate</td>
<td>9,098</td>
<td>0.73</td>
<td>1,820</td>
</tr>
<tr>
<td>Software publishers</td>
<td>2,960</td>
<td>0.73</td>
<td>157</td>
</tr>
</tbody>
</table>

**SOURCE:** Features BLS data from the Quarterly Census of Employment and Wages (QCEW) program (BLS, 2020).

**NOTES:** For the following seven industries, employment information is not available due to BLS data suppression rules, even though they are present in the Pittsburgh MSA (establishment counts in parentheses): rental and leasing services (388); advertising, public relations, and related (286); specialized design services (195); other information services (171); independent artists, writers, and performers (85); radio and television broadcasting (40); and cable and other programming (1).

These industries, which collectively make up more than one-fifth of Pittsburgh MSA employment, may be ripe for cross-pollination with the local film industry. This is especially true for industries with higher employment location quotients, such as colleges, universities, and performing arts companies. Film industry employees, when not working on film productions, might find job opportunities at employers in these industries. At the same time, workers in these industries might be candidates to change jobs and support a possible expansion of the local film industry. Last, employers in these industries could potentially collaborate with film industry employers to build out local talent pipelines of occupations important to both of them.

**Film Workforce Pipelines**

We conclude this chapter by examining the Pittsburgh region’s postsecondary education and training programs for jobs in the film industry. While the region has a sizable presence of workers in occupations forming a large portion of film industry employment, the occupational share of regional employment is less than national employment for other film industry occupations, including for film and video editors and for special effects artists and animators. The low presence of workers in some key film occupations could limit the benefits of local film productions and the potential for local film industry expansion. In the sections below, we explore education and training programs aligned with the top 20 occupations by share of film industry employment.
employment (excluding exhibition), assessing postsecondary education programs,\(^{38}\) as well as other education or training opportunities (e.g., apprenticeships).

**Postsecondary Education Programs**

Table 4.5 describes the number of postsecondary education programs in the Pittsburgh region that align with key film industry occupations. The table is organized by share of national film industry employment in the occupation. Columns display the typical level of education required for entry to the occupation, the number of postsecondary institutions in the Pittsburgh area that offer programs in an aligned occupation, and the number of completions of those aligned programs in the 2020–2021 school year. We focus on bachelor’s degree programs and below because none of the aligned occupations require advanced degrees for entry.

<table>
<thead>
<tr>
<th>Occupation</th>
<th>Typical Education Required for Entry</th>
<th>Number of Providers with Programs, by Credential Level</th>
<th>Number of Program Completions, by Credential Level</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Subbaccalaureate Certificate</td>
<td>Associate Degree</td>
</tr>
<tr>
<td>Producers and directors</td>
<td>Bachelor’s</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Film and video editors</td>
<td>Bachelor’s</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>Actors</td>
<td>Some college, no degree</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>General and operations managers</td>
<td>Bachelor’s</td>
<td>11</td>
<td>7</td>
</tr>
<tr>
<td>Camera operators, television, video, and film</td>
<td>Bachelor’s</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Audio and video technicians</td>
<td>Postsecondary nondegree award</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Accountants and auditors</td>
<td>Bachelor’s</td>
<td>5</td>
<td>3</td>
</tr>
</tbody>
</table>

\(^{38}\) We identified postsecondary educational programs by using the U.S. Department of Education’s (ED’s) Integrated Postsecondary Education Data System and a crosswalk of occupations and programs built through a collaboration between ED and BLS. The 2020 Classification of Instructional Programs (CIP)/SOC crosswalk identifies programs connected with the top 20 film occupations, then ED data determine the presence of these programs in Pittsburgh-area postsecondary institutions (National Center for Education Statistics [NCES], undated-a). The scale of the programs is described using completion data for 2020–2021. The available data are limited to credit-bearing certificate programs at these institutions.
<table>
<thead>
<tr>
<th>Occupation</th>
<th>Typical Education Required for Entry</th>
<th>Number of Providers with Programs, by Credential Level</th>
<th>Number of Program Completions, by Credential Level</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Subbacc-laureate Certificate</td>
<td>Associate Degree</td>
</tr>
<tr>
<td>Special effects artists and animators</td>
<td>Bachelor’s</td>
<td>7</td>
<td>5</td>
</tr>
<tr>
<td>Production, planning, and expediting clerks</td>
<td>High school only</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Project management specialists</td>
<td>Bachelor’s</td>
<td>5</td>
<td>7</td>
</tr>
<tr>
<td>Executive secretaries and executive administrative assistants</td>
<td>High school only</td>
<td>3</td>
<td>5</td>
</tr>
<tr>
<td>Market research analysts and marketing specialists</td>
<td>Bachelor’s</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Editors</td>
<td>Bachelor’s</td>
<td>6</td>
<td>1</td>
</tr>
<tr>
<td>Marketing managers</td>
<td>Bachelor’s</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Media and communication workers, all other</td>
<td>High school only</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Art directors</td>
<td>Bachelor’s</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Software developers</td>
<td>Bachelor’s</td>
<td>3</td>
<td>5</td>
</tr>
<tr>
<td>Graphic designers</td>
<td>Bachelor’s</td>
<td>7</td>
<td>6</td>
</tr>
<tr>
<td>Office clerks, general</td>
<td>High school only</td>
<td>1</td>
<td>0</td>
</tr>
</tbody>
</table>

SOURCE: Features BLS data from the Occupational Employment and Wage Statistics and Employment Projections programs (BLS, undated-a; BLS, undated-b); and ED data from the Integrated Postsecondary Education Data System (NCES, undated-b).

NOTE: Occupations listed reflect the top 20 occupations by share in 2021, excluding exhibition. Programs and completions data reflect credit-bearing programs only and do not include any noncredit credentials the institutions may also offer. The Pittsburgh PFO region consists of the following ten counties: Allegheny, Armstrong, Beaver, Butler, Fayette, Green, Indiana, Lawrence, Washington, and Westmoreland. We omitted one occupation (media and communications equipment workers, all other) from this table because no academic programs aligned with this occupation appear in the 2020 CIP/SOC crosswalk used for this analysis.

For most occupations requiring postsecondary education, there are at least a half dozen schools in the area that offer preparatory credentials, with both geographical and institutional options (e.g., public versus private schools). Moreover, for many of the occupations that are current gaps in the Pittsburgh film industry workforce, programs exist that are producing credentialed labor. For example, although the Pittsburgh film industry workforce currently lacks a concentration of producers and directors or of special effects artists and animators, nine
programs at local higher education institutions offer bachelor’s degrees, the typical level of education required for entry in these occupations.

On the other hand, for some other occupations, there appears to be misalignment between the credential typically required for entry and local educational offerings. For example, while film and video editor positions and camera operator positions typically require a bachelor’s degree, available bachelor’s degree programs at local higher education institutions are limited. Just three local institutions offer programs in the areas most closely aligned with camera operator positions (according to the 2020 CIP/SOC crosswalk): Carnegie Mellon University, Point Park University, and Westminster College. Just two institutions offer programs aligned with film and video editing: Carnegie Mellon and Point Park. Additionally, while audio and video technician positions typically require a subbaccalaureate certificate, the data showed that only one associate degree program was available in the area as of 2020–2021 (a photographic and film/video technology/technician program at Westmoreland County Community College).

We caution that this data-driven approach to describing program availability has limitations. On the one hand, we know that there are programs, such as the film technician program at the Community College of Allegheny County (another associate degree program available in the area), that are missing in the data. Additionally, programs not explicitly listed in the 2020 CIP/SOC crosswalk may still offer sufficient preparation for key film industry jobs. Conversely, graduates of local programs aligned with these occupations might enter other occupations instead or may leave the region entirely, meaning that they may not be a viable source of workers for the Pittsburgh-area film industry. However, we believe this approach provides a reasonable estimate of the breadth of education program availability in the Pittsburgh region.

Other Education and Training Opportunities

Programs offered outside the traditional higher education institution landscape might provide additional opportunities to gain the knowledge and skills needed to work in the film industry. These opportunities are typically geared toward individuals who do not have and do not plan to pursue college degrees. This analysis is informed by two data sources: a U.S. Department of Labor list of registered apprenticeship programs (as of 2022) and Pennsylvania’s Eligible Training Provider List of programs for which participants meeting eligibility criteria may be able to receive financial support through the Workforce Innovation and Opportunity Act (i.e., the public workforce development system).

These data show three film industry training programs: (1) an apprenticeship program sponsored by Goodwill of Southwestern Pennsylvania that prepares production, planning, and expediting clerks; (2) a multimedia technologies and video production program at the Pittsburgh Technical College; and (3) a multimedia design program at Forbes Road Career and Technology Center (U.S. Department of Labor, undated; Pennsylvania’s Eligible Training Provider List, undated). However, the paucity of programs comes with a few caveats. First, the occupations that account for the largest shares of film industry employment generally require either a bachelor’s degree or do not require
education beyond high school. In this case, short- to medium-term on-the-job training is all that would be needed to attain competency. Second, programs eligible for inclusion on the Eligible Training Provider List and for which participants may be able to receive workforce development funding must be considered high-priority occupations, as identified by local workforce development boards and approved by the state’s Department of Labor and Industry. So, some relevant programs may be excluded from this list. Third, we may have missed programs not explicitly aimed at film production but that offer some preparation for working in the film industry. For instance, the Pittsburgh region’s 20 high school career and technical education centers (at least one in each county in the region) offer multimedia/design, carpentry/construction, and culinary arts programs that may provide some relevant training. Last, outside these data sources, we note that the PFO has created *Pittsburgh Film Works!* which offers a workforce training program in partnership with the International Alliance of Theatrical Stage Employees and Reel Works/MediaMRKS. This program offers no-cost, paid training to Pittsburgh residents, preparing them to work in union positions. As of this report’s publication, graduates of the program have completed film industry training in areas ranging from electrical to grip to hair, and future areas of training are currently being discussed.
Movies hemorrhage money everywhere. . . . We’ve done massive repairs on locations. We repaired a historic ceiling at Hartwood Acres. We spend $2,000 catering lunch every day. [X] didn’t like the color of the cement where we were shooting so they paid to repave the entire street. These are examples of local investments, spending on infrastructure that benefits everyone.

—Local film workforce representative

The film industry is composed of a wide array of productions ranging from feature films to television series to documentaries and commercials. Each of these productions involve various types of contributors, such as creative directors and accountants. The number of people working on each production can exceed 300 for feature films, and the demands on each employee during production can be very high. Additionally, other industries are involved in supporting functions during production. Productions hire caterers, purchase building supplies for set design, and use temporary housing for actors and directors. As a result, the total economic contribution of the film industry consists of direct effects (e.g., hired employees) and spillovers to other industries (e.g., food services). While modest in size, Pittsburgh’s film industry contributes to the local economic ecosystem of production, employment, and other activities. In many instances, the local film industry shares a common talent pool of workers with other industries, presenting synergies that could grow the local labor supply for the film industry workforce. Furthermore, other industries in Pittsburgh are key links in the film production supply chain and receive money by providing goods or services.

In this chapter, we describe the economic contribution of the film industry. In doing so, we draw on data from federal statistical agencies and use the IMPLAN input-output model, a proprietary model that analyzes how spending flows through local economies. We focus specifically on the film industry in Pittsburgh, Pennsylvania, and the spillovers from the film industry to other local industries in Pittsburgh. For this analysis, we define the Pittsburgh region as the ten-county area served by the PFO (or the seven-county Pittsburgh MSA plus three counties).

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39 Local film workforce representative, telephone interview with the authors, October 21, 2022.

40 A subset of this analysis focuses on the Pittsburgh MSA only; however, we expect that there is little meaningful difference between the MSA and the PFO service area because the three counties served by the PFO that are not included in the Pittsburgh MSA have near zero film industry employment.
The Film Industry's Contribution to Output and Employment

To understand the economic contribution of the film industry, we first consider its contribution to local economic output and then to employment. In addition to the contribution of the film industry itself, we consider the film industry’s spillovers to other industries in the regional economy. These spillovers include those that occur via the local supply chains that support film production and the local industry sectors that receive money when workers in and suppliers to the film industry spend their labor incomes. We use input-output analysis—specifically, the IMPLAN model—for this analysis.

IMPLAN estimates multipliers for film and other industries—the total amount of local economic activity supported by one dollar of film industry output. Multipliers can be calculated in a similar manner for employment. We examine these multipliers in Pittsburgh and compare them with the spillovers produced by the film industry in other areas. We consider established hubs for film production, such as Los Angeles, Atlanta, and New Orleans, as well as Pittsburgh’s competitors for film production, such as Cincinnati, Boston, and Philadelphia, the other major location for film production in Pennsylvania. In subsequent sections, we compare the spillovers from the film industry with other footloose industries and explore the impact of Pennsylvania’s FPTC, developing a range of scenarios to characterize its likely effects on local industries, including, but not limited to, the film industry.
Output

Overall, the film industry is a small component of Pittsburgh’s regional economy, accounting for 0.23 percent of total output in the area (see Figure 5.1).\(^a\) The output of the film industry is dwarfed by the output of such industries as hospitals (3.4 percent of output), insurance carriers (3.1 percent), and banking (2.8 percent).

\(^a\) The reference year for this calculation is 2018.
Next, we compare the film industry’s share of total output in Pittsburgh with this share in other locations. Here, we include several types of comparators. First, we consider the Los Angeles MSA, given that it has the largest concentration of film production workers in the country.\footnote{We used BLS data from the QCEW program to determine, specifically, the location quotient for film production industry employment, using 2021 annual averages. An industry location quotient is calculated as the share of employment locally in the industry divided by the national share of employment in the industry. Location quotients greater than 1.00 indicate that an industry makes up a larger share of local employment than national employment. Los Angeles had a location quotient of 11.0, more than three times the second-highest location quotient of 3.5 (Atlanta). New Orleans had a location quotient of 3.3. The location quotients for our other comparison areas were 0.44 (Boston), 0.35 (Pittsburgh), 0.21 (Philadelphia), and 0.18 (Cincinnati). The location quotient for Pennsylvania overall was 0.39. Note that our IMPLAN modeling restricts the Philadelphia MSA to those counties within the MSA in Pennsylvania, because those are the counties for film production that would be eligible for the FPTC.} We then include Atlanta and New Orleans as established, second-tier film industry
hubs with the second- and fourth-highest concentration, respectively, of film production workers nationally. We also include two areas with film production industry concentrations similar to Pittsburgh’s: Boston and Cincinnati. Boston and Cincinnati were chosen from among other possible comparators based on findings from our interviews with local stakeholders that described them as areas that Pittsburgh has lost film business to in the recent past. Last, we consider the PFO service region and Pennsylvania overall to see how the Pittsburgh region compares with other portions of the state that compete for FPTCs.

Figure 5.2 shows that the film industry’s share of total output in Pittsburgh is well below the industry’s share of output in established hubs, such as Los Angeles (2.59 percent of MSA output), and second-tier film industry hubs, such as Atlanta and New Orleans (both 0.68 percent of MSA output). However, the film industry’s share of total output in Pittsburgh is slightly ahead of the industry’s share of output in Boston and Cincinnati MSAs (0.18 and 0.13 percent, respectively), the Philadelphia Film Office region (Philadelphia and its surrounding counties within the state of Pennsylvania, at 0.17 percent of output), and the state of Pennsylvania overall (0.16 percent of output).

![Figure 5.2. Film Industry Share of Total Output, by Region](image)

SOURCE: Authors’ analysis of 2018 data from IMPLAN, undated.
NOTE: For the purposes of this analysis, the Pittsburgh region is represented by the PFO service region, which consists of the following ten counties: Allegheny, Armstrong, Beaver, Butler, Fayette, Green, Indiana, Lawrence, Washington, and Westmoreland. Our calculations exclude film exhibition. The Philadelphia Film Office region includes the Pennsylvania counties of Bucks, Chester, Delaware, Montgomery, and Philadelphia. Other regions are defined based on the sets of counties in their U.S. Census Bureau–defined MSAs.

We next focus on output multipliers. The output multiplier describes how each dollar of film industry output supports output in other sectors. In the Pittsburgh area, the output multiplier is $1.80, meaning that each dollar of film industry output supports an additional $0.80 in local...
economic activity. Figure 5.3 compares output multipliers between the film industry and other industries in the Pittsburgh area with the top ten multipliers. Overall, of 448 industries with data for the region in IMPLAN, the film industry multiplier ranks 200th.

Figure 5.3. Output Multipliers for the Top Ten Industries and Film Industry in the Pittsburgh Region

![Output Multipliers Chart]

SOURCE: Authors’ analysis of 2018 data from IMPLAN, undated.
NOTE: For the purposes of this analysis, the Pittsburgh region is represented by the PFO service region, which consists of the following ten counties: Allegheny, Armstrong, Beaver, Butler, Fayette, Green, Indiana, Lawrence, Washington, and Westmoreland. Our calculations exclude film exhibition. Multipliers include direct, indirect, and induced effects, which are also known as Type SAM multipliers (SAM = Social Accounting Matrix).

Note that the film industry output multiplier includes those aspects of the industry of interest to our study (film production, post-production, and distribution), as well as exhibition (i.e., movie theaters). This is a potential limitation of the analysis using the IMPLAN model. Possibly, economic activity and jobs associated with film exhibition could have greater or lesser spillover effects than film production and related aspects of the industry. However, to examine how film exhibition may be influencing the overall output multiplier that we report, we looked at nonexhibition occupations that account for large shares of employment in the film industry and compared the multipliers of various industries with these occupations with the multipliers of industries with occupations common to film exhibition (e.g., ushers and ticket takers, fast food and counter workers, and cashiers). We then calculated weighted, cross-industry multipliers.
using a method described in Zaber et al. (2023). These cross-industry multipliers show little variation between the creative, technical, and service-oriented occupations common in the film industry. For example, the output multipliers in the Pittsburgh area for producers and directors (1.88) and actors (1.87) are similar to the multipliers for ushers, lobby attendants, and ticket takers (1.86); audio and video technicians (1.88); camera operators (1.87); and fast food and counter workers (1.91). Therefore, we expect that the film industry multiplier including exhibition (1.80) is a fair proxy for the nonexhibition multiplier.

We next compare the film industry output multiplier in Pittsburgh with the same multiplier in other regions. The output multiplier in Pittsburgh is on par with Pennsylvania overall and very similar to the multipliers for Philadelphia and Los Angeles. Figure 5.4 contextualizes the film industry’s output multiplier in Pittsburgh. It is a little larger than the output multiplier for New Orleans but smaller than the multipliers for Atlanta, Boston, and Cincinnati.

![Figure 5.4. Film Industry Output Multipliers, by Region](image)

**Figure 5.4. Film Industry Output Multipliers, by Region**

SOURCE: Authors’ analysis of 2018 data from IMPLAN, undated.
NOTE: Our calculations exclude film exhibition. Multipliers include direct, indirect, and induced effects, which are also known as Type SAM multipliers.

**Employment**

Similar to output, overall employment in the film industry in the Pittsburgh region is small, accounting for 0.1 percent of total employment according to IMPLAN, which builds on data from BLS and the Bureau of Economic Analysis (BEA), whose film industry employment estimates are described in the online Appendix C (Peet et al., 2023). Employment in the film
industry is dwarfed by employment in Pittsburgh-area hospitals, schools, and restaurants, as shown in Figure 5.5.

Figure 5.5. Share of Total Employment, by Industry, in Pittsburgh Region

![Bar chart showing industry shares of employment in Pittsburgh Region]

SOURCE: Authors’ analysis of 2018 data from IMPLAN, undated.
NOTE: This figure compares the share of total employment in the top ten industries and in the film industry. For the purposes of this analysis, the Pittsburgh region is represented by the PFO service region, which consists of the following ten counties: Allegheny, Armstrong, Beaver, Butler, Fayette, Green, Indiana, Lawrence, Washington, and Westmoreland. Our calculations exclude film exhibition. The figure excludes the management of companies and enterprises industry (2.6 percent of employment), which consists of holding companies. Employment reflects a mix of full-time and part-time jobs. govt = government.

Next, in Figure 5.6, we compare the share of employment in Pittsburgh in the film industry with comparison regions. Patterns across regions are broadly similar to what we observed earlier for shares of output, although the shares of employment in the film industry typically are smaller than the shares of output attributable to the film industry. The film industry’s share of employment in Pittsburgh is well below that of Los Angeles’ (1.17 percent) and of second-tier film industry hubs, such as Atlanta (0.45 percent) and New Orleans (0.48 percent). However, the film industry’s share of employment in Pittsburgh is about the same as that in Boston (0.16 percent) and Cincinnati (0.13 percent). Additionally, relative to Philadelphia, the other film hub in Pennsylvania, Pittsburgh’s film industry employment is the same (0.14 percent).
Figure 5.6. Film Industry Share of Total Employment, by Region

SOURCE: Authors’ analysis of 2018 data from IMPLAN, undated.
NOTE: For the purposes of this analysis, the Pittsburgh region is represented by the PFO service region, which consists of the following ten counties: Allegheny, Armstrong, Beaver, Butler, Fayette, Green, Indiana, Lawrence, Washington, and Westmoreland. Our calculations exclude film exhibition. The Philadelphia Film Office region includes the Pennsylvania counties of Bucks, Chester, Delaware, Montgomery, and Philadelphia. Other regions are defined based on the sets of counties in their U.S. Census Bureau–defined MSAs. Employment reflects a mix of full-time and part-time jobs.

