

Suggestions for the Needed Standardization of Determining the Local Economic Impact of Professional Sports

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Abstract

An effort to secure a local government subsidy for a professional sports venue or event typically cites findings from a private consultant's economic impact analysis on its purported benefits to the jurisdiction(s) offering the subsidy. Scholars have consistently expressed concerns regarding the ability of the public, and the officials that represent them, to detect the deficiencies that often plague such an analysis. We review the previous academic research to identify a common set of concerns regarding this form of analysis. These concerns are the basis for a list of 20 evaluative questions to consider in a critical assessment of an economic impact study. To illustrate the practicality of these questions, we ask them of previous studies regarding the economic impact of different professional sport venues or events in five different U.S. cities.

Keywords

economic impact, professional sports, critique

Owners of professional sports teams and organizers of professional sports events have consistently secured public subsidies to help finance these undertakings. The promotional effort to secure such a public subsidy typically includes an economic impact analysis that results in a series of predictable claims: The sports venue or event will increase local income, employment, sales, government revenue, and/or even civic pride. However, academic research has largely concluded that such an analysis routinely overestimates the direct and indirect benefits to a local economy of a professional sports venue or event and underestimates its actual direct and indirect costs to the jurisdiction(s) subsidizing the activity. Nevertheless, both the public and the officials that represent them repeatedly accept such an economic impact analysis at face value. As DeMause (2011) notes, this lack of a thorough vetting of the evidence commonly offered in support of these rather large public subsidies to professional sports is alarming.

When considering the request of professional sports and/or its boosters to subsidize an activity, local elected officials often receive an outside consultant's economic impact analysis that is purported to show the benefits of such an activity to their jurisdiction.¹ Elected officials are very likely to accept this analysis as valid for at least one, and often two, reasons. First, they may be a supporter of bringing sports to their jurisdiction and thus have no reason to question the validity of a large economic impact. Second, elected officials may believe that their unelected public administrators (civil servants) lack the knowledge to evaluate the validity of such

an analysis.² Both these reasons offer the important opportunity for public administrators to serve as impartial experts on the validity of the purported economic impact derived from an outside consultant's analysis, and thus influence the decision to offer a public subsidy to professional sports.

Academics, like Rosentraub and Swindell (2009a), have expressed serious concerns regarding the typical public administrator's ability to detect the methodological deficiencies that plague most economic impact studies done for professional sports venues or activities. To a large degree, this inability is attributable to the lack of an agreed set of methodologies and reporting standards for these studies. The primary goal of this study is to offer a relatively simple—and easily understood—set of questions that need asking in a critical assessment of an economic impact study. To do this, we systematically examine the last two decades of academic research on this topic, with our goal being the discovery of appropriate criteria useful to judging the “quality” of an economic impact study. We then apply the evaluative questions derived from these criteria to five economic impact studies

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on professional sports venues or events in the U.S. cities of Baltimore, Indianapolis, Sacramento, San Francisco, and San Jose. Our hope is that this exercise encourages the adoption of methodological and reporting standards that improve the quality of future economic impact studies.

We establish the context necessary for understanding the critical role of public administrators in the subsidy debate in the next section of this study. In support of our proposed set of evaluative questions, we then summarize the previous two decades of academic research on economic impact studies. We follow this review with a discussion of the evaluation guidelines used to inform the development of the questions. Finally, we show the real-world applicability of these questions by using them to assess the validity of five previously produced economic impact studies for professional sports or sports events.

The Role of the Public Administrator in the Sports Subsidy Debate

Unavoidably thrust into the sports subsidy debate, public administrators must strive to balance the competing professional duties of serving as an impartial adviser in the public's interest and executing the will of their elected principals (Lewis & Gilman, 2012). Our personal discussions with two appointed local government agency heads confirm this behavior. Sacramento City Treasurer Russell Fehr (personal discussion, March 4, 2013) expressed his dissatisfaction with investing public dollars in a proposed new arena, but nonetheless felt the need to be a "good soldier" and take what steps he could to secure the best financial deal for the city. Former Omaha Finance Director Carol Ebdon (personal communication, March 13, 2014) voiced her support for a new stadium for hosting the National Collegiate Athletic Association (NCAA) College World Series because of the amount of spending this activity had previously generated from out-of-state visitors. Nonetheless, she also expressed her frustration with the agreement, resulting in the public bearing a disproportionate amount of the costs of the baseball venue and the infrastructure to support it.³ She viewed her task in these negotiations as primarily aiding the mayor in his push for the stadium and a long-term contract with the NCAA. To the extent possible, she thought her secondary task was to reduce the long-term risk of this venture to taxpayers.

Notwithstanding obligations to their elected principals, the role of public administrators as advisers in policy design and implementation is arguably most apparent in the public budget. Gianakis and McCue (2002) note a number of points of budgetary influence: revenue forecasting, structure and administration of internal service funds, debt policies, and capital budget administration. By influencing budget-setting entry points, public administrators can shape the short- and long-term policy outcomes of public investments (Goodsell, 2003).

An evaluation of an economic impact study produced by an outside consultant is a mechanism by which public administrators can influence the offering of subsidies to professional sports. From the perspective of citizens in the jurisdiction that employ its public administrators, the desirability of gaining a professional sports activity within their community through the necessity of offering a public subsidy rises with a larger positive difference between the public benefits generated for the jurisdiction and the subsidy's public costs (foregone government revenue, foregone alternative public services, and/or exposure to financial risk).⁴ As numerous scholars have documented, economic impact studies in their current form tend to overestimate both the likelihood and magnitude of public benefits (Crompton, 1995, 2006; Crompton, Lee, & Shuster, 2001; Noll & Zimbalist, 1997).⁵ An overestimate of the expected value of the public benefits derived from professional sports raises the perceived return to the jurisdiction of investing in professional sports through a public subsidy, and thus increases the likelihood of the subsidy offered. So any guidance regarding what may generate this overestimation of public benefits offers a better path to fulfilling the benevolent public administrator's service ethic when advising an elected official on the offering of a professional sports subsidy.

Further complicating the administrator's task is the fact that subsidy negotiations for professional sports activities occur under noncompetitive conditions with asymmetric information. Franchise owners have superior negotiating advantage because of the cartel-like setting of professional leagues that allows them to control the supply of teams. Faced with threats of alternative locations—that are hard to assess regarding viability due to propriety information that only the owner possesses—elected officials are compelled to offer larger subsidies than if the supply of teams was greater and information more transparent (Siegfried & Zimbalist, 2000). Furthermore, Long (2013) observes that owners of professional sports are also likely to shift operational revenue to parent companies in an effort to obfuscate the profitability of a venue or an event. This suggests that public administrators may only be comparing the costs and risks of a project to alternative scenarios tacitly created by owners. In a case study of Denver and Major League Baseball, Sage (1993) offers compelling evidence of an owner's agenda-setting influence on the amount of public subsidy received through protracted negotiations.

