

**BEYOND THE ECONOMIC CATALYST DEBATE:
USING PUBLIC CONSUMPTION BENEFITS TO EVALUATE STADIUM SUBSIDY PROPOSALS**

A research proposal
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The intricate relationship that exists between American cities and professional sports can be traced back to the rapid urbanization of the late nineteenth century – a period that was paralleled by the rise of baseball and other spectator sports. Since this time, sports have become a part of the everyday lives of urban society, and teams have become significant symbols of the cities in which they play. Traditionally, this link has been understood as a social connection between places and teams; however, in recent years it has been manifest as an economic relationship. During the past decade, urban America has seen a remarkable boom in the construction of professional sports facilities. While team owners seek new facilities to bolster payrolls and ensure competitiveness, city officials often turn to stadium investment to spark urban renaissance. This trend has come at a tremendous cost to metropolitan taxpayers, with public subsidies providing the vast majority of funding for such facilities. During the 1990s alone thirty-one major league professional sports facilities were built at an estimated public expense of over \$11 billion (Cagan & deMause, 1998).

In the face of this recent course, those who study cities are left to ponder whether such large subsidies for sports stadiums are justified. Stadium investments are most often rationalized with arguments of economic development, and debates regarding public subsidies focus almost exclusively on the legitimacy of the stadium as an economic catalyst. Proponents argue that stadiums, and associated spin-off development, generate new jobs and raise local income levels. Economists, however, have produced a host of empirical research that refutes such claims.

While the ability of a stadium to impact jobs or income is questionable, economists acknowledge the existence of public consumption benefits associated with hosting a professional sports team. The existence of a team can provide common ground, a topic of conversation, and sometimes a source of pride, even for those who do not purchase tickets. City residents do not need to make use of the stadium to derive utility from its existence. As a result, residents may have a considerable willingness-to-pay to retain or attract a professional sports team. These benefits exist regardless of any contribution of the team or facility to the local economy. The extent of media

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coverage generated by local sports teams is a sure indicator of such positive externalities (Noll & Zimbalist, 1997).

Despite the legitimacy of these benefits, and growing evidence that discredits the stadium as an economic generator, economic impacts remain the major focus of stadium promoters and economic impact analysis has emerged as the primary tool in evaluating stadium subsidy proposals. This indicates an incomplete and illegitimate decision making framework. To better understand the full impacts of stadium subsidies, additional study of public consumption benefits is needed. While much has been written about the economic impacts of stadium in terms of jobs and income, to date no attempt has been made to measure the public consumption benefits associated with major league sports facilities.

I propose that contingent valuation (CV) methodology can be used to provide an empirical measure of the potential public consumption benefits associated with major league sports teams and facilities. Such a measurement would provide a better understanding of the relationship between sports teams and cities and contribute to the development of a more comprehensive and legitimate framework for evaluating stadium subsidy proposals. Portland, Oregon provides an appropriate case study for the application of this methodology. Civic, business and political leaders in Portland are currently involved in a campaign to attract a Major League Baseball team, which would require the construction of a new stadium.

My proposed research will attempt to quantify the potential public consumption benefits associated with the relocation of a major league baseball team to Portland through the use of CV. This methodology will be used to develop the Portland metropolitan region's aggregate willingness-to-pay for the benefits associated with hosting a professional baseball team, which can then be compared to any proposed level of public contribution to a new stadium. This research will help determine to what extent the potential public consumption benefit associated with bringing Major League Baseball to Portland would justify a public subsidy. Through careful survey design, this CV

research will also be used to determine the elements that compose the typical Portlander's willingness-to-pay for professional baseball in Portland.

A growing literature has emerged that examines the current trend in stadium financing and the impacts of sports facility development. In the following sections of this paper I offer a review of this literature and an explanation of several key findings to provide a foundation for my proposed research. I first explore several causes of the current proliferation of publicly funded sports facilities. This includes a discussion of how teams and facilities have influenced and been influenced by the changing spatial and economic structure of urban America, with a focus on the influence of growth coalitions and the promotion of image. The majority of the literature review consists of a discussion and definition of the major economic arguments for and against stadium subsidies. Several empirical analyses are offered, which question the economic efficiency of stadium subsidies. I then focus on the importance of considering potential public consumption benefits and describe the need for additional research on this topic to move discussion beyond the economic catalyst debate.

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LIT REVIEW

1 The Evolution of Sports Development Subsidies

Danielson (1997) provides a description of the formation of the first professional sports teams and leagues, which occurred during the period of rapid American urbanization at the end of the nineteenth century. The Cincinnati Redstockings were established as the first professional baseball team in 1869. Like the other professional teams of this era, many of which were owned by prominent local political figures, they served the primary function of civic boosterism as traveling promoters of their city (Reiss, 1999). Since this time, the expansion of leagues and the location of teams have followed patterns of urban growth. Frequent relocation characterized early leagues, with growth spurts after World War I, and more growth accompanied by movement west and south following World War II. Reiss' (1999) analysis shows that baseball was clearly pushed by growth coalition interests in progressive era America. The media were key players in the regimes that developed to

Note that the lit review has multiple sections, or "headings" because the literature reveals multiple relevant threads, or themes.

help emerging cities build images of prosperity and attract growth. Even before the era of direct public subsidies for sports stadiums, politicians would assist team owners through licensing fee arrangements and by providing inside information about the future location of transit routes that would assist in developing stadium plans.

Baade (2000) explains that early twentieth century ballparks “were woven into dense urban fabrics. Rather than the stadium defining and shaping an area, the stadium was viewed as subordinate to a larger urban design and function.” (22). Cramming structures into existing grids accounted for the idiosyncratic configurations of many of baseball’s classic ballparks (e.g Fenway Park with its “Green Monster” left field wall). The connection between sports and spatial structure did not end when urbanization gave way to a shift towards the suburbs. Stadiums followed the same highways and interstate roads that carried the middle-class and employment away from the city center. The 1960s and ‘70s saw stadiums sprout up along interstate exit ramps, providing quick automobile access and defining regional identities, rather than strictly urban ones.

Just as civic boosterism played a role in the early growth of sports leagues, it is also a factor in modern sports development strategies (Danielson, 1997). Growth-minded coalitions with political influence have driven a recent focus on image-oriented and consumption-based development (Burbank, Andranovich, & Heying, 2001). This trend has brought stadiums back to the urban core, as cities invest in sports development to spark urban renaissance. Cities that have lost population to suburban or Sunbelt migration, or have faced decline due to economic restructuring, have turned to sports development strategies in order to restore tarnished images. (Cleveland’s Gateway complex is an example of this approach.) Meanwhile, emerging cities (like Phoenix) have lured new teams to help more firmly establish their top-tier status. After the football Cardinals split for Phoenix in 1987, St. Louis protected its image by enticing the Rams to relocate from Los Angeles by offering a new \$300 million dome and highly favorable lease arrangement (Rosentraub, 1997).

Danielson explains that these strategies, coupled with the market power of professional sports, gives private team owners and leagues the balance of power in the place-team relationship. Quirk and Fort (1997; Quirk & Fort, 1999) also provide an expert analysis of sports and market power. All professional sports leagues enjoy some degree of anti-trust exemption, which allows them to operate as cartels, controlling the location of teams and limiting the overall supply. An intentional imbalance between supply of and demand for teams results in competition among cities that exacerbates each city's lack of control. Immobile places faced with footloose businesses are forced to compete with one another, which helps to explain the influence that teams are able to exert over the purse strings of a locality. The most common and most successful tactic that cities use to gain leverage in the place-team relationship is public investment in, and ownership of, the facilities in which teams play. This, at least, allows cities to determine facility location, gives them limited control through lease agreements, and provides leverage to attract new teams or convince current home teams to stay put.

The role of market power, as described by Quirk and Fort and Danielson, does not completely explain the recent trend in stadium subsidies. (Team owners do not exploit city coffers simply out of ability to do so.) Several other factors have contributed to the demand for new facilities and driven up construction costs. While the desire to move away from multi-purpose domes or “donuts” to single-purpose parks with unique architectural identities has been a motivating factor in some cases, the extra revenue generators associated with new stadiums and arenas are far more important to team owners. All professional sports leagues have adopted some form of revenue sharing in order to help maintain a certain competitive balance between teams from various market sizes. While teams are forced to share revenue from ticket sales, and in some cases broadcasting and merchandise sales, they are allowed to keep *all* non-ticket revenue generated by their stadium—a loophole allowed by *all* professional sports leagues. Luxury boxes, club seats, advertising and concession rights are among these non-ticket sources of revenue that teams try to maximize when

building a new facility (Bast, 1998). With player salaries continuing to rise, these in-stadium revenue streams provide a significant comparative advantage for team owners, which has frequently translated to on-the-field success.

Zimmerman (1997) explains that highly favorable leases associated with new stadiums also increase the effective revenue of teams and escalate demand for new facilities. Prior to the Tax Reform Act of 1986, bonds for stadiums were issued as private activity bonds, but were among the few exceptions for which such bonds remained tax-exempt. The 1986 act removed this exemption for stadiums and stated that a bond issue would be deemed a private activity bond and taxable if more than 10 percent of the bond proceeds were used by a non-governmental agency *and* more than 10 percent of the debt service was secured by property used directly or indirectly in a private business. The intent was to limit the use of tax-exempt bond financing for privately used sports facilities. In practice, however, localities continued to issue tax-exempt bonds for stadiums, but since they could no longer collect more than 10 percent of the debt service in the form of rent payments, they necessarily had to offer extremely favorable leases.

A final factor that has impacted facility costs is location. In order for localities to generate the kind of synergy that they hope to attain with stadium development strategies, they often need to consolidate very expensive parcels of downtown real estate. Even in cases where facilities are developed with primarily private finances, indirect subsidies are often involved in the form of infrastructure improvements or mass transit development. (Quirk & Fort, 1999)

The Economic Catalyst Debate

The most common economic arguments for and against sports subsidies are outlined by Bast (1998), Crompton (1995), Rosentraub and Swindell (1998), and Zimbalist (1998). Proponents claim that stadiums generate positive externalities. They argue that new stadiums create jobs and raise income levels due to the multiplier effect of such investments. Fans who bring their families to see a

game spend money not only on tickets, but also on things like parking, dining and gasoline. The stadium is pitched as an investment that can generate ancillary development. Furthermore, stadium and team employees also spend money on goods and services within the city, providing an additional boost.

Proponents of stadium subsidies often provide (or contract for) economic impact analyses, which take into account the optimistic assumptions noted above. Maryland's Department of Business and Economic Development asserted that a new football stadium for the Ravens would add \$110.6 million and 1,394 jobs to Baltimore's local economy (Zimmerman, 1997). An economic impact analysis prepared for the construction of Bank One Ballpark, to house baseball's expansion Arizona Diamondbacks, projected an annual increase of economic output of \$162 million for the City of Phoenix (Baade, 1996). These claims are not uncommon among stadium boosters and such impact analyses have become the dominant marketing tool of stadium campaigns.

Economists admit the existence of public consumption benefits related to sports. They rarely challenge the legitimacy of stadium construction as a strategy to attract activity back to deserted downtowns. Although such benefits may be of significant consequence to the many citizens who support sports financing, stadium proponents continue to use predictions of economic windfalls as the predominant form of stadium promotion (Noll & Zimbalist, 1997). It is the veracity of these claims and related economic impact analyses that economists dispute.

Rosentraub (1997), Bast (1998) and Zimbalist (1998) offer the following criticisms of past economic impact analyses used to promote stadium subsidies:

1. They often rely on inflated multipliers.
2. They fail to account for substitution and assume that all money spent at stadiums is "new money" rather than spending that is redirected from elsewhere in the entertainment industry.
3. They fail to account for leakage and make unrealistic assumptions about the amount of income earned by team employees that will be spent in the local economy. Much of the players' and owners' salaries are saved or spent elsewhere.

4. They overestimate the impact of the low-wage jobs created by stadiums and related development.
5. They ignore opportunity costs—projects that can't be funded due to spending on new sports facilities.

Several economists and academics have attempted to sort out the economics of stadium investments through independent empirical analyses – many of which suggest that stadiums produce little or no return on investment. The first set of empirical analyses described below focus on economic impacts of sports facility development at a citywide or regional level.

Baade and Dye presented “an alternative methodology which, in effect, offers an after-the-fact audit of whether a new stadium or team has a discernible impact on overall area development” (1990). The authors used a regression analysis to determine the effect that sports teams and facilities had on the aggregate income of a Standard Metropolitan Statistical Area (SMSA). Income statistics were regressed on independent variables chosen to represent the character of an area's economy before and after the establishment of sports teams and facilities. The time period for the analysis was 1965 to 1983, and the nine cities included were Cincinnati, Denver, Detroit, Kansas City, New Orleans, Pittsburgh, San Diego, Seattle, and Tampa Bay. The results showed that sports teams and stadiums generally did not have significant impacts (positive or negative) on area income.

Baade (1996) later conducted a similar study in which regression analysis was used to determine the effects of new stadiums and sports teams on a dependent variable, real per capita income. The independent variables used were the number of professional sports franchises and the number of new stadiums (less than ten years old). Forty-eight cities were examined over a time period of 1958 through 1987. The sample included all cities that hosted a team from at least one of the four major sports, and thirteen cities with no teams.

As in Baade and Dye's earlier study, most of the results in this analysis were not statistically significant. The variable “number of teams” was a statistically significant predictor of per capita

income for only two cities— Baltimore, where it negatively affected per capita income, and Indianapolis, where a positive effect was found. The stadium variable had a statistically significant negative impact on per capita income in Washington, D.C., San Francisco, and St. Louis. All other variables were not statistically significant. Baade ascribes the positive impact of sports teams in Indianapolis to the fact that the city had included sports in its development strategy of the 1970s and 1980s. (This may suggest that stadiums have increased merit when they are developed within the context of more comprehensive plans.)

Rosentraub (1994) provided a closer look at the economic returns on stadium investment in Indianapolis. Between 1974 and 1992 Indianapolis spent \$172.6 million on sports facilities as part of a larger development program fostered to renew the city's lackluster image. The study revealed significant growth in sports-related employment (jobs in firms associated with amateur or professional sports), but showed that these jobs accounted for only .32 percent of all jobs in the city's economy. Rosentraub used correlation analysis to determine a statistically significant positive relationship between sports-related jobs and employment in the service sector and the lodging sector. When compared to nine other similar cities, employment growth in these sectors was greatest in Indianapolis. Despite these findings Rosentraub gives Indianapolis' sports development strategy only mixed reviews due to concern that the jobs created appear to be low-wage service sector jobs, which make up only a small sector of the economy.

Hamilton and Kahn (1997) examined the economic impacts of Camden Yards in Baltimore – a stadium that has been used as a model for new facility construction and has been touted for its ability to draw visitors from outside of its metropolitan region. This drawing power represents a potential influx of “new money” into the local economy. Using a fan expenditure survey, Hamilton and Kahn attempted to isolate the impact that expenditure associated with these out-of-town fans had on the city's overall economic growth. While their surveys showed that 46 percent of fans were from outside the metropolitan statistical area (MSA), they estimated that their spending could only account

for the creation 550 jobs. Hamilton and Kahn state this increase in jobs can be translated into an increase in annual average wages of 40 cents. This translates to \$480,000 a year when multiplied by Baltimore's 1.2 million workers.

While these analyses have examined citywide impacts of sports development, it stands to reason that the most pronounced economic impacts will occur in the neighborhoods in which stadiums are located. Baade (Baade, 2000) examined the micro-level impacts that the Kingdome had on neighboring Pioneer Square – a mixed-use commercial and residential district – prior to its recent demolition. Baade surveyed Pioneer Square businesses to determine the impact that activities at the Kingdome had on their revenues. He concluded that while the stadium lead to substantial increases in revenue for several eating and drinking establishments, game-related activity essentially crowded out other business activities in the area. Shops and service providers saw decreased business presumably due to customers' aversion to dealing with game day crowds and associated parking hassles.

Austrian and Rosentraub's (1997) analysis of the micro-level impacts of sports development in Cleveland provides a somewhat contrasting result. The Gund Arena and Jacobs Field – elements of a series of capital projects known as the Gateway Complex – both opened in 1994 with an estimated total cost of \$467 million. The authors examined the effect of this substantial investment on development and job creation in downtown Cleveland. The study showed that following the construction of the sports facilities real wages per employee increased in the Gateway area, with a growth rate higher than that of the county and metropolitan area. This excluded player salaries. They also found an increase in sports-related jobs for the area following construction. These jobs included those in general merchandise stores, apparel and accessory stores, eating and drinking establishments, hotels and motels, and amusement and recreation firms. Employment in these industries as a group increased by 22.6 percent between 1992 and 1995. A net increase in the number of businesses established in the area during this time period was also found. Austrian and Rosentraub estimate the public sector's investment in the Gateway project at approximately \$289 million.

resulting in 1,251 jobs in the area. This puts the cost per job at \$231,000. It is unclear whether the positive results found here, or similar results in the future, are justification for that kind of overall spending, and whether future results will significantly decrease the cost per job figure.

Based on an examination of these empirical analyses, the economic development claims associated with stadium development remain contested. The ability of stadium investment to leverage jobs or increase area income is questionable at best. It seems fair to conclude that funding for sports facilities should not be approved based solely on their ability to influence economic growth. Without some other reason to support investment in such facilities, the continued proliferation of subsidized stadiums would seem to represent a collective irrationality among urban decision makers.

Beyond the Economic Catalyst Debate (The Importance of Public Consumption Benefits)

While claims of economic benefit alone cannot justify large public subsidies for stadiums, there is another side to the argument. Stadiums and teams can have significant value beyond their ability to generate jobs and income. This section will explore the importance of this often overlooked possibility and illustrate the need for additional research.

Irani (1997) attempted to illustrate one example of how professional sports facilities can generate benefit regardless of their direct economic impact. He conducted an empirical analysis of the welfare gain that stadiums generate by estimating the associated annual consumer surplus. When the amount that a person is willing to pay for a ticket to sporting event is greater than the actual cost of the ticket, the difference between the two amounts represents a consumer surplus. A net consumer surplus generated by a sports team represents a welfare gain to its locality. Irani estimated a demand curve for baseball tickets based on data about ticket prices, attendance, population, income and winning percentages from 1972 to 1991. He found that baseball teams generate “nontrivial consumer surplus” and concluded, “even though a stadium might not provide direct economic benefits to the locality, it does provide a positive amount of welfare gain” (249).

The utility of this analysis is limited for several reasons. The study did not account for any welfare loss associated with increased taxes due to the use of public subsidies. It also was unable to account for price discriminating practices, which teams use to capture consumer surplus. More importantly, the consumer surplus measurement only accounts for the extra benefits that accrue to persons who actually attend games. It cannot account for existence benefits – the external benefits received by residents who derive utility from the existence of a team without ever purchasing a ticket. Unlike consumer surplus, these benefits cannot be extracted by teams.

There are various indirect societal benefits that accrue to cities that invest in sports stadiums. “Although this is rarely the primary argument of stadium proponents, the notion that a sports team provides significant public consumption benefits is not frivolous. The cultural importance of major league team sports in American society most assuredly exceeds its economic significance as a business”(Noll & Zimbalist, 1997). As Johnson and Whitehead explain, sports teams and stadiums produce certain public goods. “Whether they are called civic pride, fan loyalty, or community spirit, they are nonrivalrous and nonexcludable, and they exist as a direct result of a team’s presence” (Johnson & Whitehead, 2000).

Noll and Zimbalist (1997) expand on this concept:

One does not need to attend a game or tune in to a broadcast to derive consumer benefits from a local sports team. A major league game is a newsworthy event that is covered extensively by the press, and sports coverage takes up a large share of local newspapers and news broadcasts... Sports fans consume coverage of local sports events, and the media reports such events without providing compensation to the team. For these reasons, a major league sports event creates a classic “externality,” a benefit accruing to people who are neither buyers nor sellers of the production of the game. (57).

Rosentraub and Swindell (1998) conducted a survey of 1,536 Indianapolis area residents in order to determine the “social spillover benefits” of local sports teams. Five indicators were used to measure the intangible value and social benefits of the NBA Pacers and NFL Colts in relation to

other area amenities. The following events or assets were ranked with a score of one through five, with five representing a very important asset or event:

- