



*The Supply Constraint Problem in
Economic Impact Analysis: An Arts/Sports
Disparity*

by Bruce Seaman

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An Arts/Sports Disparity

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I. Introduction

The major technical errors that can be made in traditional economic impact analysis are well understood by all but the most inexperienced practitioners.¹ The three most common are demand-side errors: (1) the spending diversion direct base error (i.e. the failure to subtract local *sources* of funds and non-local *uses* of funds from subject organization or event budgets and other spending data sources), (2) the ancillary spending induced base error (i.e. incorrectly attributing all complementary good spending by non-local visitors to the existence of a particular subject organization or event, and (3) the indirect impact multiplier error (i.e. failing to adapt the multiplier to the specific sized region by not recognizing the commonly negative relationship between the size of the direct and induced spending bases and the relevant multiplier).²

However, even highly trained analysts do not as consistently avoid two other potentially significant problems. The first, which is the focus of this paper, is the failure to consider the severity of supply capacity constraints in the local economy that may generate as much as 100 percent crowding out or displacement of one type of visitor spending by another type of visitor spending. While this is focused on the alleged limitations of the hospitality sector and the local transportation and related infrastructure, it is more broadly linked to the potential inability of a local economy to significantly expand its output in response to alleged massive injections of visitor spending demands linked to “mega-events.”

The failure to detect this problem is in turn linked to an “*ex post* verification error” that results from the absence of empirical testing of regional economic impact projections, either due

¹ Seaman (2002) distinguishes between “naïve economic impact models” (NEIM) that fail to avoid these errors, and hence systematically overstate net economic impacts (measured as incremental output, income, employment and tax revenues), and “sophisticated economic impact models” (SEIM) that properly adjust for these problems, and hence generate economic impact results as low as \$0 in some (perhaps many) cases. However, since spending based economic impacts are incomplete versions of the “full economic impact,” conditions are identified in which NEIM results may reasonably approximate a more accurate conceptualization of full economic impact that also includes consumer surplus and option-type values as typically addressed by contingent valuation models (CVM).

² Schaffer (1999), e.g., provides a comprehensive technical review of the methodological strengths and weaknesses of regional economic impact analysis. Baade and Dye (1988) was an early important evaluation of economic impact methods. The particular names applied to the analytical errors identified above, and some others below, are derived from Seaman (2003a). Crompton (1995) identifies eleven “sources of misapplication” in the economic impact analysis of sports facilities and events.

to inadequate data or motivation to test those results. Cultural economic impact studies have nearly ignored this problem, while recent sports studies have potentially overstated its significance.

The second rarely resolved issue is the “aggregation problem,” which can become even more severe when combined with supply constraints. While space limitations prevent a full analysis of this problem here, this refers to the conceptual dilemmas created by (a) the common practice of separately deriving the economic impacts within any defined region of individual organizations or events (usually in independent studies done by different analysts with varied and distinct sponsors), and (b) the occasional attempt to derive separable economic impacts from the same event or organization for different aggregations of the region, most commonly growing in scope from the central city, to the entire city, to the metropolitan area, to the entire state (or other applicable regional entity).

The aggregation problem might be confused with the “policy interpretation, partial vs. general equilibrium error,” whereby it is falsely presumed that the demonstration of a positive net economic impact from any one project is a sufficient condition for potential public sector investment without first comparing the rates of return from alternative uses of such funding. While this reflects a failure to see the “big” (aggregate) picture, it is quite distinct from the aggregation problem just described. The general equilibrium policy error warns against considering tax-financed support prior to a comparison of the economic impacts of competing projects. By contrast, the aggregation problem addresses conceptual challenges to properly measuring those individual economic impacts in the first place.³

³ One particular challenge that the author has faced includes the competing claims made by proponents of Atlanta Hartsfield-Jackson International Airport and the Georgia World Congress Center (GWCC), both critical “engines of local growth,” but with the airport viewing itself as the essential conduit for large portions of conventioners and other visitors to the Atlanta area, and the GWCC viewing itself as the initial reason for most of those “destination” (in contrast to the huge base of “transit”) passengers to need the services of the airport in the first place. Even though I have conducted studies of both facilities, they were separate studies over slightly different time periods, raising the interesting question of how an integrated study of both facilities done at the same time might have differed, and more directly attacked any possible double-counting problems. A more recent example of a study that did require an explicit approach to this aggregation problem was my simultaneous analysis of the pending Georgia Aquarium (to open in 2005) and the New World of Coca-Cola (to be relocated from elsewhere in downtown Atlanta as part of the overall Aquarium project). I was asked to derive separate economic impacts for both projects individually, as well as for the integrated project, and was later asked to further incorporate the independent economic effects of adding a “multi-use entertainment complex of retail shops, a hotel and condominium housing” after having already done the analysis of the Aquarium and the Coke museum. Separate impacts upon the City of Atlanta (as distinct from the metropolitan area) and the state of Georgia were requested. To further complicate matters, Coca-Cola and the Marcus Foundation (sponsor of the Aquarium project) alternately viewed themselves as

As described, all competent analysts are aware of the general equilibrium policy error and warn that, at best, a positive net economic impact (on jobs, income, output, and tax revenues) may be a necessary but certainly is not a sufficient condition for justifying public investment in a project.⁴ However, the aggregation problem is typically either beyond the scope of any one economic impact study, or so conceptually challenging as to be poorly handled despite attempts to confront it. Again, this topic cannot be fully developed in this particular paper.

What is addressed more thoroughly here is the fascinating disparity in the way that sports economists have handled the supply constraint problem in contrast to cultural economists – even cultural economists who have been extremely critical of economic impact studies (including the author, who also has conducted many sports impact studies; see below). In short, while sports economists certainly make the appropriate criticisms of the three (and more) previously listed demand-based errors, they have elevated the failure to consider supply constraints into perhaps the pre-eminent conceptual mistake exhibited by short-run spending impact analysis.