The public also comes out better in this process when public administrators possess the knowledge to offer informed advice on the use of a public-private partnership (P3) to finance a professional sports activity. For example, in a now defunct 2012 agreement for a professional basketball arena, the city of Sacramento agreed to lease a large portion of its parking assets to a private firm in return for revenue to finance most of the public's subsidy toward the arena's construction. The Sacramento treasurer was to recommend one

of two P3 models that involved either a direct contract with the lessee or an indirect contract through a special authority. If choosing the special authority, the treasurer then had to recommend his one choice among 14 firms that had submitted bids to run this authority (Office of the City Treasurer, 2013). Similarly, the city of Omaha's finance director weighed the pros and cons of P3s supported by alternative debt instruments (C. Ebdon, personal communication, March 13, 2014).

Given that P3s combine private sector production of sports with public sector provision of financing, they are only beneficial to the fiscal interests of the jurisdiction's residents if they produce a positive-sum gain, that is, a situation in which both the public and private sectors receive benefits greater than if they separately undertook the project. A critical feature of a successful partnership is the allocation of financial risk to the degree that each partner is capable of handling it (Forrer, Kee, Newcomer, & Boyer, 2010). Long (2013) demonstrates that the public sector often bears a greater percentage of a professional sports venue's total cost. Bloated estimates of the economic impact of professional sports influence P3 selection by exaggerating the returns to the jurisdiction of investment in a sports venue (Crompton, 2006; Hudson, 2001). As the estimate of these returns increase, the public appears to be in a better position to carry greater financial risk (Greve & Hodge, 2013). The public thus becomes less averse to riskier P3s—yet another concern that arises from a swollen projection of the local economic impact expected from professional sports.

Realistically, positive-sum outcomes for both owners of professional sports teams and the public from a P3 to finance a professional sports venue may be "fool's gold." It is safe to assume that owners are always better off with a negotiated subsidy than without one. For the public sector to come out a winner, the marginal benefit gained from the subsidy (and the resulting economic activity in the jurisdiction) must exceed the marginal cost to the jurisdiction's budget of granting the subsidy. Because the public subsidy of professional sports venues through debt issuance regularly fails to generate enough additional local revenue to cover their own debt service (Noll & Zimbalist, 1997), local governments must reallocate revenue away from other desirable public services and/or raise local taxes/fees. For instance, a publicly financed stadium for Major League Soccer's Chicago Fire has failed to generate sufficient economic activity to pay its own debt. From 2007 to 2011, the village of Bridgeview (Illinois) has taken on an additional \$100 million in municipal debt to cover running losses, and has almost tripled property taxes over the same period to service this and the original debt issued for the subsidy (Ryan & Mahr, 2012). Similar results are documented for Cincinnati (Preston & Kuriloff, 2013), Glendale (Crawford & Chappatta, 2012), and Harrison, New Jersey (Varghese, 2011). Higher local taxes and/or reductions in the quality/quantity of local public services (than

originally anticipated when a professional sports subsidy offered) are too often the outcome of a public subsidy to a private sport's venture.⁶

Perhaps the strongest argument for a P3 benefiting the public is when the construction of a sports venue stimulates a surge in surrounding real estate development (Rosentraub, 2010). Consider San Diego's Petco Park, where in an exchange for a public subsidy, the owner of the San Diego Padres promised to invest heavily in real estate development around the stadium. Cantor and Rosentraub (2012) offer compelling evidence that the Petco Park development created a more socially and economically integrated neighborhood. However, did this gain occur through a shifting of similar economic activity that would have occurred elsewhere in San Diego?

Clear public gains from subsidies to professional sports, overall, are considerably less frequent than losses. In an analysis of the 58 active Major League Baseball (MLB) and National Football League (NFL) stadiums, Rosentraub (2010) determined that under reasonable assumptions, only six offered a clear financially positive outcome for the jurisdiction offering a public subsidy to these private endeavors.

The dynamics of the subsidy debate, as just described, make the task of the public administrator who enters into it difficult. Consider the public administrator's idyllic role in this debate as (1) recommending and publicly defending a subsidy policy and/or P3 model, (2) from a pool of alternatives generated under noncompetitive conditions, (3) with poor information about the project's benefits based on distorted information, (4) for a project that is unlikely to have a positive-sum outcome, while (5) balancing competing professional obligations to protect the public interest and serve elected officials. Analytic suggestions regarding all these five challenges would improve subsidy outcomes by injecting greater rationality into an otherwise irregular environment of policy design and implementation. Three of these challenges clearly resist such reasoned suggestions. Negotiating conditions are a joint product of local elected officials' demand for professional sports and the near monopolies that professional sports leagues have on franchises, two factors clearly outside the guidance of public servants. Similarly, factors exogenous to public administration often dictate subsidy levels and P3 selection. If local residents have a low regard for sports subsidies, subsidy-financing instruments can be limited to those that do not require voter approval. While striking a proper balance between competing professional obligations becomes a judgment call left to the individual public administrator, this is not a matter that can be resolved by coherent analysis.

The fourth challenge, the positive-sum contention, is empirically problematic to confirm, given the difficulty of estimating the public sector's costs. The technique of contingent valuation could approximate the value of economic benefits, but determining a win or loss outcome requires

compiling a nearly impossible inventory of relevant economic costs. Whereas construction, land acquisition, and infrastructure improvements are obvious costs, the public sector also faces transaction costs associated with negotiations, and monitoring and auditing the team and facility. In addition, there are potential legal costs in the event of a breach of contract or default.

The focus of this study is therefore a systematic evaluation of the public administrative challenge that remains of evaluating the economic impact study to point out any probable flaws that contribute to a swollen estimation of economic impact, and hence the offer of too large a subsidy. We offer this contribution by organizing previous academic findings into evaluative questions that civil servants can ask to incorporate academic criticisms into their evaluations of an outside consultant's economic impact report. Our hope is that these questions also encourage a greater standardization of the expected content of a "quality" economic impact study. As Rosentraub and Swindell (2009b) argue, the current lack of standardization allows subsidy proponents of the necessity of a subsidy to professional sports the opportunity to shop for a consultant that will produce the desired findings. As evidence in support of the viability of the proposed evaluative questions, we then ask these questions of five economic impact studies conducted previously for professional sports.

