



Do Film Incentive Programs Promote Economic Activity? A Comment on O'Brien and Lane

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By the mid-2000s, most U.S. states had adopted some sort of film incentive program—a development that this economist is sorry to see. The incentive programs typically are issued as a percentage of in-state production expenditures, through tax credits that are government-refundable or transferable to third parties, though they are sometimes funded through direct grants. Film incentives represent a substantial subsidy that typically allow the recouping of between 15 to 30 percent of in-state production expenditures covered by some such program (Bradbury 2019a). Proponents of such programs often argue along such lines as: Film incentives attract an otherwise absent industry to the state, encourage growth in a new sector, or stimulate economic activity in complementary industries; growth in these sectors may then spill over into unrelated sectors that translates into economy-wide growth through a multiplier; etc.

The abundance of film incentive programs has also stimulated a recent small but vibrant literature on their efficacy in stimulating economic activity. Using a variety of samples and empirical methods, most studies have found little to no positive net impact of film incentives on economic activity (e.g., employment, industry establishments, and output), which indicates film incentives are ineffective as economic development policy (Bradbury 2019a; 2020; Button 2018; Swenson 2017; Thom 2018). One recent study that is representative of this literature is that of Patrick Button, who uses a panel difference-in-differences regression approach

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to examine the film industry across states and finds “the ability for tax incentives to affect business location decisions and economic development is mixed, suggesting that even with aggressive incentives, and ‘footloose’ filming, incentives can have little impact” (2019, 315). In another recent study, using a discrete choice model that accounts for competing incentives offered by all states, Mark Owens and Adam Rennhoff (2018) “fail to find strong evidence that incentives create a more permanent movie industry in a state.”

While conducting research on film incentives, I discovered the article by Nina O’Brien and Christianne Lane (2018), published in *Regional Studies* and titled “Effects of Economic Incentives in the American Film Industry: An Ecological Approach,” which presents empirical results for the period 1998–2010 that appear contrary to what I perceive to be an academic consensus. O’Brien and Lane’s abstract says that “the simple presence of economic incentives, organizational diversity and the presence of dominant organizational populations are associated with increases in filming, employment and new establishments” (2018, 865). The study also says that its results support “Hypothesis 1a: Incentives targeting an industry will promote greater levels of industrial activity” (ibid., 866). The study says it uses an “ecological approach,” “employing concepts from biological science” to explain “how organizations of various kinds interact as they struggle to secure resources” (ibid.). The study “offers a comprehensive, longitudinal overview of project-based incentive programmes as they developed over time and across the United States as a whole” (872). The authors say that their estimates imply “that economic development outcomes are related not only to the presence and value of financial incentives but also to the ecological factors organizational diversity and presence of dominant firms” (ibid.).

On the other hand, a careful reader of the study will also find results that reflect negatively on film incentive programs. On the whole, the paper does not present itself as providing strong support for incentive programs. I shall not attempt to convey the authors’ ecological approach and their findings. Policy implications are suggested in the article’s penultimate paragraph, which I quote in full:

This study also highlights the importance of a state’s organizational diversity. For each additional organizational type present in a state, we find an increase in filming (3.8%), employment (4.0%) and establishment (1.9%). Lack of diversity may exacerbate the tendency for ‘fly-in fly-out’ production described above. Together, the effects of the simple presence of an incentive, dominant populations and diversity suggest that rather than outspend one another through costly tax credits, states might achieve better results by tailoring existing incentives to increase organizational diversity, particularly by targeting companies associated with distribution, marketing and sales. (O’Brien and Lane 2018, 873)

All of this intrigued me, but as I read the paper more closely, I noticed some odd choices regarding data coding and sample selection that raise doubts about their empirical estimates. Here I share some comments on the article.

In order to assess the findings, I needed to validate the coding of film incentive policies and spending by state and year. I knew from experience the difficulty of identifying and quantifying incentives across states and over time. Records of film incentives are not compiled in a central database, so empirical analysis requires building a database from disparate sources to designate states as having a film incentive program in force. When exactly incentives were implemented, suspended, or ended, and how much funding each program provided, requires checking multiple government and media outlets that do not always agree. Other studies that present their data on film incentives often differ slightly from each other in their designations. Perhaps the authors' database was more comprehensive and superior to those collected by other researchers.

I reached out to the authors and requested their database of film incentive programs and spending. They did not respond to my initial email requests. Follow-up emails over several weeks yielded cursory responses, but neither author was willing to provide the data to me. I reached out to a *Regional Studies* editor for assistance in acquiring the data, noting that the lack of response was inconsistent with the journal's data availability policy: "Authors are encouraged to share or make open the data supporting the results or analyses presented in their paper where this does not violate the protection of human subjects or other valid privacy or security concerns" ([link](#)). In my request to the editor I also stated several concerns about the data that I note in this comment. The editor responded that the journal's data sharing policy does not require authors to share their data, but that I was welcome to share my perspective through the review process. Therefore I wrote up my data concerns in a short comment (raising several of the issues I discuss in the present article) and submitted it to the journal. After several months the editor informed me that my comment received consideration at an editors' meeting but was not accepted because "the commentary does not reflect the spirit of the journal to promote research and scholarly advancement" and "the tone does not strike the expected balance to be collegiate and constructive."² The decision letter mentions comments from a referee, but the editor did not provide a referee report. The editor did not address any of my concerns about the accuracy of the data.

In the remainder of this article, I detail shortcomings in the empirical analysis in O'Brien and Lane (2018). It is my hope that publishing my concerns in *Econ Journal Watch* will elicit a response from the authors regarding my concerns about

2. I have uploaded at SSRN my comment as it was submitted to *Regional Studies*, except for removing my anonymity (Bradbury 2019b). Readers are free to judge the appropriateness of my tone.

the estimates as they are presented in *Regional Studies*.

O'Brien and Lane (2018) use panel data of U.S. states from 1998 to 2010, a period that extends from the early days when only a few states offered film incentives to when most states employed film incentives. The analysis estimates the impact of incentives and other factors on filming and other economic activity. The study draws data on film production locations, industry diversity, and industry dominance from the Internet Movie Database (IMDb), and economic data are gathered from the U.S. Census Bureau and the Bureau of Labor Statistics.

The main variables of interest on the availability and magnitude of film incentives were determined by O'Brien and Lane, but the data are not reported in the paper or elsewhere. They report that "incentive data were collected from states' departments of economic development, film and television commissions, and the official record of incentive legislation" (O'Brien and Lane 2018, 868). The empirical strategy uses two variables, "Incentives (dichotomous)" and "Incentives (millions)," to measure the use and magnitude of film incentives by states. The former is an indicator variable equal to one if the state offers incentives and zero otherwise. The latter is a continuous variable that measures state spending on film incentives. The paper reports the descriptive statistics for incentive spending—ranging from \$0 to \$300 million, with the average being \$27.12 million (for all states, not just states offering incentives)—but it does not provide full summary statistics or more detailed information regarding the dichotomous existence of incentives, such as which states adopted film incentives and when. In the text, the authors report that 67.5 percent of the observations occur without incentives in place (*ibid.*).

The variable description indicates a potential problem with the coding of incentive spending in states without funding caps. States with uncapped incentives are not limited in the amount of funding that they can provide for film production; thus, these states have the potential to offer greater subsidies than states with funding constraints. Rather than report actual spending for these states, O'Brien and Lane value uncapped incentives as follows: "After consultation with film commission informants, uncapped incentives were valued at US\$300 million, reflecting a 10% increase over the highest incentive offered" (2018, 868). While the authors justify this coding as informed speculation from insiders, available data on film incentives offered by uncapped states do not support the use of a proxy for film spending of that magnitude. In fact, states were spending far less than \$300 million to fund their incentives; thus, O'Brien and Lane's reported estimates of the association between incentive spending and economic activity might be quite inaccurate.

Collecting data for all 650 observations in the sample to replicate the authors' estimates would be a laborious task, so I provide data from a few representative

states that are illustrative of film incentive spending in uncapped states. Table 1 reports tax credit subsidies per year for four states that operated with uncapped film incentive programs during the sample period: Georgia, Louisiana, New Mexico, and North Carolina. Though other states have operated film incentive programs without caps, the states listed in Table 1 have been recognized as offering generous and/or aggressive incentive programs to encourage filming and thus should be representative of the high end of subsidies offered by states (Button 2018; Bradbury 2019a).