Porter (1999, 2001a, 200b) takes the almost shocking position that the mega-sports event in the United States, the National Football League's (NFL) Super Bowl, has essentially yielded zero net economic spending-based benefits to host cities. Baade and Matheson (2000) conclude that the 1999 Super Bowl in Miami yielded only about 10 percent of the estimated impact (i.e. \$36.5 million instead of \$365.0 million), and further conclude that Super Bowls generally yield actual impacts ranging from about \$21 million to \$32 million. By contrast, the average predicted impact of 13 Super Bowls measured in 1992 dollars is \$252 million (Depken, II and Wilson, 2003, Table 1). The Major League Baseball All Star (MLB) Game fares even worse, with essentially negative economic impacts to host cities since 1973 (Baade and Matheson, 2001).

Nothing like these severe results is even hinted at in the many economic impact studies done of arts festivals and other cultural events. The unavoidable question is whether arts economists, despite their own critical view of economic impact studies, have simply missed the

collaborators for the success of this common integrated project, and competitors in claiming significant regional economic benefits from their individual parts of the project. Since the findings of this study have not yet been released, and a strict confidentiality agreement had to be signed regarding the data, the model that was developed to deal with these analytical challenges cannot be discussed here.

⁴ Of course, the long-standing welfare analysis of public subsidies linked to externality, public good, and merit good arguments does not focus on such short run spending based impacts at all, except in an indirect way related to regional factor rents that might not be fully captured by those generating them, hence presenting a kind of externality problem.

importance of regional supply constraints. Even if most arts economists would be skeptical of any net positive spending impacts of locally based individual arts organizations and institutions, have they been wrong in their findings of net positive benefits from high profile arts events that clearly do bring visitors to their host cities and regions?⁵

II. Regional Supply Constraints

A. Further Description of the Problem

It is well known that unless there is significant import substitution, sports, arts or other institutions can have no net incremental regional effect on jobs, income and output if the audiences that it attracts are entirely localized, hence generating only diversions of spending from one sector to another without injecting any new economic activity into the region. Import substitution will occur if local residents would have spent a portion of their income outside the relevant region (typically on non-localized substitutes) had it not been for the existence of the local institution. A rare explicit measure of this effect was related to an event rather than an institution, when Gazel and Schwer (1997) identified 3,660 local Las Vegas residents attending a Grateful Dead (GD) concert (out of 4,134 such attendees) who “reported that they would travel someplace else to patronize the GD concerts in the absence of the show locally” (p. 49). O’Hagan (1992) provides another estimate of such import substitution related to an event in noting that about 10 per cent of Irish attendees of the Wexford Festival “indicated that they would have taken a holiday outside Ireland if the Festival had not been on” (p. 65).

Interestingly, there may be a reverse effect in what might be called “import enhancement” resulting from the development by local arts institutions of a greater interest in cultural consumption that then stimulates more tourist visits by local residents to non-local destinations to partially satisfy their demand for the arts. Thus, a reasonable conclusion is that, given the limited and contradictory evidence regarding import substitution, institutions that

⁵ Seaman (2003b) compares and contrasts the cultural economics and the sports economics literatures in the hope of encouraging more collaboration across these related areas. Since the focus is on labor market analysis, the common problems confronted in conducting economic impact, as well as contingent valuation studies, is mentioned only in passing.

largely serve local audiences may generate substantial local consumption benefits, but will not generate any measurable output, income, jobs or tax revenue effects.⁶

However, can sports, arts, or other local institutions, or even more likely, significant events that clearly do attract large numbers of freely spending visitors from outside the region ever yield a similarly *de minimis* economic impact? Yes, but only if such visitors substantially displace (crowd-out) other equally or more freely spending visitors who must not just postpone, but permanently cancel their trips to the region.⁷ Note that this crowding-out effect is quite distinct from the incorporation of the negative effects on a community of enhanced tourism development linked to additional policing, clean-up, or traffic control expenditures (see, e.g. Fleming and Toepper, 1990, who call for a balancing of these negative as well as positive effects of tourism). If the crowding-out of customary tourists by mega-event visitors is truly significant, such additional local government expenditures will be minimal since the net increase in tourists will itself be minimal.

While it is widely recognized that this *can* theoretically happen, it has been rare (until relatively recently) to make any adjustments for this displacement effect, much less to claim that full 100 percent displacement will ever occur. This is particularly true in the arts, where the problem is only mentioned in passing, or a quite different aspect of supply capacity constraints is addressed. For example:

- Johnson and Thomas (1992) provide a very thorough analysis of the economic impact of the Open Air Museum of Beamish in northern England, but note merely that “possible supply constraints” (and also the role of competitors as a separate issue) “have not been examined” (p. 76).
- Mitchell (1993) provides a generally positive assessment of the impact of theatre festivals in small Ontario communities, but then observes in concluding that the benefits provided to communities by such summer theatre companies depend on their ability to attract a non-local market and the adequacy of the “tourist infrastructure required to sustain

⁶ For example, Bille Hansen (1997) justifies her focus on a contingent valuation assessment of the benefits from the Royal Theatre in Copenhagen by noting “the primary purpose of cultural activities is not to attract tourists, but to provide enriching experiences for the citizenry” (p. 2).

⁷ Of course, the relevant issue is not just the aggregate spending but the type of spending, since spending that accrues to local rather than “foreign” vendors, or that lands in the hands of local labor forces rather than “carpetbaggers” will have a larger effect on both the initial direct base impact, and the subsequent multiplier effects.

visitors” (p. 65). The earlier Mitchell (1989) examination of the Stratford, Shaw and Blyth festivals also mentions the tourist infrastructure, but implicitly assumes a highly elastic supply of such tourist services in concluding that employment benefits increase with festival size since “visitors who travel to attend a performance at a festival demand services to sustain them while in the community,” and smaller festivals just do not require a large tourist infrastructure (p. 77).