Similar to our examination of output, we can also examine employment multipliers that describe how each job in the film industry contributes to total employment. In the Pittsburgh area, the employment multiplier is 2.53, meaning that each job in the Pittsburgh film industry supports about 1.5 additional jobs. Figure 5.7 shows the film industry employment multiplier compared with the employment multipliers of other industries in Pittsburgh. Among the nearly 450 industries in the Pittsburgh area with data, the employment multiplier for the film industry ranks at 138, notably higher than its ranking of 200 among output multipliers. This difference may be due, in part, to the film industry having a relatively high level of output per job. In general, if fewer workers are needed to produce output in an industry, each individual worker in that industry will support more jobs in other industries.
Figure 5.7. Employment Multipliers for the Top Ten Industries and Film Industry in the Pittsburgh Region

SOURCE: Authors’ analysis of 2018 data from IMPLAN, undated.
NOTE: For the purposes of this analysis, the Pittsburgh region is represented by the PFO service region, which consists of the following ten counties: Allegheny, Armstrong, Beaver, Butler, Fayette, Green, Indiana, Lawrence, Washington, and Westmoreland. Our calculations exclude film exhibition. Multipliers include direct, indirect, and induced effects, which are also known as Type SAM multipliers. Employment reflects a mix of full-time and part-time jobs.

Compared with employment multipliers in other regions, Pittsburgh’s employment multiplier is higher than most areas we considered (except for Atlanta’s and Los Angeles’s). Figure 5.8 compares Pittsburgh’s employment multiplier with that of Philadelphia and Pennsylvania overall, as well as with those of Atlanta, Los Angeles, New Orleans, Boston, and Cincinnati.
The Film Industry's Spillovers to Other Local Industries

In addition to the direct effects to output and employment, film production also produces indirect effects, or spillovers, into other industries. The spillovers within the local economy from each dollar of film industry output (or $0.80 in the Pittsburgh area) take two forms. First, indirect effects occur via supply chains—suppliers to the film industry, and suppliers to those suppliers, and so on. To the extent these supply chains exist within the local economy, these spillovers are counted as local indirect effects. Second, when workers (including the self-employed) spend their labor incomes earned from the film industry or through work at local suppliers to the film industry and that spending stays within the local economy, those induced effects are added to the total.

Indirect Effects: Supply Chain Spillovers

Of the $0.80 in additional economic activity that each dollar of film industry output supports in the Pittsburgh region, about half ($0.41) derives from the supply chains to the film industry. Supply chain spillovers to the film industry are larger than about 65 percent of industries in the local economy. About one-third of this amount ($0.13) flows back to the film industry—for instance, when a film production company purchases goods or services from another film production company in the area. The remainder of the spillover is distributed across other

Figure 5.8. Film Industry Employment Multipliers, by Region
Figure 5.9 shows the top 15 recipient industries of indirect supply chain spillovers from film production in the Pittsburgh region.

Pittsburgh-area industries receiving some of the largest supply chain spillovers include independent artists, writers, and performers, which includes freelance contract performers. Other industries receiving spillovers include those associated with promoting the film industry, such as promoters, marketing research, and advertising, public relations, and related services. Other industries receiving spillovers include those closely involved in film activities, such as sound recording industries, internet publishing and broadcasting and web search portals, and commercial and industrial machinery and equipment rental and leasing. Finally, industries that
provide inputs commonly required by businesses regardless of their nature also receive spillovers from film productions, such as real estate, banking and insurance services, and legal services. Also notable is the inclusion of employment services on this list, an industry that encompasses staffing agencies that may provide temporary workers to the film industry. Note that any spending on goods and services at businesses outside the Pittsburgh region is considered a leakage and not tabulated.

**Induced Effects: Labor Income Spillovers**

The other major type of spillovers from the film industry are what are known as *induced* effects, which occur when film industry business owners or their employees spend their incomes on goods and services in the local economy. These effects also accrue when owners and employees in the local supply chain to the film industry spend their incomes locally. Figure 5.10 displays the top 15 recipients of these benefits, which total $0.39 for each dollar of film industry output in the Pittsburgh area.
The magnitude of labor income spillovers can vary by the industry being analyzed, depending on the industry’s use of labor and capital. The Pittsburgh-area film industry is roughly in the middle of the pack among local industries, at $0.39 per dollar of output. However, the distribution of these effects across industries varies little whether the industry being considered is film or another industry entirely, because people tend to spend their money on similar goods and services regardless of their industry of employment. Unsurprisingly, among the top industries represented on this list are owner-occupied dwellings and tenant-occupied housing (an individual’s home); medical services (hospitals, physicians); food and retail products; financial, legal, and insurance services; and education.
Overall, in terms of spillovers to other industries, this analysis suggests that the film industry generates more local spillovers via supply chains than most other industries in the Pittsburgh area; however, the economic contribution via the consumer spending of film workers and of suppliers to the film industry are roughly on par with median spending across all industries in the region.

Comparing the Film Industry’s Economic Contribution with Other Footloose Industries

Up to this point, we have examined the film industry’s economic contribution in terms of direct effects to output and employment, as well as indirect or spillover effects to other industries. In doing so, we have focused on the film industry’s economic contribution in Pittsburgh, Pennsylvania, comparing the film industry with other industries in the region. However, this comparison of the film industry with all other industries includes some industries, both with greater and lesser economic contribution, that either already exist in the area or would not respond to incentives, such as film tax credits, to relocate to the area. For instance, personal care services (2.51) and home health care services (2.31) both have higher output multipliers in Pittsburgh than the film industry, but they already exist in the area. As another example, the commercial hunting and trapping industry has an output multiplier of 6.42, exceeding the output multiplier of the film industry. However, the commercial hunting and trapping industry would not relocate in response to incentives; rather, it can only exist where the natural resources on which it relies are located. These industries, which would not respond to economic development incentives, are less relevant to our assessment of the true value of such incentives.

To provide a set of more appropriate comparators to the film industry, we now consider industries for which incentives have often been offered and have influenced filming location decisions. Specifically, we focus on footloose industries, or industries that are relatively insensitive to location-specific characteristics (Allen and Stone, 1992). High-technology industries, manufacturing industries, and the nexus of the two (high-tech manufacturing) are the most commonly cited footloose industries, and they have been the targets of economic development incentives (Francis, 2016). Figure 5.11 compares the film industry’s output multiplier with those of other footloose industries, specifically manufacturing and high tech.43

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43 We identified relevant footloose industries by using NAICS codes, BLS industry schematics, and IMPLAN sectors. Manufacturing industries are captured by NAICS codes 31 to 33, which map to 329 industry sectors in the IMPLAN sectoring scheme. We used the high-tech industry scheme developed by researchers at the U.S. Census Bureau and BLS, which spans 38 IMPLAN industry sectors (Heckler, 2005).
Figure 5.11. Comparison of Output Multipliers, by Sector, Pittsburgh Region

![Comparison of Output Multipliers, by Sector, Pittsburgh Region](image)

Here, we see that the film industry’s output multiplier ranks above both the high-tech and manufacturing industries. This means that each dollar of film industry output supports more non-film industry output than investments in the high-tech or manufacturing industries.

Disaggregating the high-tech industry into high-tech manufacturing and high-tech non-manufacturing, the film industry’s output multiplier is still greater than that of high-tech manufacturing but less than that of high-tech non-manufacturing. So, while film industry output supports more non-film industry output than high-tech manufacturing does, the best return on investment among footloose industries is in high-tech non-manufacturing. Specific industries contributing to the higher output multiplier in high-tech non-manufacturing include scientific research and development services (2.13); architectural, engineering, and related services (2.02); and satellite, telecommunications resellers, and all other telecommunications (2.00).

Perhaps unsurprisingly, the high-tech non-manufacturing industry is also a frequent recipient of economic development incentives, which have been estimated to approach $50 billion in annual value (Francis, 2016; Bartik, 2019). For instance, between 2006 and 2022, the two largest recipients of non-film tax credits in Pennsylvania have been Merck and Amazon. Merck received $19.6 million in tax credits in 2011 for pharmaceutical research, and Amazon received $15 million in tax credits in 2016 aimed at job creation (Good Jobs First, undated). Despite a higher...
output multiplier in the high-tech non-manufacturing industry, the film industry’s output multiplier exceeds those of other footloose industries in the Pittsburgh region that might be responsive to incentives.

**Economic Contribution of Film Production Incentives**

In this section, we shift our focus from the existing film industry in the Pittsburgh area to the spillovers from film productions that received FPTCs. We consider a set of scenarios that estimate how qualified production spending (eligible for the FPTC) flows through the Pittsburgh-area economy. In doing so, we examine spending on local hotels, restaurants, and equipment that might otherwise not have occurred in the absence of the film production; however, we also examine wages paid to some workers temporarily residing in the area that will be spent outside the local economy. We focus on the ten-year period spanning FY 2011 (2010–2011) through FY 2020 (2019–2020) for which data on actual production expenses by region of the state were available in a series of annual reports by the DCED (DCED, 2011–2020). We use two approaches to estimating spillovers from this spending. The first assumes that the spending constituted an external shock to the local film industry. The second considers alternative distributions of the production spending that may more closely align with the actual spending patterns of film productions when they come to town—and that allow us to consider variation in economic contribution between television and film productions (IFO, 2019).

However, we caution that these analyses of the Pennsylvania film production incentives should not be interpreted as cost-benefit analyses describing the merits of the tax credit relative to the costs of offering it. Importantly, we did not consider the extent to which this spending might have occurred in the absence of the credit, although our qualitative analyses suggest that the tax credit is a crucial factor in spurring film production in the state. We also did not account for the cost to the state of providing the tax credit and how those resources might otherwise be invested (despite, as discussed earlier, the favorability of the film industry’s economic contribution relative to some other footloose industries).

**Pittsburgh-Area Tax Credit–Eligible Production Spending**

The first step to assessing the spillovers from qualified production spending is to identify the magnitude of that spending. To do so, we analyzed ten years of DCED reports on the FPTC. We summed, by FY, actual Pennsylvania production expenditures associated with films produced in the region. Our tabulation includes the expenses associated with tax credit certificates awarded

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44 The reports specify “Pittsburgh and Its Countryside” as the region (DCED, 2011–2020). In four instances, productions were identified as having filmed in multiple locations in Pennsylvania (e.g., in Philadelphia and the countryside or “Dutch Country Roads”); we assigned half of the production expenses of each instance to the Pittsburgh region.
in each FY (because actual spending can and often does lag approval to receive tax credits).\textsuperscript{45} All amounts are inflation-adjusted to 2018 dollars.

**Assuming Shock to Film Industry**

Our first approach to estimating the spillovers to the regional economy from tax credit–eligible production spending uses the previously described IMPLAN output and employment multipliers for the film industry: $0.80 in additional economic activity per dollar of spending and about an additional 1.5 jobs elsewhere in the local economy for every job supported in the film industry itself.\textsuperscript{46} In Table 5.1, we use these multipliers to convert the qualified production expenses in each FY (2011–2020) to output and employment in the Pittsburgh area. Because we did not have access to data on spending in Pennsylvania for those productions that filmed in Pennsylvania but did not receive FPTCs, we were unable to determine whether output and employment supported by those films was greater or lesser than the economic activity supported by the FPTC.

### Table 5.1. Spillovers from Pittsburgh-Area Productions Receiving FPTCs, Assuming Shock to Film Industry, FYs 2011–2020

<table>
<thead>
<tr>
<th>Fiscal Year</th>
<th>Qualified Production Expenditures</th>
<th>Total Output Supported</th>
<th>Total Employment Supported</th>
</tr>
</thead>
<tbody>
<tr>
<td>2011</td>
<td>$260,686,300</td>
<td>$468,767,653</td>
<td>2,187</td>
</tr>
<tr>
<td>2012</td>
<td>$54,099,771</td>
<td>$97,282,529</td>
<td>454</td>
</tr>
<tr>
<td>2013</td>
<td>$129,373,363</td>
<td>$232,639,950</td>
<td>1,086</td>
</tr>
<tr>
<td>2014</td>
<td>$25,597,002</td>
<td>$46,028,681</td>
<td>215</td>
</tr>
<tr>
<td>2015</td>
<td>$57,045,321</td>
<td>$102,579,235</td>
<td>479</td>
</tr>
<tr>
<td>2016</td>
<td>$155,289,096</td>
<td>$279,241,775</td>
<td>1,303</td>
</tr>
<tr>
<td>2017</td>
<td>$116,079,474</td>
<td>$208,734,799</td>
<td>974</td>
</tr>
<tr>
<td>2018</td>
<td>$143,616,713</td>
<td>$258,252,427</td>
<td>1,205</td>
</tr>
<tr>
<td>2019</td>
<td>$36,928,716</td>
<td>$66,405,436</td>
<td>310</td>
</tr>
<tr>
<td>2020</td>
<td>$96,812,312</td>
<td>$174,088,475</td>
<td>812</td>
</tr>
<tr>
<td>2011–2015 Average</td>
<td>$105,360,351</td>
<td>$189,459,610</td>
<td>884</td>
</tr>
<tr>
<td>2016–2020 Average</td>
<td>$109,745,262</td>
<td>$197,344,582</td>
<td>921</td>
</tr>
<tr>
<td>2011–2020 Average</td>
<td>$107,552,807</td>
<td>$193,402,096</td>
<td>903</td>
</tr>
</tbody>
</table>

**SOURCE:** Authors’ analysis of data from DCED, 2011–2020; IMPLAN, undated.

\textsuperscript{45} This approach is to guard against the inclusion of tax credit amounts that were authorized but not ultimately claimed.

\textsuperscript{46} This is the same approach as that used by DCED in its annual reports.
NOTE: The FY runs from the preceding July to June of the year listed. Dollar amounts are inflation-adjusted to 2018 dollars using the BEA gross domestic product (GDP) implicit price deflator. Qualified production expenditures reflect actual film production spending associated with films produced in the “Pittsburgh and its Countryside” region, as listed in DCED FPTC reports to the General Assembly from 2011 to 2020. IMPLAN output and employment estimates assume that the qualified production expenditures constituted a shock to the film industry in the Pittsburgh region, which for the purposes of this analysis, we equate with the ten counties in the PFO service region (Allegheny, Armstrong, Beaver, Butler, Fayette, Green, Indiana, Lawrence, Washington, and Westmoreland). Our calculations exclude film exhibition. Multipliers used to determine the totals include direct, indirect, and induced effects, which are also known as Type SAM multipliers. Employment reflects a mix of full-time and part-time jobs. All values reflect economic activity and employment supported within the FY and should not be summed across FYs.

From FY 2011 to FY 2020, qualified production expenditures on local film productions were $107.6 million (in 2018 dollars), on average, with slightly higher average spending ($109.7 million on average from FY 2011 to FY 2015). By construction, total output supported is the amount of qualified production expenditures multiplied by the output multiplier of 1.80. Hence, the $107.6 million, on average, of production spending supports a total of $193.4 million in economic activity in the regional economy after accounting for its spillover effects via supply chains and because of workers spending their labor incomes on goods and services. In terms of employment, this method estimates a total employment supported of 903, on average, over the decade. Overall average amounts mask considerable year-over-year fluctuations in contributions of production spending for which tax credits were received. In several FYs, expenditures and the associated spillovers of this spending were less than half the average, while in two FYs (2011 and 2016), amounts were more than 50 percent above the averages.

**Alternative Scenarios**

Here, we examine alternative scenarios for how spending by recipients of Pennsylvania’s FPTCs might affect the local economy. These scenarios are grounded in actual spending patterns of tax credit recipients and allow us to assess whether tax credits can be strategically designed to enhance the economic contribution of film productions. Specifically, we examine the impacts of allocating tax credits to (1) only feature films, (2) only television shows, and (3) a mix of 55-percent television and 45-percent feature film production. Key to this assessment is understanding differences in spending by production type. Cost profiles vary for feature film productions and television productions filmed locally by out-of-state production companies. Both profiles differ from assuming that spillovers will be the same as from in-state productions. We derived these cost profiles based on an analysis of four years of audited tax credit applications data conducted by IFO (2019). The three scenarios have the following assumptions:

- **Scenario 1: Feature Film Productions Only.** Assumes that 46 percent of qualified spending leaves the region via wage payments to non-Pennsylvania residents. Assumes that 30 percent of in-region spending is wages paid to local labor (split evenly between wage and salary workers and the self-employed) and 70 percent is paid to service providers (split evenly between equipment rentals, hotels, food service providers, and construction firms).
• **Scenario 2: Television Productions Only.** Assumes that 38 percent of qualified spending leaves the region via wage payments to non-Pennsylvania residents. Assumes that 55 percent of in-region spending is wages paid to local labor (evenly split) and 45 percent is paid to service providers (evenly split).

• **Scenario 3: Weighted Mix of Production Types.** Assumes that 55 percent of qualified spending for television productions and 45 percent for feature films. Assumes that 42 percent of qualified spending leaves the region via wage payments to non-Pennsylvania residents. Assumes that 40 percent of in-region spending is wages paid to local labor (evenly split) and 60 percent is paid to service providers (evenly split).

Table 5.2 presents the results alongside the baseline model (from Table 5.1). These alternative scenarios illustrate how the strategic allocation of Pennsylvania’s film production tax credits produce varying economic contribution. Note that the different mix of spillover-recipient industries proposed in these scenarios alters the output multiplier per dollar of local spending, increasing it slightly from 1.80 to between 1.88 and 1.90. Furthermore, despite lower total output estimates because of wages paid to out-of-state labor, the estimates of total employment either exceed or approximate the baseline estimates. This result is due to the distinction between assuming (as we do in the baseline model) that the entirety of qualified production spending constituted an output shock to the local film industry—which uses both labor and capital to meet that increased demand—and assuming in the scenarios that a portion of the shock went directly to pay for local film industry labor, with the remainder distributed across non-film industry service providers.47

**Table 5.2. Spillovers from Pittsburgh-Area Productions Receiving FPTCs, Alternative Scenarios, FYs 2011–2020 Annual Averages**

<table>
<thead>
<tr>
<th>Scenario</th>
<th>Locally Spent Qualified Production Expenditures</th>
<th>Total Output Supported</th>
<th>Output Multiplier Per Dollar of Local Spending</th>
<th>Total Employment Supported</th>
</tr>
</thead>
<tbody>
<tr>
<td>Baseline (full shock to Pittsburgh film industry)</td>
<td>$107,552,807</td>
<td>$193,402,096</td>
<td>1.80</td>
<td>903</td>
</tr>
<tr>
<td>1: Feature Film Productions Only</td>
<td>$58,078,516</td>
<td>$108,968,856</td>
<td>1.88</td>
<td>891</td>
</tr>
<tr>
<td>2: Television Productions Only</td>
<td>$66,682,740</td>
<td>$126,578,614</td>
<td>1.90</td>
<td>1,100</td>
</tr>
<tr>
<td>3: Weighted Mix of Production Types</td>
<td>$62,380,628</td>
<td>$117,589,280</td>
<td>1.89</td>
<td>986</td>
</tr>
</tbody>
</table>

**SOURCE:** Authors’ analysis of data from DCED, 2011–2020; IFO, 2019; and 2018 data from IMPLAN, undated.

**NOTE:** The FY runs from the preceding July to June of the year listed. Dollar amounts are inflation-adjusted to 2018 dollars using the BEA GDP implicit price deflator. Qualified production expenditures reflect actual film production spending associated with films produced in the “Pittsburgh and Its Countryside” region, as listed in DCED FPTC.

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47 Specifically, using the IMPLAN data, we found that output per worker in the film industry in the Pittsburgh region was approximately $300,000, whereas labor income per worker was about $183,000. The implication is that a $1 million shock to film industry output would support about 3.3 jobs in the film industry. But if we instead assume that this $1 million only supported jobs rather than being used for labor and capital expenses, it would support about 5.5 jobs. As a result, smaller shocks in terms of locally spent qualified production expenditures can support an equivalent number of jobs when that money is assumed to go directly to paying workers’ wages.
reports to the General Assembly from FYs 2011 to 2020. IMPLAN output and employment estimates assume that the qualified production expenditures constituted a shock to the film industry in the Pittsburgh region, which for the purposes of this analysis, we equate with the ten counties in the PFO service region (Allegheny, Armstrong, Beaver, Butler, Fayette, Green, Indiana, Lawrence, Washington, and Westmoreland). Our calculations exclude film exhibition. Multipliers used to determine the totals include direct, indirect, and induced effects, which are also known as Type SAM multipliers. Employment reflects a mix of full-time and part-time jobs. All values reflect economic activity and employment supported within the FY and should not be summed across FYs.