TABLE 1. Film incentive subsidies (2002–2010)

Year	Georgia	Louisiana	New Mexico	North Carolina
2002	NA	NA	NA	NA
2003	NA	1.5	1.11	NA
2004	NA	1.5	1.74	NA
2005	NR	47.4	2.1	0.23
2006	NR	70.4	5.71	10.67
2007	NR	134.6	18.5	17.55
2008	NR	92	46.03	11.54
2009	89.25	101	76.71	7.7
2010	171.87	165.6	65.39	9.33
Mean	130.56	76.75	27.16	9.5
Maximum	171.87	165.6	76.71	17.55

Notes: Nominal dollars in millions. NA: Not applicable. NR: Not reported by the state. *Sources:* Georgia: Governor’s Office of Planning and Budget (various years), tax credits approved. Louisiana: Mathis 2012. North Carolina: Department of Revenue (various years). New Mexico: Popp and Peach (2008); New Mexico Taxation and Revenue Department (2012).

The sources listed under Table 1 tell us the following:

- Georgia instituted its uncapped film tax credit program in 2005. The state reports that it certified an average of \$131 million in tax credits annually in 2009 and 2010. Though the state does not report the value of tax credits approved in prior years, the reported tax credits were issued after Georgia increased its incentives in 2008, thus it is reasonable to assume that the state offered fewer subsidies in previous years. The value of tax credits Georgia has issued since that time has increased every year, and the state did not issue more than \$300 million in tax credits until 2014, four years after 2010, the close of O’Brien and Lane’s sample period.
- After instituting its film incentive program in 2002, Louisiana’s incentive funding ranged from \$1.5 million to \$166 million per year through 2010, with an average value of \$77 million. Louisiana would institute a

- \$180 million budget cap in 2015.
- New Mexico instituted its uncapped film tax credit program in 2002. The state averaged \$27 million in annual subsidies through 2010, funding a maximum of \$77 million in tax credits in 2009. New Mexico imposed a \$50 million cap on its program in 2012.
- North Carolina instituted an uncapped tax credit program in 2005 that averaged \$9.5 million in expenditures per year from 2005 to 2010. The state increased its incentives in 2010, and from 2011 to 2015, the state paid out almost \$60 million per year to fund its incentives. North Carolina operated a small and capped film grant program from 2000 to 2004 and switched back to a capped grant-based film incentive program in 2015.

These examples from states with reputations for generous film incentives without program spending caps indicate that to assume states with uncapped incentives spent \$300 million annually on film incentives during the sample period is to overstate greatly the funding provided. It is unclear how many observations in the O'Brien and Lane study are designated as uncapped. The high variance in incentives offered across these uncapped states indicates that assuming a simple value of incentives offered for all uncapped incentive programs is inappropriate without further justification.

Evidence that incentive spending in uncapped states was far less than \$300 million is also available in other published studies. In separate estimates, Joseph Bishop-Henchman (2011) and Michael Thom (2018) report that cumulative expenditures on film subsidies *for all states*, not for any one state, did not exceed \$300 million until 2006 and reached \$1.4 billion by 2010. These data indicate that no individual state-year observation exceeded \$300 million prior to 2006; yet, during this period several states operated with uncapped incentives. Even after 2006, there is not much room more for more than a few states to offer \$300 million in incentives, and, after that time, a majority of states employed film incentives.

Charles Swenson (2017) documents state-specific film incentive spending for all states from 1998 to 2011—a range that includes the entire period studied by O'Brien and Lane (2018)—by listing the maximum annual funding for each state during the period. The only state that exceeded \$300 million in annual film incentive expenditures during this period was New York, which had a funding cap of \$420 million. Louisiana is reported to have the highest annual expenditure among uncapped states at \$236 million. Neither of these extreme values support the assigning of the value \$300 million for uncapped states.

While exact amounts of subsidies to film production companies are difficult to identify and differ across sources, available evidence indicates that the subsidies

awarded by uncapped states during this period were far less than the \$300 million assigned by the authors. I have been unable to identify a single instance of an uncapped state offering incentives approaching this magnitude. The \$300 million designation likely has a profound effect on the estimated coefficients in the analysis in terms of both magnitude and statistical significance; therefore, it is likely that the estimates are misleading.

I also wish to note that it is also possible that none of the observations in Table 1 are coded as offering \$300 million in film incentives in the researchers' data, and that the authors' coding of those observations resembles the expenditures reported here. Perhaps the variable description in the text of the paper does not accurately describe the data used to generate the estimates. Because the authors have not met my request to share their data, I have been unable to determine how they coded their observations. I must accept the authors' description of their coding, and as such the coding would seem to be highly inaccurate.

I have another concern regarding sample selection. O'Brien and Lane use film incentive data from 49 states and the District of Columbia, excluding Iowa, "because criminal investigations into that state's incentive programme prohibited verification of reported data" (2018, 869). The authors cite Richard Verrier (2011) as the source for this justification. Rather than support the contention that data for Iowa were not available for verification, however, Verrier (2011) reports tax credit information from a state audit, which was released to the public on October 26, 2010. I was able to find the audit in an online archive using an internet search for the document (Office of Auditor of State 2010). The 273-page audit contains detailed documentation of all film tax credit spending in the state. In my experience researching film incentives, I have not found a more detailed account of film incentive funding than the Iowa audit. Also, I am not aware of any other cross-state empirical studies that exclude Iowa for the reason the authors give when estimating the impact of film incentives. Thus the exclusion of Iowa is odd and is not supported by the authors' justification for doing so. Given the sensitivity of the coefficient estimates to included/excluded variables across specifications, it is reasonable to wonder if the study's estimates are sensitive to its unique exclusion of Iowa.

A third potential problem is that the model estimates for industry employment and number of establishments are based on data from the North American Industry Classification (NAICS) code 5121: motion pictures and video industries. While seemingly appropriate, this is an aggregated category that includes both film production and exhibition. The latter classification includes establishments such as movie theaters and video rental stores. These types of businesses would not be incentivized by film production incentives, and they also reflect the population of the state, which is not included as a control variable in the regression analysis. Film incentives are designed to encourage production not

consumption of motion pictures. The more pertinent NAICS code is the sub-category 51211: motion picture and video production, which excludes activity related to consumption of movies and videos. The impact of using the broader category is likely minor, but the production sub-category is more appropriate. Button (2018; 2019) uses employment and establishment data from the 51211 classification, which is available from the Bureau of Labor Statistics. It is possible that O'Brien and Lane used the more appropriate sub-category but misdescribed what they had done (2018, 868), but we cannot know without seeing their data.

My final concern regards O'Brien and Lane's interpretation of their estimates, even if those are taken at face value. The authors report that the estimates "show that above the impact of their dollar value, the simple presence of economic incentives," along with a host of other factors, "are associated with increases in filming, employment and new establishments" (2018, 865). The "above the impact of their dollar value" qualification is curious phrasing, which is misleading for policy evaluation. All film incentive programs require funding, sometimes tens to hundreds of millions of dollars in spending (as noted by the authors). Even if the estimates are correct, further investigation of the opposing impacts with real-world data is needed to identify whether the *overall* effect of incentives tends to be positive, negative, or negligible. Furthermore, the estimates show a positive impact of incentive spending on filming activity but negative impacts on film employment and establishments. That incentive spending would induce increased filming while decreasing the number of film-industry employees and establishments is difficult to resolve. This tension is not addressed in the paper, and the discrepancy indicates that the results are in some sense not robust.

In conclusion, O'Brien and Lane (2018) conduct an empirical investigation of the impact of film industry incentives on several measures of industry performance, and their findings are mixed and, frankly, murky. The study's estimates appear to rely on incentive spending estimates that appear to be much higher than actual spending. The authors have not met my requests for the original data that could verify the variable coding. In addition, the authors make some odd choices, such as an unjustified sample exclusion of Iowa from the sample and some estimates use data from a less-than-ideal industrial classification. And even if the estimates are accepted at face value, the reported findings do not necessarily imply that film incentives have anything like the reported impacts, because the estimates are in tension with one another and are sensitive to specification choices.

The desirability of film incentives is an important and relevant issue for policymakers. Concerns regarding the accuracy of the data and interpretation the data need to be answered before the results of O'Brien and Lane (2018) can be relied upon for evaluating film incentives as a policy tool. Researchers working in this area should be aware of the apparent deficiencies with the study.

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About the Author



John Charles Bradbury is professor of economics at Kennesaw State University. His research interests include the economics of sports and public economics. He developed his recent research agenda on the efficacy of film incentives after learning that his home state of Georgia now issues over \$800 million in tax credits to film production companies every year. His email address is jcbradbury@kennesaw.edu.

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