Economic Impact Study Concerns

We draw on the previous two decades of academic research done on the topic to characterize the various ways that economic impact studies can mislead. We concentrate on this period because it was particularly rich in the scholarly insights offered on economic impact analysis. Our characterization of these flaws include (1) confusing gross versus net benefits, (2) ignoring intangible social benefits, (3) a poorly defined impact boundary, (4) use of an erroneous multiplier, (5) ignoring or distorting real estate development effects, and (6) an incomplete inventory of costs.

Gross Versus Net Benefits

An economic impact analysis that claims to be methodologically sound in the formulation of its calculated benefits must only count induced local activities generated from out-of-town visitors that visit the jurisdiction solely for the professional sports activity. The spending of a resident when attending a local sports event should only be counted as part of the event's local economic impact if the resident would have alternatively spent these dollars outside of the jurisdiction (e.g., take a European vacation instead of purchasing season tickets).

Crompton (1995) popularized nomenclature to distinguish the differing types of visitors to a jurisdiction for

professional sports. "Time switchers" are nonlocal attendees that change the time of their visit to coincide with an event. These visitors would have spent their money in the jurisdiction regardless of the sporting event—though albeit at a different time. "Casuals" are individuals that visit the city for some other reason and decide to attend a sporting event. Economic impact studies should ignore the spending behavior of the spending of out-of-town visitors who fit the categories of time switchers and casuals. Excluded also is the spending of the jurisdiction's residents that would have occurred regardless of the professional sports activity (Crompton et al., 2001).

How much of a bias can one expect in an economic impact study if the spending of the time switcher, casual, and local resident who would have spent in the jurisdiction nonetheless are included? In a study of a mixed-use entertainment complex in Seattle, Beyers (2006) found that eliminating spending by time switchers and casuals reduced expenditure counted as generated by a professional sports activity by about 13%. As this adjustment did not attempt to account for dollars spent by local residents regardless of the event, appropriately not counting such local spending would further decrease the report's expenditure estimates. In support of the argument that this additional adjustment for local spending would be substantial, the same study found that 64% of patrons were local (from King County).

A related problem is the failure to adjust economic impacts for "novelty effects." Economic impact studies mislead by treating a stated local economic impact as permanent rather than transitory. New sporting events, venues, and/or teams enjoy high levels of attendance early on, but this activity often decays with time (Coates & Humphreys, 2005). Hamilton and Kahn (1997) argue that the novelty effect begins to fade at 3 years, with a "new normal" attendance achieved after 8 years. Baade and Sanderson (1997) and Howard and Crompton (2003), respectively, estimate ranges of 7 to 11 years, and 8 to 11 years. Coates and Humphreys (2005) estimate a 5- to 9-year novelty effect for a professional sports venue.

A methodologically sound economic impact analysis must also account for "import substitution," which refers to the possibility that the local hosting of a professional sports activity keeps the spending of a jurisdiction's residents within its boundaries by causing them to increase local spending through what they would have spent on a similar event outside the jurisdiction. Cobb and Olberding (2007) calculate the magnitude of this occurrence for a large running marathon in Cincinnati, Ohio. The important takeaway is that it would be wrong to dismiss entirely the expenditure activity of local runners during the race weekend because of the notion that they would have spent these dollars elsewhere in the local economy even without the race. They find that nearly half of local marathon participants would have substituted a marathon race outside the city of Cincinnati without this event.

Consider also that a local sporting event could generate enough inconvenience, congestion, and increased property rents in the jurisdiction hosting it, that nonparticipant residents leave the jurisdiction while it is occurring. As noted by Matheson (2006), this “crowding out” effect is especially prevalent in “mega events” like the Super Bowl, World Cup, Olympics, and Boston Marathon. Matheson offers no specific values for the size of a crowding-out effect, but suggests that the hosting of multiple small events is likely to bring greater economic impact to a jurisdiction than hosting one mega event with the same participant number. Although Preuss (2011) offers a method on how to calculate the crowding out effect for the 2010 World Cup, he does not offer a value for it because of the lack of appropriate data.

Intangible Social Benefits

The presence of professional sports can bolster the perceived quality of life in a community hosting it by nurturing a sense of civic pride among residents (Howard & Crompton, 1995). Relative to other local amenities, however, the size of this contribution is unclear and likely varies across jurisdictions. Swindell and Rosentraub (1998) found that citizens in Indianapolis felt professional football, basketball, and auto racing brought more national attention to the city than concerts and cultural events. In terms of generating civic pride, museums were only fractionally more important than the NBA’s Indianapolis Pacers. Groothuis, Johnson, and Whitehead (2004) alternatively found that major league sports teams produce less civic pride than cultural events.

Civic pride and national recognition are forms of “psychic” (in-kind) income. Crompton (2004) describes this as the positive psychological or emotional benefits resulting from experiencing increased happiness or pride.⁷ He contends that professional sports bring people together in a way that overlooks race, gender, or economic standing and thus generates such psychic income. Danielson (2001, p. 9) notes that individuals living in a city with a professional sports team “identify more closely with a broader civic framework in the spatially, socially, and politically fragmented metropolis.”

Scholars regularly estimate that the dollar value of the intangible benefits created by professional sports teams is less than the (proposed and given) subsidies for professional sports venues (Johnson, 2008). For instance, adjusted to 2010 dollars, Fenn and Crooker (2003) estimate a willingness to pay (WTP) of Minneapolis residents for the Minnesota Vikings of \$114 million, as compared with a public subsidy to the Vikings of \$473 million. This WTP-to-subsidy ratio is estimated to be \$55 million to \$167 million for the Jacksonville Jaguars (Johnson, Mondello, & Whitehead, 2007), and \$78 million to \$308 million for a proposed baseball stadium in Portland, Oregon (Santo, 2007). As Owen (2006) notes, the WTP of an individual to pay for the

presence of a professional sports team in the city in which they live is highly conditional on that individual’s interest in the sport and propensity to attend the sporting event.

Because professional sports can offer an intangible benefit to the community hosting it, a true measure of its positive impact should perhaps include a monetary measure of this dimension of value add to a locality (Walker & Mondello, 2007). However, if this is attempted, it is important to account for the fact that the intangible benefits of professional sports to a locality accrue to its citizens differently. This is apparent from polls that routinely find that a majority of citizens oppose sports subsidies (Danielson, 2001) and that a majority of individuals are unwilling to pay anything for a sports team when subsidy levels are sizeable (Owen, 2006). Crompton (2006) suggests that a simple modification of the questionnaire, routinely used by economic impact analysts to gather information on the spending behavior of attendees to a professional sporting event, would result in a crude estimate of the value of intangible benefits they receive from it. This modification could be the addition of a question prompting respondents to disclose how much more they would be willing to pay to watch the professional sports activity before deciding against it.

