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LOCAL ECONOMIC IMPACTS OF POPULAR MUSIC CONCERTS

University of Maine

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ABSTRACT. This study examines the local economic impacts of popular music concerts held between 2010 and 2012 in Bangor, Maine. A regression analysis of the relationship between monthly taxable retail sales—e.g., restaurant and lodging sales—in the Bangor region and the number of attendees is used to estimate local spending per concertgoer on meals and accommodations. Results suggest that an estimated 29 to 31 percent of attendees spend the night in the local area, which is very similar to the share of concertgoers who travel more than two hours to attend shows. The local economic impacts of 41 popular music concerts—featuring artists such as Bob Dylan, Barenaked Ladies, Def Leppard, Jason Aldean, and Godsmack—between 2010 and 2012 is an estimated \$30.7 million in output, a yearly average of 156 full-time and part-time jobs, and a combined \$9.7 million in labor income.

Keywords: Popular Music Concerts, Economic Impact Analysis, Taxable Retail Sales, Tourism

JEL: R11, Z11, R15

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LOCAL ECONOMIC IMPACTS OF POPULAR MUSIC CONCERTS

Large popular music concerts (e.g., festivals and shows by well known artists) are often significant tourism events that create substantial fan interest and economic activity. The top 25 grossing music tours of 2012, as tracked by Billboard magazine, generated an aggregate \$1.8 billion in gross revenues (i.e., ticket sales).² More important to the places where concerts are held, the 1,381 individual shows that made up these top-grossing tours had a combined attendance of over 19.6 million people. The ability of popular music artists to draw fans who reside outside the region to cities and other places where the venues are located means that spending on concert tickets—counted in the \$1.8 billion in gross revenue noted above—will be accompanied by local expenditures on food, lodging and retail purchases.

The purpose of this study is to examine the local tourism-related expenditures made by concertgoers and their associated multiplier effects (i.e., economic impact). The analysis focuses on the relationship between monthly taxable retail sales—e.g., restaurant and lodging—and the number of fans who attend concerts, which varies considerably by month of the year. Data used in the regression analysis are from 41 outdoor shows, produced by Waterfront Concerts, that took place between 2010 and 2012 in Bangor, Maine. These events featured acts such as Bob Dylan, Barenaked Ladies, Def Leppard, Jason Aldean, and Godsmack, among others, which cut across a wide range of musical tastes and genres. To put the regression results into perspective, we use the estimated coefficients along with information on the number of tickets sold per county in the broader region surrounding the venue to determine the “cutoff” in driving time that

² <http://www.billboard.com/articles/news/1481408/top-25-tours-of-2012>, accessed on May 17, 2013.

separates fans who spend the night in Bangor and those who return home after the concerts. The total economic impact, including multiplier effects, of concert-related spending in 2012 is an estimated \$16.0 million in output, 239 full- and part-time jobs, and \$5.1 million in labor income.

A rich literature exists on the economic impacts of tourism events (Ritchie 1984; Long and Perdue 1990; Tyrrell and Johnston 2001), but very few studies have looked specifically at visitor spending related to popular music concerts (Gazel and Schwer 1997). The most common approaches to measuring visitor spending and the economic impacts of tourism are conducting surveys of tourists and/or local businesses, and developing expenditure models that, for example, could be used to estimate overall visitor spending from secondary data on a measure such as taxable lodging receipts (Frechtling 2006). The biggest challenges encountered when conducting such studies include reducing measurement errors (e.g., survey recall and unrepresentative visitor samples) and being able to separate “new” expenditures from spending that would have occurred in the region even in the event’s absence (McHone and Rungeling 2000; Stynes and White 2006). For example, Tyrrell and Johnston (2001) note that counting all expenditures related to a folk festival in Newport, Rhode Island, would have overstated by almost 100 percent its “net” economic impact, which properly accounts for the spending of locals as compared to those from outside the region.

An article, by Gazel and Schwer (1997), examining the economic impact of the Grateful Dead on the Las Vegas region is one of the most-cited studies on the local impacts of popular music concerts. This study used surveys of concertgoers to estimate the overall tourism-related (e.g., hotels, bars and restaurants, gambling) spending by non-local attendees and the expenditures made by locals that would have leaked out of the region if the concerts had not occurred (i.e., import substitution). After applying RIMS II multipliers to these direct spending

figures, Gazel and Schwer (1997) reported a total impact—based on over 50,000 concert attendees—of between \$16.9 million and \$28.2 million, and an employment impact of between 346 and 590 jobs.