The main takeaway from these results is that television productions contribute more to the local economy than feature film productions, although this contribution will vary by production based on whether the share of qualified spending paid in wages to nonresident labor aligns with the values derived from the audited tax credit application data and used in the scenarios. Overall, from this analysis, we can conclude that film production incentives can be strategically designed to enhance the economic contribution of film productions to the local area. Specifically, by targeting television productions, the percentage of qualified spending on nonresident labor is reduced and the wages to resident labor increased. Other states, such as New Mexico and Washington, offer bonuses to prioritize television productions. This is just one example of strategically designing the film production incentives. As exemplified in other states, the economic contribution of film production can also be further targeted toward residential labor or to certain areas of the states (e.g., rural, economically disadvantaged).
Chapter 6. Conclusion

Film is an $81-billion industry in the United States that provides a powerful medium for stories and ideas that can create profound impacts on multiple aspects of society. In this report, we focused on the film industry’s economic contribution and its capacity for growth through the specific lens of the film industry in Pittsburgh, Pennsylvania, where, in fact, one of Hollywood’s major studios (Warner Brothers) was founded. However, despite Pittsburgh’s rich history with film, its local film industry is not entirely organic. Many feature films and television shows produced in Pittsburgh have been predicated on the FPTC. Pennsylvania and many other states offer similar incentives to attract film productions, which are footloose enterprises, which means that they are relatively insensitive to location-specific characteristics (Allen and Stone, 1992). Even though films and television shows often feature iconic landmarks from specific locations, much of each production is flexible in filming location, which is how the Pittsburgh skyline came to be Gotham City’s in The Dark Knight Rises.

To conclude this report, we will summarize our key findings in four main areas: (1) filming location decision, (2) economic contribution of the film industry, (3) film industry workforce, and (4) state film industry policy. Additionally, we will describe related recommendations that stakeholders at the state level (including state legislators and government officials) and at the local level (including officials in the state’s film offices, city and county economic development offices, local workforce development boards, and local educational institutions) should consider in their efforts to grow the film industry in Pennsylvania and, specifically, in Pittsburgh.

Filming Location Decision

Drawing on the results of an environmental scan and semi-structured interviews, we identified three main factors that influence a film’s location decision: creative fit, cost, and local resources.

Among these factors, creative fit is considered first. The location must meet the film’s aesthetic requirements. If a beach is critical to the story, the filming (at least partially) must be done at a location with a beach. However, aesthetic features are not as important for some productions and are somewhat interchangeable (e.g., suburban aesthetics may be found in many locations). One of Pittsburgh’s strengths in attracting film productions is its diverse aesthetics. With an impressive skyline, varied neighborhoods, and diverse natural landscapes, Pittsburgh can meet the creative needs of many film productions.

Cost is a major factor in the filming location decision. While creative fit is considered first, our interviewees reported that costs can, depending on the project, carry greater weight. A critical component of a film’s production costs are the incentives offered by states. Pennsylvania
offers competitive FPTCs, and the Pittsburgh area has a positive reputation for low labor and other resource costs.

The final factor in the filming location decision is local resources, specifically the quality of labor and the production infrastructure (e.g., sound stages). Other local resources (e.g., transportation, permitting) can play a role but are not critical. Pittsburgh offers highly skilled crew members but faces other constraints in providing the local resources that attract film productions. Specifically, despite having skilled crew, Pittsburgh’s population is relatively less diverse than that of other cities, and Pittsburgh currently lacks high-quality studio space.

Recommendation

State legislators and involved stakeholders can consider changes to Pennsylvania’s Film Tax Credit Program that address local film infrastructure needs in order to enhance the sustainability of the industry. For instance, other states, such as New Jersey and New Mexico, have recently revised their film production incentives to either uncap or provide additional funds for film production companies that have large and long-term investments in local studio space (New Jersey Department of State, undated; Good Jobs First, undated). Similar incentives in Pennsylvania would address a current limitation affecting the filming location decision (i.e., high-quality studio space) and facilitate the long-term, sustainable development of the film industry in the state.

Economic Contribution of the Film Industry

Drawing on our quantitative analysis using the IMPLAN input-output model, we characterized the economic contribution of the film industry to the Pittsburgh region. Our findings describe the direct economic contribution to output and employment as comparable to the film industry’s contribution in other midsize cities with which Pittsburgh competes for film productions. We also found that each dollar spent by the film industry in Pittsburgh spills over to support an additional $0.80 of total output produced by other industries. In terms of jobs, each film industry job supports an additional 1.53 jobs in other industries.

While this contribution to local output and employment is less than those of other industries present in the Pittsburgh area, it still either exceeds or is comparable to those of other footloose industries. Other footloose industries that may relocate to the area in response to incentives, such as manufacturing and high tech (both recipients of economic development tax credits), represent a more appropriate set of comparisons to assess the merit of offering incentives to subsidize the film industry in Pittsburgh.

Recommendation

We recommend that administrators of the FPTCs in the state’s film offices consider approaches to improving the data and measurement of the film industry and the use of tax
credits. Among such approaches could be the development of a uniform set of measures of economic impact that could be required in each application for use of the tax credits. A more accurate assessment of each film’s economic contribution can be achieved by improving the measurement of the number of jobs created by each production, the length and stability of the project, the length of worker employment, and the percentage of the year that workers are employed on each project. With these improved measures and data, administrators of the tax credits will be able to evaluate tax credit applications based on forecasted economic contribution, thereby enabling a more strategic allocation of limited tax credit resources.

Film Industry Workforce

Drawing on our analysis of BLS workforce data describing film industry occupations and ED training and educational data, we characterized occupations in the film industry and assessed the capacity for growth based on workforce pipelines. Our findings indicate that the film industry offers relatively high-paying and flexible career opportunities to a diverse population. In Pittsburgh, many workers currently outside the film industry work in synergistic occupations that could transition to the film industry and grow its workforce. Additionally, the Pittsburgh area has multiple institutions that offer educational and training opportunities to earn degrees and certifications that act as pipelines to grow the film industry workforce. These institutions include workforce development training programs similar to Pittsburgh Film Works! and schools in the Pittsburgh Film and Media Educators Alliance, such as Carnegie Mellon University, Chatham University, LaRoche University, Duquesne University, Community College of Allegheny County, Point Park University, Robert Morris University, and the University of Pittsburgh.

On the other hand, film production companies currently report interest in increasing the diversity of the crew members they hire. This lack of diversity is a constraint for Pittsburgh, both in the racial/ethnic makeup of its population and in the skills of its film industry workforce. There are gaps in Pittsburgh’s current film workforce, including below-the-line positions (e.g., camera operator), above-the-line positions (e.g., producer, director), and post-production positions (e.g., film and video editors). While the workforce pipeline is robust for some of these occupations (e.g., producer, director), for others (e.g., film and video editors and camera operator), gaps in the workforce pipeline currently curtail growth in the local film industry’s workforce.

Recommendations

City and county economic development offices should consider developing a unified regional economic development strategy that builds on the existing film industry and leverages the existing economic contribution of the film industry to build an organic (i.e., not tax credit–dependent) industry base. Our analysis of film industry occupations in Pittsburgh shows a large degree of synergy with other industries that could be leveraged to expand the film industry
workforce. However, the same analysis also showed that current gaps in the workforce (e.g., post-production) need to be addressed to help the Pittsburgh film industry develop and become independent. We recommend that these local stakeholders consider specifying coordinated efforts to expand the workforce into different film industry sectors (e.g., post-production) and to promote diverse productions (e.g., of independent and local filmmakers).

Additionally, local workforce development boards and educational institutions should consider developing a targeted and strategic plan to address gaps in the workforce pipelines. This plan could include investments to expand existing educational and training offerings, establishing new programs in areas that are currently lacking (e.g., film and video editing, camera operation), and starting workforce development efforts earlier in the pipeline (e.g., high schools). Additionally, the plan should consider collaboration with current film industry workforce partners (e.g., Reel Works).

State Film Industry Policy

A consistent finding throughout our environmental scan and semi-structured interviews was that Pennsylvania’s FPTC is vital to the film industry in the state. Influential policymakers, such as the governor of Pennsylvania, have expressed support for expanding (specifically, uncapping) the FPTC (Shapiro, 2022). Expanding the FPTC would increase the number of feature films and television shows produced in the state and contribute to the growth of the local film industry workforce. However, policymakers should be aware that certain changes to the state film industry policy have the potential to continue the race-to-the-bottom competition with other states also offering film production incentives. Nevertheless, there are multiple ways that the FPTC could be revised to enhance the competitiveness of Pennsylvania and focus its benefits more toward the state and its residents.

Recommendations

State legislators and involved stakeholders should consider changes to the FPTC that more effectively convey greater benefits to film production companies, reduce uncertainty around the FPTC, retain more of the benefits of the FPTCs within the state, and enhance the sustainability of the local film industry. One way to convey greater benefits to film production companies involves the payment model of the FPTCs. Currently, the FPTC operates under a transferable, nonrefundable payment model. Effectively, this means that a film production’s cost will be reduced by 90 percent of the tax credits it generates. Transferring credits involves brokers and buyers (i.e., other companies or high-income individuals) who also benefit from the FPTCs. Instead, converting to a nontransferable, refundable payment model would direct all the benefits to film production companies.

Prior to the recent revision of the FPTC, multiple film industry stakeholders who we interviewed noted that the uncertainty regarding the renewal of the policy led to multiple
productions deciding to film elsewhere. The revision to the policy reduces the current uncertainty around the availability of tax credits by extending the program to sunset in 2025. However, 2025 is approaching, and if this decision is left unaddressed, the uncertainty will return and will drive future productions away from Pennsylvania. Because uncertainty does not benefit film production companies and limits the stability of the state’s film industry, we recommend that state legislators decide whether the policy will be renewed well in advance of its sunset date. Generally, the earlier this decision is made the better, but at the latest, this decision should be made prior to the application deadline for the year the policy is set to sunset.

Our analysis shows that television productions produce greater contributions to the local economy because of the higher percentages of wages going to resident labor. However, the same principle would apply to prioritizing a series of film projects or the prioritization of film production companies that bring multiple projects rather than one-time productions, creating more stability in the opportunities available to members of the local film industry workforce. Other states, such as New Mexico and Washington, already offer bonuses that prioritize television productions. Therefore, we recommend that state legislators and involved stakeholders consider including incentives targeted toward longer-term productions, such as television series, in future iterations of the FPTC. However, we note that this consideration should take into account that adding this type of bonus to the policy may contribute to the race-to-the-bottom competition among states vying for film productions.

Furthermore, state legislators and involved stakeholders should consider including targeted incentives aimed at addressing current gaps in the film industry workforce. Our analysis of the film workforce, particularly that of Pittsburgh, demonstrates a limited supply of individuals in (1) certain below-the-line positions (e.g., camera operators); (2) creative, above-the-line positions (e.g., producer, director); and (3) post-production positions (e.g., film and video editors). Rather than offering blanket bonuses for all below- or above-the-line labor that may benefit nonresidents or types of labor already in high supply, future iterations of the FPTC should consider targeting bonuses for local, resident labor in these key positions. Ideally, targeted bonuses like these can fill gaps in the existing local workforce and build sustainability. However, the decision to include these targeted incentives must also consider that some of these positions, such as producers and directors, are already well compensated, and subsidizing them may only add to the high level of compensation that individuals in these positions receive.

Finally, state legislators and involved stakeholders should consider including incentives aimed at equitably distributing the benefits of the program throughout the state. Because the FPTCs are funded with state tax revenue collected from all areas of the state, yet the vast majority of film productions occur in either Pittsburgh or Philadelphia, the FPTC effectively redistributes state tax resources away from rural areas to urban areas. This redistribution is not without justification because geographically concentrated investments are required to build the film industry and the local resources that attract film productions. Nevertheless, bonuses like those that are offered by 15 other states (e.g., New York and Illinois) for film production that
occurs in rural or economically disadvantaged areas of the state should be considered in future iterations of the FPTC to more equitably distribute state tax resources and promote economic activity in areas of the state in greater need.
## Abbreviations

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Full Form</th>
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<tbody>
<tr>
<td>BEA</td>
<td>Bureau of Economic Analysis</td>
</tr>
<tr>
<td>BLS</td>
<td>U.S. Bureau of Labor Statistics</td>
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<tr>
<td>CIP</td>
<td>Classification of Instructional Programs</td>
</tr>
<tr>
<td>DCED</td>
<td>Pennsylvania Department of Community and Economic Development</td>
</tr>
<tr>
<td>ED</td>
<td>U.S. Department of Education</td>
</tr>
<tr>
<td>FPTC</td>
<td>Film Production Tax Credit</td>
</tr>
<tr>
<td>FY</td>
<td>fiscal year</td>
</tr>
<tr>
<td>IFO</td>
<td>Pennsylvania Independent Fiscal Office</td>
</tr>
<tr>
<td>MSA</td>
<td>metropolitan statistical area</td>
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<tr>
<td>NAICS</td>
<td>North American Industry Classification System</td>
</tr>
<tr>
<td>NCES</td>
<td>National Center for Education Statistics</td>
</tr>
<tr>
<td>PFO</td>
<td>Pittsburgh Film Office</td>
</tr>
<tr>
<td>QCEW</td>
<td>Quarterly Census of Employment and Wages</td>
</tr>
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<td>SAM</td>
<td>Social Accounting Matrix</td>
</tr>
<tr>
<td>SOC</td>
<td>Standard Occupational Classification</td>
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References


BEA—See Bureau of Economic Analysis.


DCED—See Pennsylvania Department of Community and Economic Development.


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