- Acheson et al. (1996) identifies significant challenges that have confronted the organizers of the Banff Television Festival, including “the timing of competing events, the seasonal pressures of the business, the local weather and accommodation considerations” (emphasis added) (p. 326), but this last factor receives little attention.
- Frey (1994) addresses supply issues, but not local infrastructure supply constraints. He examines the incentives influencing the increasing supply of music festivals, focusing on the potential private profitability and increased artistic freedom to the organizers (especially in Europe) rather than any infrastructure supply constraints that might limit a region's ability to host such increasingly popular festivals. Interestingly, his observations that “attending a festival performance is often an integral part of a holiday to a particular region” (p. 32) and that “most festivals take place during the holiday season” (p. 31) in an era of increasing demand for holiday travel, hint at the possibility that at least some existing holiday travelers could indeed be crowded out by those travelers motivated in part by festivals. While he identifies potentially new groups of arts consumers attracted to festivals who might not otherwise regularly patronize the arts, it is unclear to what extent the hospitality infrastructure of a city or region is capable of accommodating both these new arts consumers and regular visitors at the same time. What is clear is that the demand for some events such as the Salzburg Festival is so high that tickets are extremely hard to obtain (worsened by sub-equilibrium pricing; Frey, 1986, 2001). It is therefore no surprise that any tourists who might have planned to visit Salzburg during that period for reasons other than the festival would be advised to cancel or at least postpone their visit.
- Caserta and Russo (2002) provide the most explicit consideration of “spatial displacement” but stress the somewhat different problem of the diminution of the quality

of the travel experience to heritage sites. When demand continues to grow while the quantity of the cultural products themselves (primary goods) is constant, and the related accommodation supply (secondary goods) is “constrained in the center, infinite in the periphery” (p. 248), the result is often “a bad meal, an unfriendly ticket office, or excessively crowded public transport” (p. 246). While they then model the conditions for “sustainable tourism” in heritage cities and warn of the threat of tourist decline,⁸ this is still ultimately an argument about the long term size of the cultural heritage visitor market rather than a consideration of how such visitors are crowding out other visitors, hence potentially yielding limited or no net economic benefits to the city or region.

B. Assumptions that Might Justify Ignoring Supply Constraints

What might account for this failure in arts economic impact studies (and in some other high profile studies) to more explicitly consider regional supply constraints? Four assumptions (often implicit) could justify failing to seriously consider normal visitor displacement caused by such constraints. While a key part of the sports literature focusing on supply constraints is linked to innovative empirical work that demonstrates minimal effects on dependent variables such as tax receipts, personal income, or employment, the emphasis in this section is on conceptual rather than empirical issues.

Four key assumptions:

- Major events such as the Summer or Winter Olympic Games, Super Bowls, World Cup Soccer matches, the Salzburg (Mozart) Festival, the Cannes Film Festival or lesser highly publicized events such as collegiate sports championship games (e.g. in the United States, the NCAA basketball regional and “final four” tournament events) are well-known so far in advance that conventions and other tourist visits can easily be rescheduled to avoid any conflict with these “mega-events.” The annual events that are linked to one location are clearly anticipated, but even the events with fluctuating venues are generally subject to intense media coverage that would alert planners of competing events and even individual tourists to avoid those specific dates. In fact, this assumption was explicitly

⁸ Frey (2001) cites the corrosive effects of public subsidy as a different kind of endogenous reason for the decline in the quality of cultural goods (in his case music festivals), and hence the long term “fall of festivals” following their initial success.

made regarding the 1996 Atlanta Summer Olympics by two well-known economic forecasters within the state of Georgia in their respective projections (Donald Rataczak of the Georgia State University Economic Forecasting Center, and Jeffrey Humphreys of the University of Georgia's Selig Center for Economic Growth).

- Some visitor displacement will occur, but it is likely to be sufficiently small that it will be counterbalanced by the existence (discussed above) of local residents who will divert into the region some spending that they would otherwise do outside of the area as a result of being attracted to these mega-events occurring in their back yard. That is, the conservative assumption that all spending done locally by residents at a particular institution or local event is merely a diversion from other local sectors is a simplification, but a useful one that is essentially accurate. However, there is no denying that especially attractive local events are capable of causing import-substitution effects as local residents substitute them for travel to non-local alternatives. Thus, the practice of not making a downward adjustment for visitor displacement might be rationalized by the absence of making an upward adjustment for resident “non-displacement.” Obviously, such casual rule-of-thumb balancing adjustments are always inferior to obtaining more accurate data about both visitor and resident displacement, but such data may not reliably be available.
- Even if the customary flow of visitors is not adequately shifted to other time periods by the advance notification of these mega-events, there is sufficient excess-capacity in the local economy, specifically in the tourist/hospitality sector, to accommodate both the normal flow of visitors and the exogenous shock of additional visitors attracted to the special events. Thus, supply-side constraints are sufficiently non-binding to allow the focus of the analysis to be on net demand-side effects uncomplicated by such constraints. O'Hagan (1992) explicitly stresses this point in his discussion of the economically depressed state of the Wexford, Ireland area, and the scheduling of the Festival at an off-peak time of the year (p. 65).
- There may in fact be some crowding out of normal visitors, but visitors to the event in question spend more than such ordinary visitors, hence generating a net increase in economic activity despite the supply constraint problem. While it is not uncommon to claim such differential spending habits, it is rare to actually provide specific offsets to the

spending of visitors to a specific event to account for such displacement (e.g. Vaughn, 1980 notes both differential spending by visitors to the Edinburgh Festival and ordinary visitors as well as differential propensities to choose particular housing accommodations, but does not explicitly weigh these relative factors despite a thorough analysis overall). Vaughan and Booth (1989) and Varette (1987) also stress the differential spending habits of distinct types of visitors to local regions.

C. Displacement Effects in Sports vs. the Arts

The generally passive treatment of supply constraints in the arts becomes especially noteworthy when contrasted with the remarkable literature that is developing in sports economics (cited above), and also spilling over into a less technical backlash against such high profile events as the Olympic Games. Sports economists are increasingly avoiding *ex post* verification errors by making serious attempts to try to validate the projections that are made in typical impact studies.