Several South African studies investigate the economic impact of music festivals, as these types of events play a significant role in the tourism industry of this ‘event destination’ country (Saayman and Rossouw 2010). For example, visitor and business surveys collected expenditure and other information related to the Klein Karoo Nasionale Kunstefees, Grahamstown National Arts Festival, and Aardklop National Arts Festival—large multi-day events that feature music of several genres (e.g., classical, rock, jazz) as well as visual arts. Findings suggest that the size and the location of the host town are important factors in determining the economic impact of the festival (Saayman and Saayman 2006). Another study focusing on the Cape Town International Jazz Festival uses visitor surveys to dissect the spending habits of festival-goers and quantify the regional economic impact of the event, found to be in excess of R158 million with an employment impact of 1,059 jobs (Saayman and Rossouw 2010).

Using methods similar to those outlined above, several reports in the “grey literature” have examined the impacts of U.S. music concerts and festivals. For example, the 2005 Bonnaroo festival held in Coffee County, Tennessee (3 days and 76,145 attendees), the 2012 Electric Daisy Carnival in Las Vegas (3 days and 320,000 attendees), and the 2012 South by Southwest festival in Austin (14 days and 147,000 attendees) generated economic impacts, including multiplier effects, of \$14.1 million, \$207 million and \$190 million in total output, respectively (Arik and Penn 2005; Beacon Economics 2012, Greyhill Advisors and SXSW 2012). The Bonnaroo and Electric Daisy Carnival festivals had estimated employment impacts of

191 and 2,018 jobs. These reports—along with the Gazel and Schwer (1997) analysis of the Grateful Dead in Las Vegas, and the studies of music festivals in South Africa—show a wide range of economic impacts and numbers of jobs supported, even when differences in concert / festival length and attendance figures are taken into account.

Along with the limitations of tourism event impact studies discussed above (e.g., measurement errors and the difficulty of identifying “new” spending to a region), Baade et al. (2008) discuss “crowding out” and “leakages” as additional “deficiencies” of these types of impact studies.³ Crowding out describes a phenomena by which area residents are likely to stay away from tourism-related businesses located near the concert venue, which could reduce the spending of locals and, therefore, offset the impacts of those involved in the event. Leakages occur when expenditures related to an event do not translate into local economic activity. In an analysis of the local impacts of sports teams, Siegfried and Zimbalist (2002) note that only 29 percent of NBA players live in the city where they play. For our analysis of popular music concerts, none of the artists live in the region (i.e., Bangor, Maine) where the venue is located.

As an alternative to survey-based approaches, Baade et al. (2008) examine the impacts of professional sports—e.g., large events and labor disputes—on the economies of selected cities in Florida using regression analysis of taxable retail sales data. They note that taxable sales data are “ideally suited” for the analysis of the impacts of large events because of the direct connection between the events and tax collections (i.e., attendees purchase goods and services that are subject to the tax) and the fact that taxable sales data are available monthly for individual municipalities. This makes it possible to isolate the effect of narrowly focused and short-term

³ Baade et al. (2008) also discuss the “substitution effect,” which is similar to the challenge of measuring “new” economic activity to the area (McHone and Rungeling 2000; Tyrrell and Johnston 2001).

events on local economic activity. Taxable retail sales data have also been used to examine, among other things, the impacts of sports teams and events in Texas (Coates and Depken 2006), and a ban on indoor smoking in New York City (Hyland et al. 1999).

The empirical analysis presented in this paper uses an approach similar to those employed in these studies that focus on taxable retail sales data. The next section of the paper describes our conceptual framework and data on retail sales and popular music concerts in Bangor, Maine, and this section is followed by the regression results. After that, we use the estimated coefficients of the regression analysis to estimate the percentage of concertgoers who purchase lodging in the Bangor area, which we relate to the distances that visitors travel to the venue, and discuss the overall economic impact of popular music concerts. The final section of the paper provides a summary and conclusions.

REGRESSION MODELS AND DATA

The following two regression models are used to examine the relationship between taxable restaurant and lodging sales, respectively, and the number of attendees at music concerts in a given month (t):

$$(1) \quad \text{Restaurant}_t = \beta_0 + \beta_1 \text{Concert Attendees}_t + \beta_2 \text{Casino Activity}_t + \beta_3 \text{General Merchandise Sales}_t + \beta_4 \text{Restaurant Elsewhere}_t + \varepsilon_t$$

$$(2) \quad \text{Lodging}_t = \beta_0 + \beta_1 \text{Concert Attendees}_t + \beta_2 \text{Casino Activity}_t + \beta_3 \text{General Merchandise Sales}_t + \beta_4 \text{Lodging Elsewhere}_t + \varepsilon_t$$

The dependent variables in the two regression models—*Restaurant_t* and *Lodging_t*—are monthly values for restaurant and lodging taxable retail sales in the Bangor Economic Summary Area (ESA). The data cover the time periods of January 2000 to September 2012 and, in a separate analysis, January 2004 to September 2012.⁴ The Bangor ESA includes the city itself and some surrounding communities. The restaurant sales variable has an average value of \$14.2 million between January 2000 and November 2012, and the measure of lodging sales has an average value of \$2.63 million over the same period.

The explanatory variable of key interest, labeled as *Concert Attendees_t*, is the number of fans who attended concert events. As noted in the introduction, Waterfront Concerts has produced 41 shows between 2010 (its inaugural year) and 2012, with the concerts taking place during “warm weather” months.⁵ Between July of 2010 (the month of the first show) and September of 2012 (the month of the last show in 2012), a total of 15 months had shows and the busiest month, with a total of six concerts, was September of 2011 (B.B. King, Carnival of

⁴ The shorter time period includes fewer months prior to the first concert, which happened in July of 2010.

⁵ The concert venue is an outdoor pavilion. Shows took place between July and October, April and September, and May and September, in 2010, 2011 and 2012, respectively.

Madness, Lady Antebellum, Dropkick Murphys, Reba McEntire, and George Thorogood). Table 1 shows the number of events by year, as well as the top concerts in terms of attendance. The estimated coefficients corresponding to the *Concert Attendees_t* variable in equations 1 and 2 will provide estimates of the average spending of concertgoers on restaurant meals and lodging.

Table 1. Waterfront Concert Events by Year

Year	Number of Events	Highest Attendance
2012	17	Jason Aldean, Zac Brown, Journey
2011	17	Toby Keith, Lady Antebellum, Lynyrd Skynyrd
2010	7	Godsmack, Alan Jackson, Lynyrd Skynyrd

Note. Information provided by Waterfront Concerts.

The variable labeled as *Casino Activity_t* measures the amount of revenue generated monthly by Hollywood Casino of Bangor, which is the city's only casino and one of its most popular attractions (in terms of sales; i.e., net gaming revenue). This variable controls for differences over time in the amount of spending by casino patrons on restaurant meals and lodging, which can help isolate the impacts of the concertgoers (Gabe 2007). The casino began operations in November of 2005 and its monthly net gaming revenue averaged \$4.34 million between its first month and September of 2012, with a range of \$1.97 million (November of 2005) to \$6.30 million (July of 2008). As of 2009, Hollywood Slots attracted an average of 50,000 to 60,000 visitors per month (Cook 2010). The regression coefficients corresponding to

the *Casino Activity_t* variable in equations 1 and 2 will provide estimates of the average expenditures on restaurant meals and lodging per \$1.00 spent at the casino in Bangor.

The variable labeled as *General Merchandise Sales_t* is used to control for the amount of money spent per month in department stores (e.g., Macy's and JC Penney) and general merchandise retailers (e.g., Wal-Mart and Target) located in the Bangor ESA. This variable has an average value of \$34.7 million per month between January 2000 and September 2012. General merchandise sales were 10.00 times larger than lodging sales in Bangor in 2012, which is much higher than the statewide ratio of 4.21 (general merchandise sales divided by lodging sales). This suggests that, compared to the state as a whole, Bangor is more aptly characterized as a "shopping center" than a vacation destination. The Bangor region tends to capture retail activity from areas in northern Maine and parts of Atlantic Canada, and the extent to which these shoppers also spend money in restaurants and lodging establishments is captured by the explanatory variable measuring the amount of general merchandise sales per month.