Defining the Impact Boundary

Using the language of benefit–cost analysis, “standing” for the right to count benefits applies only to those paying for the generation of benefits. The proper boundary delineation for an economic impact study, therefore, is the jurisdiction(s) subsidizing the sports venue or event (Siegfried & Zimbalist, 2000). A boundary that includes more than the subsidizing jurisdiction, mistakenly attributes regional benefits as accruing to the smaller area of those actually paying for the subsidy (Crompton, 1995). This is unreasonable because citizens of a locality are usually unwilling to pay for benefits that flow to those outside the locality.

Multiplier Selection

A multiplier predicts an additional (indirect and induced) economic impact within a geographic boundary that occurs because of new spending directly associated with a professional sports activity. It arises from outside dollars spent in a jurisdiction, or local dollars retained in the jurisdiction because of import substitution that are again spent in the same jurisdiction and thus exert a multiplier influence on economic activity in the jurisdiction. In other words, the greater the portion of this initial spending in the jurisdiction that is respent in the same jurisdiction—or the less the “leakage” to outside the jurisdiction of this initial spending—the greater the multiplier effect. An income multiplier equal to 2 implies that every inflow of an additional dollar in local spending because of professional sports results eventually in

\$2 of greater personal income earned in the jurisdiction. It is entirely reasonable to account for this multiplier effect when measuring the economic impact of professional sports to a jurisdiction; however, what deserves far greater scrutiny is the magnitude and type of multiplier effect used.

Private consultants use a variety of “canned” software programs (e.g., IMPLAN, REMI, RIMS II) to calculate the final economic impact (direct, indirect, and induced) of outside spending in a sector of economic activity (like professional sports) in a region. These software programs use input–output (IO) models of the region under consideration. An IO model is a formal accounting of how a dollar coming from outside the jurisdiction and getting spent in a specific sector of the region’s economy gets distributed among all sectors in the region’s economy as further spending. Of course, this spending and respending occurs multiple times until all of the local spending generated by the initial dollar of outside activity has leaked outside the region. Such an IO model is the inherent basis for the final economic impact value expected for a region from professional sports.

As Howard and Crompton (1995), Rickman and Schwer (1995), and Charney and Vest (2003) discuss, canned software packages rely on varying assumptions and methodologies necessary to construct an IO model that, even when employing the same input data, yield different results. In addition, the software packages that generate expected economic impacts only rely on regional-level (metropolitan statistical area or county) data to model the IO activity of the limited number of economic sectors included in the model. This use of data that are usually larger in scope than the local economic impact desired for the jurisdiction subsidizing a professional sports activity results in a prediction of region-wide economic impact that requires a method of deflation. The multiplier, inherently generated through an IO model, is also used by “back-of-the-envelope” type economic impact calculations that multiply appropriate dollars directly spent to view professional sports, by a multiplier, to determine overall economic impact to a jurisdiction.⁸

A focus on the challenge of choosing of the most appropriate IO model to use in an economic impact study is justified because of the inherent multiplier generated by such a choice driving the final economic impact calculated for how local expenditures on professional sports exerts an overall impact on a local economy. The challenge to the public administrator wishing to assess the validity of such an economic impact figure is whether the IO model used, and hence the overall economic impact derived, is “reasonable.” Crompton et al. (2001) observe that economic impact studies, more often than not, use an IO model that yields an unjustly large multiplier. For example, the IMPLAN IO modeling system offers the choice of three economic impact results that includes change in a county’s or metropolitan area’s sales, personal income, or employment. From the perspective of a resident in a jurisdiction offering a professional

sports subsidy, personal income is the most reasonable to use. A change in personal income accounts best for the benefits that are likely to accrue to those paying directly for the subsidy through higher taxes/fees, or indirectly through the provision of lower local government services.

In the context of subsidizing sports, a reasonable value for an income multiplier depends on local conditions. Rosentraub (1999) argues against the use of a multiplier greater than 2 when calculating an economic impact of professional sports for a jurisdiction with less than one million people. Because the salaries of athletes in professional sports account for more than half of a typical professional sports teams’ operating costs, the presence of fan spending on a team is far more likely to impact the jurisdiction’s economy when athletes live in the same city where their team plays its home games. Based on the 2010 census, there are only nine U.S. cities (New York City, Los Angeles, Chicago, Houston, Philadelphia, Phoenix, San Antonio, San Diego, and Dallas) with a population exceeding one million. For smaller cities, Noll and Zimbalist (1997) argue that the use of a multiplier closer to 1 is far more reasonable than using a value closer to 2 or greater.

Rosentraub (1999) contends that even for large cities, the use of an income multiplier approaching 2 is still likely too high. Professional athletes, even if they live and spend their money locally, tend to save a large share of their income. Siegfried and Zimbalist (2002) observed that in the case of NBA players, only 29% of players live in the city where they work. Von Allmen (2012) goes as far to conclude that the realistic multiplier for players’ salaries is less than 1 because an outside dollar flowing into a jurisdiction from fan spending on professional sports, if paid to a professional athlete and then deposited into his savings account or investment portfolio that are national/international in scope, offers no benefit to the jurisdiction’s economy. How does this compare to multipliers that are actually used? In a meta-analysis of 13 economic impact studies produced by private consultants for professional sports, Hudson (2001) found that the effective multipliers used ranged in value from 1.5 to 3.3.

Economic impact studies, in addition, often erroneously apply the multiplier to gross rather than net economic activity (Hudson, 2001). That is, they mistakenly include expenditures from time switchers, casuals, and local residents who would have spent their dollars on another form of local entertainment spending if professional sports were not present in the jurisdiction (Crompton et al., 2001). If these deductions are not considered in the calculation of additional spending in a jurisdiction attributed to a professional sports activity, then Howard and Crompton (1995) argue that the appropriate value of “back-of-the-envelope” multiplier use is less than 1, with a suggested range from 0.4 to 0.8 that increases with the size of the geographic region.

Although selecting a multiplier may be more art than science, the academic literature clearly defines a set of criteria

that can help distinguish appropriate from inappropriate ones. The key for policy makers and civil servants is to ask for transparency in the form of authors of economic impact studies explicitly describing the logic behind the selected IO model and subsequent multiplier. The job of the evaluator is then to gauge whether the assumptions made best reflect the underlying occurrences in the jurisdiction for which the economic impact is calculated. If debate still exists on the appropriateness of the magnitude of multiplier used (or subsequently generated from the IO model), then it is best to report a range of economic impacts that are calculated using the appropriate spending induced by a professional sports activity multiplied by a range of economic multipliers suggested by the previous academic literature.⁹

Real Estate Development Effects

Another way that economic impact studies mislead is by including projected future real estate development as a certain benefit of a professional sports venue. In such instances, the derived economic impact is only as reasonable as the likelihood of the occurrence of this projected development. As noted in DeMause and Cagan (2008), it is common for team owners to overpromise future investments in surrounding real estate development during negotiations and then not deliver on it when the facility is completed. Unless there is a guaranteed level of unsubsidized real estate investment, economic impact studies should avoid the inclusion of surrounding development. At a minimum, if expected real estate development near a professional sports venue is included, there needs to be a sensitivity analysis that accounts for the varying likelihoods of it actually occurring.

As Feng and Humphreys (2008, 2012) and Tu (2005) conclude, the magnitude of the induced economic development benefits of surrounding real estate development is potentially substantial; however, there is no guarantee that the direction of the impact is positive. Although majorities of such studies have found positive effects, sports venues can also depress surrounding property values (Dehring, Depken, & Ward, 2007). The uncertainty of even the effect's direction supports the argument that economic activity from surrounding development should only be included when coupled with a sensitivity analysis of the probability of the real estate development actually occurring, and with a range of values for the magnitude of its value.

There is also the additional concern that new real estate development adjoining a professional sports venue results from simply a move of economic activity away from other sites within the jurisdiction. Unless residents perceive this intrajurisdictional shift in economic activity as a social benefit, this is a zero-sum gain for the jurisdiction. A well-placed sports venue can be welfare enhancing to the extent redevelopment near the venue is desired within the jurisdiction (Santo, 2005). As an example, Cantor and Rosentraub (2012)

found that Petco Park in San Diego resulted in a more socially and economically integrated neighborhood in this city's urban core. Nevertheless, the important issue for inclusion of this as a positive economic impact is how much the city's residents value this transformation (especially if it came from a loss of similar activity in a different San Diego neighborhood). A properly executed contingent valuation survey can capture citizens' WTP for the benefits of area redevelopment because of the location of a professional sports venue. Rappaport and Wilkerson (2001) offer specific suggestions on how best to accomplish this.

Incomplete Cost Inventory

Crompton et al. (2001) argue that economic impact studies are supplements to financial balance sheets and, consequently, their purpose is to estimate the return to a community of a particular investment. Accurately estimating the returns of an investment requires an inventory of all relevant costs. Long (2013) details four significant costs often ignored in an economic impact study relating to professional sports: land acquisition, infrastructure improvements, capital improvements such as renovations, and ongoing municipal expenditures to support operations (e.g., providing police and first response services, and forgone property tax revenue). He offers suggestions on how to estimate such costs.

Transaction costs are also nontrivial over the life of a P3, yet they are highly difficult to estimate. In a P3 for a sports venue, transaction costs are realized expenses for negotiating the subsidy agreement, auditing performance, monitoring the private sector partner's responsibilities, and legal representation of the public sector in court. For instance, in Sacramento's 2012 subsidy agreement with an ownership group from the National Basketball Association (NBA), the city spent \$686,000 on lawyers, consultants, and travel during the initial negotiations (Bizjak, 2012). This figure does not include the salaries of city staff that spent several months working on the project. Six years earlier, the city had spent more than \$700,000 creating a subsidy proposal rejected by voters (Sacramento Grand Jury, 2007).

Evaluative Questions

From the academic literature on this topic, we identified a number of concerns found in economic impact studies. Based on our recognition of these potential weaknesses, we offer next a set of 20 evaluative questions as a suggested guide to assess the "quality" of a specific economic impact study. Table 1 offers a list of these questions. We generalize the list of questions by not attaching any relative weights to the importance of each question. We later discuss the need to reconsider the appropriateness of using an unweighted approach when applying these questions to an economic impact study.

Table 1. Evaluative Questions to Ask of an Economic Impact Study for Professional Sports.

Number	Question
1	Does the study adjust for the inappropriateness of counting nonlocal casuals, nonlocal time switchers, and local residents who would have spent regardless?
2	Does the study adjust for the possibility of redistributed labor?
3	Does the study adjust for the possibility of import substitution?
4	Does the study adjust for the possibility of crowding out?
5	Does the study adjust expenditure and employment estimates for novelty effects?
6	Does the study discuss specific types and sources of intangible social benefits?
7	Does the study use a survey of residents to determine the importance of intangible social benefits?
8	Does the study use a survey of residents to gauge the importance of a team or an event to the community?
9	Does the study use a survey of residents to gauge the importance of a team or an event relative to other community goals?
10	Does the study estimate a specific impact for only the jurisdiction(s) subsidizing the venue/event?
11	Does the study use an income multiplier and report its value (of any type)?
12	Is the logic of the chosen multiplier clearly stated and reasonably defended?
13	Does the study incorporate future economic development into its impact estimates?
14	Are assumptions about the probability of development and magnitude of investment explicit?
15	Does the study discuss shifting economic activity within a jurisdiction as a benefit?
16	Does the study discuss project benefits in the context of public costs?
17	Does the study discuss capital and ongoing costs such as facility construction, future renovations, land acquisition, infrastructure improvements, municipal services, and transaction costs?
18	Does the study calculate expenditure estimates based on different assumptions about the percentage of attendees that are nonlocal casuals, nonlocal time switchers, and local residents?
19	Does the study calculate expenditure and employment effects with different multipliers?
20	Does the study calculate real estate development impacts based on different probabilities of development actually occurring and based on different investment levels?

Gross Versus Net Benefits

If spending from local residents, nonlocal time switchers, and nonlocal casuals are not appropriately exempt from the direct spending used to calculate the economic impact of a

professional sports activity, the analysis mistakenly assumes that all spending associated with a professional sports venue or event reflects new money for the subsidizing jurisdiction. It is also important that the economic impact study considered the possibility of import substitution and crowding out. For if not considered, the impact derived is respectively too low or too high. Furthermore, only in instances where labor would otherwise be idle should increases in employment be wholly attributable to a venue or event. If local labor is underemployed, a professional sports activity could provide a second job and increase the amount of income generated in the locality but not the amount of employment. In addition, redistributed labor (defined as moving from a job not associated with the professional sporting activity to a job that is) is not employment growth for the jurisdiction, though it could raise overall income in the locality by putting upward pressure on wages.¹⁰ Such a rise in wages could also encourage discouraged workers (people that are unemployed but not actively seeking employment) to enter the labor force. These expenditure and employment effects are not constant, but likely vary over time due to the “novelty effect” described earlier. Questions 1 to 5 in Table 1 clarify the reasonableness by which an economic impact study handles the gross versus net benefits attributable to a professional sports activity.

Intangible Social Benefits

Given that the often-mentioned reason to bring professional sports to a jurisdiction are the intangible benefits they generate for the community, a study measuring the impact of professional sporting activity is remiss if it does not at least offer a discussion of this. Because economic impact studies often poll respondents on their spending behavior, including questions in the survey that elicit respondents’ opinions about the importance of a team relative to other local amenities is reasonable (Swindell & Rosentraub, 1998). Such surveys could include questions structured to extract a resident’s maximum WTP for the presence in their jurisdiction of a professional sports venue or event (Crompton, 2006). Questions 6 to 9 in Table 1 capture these concerns.

Boundary Definition

Although a professional sports venue or event may generate public benefits for an entire region, the hosting jurisdiction is most often the only government offering a public subsidy to the venue. Only in rare cases, such as Indianapolis’ Lucas Oil Stadium, has a region-wide financing effort occurred.¹¹ Regardless of how many governments subsidize a venue or event, economic impact studies should separately estimate benefits as they accrue to each political subdivision offering a subsidy. To this end, question 10 in Table 1 is appropriate.

Multiplier Selection

Multipliers are arguably the most misunderstood and, hence, are an abused statistic in an economic impact analysis. Sales multipliers are usually larger than income or employment multipliers and are often used to demonstrate a larger economic impact. Yet what more likely matters to the residents of a jurisdiction facing the question of whether to subsidize a professional sports team is not the increase in sales or employment in their jurisdiction, but the increase in personal income generated there. Multiplier selection should also take into consideration its relevance to only the jurisdiction(s) offering the subsidy (impact boundary appropriately defined) and the local conditions regarding the generation of net versus gross benefits in the jurisdiction under consideration.

One problem with “canned” IO software modeling is a reliance on regional data analysis, while typically the subsidizing jurisdiction is only a portion of the region. To reflect this discrepancy, analysts can adjust the overall impact downward, but such an adjustment occurs postprocessing and is model dependent. Far preferable is the creation of an IO table from sectorial relationships only within the jurisdiction under consideration. Unfortunately, the immense data-gathering task this usually entails prevents this from being done. Private consultants instead rely on a regional- or metropolitan-area-based IO model and attempt to adjust the broader economic impact found in such. By relying on regional inputs and then adjusting outputs to reflect local conditions, impact studies introduce measurement error that is extremely sensitive to this adjustment. Moreover, the basis of all IO tables is historic transaction data drawn from the area under consideration. Coughlin and Mandelbaum (1991) find the reliability of an economic impact study quite questionable if older IO tables are used.

If the economic impact study under consideration used a canned model like REMI to yield its finding for a city, we suggest that the author of the analysis explain the details and justifications for the methods used to take the regional/metropolitan impact calculated down to the desired level of the city offering the subsidy. It is highly informative if the analyst also offers a back-of-the-envelope sensitivity analysis that takes the appropriate amount of direct income generated by the professional sports activity and reports a range of expected final economic impacts based on a range of reasonable multipliers. In doing so, the analyst should also make the case for what is the most compelling single multiplier value to use (U.S. Department of Commerce, 1997). Questions 11 and 12 in Table 1 represent the collective wisdom of these concerns when evaluating the use of the multiplier in an economic impact analysis.

Real Estate Development

As noted in our review of the literature, a professional sports venue can exert a different economic impact on a jurisdiction

depending on its location within the jurisdiction (Austrian & Rosentraub, 2002; Chapin, 2004) and to the degree that it catalyzes investment in surrounding real estate (Cantor & Rosentraub, 2012). However, care must be taken if an economic impact study chooses to include induced real estate development near the venue.¹² Impact estimates based on real estate development are only as good as the certainty that development will actually occur, as well as the accuracy of the predicted magnitude of investments. Public administrators, in addition, need to consider the details of venue financing in their evaluations. For example, a venue funded through tax increment financing within a dedicated sports-entertainment district will not increase the flow of tax receipts to the hosting jurisdiction’s general fund. Questions 13 and 14 in Table 1 provide a context for evaluating real estate development within the calculation of economic impact estimates.

Cost Inventory

When failing to provide a reasonable inventory of the public sector’s construction, maintenance, and operating costs surrounding a professional sports venue or activity, economic impact studies can be faulted for not only overestimating benefits but also for underestimating costs. A realistic picture of the public’s financial obligations occurs when public administrators consider questions 15 and 16 in Table 1.

Sensitivity Analyses

To use Manski’s (2011) well-chosen phrase, the most significant flaw in economic impact studies is their “incredible certitude.” The reality is that studies often produce point estimates of impacts based on a host of assumptions that carry varying degrees of accuracy and/or reliability. It is critical for evaluating a study’s overall quality that public administrators understand how sensitive an economic impact estimate is to the study’s underlying assumptions. Evaluative questions 17 to 19 in Table 1 encompass examples of the types of assumptions public administrators should question.

Application of Evaluative Questions

We next ask the suggested evaluative questions contained in Table 1 of five relatively recent economic impact studies. We intentionally selected these studies because they demonstrate considerable variation along the desired responses to the questions. Two studies estimate the impact of sports venues: A study by Capitol Public Finance Group (2013) regarding Sacramento’s under-construction arena and a study by Rascher (2008) on San Jose’s HP Pavilion (Sharks Ice).¹³ The other three studies are for professional sporting events: the America’s Cup in San Francisco by the Bay Area Council Economic Institute (2010), Super Bowl XLVI in Indianapolis by Rockport Analytics (2012), and the Baltimore Grand Prix

by Baltimore Racing Development (2010). Because we purposely selected these studies to highlight differences in quality, we cannot guarantee the overall representativeness of the sample. Nevertheless, based on the literature reviewed previously, we believe that the strengths and weaknesses found in these five studies are relatively common.

The 20 evaluative questions in Table 1 allow a public administrator (or elected official or even citizen if they are so inclined) to assess the quality of an economic impact study in absolute terms. As discussed earlier, we suggest the attachment of weighted decimal percentages (that sum to 1 as a whole) to each question that represents the relative importance of each criterion to their overall assessment of an economic impact study. Failing to do so implies that each question carries the same relative importance, a conclusion we do not mean to imply. For instance, if real estate development were not a concern for elected officials, questions 13 and 14 would receive a weighted value of zero. After doing this, a failure to incorporate surrounding real estate development benefits would not affect an evaluation of an economic impact study's quality.

Table 2 demonstrates our application of the 20 questions to the five studies chosen for consideration. Assuming the criteria inherent to these questions are valued equally across jurisdictions, the 2008 impact study of San Jose's HP Pavilion (Sharks Ice) receives our highest assessment of quality. Arguably, the most notable strength of this study is in adjusting the calculated impact of the arena to exclude spending by local residents, time switchers, and casuals. Three of the studies only excluded local residents, whereas the economic impact study for the Baltimore Grand Prix excluded none of these types of visitors. To its credit, the economic impact for HP Pavilion (Sharks Ice) also includes a thorough multiplier discussion that focuses on the differences between income, sales, and employment effects.

The HP Pavilion (Sharks Ice) study also frames the arena's benefits in terms of its cost to construct. Importantly, the study maintains that only the private portion of the construction costs counts as economic impact on the logic that the city spends the public sector portion (\$132 million out of \$162 million) on something else within its boundary if the HP Pavilion were not subsidized. This detail reminds the public administrator that it is unreasonable to attribute public dollars used to subsidize a professional sporting venue or event since an alternative public investment would have likely produced the same or greater impact.

All of the five analyses examined in Table 2 do three things poorly. First, there are no attempts to adjust employment impacts for redistributed labor. Although accurately estimating the extent of labor redistribution is arguably beyond the scope of an economic impact analysis, the authors of these studies could nonetheless identify a reasonable adjustment coefficient based on known cases, and then subject the coefficient to a sensitivity analysis. Second, the studies do not

survey respondents to gauge how local residents value the sporting events in question. As discussed previously, such surveys are not typical for economic impact studies, so it is somewhat unfair to evaluate this omission as a failure. We maintain, nonetheless, that polling residents on the local value of professional sports relative to other community goods should be included in future economic impact analyses. Third, the studies utilize sensitivity analyses inconsistently and in some instances not at all. In analyzing the impact of the Super Bowl in Indianapolis, the study provides alternative estimates only for hotel and convention center bookings. In analyzing the America's Cup regatta in San Francisco, the study adjusted estimates using optimistic assumptions and ignores the possibility their baseline assumptions are themselves overly optimistic.

Conclusion

The use of economic impact studies to justify subsidies for sports venues and major sporting events is frequent. As scholars have argued for some time, these studies suffer from numerous flaws that are too often present and, hence, yield inaccurate and usually overly optimistic economic impact estimates. Because there are no methodological or reporting standards to follow, elected officials desiring the professional sports activity are able to shop for a private consultant that will produce an analysis that yields a bloated level of positive local impacts. As a result, the public often overinvests its scarce public resources in these professional sports activities relative to the benefits generated by the professional sports activity to the jurisdiction.

As impartial, subject-matter experts advising elected officials, public administrators are in a unique position to influence the amount and type of public subsidies offered to professional sports. Demanding a more realistic economic impact study is perhaps the most important way that public administrators can exert this influence. In an effort to improve the quality of these studies, we suggested a set of questions to evaluate economic impact studies based on the extensive academic literature on this topic. We then demonstrated the use of these questions by applying them to five impact analyses. This application reveals the great disparities in methodological strategies and reporting standards across economic impact studies.

Our suggested strategy of using evaluative questions offers a common framework for evaluating the "quality" of an economic impact study. Because of its flexibility, public administrators can modify the weighted values attached to each question to allow for specific characteristics of the study to have greater influence in their evaluations. Thinking about the answers to these questions applied to a specific economic impact study offers a necessary beginning to a more thorough review of economic impact studies. Practitioners and academics educating future public leaders

Table 2. Application of Evaluative Questions to Five Economic Impact Reports for Sports Venues and Events.

	Sacramento Entertainment Sports Center—\$116 million (sales) to city of Sacramento	San Jose HP Pavilion (Sharks Ice)—\$267 million (income) to city of San Jose	San Francisco America's Cup—\$1.37 billion (income) to city of San Francisco	Indianapolis Super Bowl— \$278 million (income) to Indianapolis metro area	Baltimore Grand Prix—\$119 million (not clear of what) to Baltimore region
Expected increase in stated economic activity (annual value for arenas)					
Gross versus net benefits					
1. Does the study adjust for the inappropriateness of counting nonlocal casuals, nonlocal time switchers, and local residents who would have spent regardless?	Yes But no details on how done (p. 31)	Yes For local residents (p. 4) Yes For nonlocal casuals and time switchers (p. 10)	Yes For local residents (p. 21) No For nonlocal casuals and time switchers	Yes For local residents (p. 3) No For nonlocal casuals and time switchers	No
2. Does the study adjust for the possibility of redistributed labor?	No	No	No (p. 54)	No	No
3. Does the study adjust for the possibility of import substitution?	No	No But mentions possibility (p. 4)	No	No	No
4. Does the study adjust for the possibility of crowding out?	No	No	No (p. 32)	Yes For displaced tourism (p. 3)	No
5. Does the study adjust expenditure and employment estimates for novelty effects?	No	No	Not relevant	Not relevant	Not relevant
Intangible social benefits					
6. Does the study discuss specific types and sources of intangible social benefits?	Yes (pp. 23-24)	Yes (pp. 63-65)	Yes (p. 2)	Yes (p. 21)	Yes (pp. 4, 8, and 22)
7. Does the study use a survey of residents to determine the importance of intangible social benefits?	No	No	No	No	No
8. Does the study use a survey of residents to gauge the importance of a team or an event to the community?	No	No	No	No	No
9. Does the study survey residents to gauge the importance of a team or an event relative to other community goals?	No	No	No	No	No
Boundary definition					
10. Does the study estimate a specific impact for only the jurisdiction(s) subsidizing the venue/event?	Yes (p. 31)	Yes (p. 4)	Yes (p. 29)	No Aggregate for Indianapolis metro area (p. 5)	No Aggregate for Baltimore region (p. 3)
Multiplier selection					
11. Does the study use an income multiplier and report its value (of any type)?	No Uses sales multiplier No Multiplier value but backed out to be 1.24 (p. 31)	Yes Uses income multiplier No Multiplier value but backed out to be 1.53 (p. 61)	Yes Uses income multiplier No Multiplier value but backed out to be 1.73 (p. 29)	Yes Uses income multiplier No Multiplier value but backed out to be 1.83 (p. 26)	Not clear On type of multiplier used Yes Generic value of 1.70 used (p. 16)
12. Is the logic of the chosen multiplier clearly stated and a reasonably defended?	Yes From IMPLAN model (p. 31)	Yes From IMPLAN model (p. 13)	Yes From IMPLAN model (p. 53)	Yes From IMPLAN Model (p. 29)	No U.S. Department of Commerce (p. 16)
Real estate development					
13. Does the study incorporate future economic development into its impact estimates?	Yes (p. 30)	No	No (p. 14)	No	No