To the extent that such studies demonstrate that (1) individual sports franchises or (2) sports stadiums and arenas, fail to generate any measurable incremental gain in jobs, income, output or tax revenues for their cities or regions, little fundamental challenge is posed to economic impact methodology. Such minimal effects are predictable when the patronage of teams is primarily local, much of the expense of the teams such as player salaries accrues to those who do not live in the local area,⁹ and stadium deals between wealthy private team owners and local governments often turn into perverse rent-seeking arrangements at the expense of the tax-paying public (e.g., Noll and Zimbalist, 1997; Zimmerman, 1997; Baade and Sanderson, 1997; Keating, 2001).¹⁰

⁹ As argued by Siegfried and Zimbalist (2002): “Sports expenditures are subject to extraordinary consumer substitution away from other local expenditures, and they suffer unusually large first round leakages...” The role of non-local players in such leakages is dramatic: “While 93% of the average employees live in the area in which they work, only 29% of the NBA players do the same” (p. 361).

¹⁰ William Schaffer apparently does concede one possible exception regarding stadiums: “There is actually a case of a sports stadium working. The Roman Coliseum is a boon to Rome because it has drawn about 2,000 years of tourism, but it’s difficult to find another similar stadium” (quote taken from Lehrer (1998)). It is unclear whether even this observation would apply after controlling for (1) the actual incremental effect of the Coliseum in being the prime motivation for visits to Rome; see e.g. Stanley et al. (2000) for a detailed examination of these motivations regarding Ontario art exhibitions, and (2) the regional supply constraints stressed by Porter and others.

Thus the Coates and Humphreys (2001) finding that sports strikes and lockouts, as well as the permanent departure of professional basketball teams from specific cities, have had no adverse effects on the SMSA's in which the affected teams were located, is a noteworthy but not shocking result. It is one that should be easily believed by cultural economists. A related but distinct inquiry has focused on whether there have been longer-term positive economic effects upon the cities of successful sports teams (i.e. either those who qualify for post-season playoffs, or who actually win championships). Coates and Humphreys (2002) find no such effects in the level of per-capita income from 1969-1997 in those cities having their teams in post-season play, but they do find that in the "city that is home to the winning team from the Super Bowl, real per capita personal income is found to be higher by about \$140, perhaps reflecting a link between winning the Super Bowl and the productivity of workers in cities" (p. 291).

While such a real productivity result would fascinate cultural economists who have long searched for tangible confirmation of the more fundamental "intangible" benefits of the arts beyond pure consumption benefits or the questionable pecuniary effects of short run spending impacts, Matheson (2003) revisits the Coates and Humphreys (2002) results and develops evidence that their Super Bowl effect may well be no more than an anomaly (as suspected by Coates and Humphreys themselves). Baade and Matheson (2003) provide further evidence against any such benefits of sports championships and call such successes "the gift that keeps on taking" (p. 10).

This is not to suggest that an individual sports franchise or arts organization could not have a legitimate net positive economic spending impact on a well-defined geographical area – certainly numerous studies have at least claimed such positive effects.¹¹ However, since *ex post* statistical studies remain rare even in sports, and have been non-existent in the arts, such claims have not been rigorously tested. Nevertheless, it is noteworthy that whenever such data and

¹¹ Fort (2003) provides a useful review of such studies in sports, which have generally been conducted related to energetic debates in local communities and states about public subsidization of stadiums and even teams. For example, Conway and Byers (1994) contrasted "total activity" from "new activity" and found 1993 new activity spending impacts for the Seattle Mariners baseball team ranging from \$42.9 million to \$53.3 million (ranging across city, county and state). They also found (1996) such impacts for the Seattle Seahawks football team ranging from \$66.7 million to \$76.2 million in 1995. Gapinski (1987) provides a survey of earlier arts and other studies, while Radich (1990) provides a more comprehensive overview in the arts, both focusing on the economic impacts of individual theaters, orchestras, opera and dance companies. A particularly ambitious effort was the collaboration of the American for the Arts and 33 local arts agencies in generating *Jobs, Arts, and The Economy*, which also purports to provide any arts organization in the United States with a handy "fill-in-the-spaces" formula to prove the positive impacts on their local communities. This approach is almost destined to generate overstated impacts.

analysis have been available in the sports case, the evidence usually suggests that the impacts generated by customary methods significantly overstate the realized impacts (e.g. Fort, 2003, pp. 325-328).¹²

On the other hand, such minimal (or even perverse) impacts are hardly anticipated for mega-events such as the Super Bowl in professional American football and the World Cup in soccer, and lesser sporting events such as All Star games, and various high-profile tournaments. And there are increasing claims that the Olympics fail to generate measurable economic rewards for the host cities (not just that the organizing committees may lose money, which has been proven time and again).¹³ However, one very important exception to the “rule” that sophisticated econometric analysis finds evidence of minimal economic impact is the finding by Georgia State University economists that the 1996 Atlanta Summer Games “boosted employment by 17% [293,000 jobs] in the counties of Georgia affiliated with and close to Olympic activity, relative to employment increases in the other counties in Georgia,” and also that even in the northern Olympic venue areas (away from the main metro-area venues) this employment effect was 11%, although only a weak Olympic effect on wages was found (Hotchkiss et al., 2003, p. 691).

¹² There are cases in which rigorous statistical analysis would not appear necessary to render such a negative conclusion. One example is the Ernst and Young study of the relocation of the Atlanta Symphony Orchestra to an entirely new facility (a compelling change for artistic reasons), which would also include mixed-use development on the site such as housing and hotel accommodations. Annual revenue from all sources to the Orchestra is about \$25 million (from the annual reports of the Woodruff Arts Center). The projected ten year economic impact of \$900 million in economic output, \$350 million in personal income, 800 jobs, and \$35 million in additional tax revenues for the entire project (as reported by the Southern Arts Federation) was widely cited as evidence of the economic benefits of the orchestra. However this clearly requires very creative reasoning in order to find such effects in the mere relocation by one block of an organization largely serving a localized audience, even after subtracting the significant non-orchestra portion of the project.

¹³ Ironically, two of the more entertaining overviews of these arguments, including good citations to specific studies, stem from the local opposition to Vancouver’s bid to host the 2010 winter Games. Smits (2002) introduces his contribution with: “warning – long rant,” and can be found at <http://www.creativeresistance.ca/awareness/2002-sept17-olympic-bid-and-why-we-should-oppose-it.htm>. He cites, among others, Philip Porter’s claim that consumer sales, hotel occupancy rates, and airport usage during the summer of 1996 were no different in Atlanta than any other summer (more about this below in the text). Another “creative resistance” anti-Olympic “sound bite” can be found at <http://whistlerolympicinfo.com/sound%20bites.htm#priorities>. Of course, in June of 2003, Vancouver did indeed win the 2010 Games, much to the consternation of both the British Columbia resistance, and my long-time personal friend Heinz Schaden, mayor of one of the competing cities of Salzburg, who I was visiting at the time.

Furthermore, positive effects on the rate of growth of employment were found, and these effects extended through the period of their analysis in 2000.

While Olympics effects thus remain disputed, if it can plausibly be demonstrated that most or even many major sports events, that so clearly attract sizeable and often high spending visitors to a city or region, cannot generate net gains in jobs or tax revenues, it would be very tempting to conclude that almost no festival or major arts related event is likely to generate such benefits as well. Of course, perhaps the true sporting mega-events are just “too huge to succeed” (in an ironic reversal of the usual sentiment), and that smaller scale arts festivals are just “too insignificant to fail” (although some are hardly small events). A particular case study can provide further insights into the analysis of the adequacy of the local economic infrastructure when conducting an economic impact study.

D. An Analysis of Local Infrastructure: The 2000 Super Bowl in Atlanta

It is first necessary to provide a bit of personal background. About five years ago I joined my Georgia State University (GSU) economist colleague Donald Rataczak (several time winner, now partially retired, of national economic forecasting awards for his work in the GSU Economic Forecasting Center) in assisting the Atlanta Sports Council (ASC), in cooperation with accounting firm McKinsey & Company, in developing an economic impact model that could be flexibly applied to analyze the many major sports events that the ASC hoped to attract to Atlanta.¹⁴

The ASC ambitiously sought two goals: (1) in typical over-hyped Atlanta fashion, to have the city become the “sports capital of the United States,” and more nobly (2) to become the authority on conducting defensible economic impact studies that would not merely be public relations fiascos, but would gain the reputation of the entire sports community as paragons of conservatism and academic respectability.¹⁵ After the early formulation stage, I alone have

¹⁴ While I also have strong contacts within the Atlanta arts community, and just recently (May 2004) made a presentation noting the weaknesses of economic impact studies at a mini-conference on the stage of the Alliance Theater, my role has more typically been as a source of press quotations critical of local arts studies focused upon individual organizations, such as the Atlanta Symphony Orchestra study cited above, and the locally beloved Marietta Theatre in the Square, that had courageously done battle over artistic freedom with conservative forces in suburban Cobb County, home of Newt Gingrich. For that reason alone, I was a reluctant critic to be sure.

persisted in working with the ASC in fine-tuning the model and evaluating the results of every study they have conducted (up to the present), prior to their public dissemination.

It was in this role that I became heavily involved in the economic impact study of Super Bowl XXXIV held in Atlanta in January 2000. This involvement included several meetings, and frequent email communications directly and indirectly with personnel from the National Football League (primarily with Jim Steeg, the NFL's senior vice president of special events). Since the prior year's study of the Super Bowl in Miami had been especially criticized for claiming a metro area impact of \$365 million, even the NFL was reasonably open to cooperating with the ASC's stated goal of "getting this one right."¹⁶ In comparisons of Super Bowl impact studies measured in 1992 dollars, the 1999 Miami study was the highest at \$318 million with the overall average over thirteen games of \$252 million, and the lowest being the 1994 Atlanta game at \$158 million, based on a study conducted by Jeffrey Humphries of the University of Georgia (Depken, II and Wilson, 2003).

The ASC study of the 2000 Super Bowl resulted in a \$215 million (nominal dollars) impact upon metropolitan Atlanta and a \$292 million impact on the state of Georgia, with this latter figure translating into \$250 million in 1992 dollars. Depken, II and Wilson (2003) are typical in only reporting the higher statewide, but not the 26 percent lower metropolitan area result (but see footnote 15). Depken II (2004) reviewed the basic findings of the 2000 Atlanta study in his commentary in the *Houston Business Journal* regarding the expectations of the Houston area for the 2004 game. While he did not seem aware that the \$292 million was a statewide and not a metro area figure, he concludes that the multiplier used in the Atlanta study was "a bit smaller than most economists would expect," but that the per diem spending figures

¹⁵ The ASC has succeeded in gaining visibility for the economic impacts of Atlanta based sports events, as evidenced in part by Fort (2003) devoting a full-page table (Table 9-2, p. 316) to "Atlanta Economic Activity Value 1999-2003," based on an article on the subject in the *Sports Business Journal*, January 24, 2000. While that particular table identifies only the estimated values prior to the studies being completed, Fort is utterly unique in accurately identifying the metro Atlanta impact result of \$215 million (in the table as part of "advanced problem 8 on page 335), rather than the commonly quoted and often misinterpreted \$292 million longer term statewide result. See the text discussion that follows.

¹⁶ There were nevertheless occasional tensions as we severely questioned some of the data that could not be obtained from our own surveys and interviews, especially those related to NFL spending itself as well as the magnitude and nature of the significant corporate sponsored events that are a hallmark of Super Bowl week. The NFL was also not thrilled to hear that any position we might take regarding a positive net economic impact of this mega-event in Atlanta and Georgia in no way suggested that there was any justification for public funding of sports stadiums or subsidization of local sports teams. While the ASC itself was neutral on that issue, I was not.

seemed questionably high. Overall, he concludes that the Atlanta figures are possible (especially given the pre-terrorist attack economic climate) but offers an alternative estimate that would incorporate lower per diem spending assumptions. He finds that if the unadjusted 2000 Atlanta findings were extrapolated to the Houston case, the result would represent less than 0.2 percent of economic activity (actually measured as personal income) at the county level. This leads him to stress the relatively minor effect of the economic impact (compared to civic pride issues) rather than question whether the economic impact would be too great to be plausible.

Super Bowl XXXV (in the following year 2001) generated considerable controversy in part because it was held in Tampa, Florida, and Philip Porter (based at the University of South Florida) wrote high profile attacks on the impact studies being generated for that region. His commentary differed significantly from the later Depken II (2004) Houston discussion, both in not directly addressing the 2000 Atlanta study (although writing an opinion piece for the *Atlanta Business Chronicle*, 2001a) and in concluding that the economic impact on Tampa would actually be nearly zero.

Porter (2001a; 2001b) chided the Tampa Bay Super Bowl Task Force for not commissioning an independent study aided by economists before announcing that the January 28 event would have an economic impact of \$250 million on the Tampa Bay area bringing more than 100,000 visitors to the area (no figures were cited beyond Tampa, and this figure was no doubt based on the averages cited above from past studies, which in part mixed metro and state results). He made his familiar argument that the lack of sufficient excess capacity in a local economy prevents such a large output response following such dramatic short term increases in visitor demand for goods and services (including but not limited to hotel rooms and airline flights) and claimed that the 100,000 Super Bowl visitors merely displace other visitors who would have injected new spending into the region had there never been a Super Bowl. He has always argued that the primary effect of such mega-events is that local hotel (and perhaps other) prices increase creating at best significant distributional effects within the local economy. Thus, by distinguishing between “gross” visitors and “net” visitors, he argued that the net aggregate economic impact of a Super Bowl on Tampa and other host cities is much closer to \$0. Finally, he cited “stable” gross sales figures for both Super Bowl and non-Super Bowl years for Tampa's previous 1984 and 1991 experiences as evidence consistent with his argument. When read by

the Atlanta business community not previously familiar with his academic writings, the reaction was clearly, “how can he be right?”

Since this argument was an obvious challenge to the legitimacy of the 2000 ASC study that I had participated in and approved, I felt compelled to respond (Seaman, 2001, which was a greatly shortened version of the full analysis). Among the rebuttal arguments that focused on the Atlanta situation in 2000 (many of which did not survive the editorial cuts) were the following:

- 1) The \$215 million impact on metro Atlanta represents about 0.2 percent of the typical annual output of the Atlanta metro economy (interestingly, the same percentage figure later derived by Depken II for Houston).
- 2) Ignoring visitor displacement, the Atlanta study was extremely diligent in deriving the direct first round economic impact figures. It conducted visitor surveys and interviewed hotel managers, rental car facility operators, restaurant and other business personnel. It distinguished diversions of spending of local area residents (which entered as \$0) from new spending by out-of area visitors (despite the fact that some local spending was in fact reimbursed by non-local corporate headquarters, and the real prospect that some local residents may have altered plans to spend vacation funds elsewhere to be present for this relatively unusual event), made adjustments for that portion of visitor spending that would immediately leave the area (as with hotel and other profits that flow to non-local corporate headquarters) and for payments to non-local vendors and suppliers of goods and services (such as the manufacturer and wholesale portions of the retail price paid by visitors).
- 3) It distinguished per diem food and entertainment spending by those staying in hotels (87% of visitors) from the somewhat lower spending for those items of non-hotel guests. It adjusted lavish corporate entertainment spending for local area components, and applied the local/non-local distinction also to media spending. It slashed the NFL budgetary figures that applied to the promotion and execution of the Super Bowl to more accurately reflect that portion that would actually be paid to local vendors and workers, and adjusted ticket revenues to reflect only that portion that would accrue back to local organizations. And

despite the fact that some of the \$7.5 million in local “bid” money paid to the NFL was recycled back into the local economy, none of those expenditures was included in the direct economic impact. In short, the \$137 million of direct economic impact derived for metro Atlanta was the result of many conservative adjustments consistent with well-known criticisms of economic impact studies.

While Professor Porter would clearly applaud such adjustments, he would still ask whether most if not all of that \$137 million in “injected spending” merely displaces spending that would otherwise have occurred without the Super Bowl. His own argument (2001a; 2001b) focused on Tampa, where he questioned the feasibility of the Tampa economy being able to adapt to a two-day extravaganza of massive increased spending demand (concluding that Tampa would have to double its sale of almost everything compared to its “normal” levels, even to absorb 25 percent of the \$250 million claimed impact). Continuing to play devil’s advocate against this argument, it is important to stress that the *direct* impact of the Super Bowl is derived over a much longer period than just two days (not only did the Atlanta survey find an average hotel visitor stay of 3.7 days, but the media arrives a week in advance of the event, the period from the start of setting up the stadium for the event and closing down afterwards is as much as 23 days, and NFL personnel are traveling to the host city to help with arrangements more than one year in advance).

Furthermore, the *total* impact (such as the \$215 million for Atlanta) includes indirect longer-term impacts that may take months to be fully realized (applying a multiplier of 0.57 to the \$137 million Atlanta direct impact yielded \$78 million in such indirect impacts). In addition, Super Bowls are hardly unexpected events and the announcement that Atlanta was to host Super Bowl XXXIV was, in fact, made four years in advance. Thus, normal visitors and event planners have considerable time to make slight adjustments in their plans to visit the host city so as to avoid the last week in January, which is not a big tourist period in Atlanta¹⁷ (although, admittedly, the increasing lead times for the organization of large conventions now can extend to significantly more than four years). In fact, three major Georgia World Congress Center (GWCC) events that are annually scheduled for January (including the massive International Poultry Show) took place as scheduled in 2000 (there were slightly more GWCC

¹⁷ As fate would have it, the day of the 2000 Super Bowl in the Georgia Dome was one of the coldest for that date in Atlanta history. January is normally much less extreme, but never particularly pleasant.

events in January 2000 than there were in January 1999). Thus, while the Atlanta study was sensitive to the displacement issue, it specifically rejected displacement as a serious issue requiring major adjustments to the findings.

But the *ex post* verification studies in the sports economics literature are compelling and cannot be ignored. To specifically demonstrate why displacement could in fact be minimal for Atlanta, consider the following data (note that all host cities have unique features that would require a separate case by case study; but it is likely that similar *a priori* considerations could also reduce the concern about displacement for some of these cities, while elevating it for others).

- 1) The value of all goods and services produced in Georgia in 2000 was over \$220 billion. The large geographical area known as metro-Atlanta has somewhat over 50 percent of the state population, but is known to contribute more than that proportionate share to state output (probably about 55 percent). Since many counties make up metro-Atlanta, while most of the Super Bowl activity is more narrowly focused (although suppliers of goods and services, and the work force is not similarly limited), the 50 percent figure yielding \$110 billion per year in local “productive capacity” is reasonable.
- 2) This can be translated into a per day output of goods and services of \$301.37 million. The portion of the \$137 million in direct impact (see above) representing visitor spending over the average stay of 3.7 days was \$102.57 million, or \$27.72 million per day. This is 9.2 per cent of normal metro Atlanta output. The remaining roughly \$34.43 million in first round direct spending is generated by the media, corporations sponsoring huge parties and the NFL, and extends over at least one week (remember also that the period from “set up” to “close down” is actually 23 days). Assuming only seven days, this is an additional \$4.92 million per day in additional demand for goods and services - only 1.6% of the normal output per day for metro Atlanta.
- 3) Thus, in short run aggregate terms, the Atlanta Super Bowl added no more than about 10.8 per cent to the customary metro demand for goods and services (a far cry from the 100 per cent increase cited by Professor Porter for Tampa). It seems

possible that a combination of existing “excess capacity” and both supply and demand adjustments to this long anticipated event would allow the Atlanta economy to meet this additional demand without crowding out other economic activity.

Just how possible this is can be evaluated by an analysis of hotel and airline capacity applicable to the 2000 period. Metro-Atlanta had about 75,000 total hotel rooms (15,130 of which are in the 25 largest hotels, which also have 585 suites). An average of Ernst and Young and PKF studies yielded an average Atlanta hotel occupancy rate of 65.9%. The Atlanta study identified 82,312 visitors (not all of whom had tickets for the game) staying in hotels. Given the advance notification of the event, it is hardly unlikely that at least a 25 percent adjustment in this rate would result from leisure and business travelers and event planners modifying their plans to avoid the last week in January (and with a customary room availability rate of 34.1 percent, they would not fear being unable to make that adjustment). This would yield an occupancy rate of 49.43 percent, leaving 50.57 percent of the rooms available for the Super Bowl without crowding out other visitors. The resulting available 7,651 rooms in “major” hotels, 30,276 rooms in “secondary” hotels and 296 suites (ignoring any such suites in non-major hotels) would accommodate Super Bowl visitors with average occupancy of a little over 2 people per room. A higher than 25 percent “advance notification” adjustment factor makes such accommodation much easier (and does not require full occupancy). There seems to be no intrinsic reason to believe that anything like Professor Porter's full displacement is the general case.

Not all host cities have the advantages of Atlanta Hartsfield International Airport (now Atlanta Hartsfield-Jackson International Airport), but then again, Hartsfield was straining in 2000 under the weight of serving 78.092 million passengers (the 1999 figure for domestic plus international, arriving plus departing passengers), and 909,911 total aircraft operations (also 1999).¹⁸ The Atlanta study identified 65,250 non-local game spectators, plus 29,362 “multiple day” non-game attending visitors (not including “day trippers” who drove to Atlanta for a day of Super Bowl atmosphere). Of the 29,362 visitors to metro Atlanta who did not have tickets to the game itself, 20 percent were estimated to be Georgians, some of whom would also have driven. And a larger than normal percentage of the other 80 percent of non-attendees as well as those attending the game may have driven, since the relatively local Tennessee Titans team (from the bordering state to the north) were playing in the game. Of course, media personnel also had to arrive in Atlanta, most by air.

If 80,000 people had to fly to Atlanta, staggering their arrival over about a four day period, and their departure over a two day period, an additional per day average of 20,000 arriving passengers prior to January 30, and 40,000 departing passengers after January 30 would have to be served. With about 106,977 passengers landing per day at Hartsfield (destination plus transit), this 18.7 percent increase in arriving passengers would be burdensome, but hardly impossible to accommodate with some combination of higher occupancy on existing flights and the voluntary shifting of normal travelers away from the last week in January to other dates. For example, with an average of an astonishing 1,246 landings per day (about 1 per minute over an 18 hour day), 20,000 more people per day could be served by filling an average of 16 more seats on each landing aircraft. Double that number of available empty seats would be needed to accommodate visitors leaving Atlanta over only two days. Of course, those projections assume no advance notification scheduling adjustment, so that in reality, there would be fewer needed available empty seats. Again, there is no reason to believe that Professor Porter's view that full displacement is an inevitable result is correct.

¹⁸ While some of the Hartsfield data (and the prior Georgia World Congress Center data) are easily available, this analysis of both hotel and airport capacity issues is greatly facilitated by having done two economic impact studies of Hartsfield Atlanta International Airport since 1990 and a study in 2000 of the Georgia World Congress Center..

But what about the *ex post* empirical data cited by Porter? Here, the focus is not on his published econometric work (e.g. Porter, 1999), but on his representations focused on the Tampa case. Porter (2001a) cites evidence that recorded January sales in Hillsborough County (the primary country in the five county Tampa metro area) were never measurably higher in the Super Bowl years of 1984 and 1991, and in fact were somewhat lower in those years compared to 1983 and 1985 and 1990 and 1992. He suggests that this has, in fact, been true of all Super Bowls - recorded sales in January “do not respond to the presence of a Super Bowl.”

And, in fact, the Georgia Department of Revenue reported that total “distributions” in March for various local option sales tax revenues generated in January to Fulton, Cobb, DeKalb and Gwinnett Counties (including the MARTA 1 percent tax for Fulton and DeKalb Counties) were 14.6 percent *lower* in 2000 than they were in 1999. Of course, they also reported that such revenues were 27.8 percent *higher* in 1999 than they were in 1998. Department personnel were unwilling to speculate about these baffling figures (while the economy began slowing down in late 2000, the consistently strong economy in all three years would predict neither the magnitude of the surge in January 1999 revenues, which predated any “wealth effect” from the 1999 dot.com boom, nor the sizeable drop in early 2000 revenues linked to the collapse).