The final explanatory variables included in regression equations 1 and 2—*Restaurant Elsewhere_t* and *Lodging Elsewhere_t*—account for the amounts of monthly restaurant and lodging sales occurring outside of the Bangor ESA, but elsewhere in Maine. These variables control for overall economic conditions in Maine's hospitality sector, which would affect sales in the Bangor region, as well as broader macroeconomic trends and seasonal swings in restaurant and lodging sales.

REGRESSION RESULTS

Table 2 presents regression results on the effects of popular music concert attendees on taxable restaurant and lodging sales in the Bangor ESA. Two sets of estimates are presented for each of the dependent variables: the first set of results is based on 153 months of data from January of 2000 to September of 2012, while the second set of results is based on 105 monthly observations (starting in January of 2004). The values in parentheses are Newey-West (1987) robust standard errors, used to correct for heteroskedasticity and serial correlation that are often present in time series regression models. Overall, the explanatory variables used in the models explain the month-to-month variation in hospitality spending well, with adjusted r-squared values ranging between 0.72 and 0.83.

The regression results show a positive and statistically significant relationship between monthly taxable restaurant sales and the number of concert attendees. More specifically, the estimated coefficients corresponding to the *Concert Attendees* variable suggest that a one-person increase in concert attendance is associated with between \$33.81 and \$44.53 in additional restaurant sales. Other results from the analysis of taxable restaurant sales in the Bangor ESA uncover positive and statistical significant associations with gaming activity at the local casino, general merchandise sales, and restaurant sales elsewhere in Maine. Although figures are not publicly available for the average amount spent per person at the casino, the regression results suggest that a patron spending \$90.00 at Hollywood Casino would spend between \$24.21 and \$37.89 on restaurant meals in the Bangor area.⁶

⁶ The 2012 “State of the States” report by the American Gaming Association shows that Maine (i.e., Hollywood Casino) had \$59.45 million in gaming revenue in 2011. This amount applied to an estimated 55,000 visitors per month (Cook 2010) translates into an average expenditure of about \$90.00 per patron.

Table 2. Regression Results: Effects of Waterfront Concert Attendees on Local Hospitality Sales

Variable	Estimated Coefficients			
	Restaurant Sales		Lodging Sales	
Intercept	8,763,805* (313,213)	9,898,039* (297,396)	1,481,578* (93,761)	1,688,402* (133,529)
Concert Attendees	33.81* (9.673)	44.53* (10.01)	18.92* (6.052)	23.12* (5.752)
Casino Activity	0.421* (0.056)	0.269* (0.038)	0.127* (0.018)	0.096* (0.021)
General Merchandise Sales	0.008* (0.001)	0.006* (0.001)	-0.78D-04 (0.0004)	-0.0002 (0.0005)
Lodging Elsewhere	NA	NA	0.018* (0.001)	0.017* (0.001)
Restaurant Elsewhere	0.019* (0.002)	0.019* (0.002)	NA	NA
Adjusted R-squared	0.791	0.716	0.827	0.789
Number of Observations	153	105	153	105

Notes. Newey-West (1987) standard errors are in parentheses. The superscript * indicates statistical significance at a 1-percent level.

Moving to the second set of regressions focusing on lodging sales, we see a positive and statically significant relationship with the number of concert attendees. A one-person increase in concert attendance is associated with an additional \$18.92 to \$23.12 in taxable lodging sales. The regression results also show a positive relationship between lodging sales and both net gaming revenues at Hollywood Casino and the amount of monthly lodging sales elsewhere in Maine, but no effect of general merchandise sales in the Bangor ESA on spending at hotels and motels.

The estimated coefficient corresponding to the *Casino Activity_t* variable suggests that a patron spending \$90.00 at Hollywood Casino would spend an average of \$8.64 to \$11.43 on lodging. A comparison of this effect (midpoint of \$10.04) to the marginal effect on lodging associated with concertgoers (midpoint of the two estimates equals \$21.02) suggests that concert attendees spend 109.4 percent more on lodging; that is, concertgoers are about 2.1 times more likely than casino visitors to spend the night in the Bangor ESA. A similar analysis focusing on restaurant sales indicates that concert attendees spend 26.2 percent more than Hollywood Slots patrons on meals. The regression results pertaining to the *General Merchandise Sales_t* variable suggest that, although shopping and eating in restaurants appear to be complementary activities for some, the amount of general merchandise sales occurring in a month has no bearing on sales at local hotels and motels.

ECONOMIC IMPACT ANALYSIS

Regression analysis of the relationship between monthly hospitality sales—i.e., taxable restaurant and lodging sales—and attendance figures at shows produced by Waterfront Concerts suggests that concertgoers spend between \$33.81 and \$44.53 on restaurant meals, and \$18.92 to \$23.12 on lodging in the Bangor ESA. For the purposes of the economic impact analysis, we will use the midpoints of these ranges; that is, \$39.17 on meals and \$21.02 on lodging. The figure for average spending on hotels and motels can be used to determine the percentage of concertgoers who spend the night in the Bangor ESA. Using information from the American Automobile Association (AAA) and websites of hotels and motels located in Bangor, we estimate an average nightly rate of between \$136.49 and \$146.49 per room.⁷ This means that, based on double occupancy, between 28.7 percent and 30.8 percent of concertgoers spend the night in the Bangor area.

The percentage of attendees who spend the night in Bangor provides an indication of those concertgoers who visit from out-of-town. Previous research on event-related economic impacts suggests the importance of distinguishing between the expenditures made by visitors and locals (McHone and Rungeling 2000; Frechtling 2006; Tyrrell and Johnston 2006), with the latter more subject to substitution (e.g., spending money at the event that would have been used to purchase other local goods and services) and crowding out (e.g., local residents stay away from congested events and, thus, spend less money) effects (Baade et al., 2008). Although Baade et al. (2008) note that an *ex post*, regression-based approach to determining hospitality expenditures made by event attendees overcomes these limitations of survey-based studies, we

⁷ The average of \$136.49 is based on the AAA *Tour Guide* for Maine and hotel / motel websites. The upper end of the range adds \$10.00 to this average room rate to account for the high demand for accommodations on concert nights. A Bangor area lodging employee noted that, “We typically charge about \$10 more on concert nights because of premium demand” (Neff 2012).

can use the origins of concertgoers to estimate spending (e.g., retail purchases) in addition to the \$39.17 on restaurant meals and \$21.02 on accommodations.

Table 3. Waterfront Concert Attendees by “Drive Time” from Bangor

Drive Time	2012	2011	2010	All Three Years
Less than 30 minutes	19.5%	29.0%	34.4%	25.9%
30 to one hour	13.5%	22.0%	22.3%	18.3%
One to two hours	27.5%	29.4%	30.8%	28.8%
Two to three hours	16.3%	10.4%	8.2%	12.6%
Three to four hours	6.0%	2.7%	1.7%	4.0%
Four hours or more	17.2%	6.5%	2.5%	10.4%

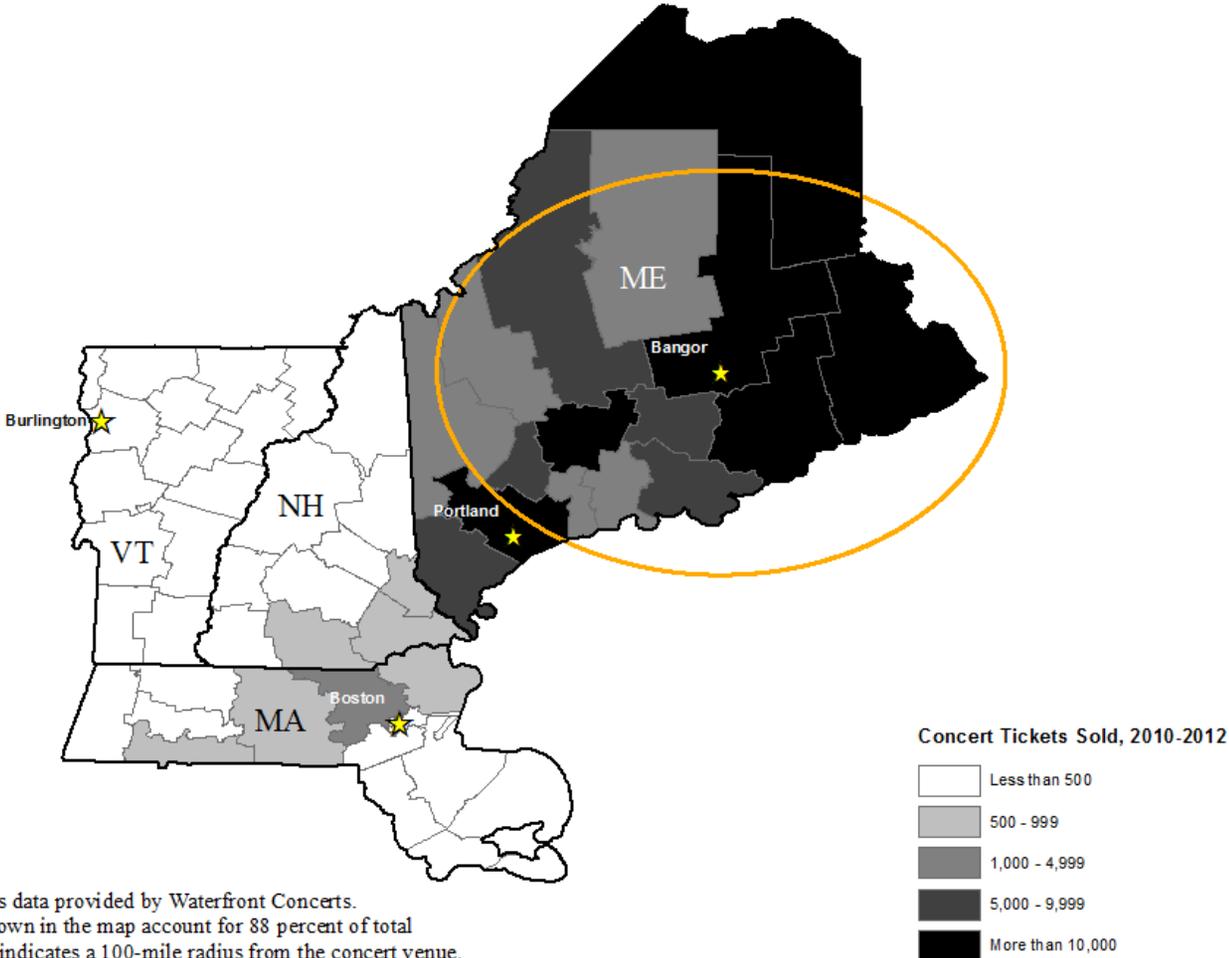
Notes. Counts of concertgoers by zip code are based on information provided by Waterfront Concerts. Zip codes are matched to the county of residence (Forward Sortation Area in Canada) of the concertgoers, and driving times between these places and the venue are from Google Maps.

Table 3 and Figure 1 provide information on the origins of Waterfront Concert attendees based on ticket sales data (zip codes) provided by the venue. The table shows the percentages of concert attendees, by distance to the venue, for 2010, 2011 and 2012. Distances are figured between the exact location of the venue and the “county seat” of the county (Forward Sortation Area in Canada) where the ticket holder resides. This information is available for nearly every ticket sold to all 41 events included in the analysis. Focusing on the percentages of concert attendees who live more than, say, three hours from the venue, we see that the “reach” of the shows extended in each year of the concert series. For instance, the percentage traveling more

than this amount of time increased from 4.2 percent in 2010 to 23.2 percent in 2012. Over all three seasons, an average of 14.4 percent of concertgoers traveled more than three hours to the venue. Our earlier finding of an estimated 28.7 percent to 30.8 percent of concertgoers spending the night in Bangor, considered along with the information presented in Table 3, suggests that attendees traveling more than about two hours (27 percent of concertgoers, across all three years) are those who purchase accommodations in the area. This result seems plausible given that concerts typically end between 10:30 and 11:00pm.

Figure 1 is a map of northern New England states, showing most of the market for popular music concerts in Bangor, Maine. The 54 counties of Maine (ME), Massachusetts (MA), New Hampshire (NH) and Vermont (VT)—each with a minimum of five tickets purchased—accounted for about 88 percent of the tickets sold to Waterfront Concert events between 2010 and 2012. The remaining 12 percent of tickets are associated with addresses in Canada and other U.S. states. The 27 percent of concertgoers who travel two hours or more to shows, slightly lower than the percentage of attendees estimated to spend the night in the Bangor area, is made up of these 12 percent of tickets sold outside of the four states shown in Figure 1, as well as tickets associated with addresses located in southern Maine, New Hampshire, Massachusetts and Vermont. As a frame of reference, the map shows a 100-mile radius around Bangor, which roughly corresponds with places located within a two-hour drive of the venue. Outside this radius, the map shows relative hot spots for ticket sales (i.e., more ticket sales compared to surrounding counties) along the (Interstate 95) corridor between Portland and Boston, and counties located to the west of Boston.

Figure 1. Market for Popular Music Concerts in Bangor, Maine



The direct impact of the Waterfront Concerts is determined by the spending of concertgoers on meals, accommodations and retail purchases, as well as spending on concert tickets. Average spending on meals and lodging are an estimated \$39.17 and \$21.02, respectively, based on the regression analysis. The average spending on retail purchases is estimated using an expenditure ratio model, as described by Frechtling (2006). The basic approach is to use visitor survey data to determine the ratio of expenditures on retail purchases relative to lodging expenditures, and then apply this ratio to our estimates of lodging expenditures from the regression analysis. The ratio of retail to lodging expenditures is 0.74 for overnight leisure travelers, based on a 2010 Maine visitor research study (Davidson-Peterson Associates 2011). Using this ratio, we estimate that concert attendees spend an average of \$15.55 on retail purchases in addition to the \$21.02 spent on accommodations.

The final component of expenditures considered in the economic impact analysis is spending on the concert ticket itself. As is the case for many types of special events, the ticket prices vary considerably depending on the seat location and specific show. For example, the price of a single ticket for a Sting (Summer 2013) concert ranges from \$63.25 to \$103.25, while the ticket price for a Daughtry (with 3 Doors Down and Halestorm) show ranges from \$31.75 (lawn seats) to \$67.75. The economic impact analysis is based on ticket sales data provided by the venue, but the total amount of ticket revenue is not counted in the direct impact. This is because the revenue generated by a show is used to pay the artist(s), as well as to cover local expenditures such as concert operations and security.

As noted above, a study on the local impacts of professional sports by Baade et al. (2008) suggests that “leakages” can be a source of (upward) bias on economic impact results. The logic here is that spending that takes place during a major event “may not wind up in the pockets of

local residents” (Baade et al. 2008, p. 797). This is likely to be the case with the revenues generated from concert ticket sales that are used to cover the costs of bringing the artists to town. Whereas much of the spending that covers concert operations such as security, grounds keeping and food concessions is indeed “local,” payments made to artists leak from the region when the tour bus crosses the city line. Our treatment of removing the payments made to artists from concert expenditures addresses the issue of leakages believed to be a source of bias in some event impact studies.

Table 4 shows results on the economic impact of popular music concerts in Bangor, Maine, taking place in 2010, 2011 and 2012, as well as aggregate three-year impacts. As noted above, the direct impacts are the estimated spending on restaurant meals, accommodations and retail purchases, as well as the spending on concert tickets that does not cover the costs of the artist(s). The multiplier (indirect and induced impacts) effects are estimated using the IMPLAN input-output model of the Penobscot Count, Maine, economy. The results show that in 2012 the Waterfront Concerts had an economic impact, including multiplier effects, of an estimated \$16.0 million in output, 239 full- and part-time jobs, and \$5.1 million in labor income. The economic impacts grew between 2010 and 2012 due to increases in the number of shows—from 7 to 17—as well as the growth in the percentage of concertgoers who reside from outside the region (and, thus, spend the night as part of the concert experience). The results show that, over the first three years of the series, the concerts had an economic impact, including multiplier effects, of an estimated \$30.7 million in output, a yearly average of 156 full-time and part-time jobs, and a combined \$9.7 million in labor income over the period.

Table 4. Economic Impacts of Waterfront Concerts: 2010 to 2012

	Year: 2012		
	Direct Impacts	Multiplier Effects	Total Impact
Output	\$9,814,942	\$6,175,206	\$15,990,148
Employment	181	58	239
Labor Income	\$2,903,881	\$2,192,578	\$5,096,459
	Year: 2011		
	Direct Impacts	Multiplier Effects	Total Impact
Output	\$5,928,017	\$3,813,295	\$9,741,312
Employment	116	37	152
Labor Income	\$1,708,525	\$1,360,522	\$3,069,047
	Year: 2010		
	Direct Impacts	Multiplier Effects	Total Impact
Output	\$3,004,176	\$1,927,569	\$4,931,745
Employment	59	19	78
Labor Income	\$868,299	\$687,701	\$1,556,000
	Years: 2010 to 2012		
	Direct Impacts	Multiplier Effects	Total Impact
Output	\$18,747,135	\$11,916,070	\$30,663,205
Employment	119	38	156
Labor Income	\$5,480,705	\$4,240,801	\$9,721,506

Notes. Direct employment and labor income, and multiplier effects are from an economic impact (IMPLAN) model of the Penobscot County economy. The total impacts for 2010 to 2012 (bottom panel of the table) are the sums of the three-year impacts for output and labor income, and the average three-year impact for employment.

SUMMARY AND CONCLUSIONS

Popular music concerts can have sizable local economic impacts by attracting fans from outside the region and capturing the spending of local residents who might have otherwise left the area to see their favorite artists. In 2012, the top 25 grossing popular music tours generated \$1.8 billion in ticket sales (see endnote 1). Along with the money spent on tickets, concertgoers make expenditures on hotels and motels, food and beverages, and retail purchases. The types of spending that they attract, along with the large-scale—yet temporary—nature of concerts, makes analyzing the impacts of popular music shows similar to examining the impacts of other types of tourism events.

The purpose of this study is to examine the local economic impacts of three seasons of popular music concerts—including artists such as REO Speedwagon, Jason Mraz, Gov't Mule and Big Time Rush—held in Bangor, Maine. Insights from previous studies on the impacts of tourism events were used to inform our estimates of the direct spending of concertgoers. First, an econometric-based analysis of the relationship between monthly taxable retail sales and the number of concert attendees provided an estimate of the average lodging and restaurant sales associated with the concerts. Baade et al. (2008) note that an analysis of local taxable retail sales is ideal to examine the impact of large events, as such an approach helps address the issues of “crowding out” and “substitution” effects that characterize many survey-based tourism impact studies. In our case, if the concert-related expenditures would have otherwise occurred even in absence of the shows, the regression analysis would have likely revealed no statistical relationship between taxable retail sales and the number of individuals attending concerts. The positive impacts revealed by our regression analysis suggest that the concerts attracted new spending into the region.

A comparison of our regression results to information about where concertgoers reside suggests that a driving time of about two hours is the cut-off for people who spend the night in the Bangor area versus those who drive home after a show. Although surveys of concertgoers would be needed to determine exactly who spends the night in the Bangor region, a finding of “all” or “none” of the concertgoers staying in Bangor would not seem plausible: our result of between 29 and 31 percent of the attendees—roughly equivalent to those located more than about two hours away—staying in Bangor seems realistic given the nature of the events (e.g., concerts end between 10:30 and 11pm) and the popularity of the artists, which enhances their ability to attract fans from outside the local area.

Another insight from previous studies on the impacts of tourist events informed our use of an expenditure ratio model to estimate retail spending associated with concertgoers. This approach, outlined by Frechtling (2006), involved calculating the ratio of retail purchases to lodging expenditures from a statewide visitor survey, and then applying this ratio to our estimates for average lodging expenditures from the regression analysis. A third insight from other “large event” impact studies was to consider the possibility of bias resulting from “leakages.” As described by Baade et al. (2008), spending related to visitor events—in their case, professional sports—may leak from the area if the event participants live outside the area. In our case of popular music concerts, the fact that artists are coming from outside the Bangor area means that counting the entire spending on concert tickets would result in an upward bias of the estimated impact. Instead, our impact analysis uses data on concert-related expenditures not including the amount provided to the artist(s).

Following these best practices as suggested by previous tourism and large-event impact studies, our results indicate that the Bangor Waterfront Concerts had an overall economic impact

in 2012, including multiplier effects, of an estimated \$16.0 million in output, 239 full- and part-time jobs, and \$5.1 million in labor income. The impact of 41 popular music shows between 2010 and 2012 is an estimated \$30.7 million in output, an average of 156 full-time and part-time jobs, and a combined \$9.7 million in labor income. These results suggest that popular recording artists bring economic activity, along with the music they play, to the places where they perform.

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