(continued)

Table 2. (continued)

Expected increase in stated economic activity (annual value for arenas)	Sacramento Entertainment Sports Center—\$116 million (sales) to city of Sacramento	San Jose HP Pavilion (Sharks Ice)—\$267 million (income) to city of San Jose	San Francisco America's Cup—\$1.37 billion (income) to city of San Francisco	Indianapolis Super Bowl—\$278 million (income) to Indianapolis metro area	Baltimore Grand Prix—\$119 million (not clear of what) to Baltimore region
14. Are assumptions about the probability of development and magnitude of investment explicit?	Yes Full certainty of occurrence (pp. 25-29)	No	No	No	No
15. Does the study discuss shifting economic activity within a jurisdiction as a benefit?	Yes (p. 23)	No	No	No	No
Cost inventory					
16 and 17. Does the study include specific capital and ongoing costs?	No	Yes Construction (pp. 56-57)	Yes Pier infrastructure (p. 14), city services (p. 25)	No	Yes Setup and construction (p. 22)
Sensitivity analysis					
18-20. Does the study include a sensitivity analysis of estimated impacts based on different assumptions?	No But acknowledges sensitivity of assumptions (p. 66)	No But only optimistic assumptions (p. 33)	Yes But only for hotel bookings (p. 23)	Yes	No

should view the ideas discussed here as a convenient summary of the suggested criteria for an acceptable study to follow.

Our intent is not to have identified the definitive method for evaluating impact studies. Instead, our hope is that other scholars working in this area will refine and build on this effort with the goal to make the public administrator, elected official, or even citizen more informed consumers of economic impact studies as applied to professional sports venues and events. We believe that by standardizing methodologies and reporting protocols, the overall quality of economic impact studies, as well as public sector subsidy outcomes, can improve.

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Notes

1. As recognized by Sam and Scherer (2006), a consultant asked to produce such an economic impact report is effectively serving as a member of an informal "steering group" in the policy process that decides on the offering of a public subsidy to professional sports in a jurisdiction.
2. The distinction made here is that elected officials (e.g., a mayor, city councilperson, county supervisor) are the ultimate decision makers regarding a local government's decision to offer

a subsidy to professional sports. Public administrators (civil servants), who work for elected officials based on drawing a regular salary from the jurisdiction that the elected officials represent, provide them with information and advice on the desirability of offering such a subsidy. The outside consultant is usually retained by the professional sports entity seeking a subsidy, or the business-led "growth coalition" who lobby on their behalf (DeMause, 2011).

3. Consistent with other research on public sector outcomes in sports venue negotiations (Rosentraub & Swindell, 2009b), Ebdon cited the NCAA's superior negotiation advantage and experience as the reason for the uneven cost burden.
4. We do not mean to confuse this rule with a related rule that incorporates "opportunity cost" into the cost calculation. A real-world example is the recent decision in the city of Sacramento to subsidize the building of a new downtown basketball arena with over \$230 million garnered from parking revenues previously used to retire the debt acquired for city-owned parking structures that remain viable (SFGate, 2014). This \$230 million is truly foregone revenue that the city could have spent to the benefit of its citizens on other local government activities. The typical use of an economic impact study is to compare the calculated economic impact of the new arena (discounted to the present) to the \$230 million subsidy and declare the subsidy desirable if it is less than the calculated economic impact (Késenne, 2005). If the investment occurred in an alternative city-financed activity and yielded greater than \$230 million, a "true" benefit-cost analysis would value the cost of the subsidy as greater than \$230 million in benefits to its citizens. Using this methodology, the opportunity cost of the \$230 million subsidy is the "direct" cost of \$230 million plus the "indirect" cost of the foregone benefits to Sacramento city citizens of investing the \$230 million in the city-financed activity (besides the arena) that yields the highest benefits

greater than \$230 million. Benefit–cost analysis is the preferred analyses for informing stadia subsidy debates. In reality, benefit–cost analysis that accounts for the direct and indirect costs of a subsidy to professional sports is difficult to implement because of the near impossibility in agreeing on the “best” alternative city-financed activity.

5. As noted, using a public choice interpretation of political behavior, local officials could desire an overestimation of the benefits of a professional sports venue or event.
6. In Cincinnati, Ohio, the debt burden of two professional stadia resulted in delayed investments in mass transit and the early sale of a public hospital at a 50% discount just to meet annual debt service obligations (Preston & Kuriloff, 2013).
7. An intangible social benefit of attracting and retaining professional sports in a city may be an enhanced ability to attract businesses because working professionals desire to live in cities with this amenity. Although this has become conventional wisdom, a search of the academic literature yielded no empirical evidence to support such a claim. Thus we choose to exclude it as an intangible social benefit to consider.
8. See Baltimore Racing Development (2010) for an example of this “back-of-the-envelope” approach. Capitol Public Finance Group (2013), Rascher (2008), Bay Area Council Economic Institute (2010), and Rockport Analytics (2012) all relied on REMI modeling for the calculation of jurisdiction-specific multiplier effects.
9. We realize that “canned” models like IMPLAN, REMI, and RIMS II produce their own multiplier based on the models’ inherent assumptions (U.S. Department of Commerce, 1997). Thus, it is important for the evaluator checking the validity of an economic impact report to find out what these inherent assumptions within the model are to complete such a task.
10. These are other reasons for the use of change in local personal income, and not employment or sales, as the preferred way to measure the economic impact of professional sports in a jurisdiction offering a subsidy.
11. In 2005, legislators from eight counties surrounding Indianapolis and Marion County voted to increase the food and beverage tax one percentage point to finance the stadium. Only one surrounding county (Morgan County) rejected the increase.
12. As just the hosting of a sporting event itself is unlikely to spur real estate development (with the possible exception of something like the Olympics that usually requires the creation of new venues), this consideration of real estate activity applies to only venues.
13. A copy of this report is available on request from the corresponding author.

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