While a more steady growth pattern in these three- year reported revenues would, indeed, have been more consistent with general knowledge of the Atlanta economy as well as more helpful to the pro-Super Bowl argument, nothing in the figures as they stand proves that there was no positive net economic impact of the Super Bowl. Porter has generally not argued that Super Bowls cause sizeable actual declines in local sales tax collections (although Baade and Matheson, 2001 do claim outright negative economic effects related to Major League Baseball All Star games). In fact, the Atlanta study's projected local tax revenues from the Super Bowl could merely be viewed (self-servingly, as usual in such situations) as having prevented an even larger drop in such revenues (a drop of about 16 percent). Such “casual” statistics are suggestive, but not determinative, and clearly nothing said here can substitute for a more thorough econometric analysis in the spirit of those being increasingly done in the sports literature

(e.g. Porter, 1999; Coates and Humphreys, 2001; 2002; Baade and Matheson, 2000; 2001).

In this context, the positive employment findings of Hotchkiss et al. (2003) regarding the 1996 Atlanta Summer Olympics based on sophisticated empirical techniques is important in preventing any rush to judgment that empirical analysis will inevitably invalidate the major findings of economic impact studies. Even more remarkably, their finding that such job gains were as high as 293,000 is a seemingly rare case of the *ex post* economic impact exceeding that predicted by an economic impact study. Humphreys and Plummer (1994) projected 77 thousand full and part-time job gains (Table 4).

Furthermore, the above discussion of the Atlanta Super Bowl debate at least suggests that the extent to which local hospitality and transportation infrastructures would generate full displacement and zero economic impacts will vary across events and locations, and that net positive economic impacts from major events that generate significant gross visitor flows cannot be ruled out. Supply constraints do, however, clearly represent a factor that must be considered in determining the magnitude of overstatement inherent in short run economic impact studies, and the absence of more explicit considerations of such constraints in studies of major cultural events is a potentially troubling weakness even in otherwise well-designed “sophisticated” economic impact studies.

III. Summary

Coates and Humphreys (2001) concede that there is a legitimate issue in using a Standard Metropolitan Statistical Area (SMSA) as the unit of analysis of the potential adverse economic effects of a sports strike or the departure of a sports franchise, observing “perhaps SMASs are large enough relative to the size of a professional sports team to obscure the effects of a strike” (p. 740). While they go on to defend their choice of that unit of analysis, other sports economists conducting *ex post* statistical tests of economic impact claims have cautiously recognized the complexity of isolating such effects, or interpreting the absence of any evidence of such effects. However, the sentiment is clear that given the nature of the claims being made by economic impact studies, especially for the larger tourist based events, there should be *some* evidence of a footprint in the sand of the local economy.

While everyone involved in the sports literature recognizes the need for further research to clarify these questions, and there is a clear opening to apply such statistical techniques to arts cases as well to further determine whether the literature on arts festivals is fundamentally flawed, the following summary observations can be made:

- Porter's claim that the primary local impact of Super Bowls and other mega-sports events is on higher hotel prices and revenues must be squared with well-known "anti-gauging" agreements that are required by the National Football League (and also typically by the International Olympic Committee). While economists would naturally be skeptical of the efficacy of such agreements, it cannot just be presumed that they are totally devoid of substance. As noted by Depken, II and Wilson (2003), there is evidence that hotel occupancy rates are between 1.24 percent and 7.3 percent higher than the same month of the previous year when a city hosts the Super Bowl, suggesting that there are quantity as well as price adjustments to mega-event demand shocks.
- At the same time, the Depken, II and Wilson (2003) observation that "most economic impact studies implicitly assume that hotel occupancy would have been zero without the event" is too strong a characterization. As revealed by the detailed examination of hotel occupancy issues regarding the 2000 Atlanta Super Bowl, an assumption of zero hotel occupancy is certainly not required when arguing that a Super Bowl can have some net positive economic impact.
- The Hotchkiss et al. (2003) empirical findings that the 1996 Atlanta Summer Olympics did have a noteworthy effect on job creation (not merely very short term), and that this effect exceeded that predicted by standard economic impact studies is either a total anomaly or a warning that careful empirical analysis of the actual experience of regions with large tourist events need not always generate "negative" findings.
- There is some tension between the claim that local economies should reveal "footprints" of expanded economic activity in the wake of major sports (or arts) events, and the observation that when the economic impact

figures are normalized by the size of the local economy, such impacts (even if overstated) are very small percentages of normal local economic activity (a figure of 0.2 percent was cited for both the Atlanta and the Houston Super Bowls, and would seemingly be much lower for the many arts festivals, although those festivals often take place in very small communities, hence suggesting that the percentage of economic activity represented by cultural events may well exceed that of major sports events). Opponents of public funding of stadiums and sports teams will make this argument that any economic effects are “trivial” compared to the taxpayer investments being demanded. But if they are indeed trivial, how serious can the supply constraint problem really be?

- o In resolving the tension between those two arguments, an analogy might be drawn with the negative relationship between the size of a regional multiplier and the size of the region itself. Just as this relationship naturally limits the size of any economic impact (since a larger region will have a larger multiplier, but *ceteris paribus* will have a lower proportion of out-of-region visitors to events and institutions relative to locally based consumers, hence generating a smaller direct base impact upon which to apply that larger multiplier), there is a similar relationship operating on the supply-side. A local area that already has a well-developed (large supply) of tourist related services and infrastructure is no doubt already a major tourist attraction (either for leisure travelers, e.g. San Francisco, or for business travelers, e.g. Atlanta). Hence, a major event scheduled for that city would seemingly be more easily accommodated by that infrastructure, yet would be more likely to interfere with the travel plans of those already planning to visit for entirely different reasons. Contrast that with a smaller city such as Jacksonville, Florida, with a much more limited hospitality sector (hence generating the plan to house Super Bowl visitors to the 2005 game off shore on cruise ships), but also with a much smaller steady-state flow of normal visitors making demands on that infrastructure. This classic

simultaneity problem needs to be further explored as part of the effort to clarify the importance of regional supply constraints.

Regardless of the status of the current debate on regional supply constraints in sports, it is clear that arts economists need to join this debate in a serious way.

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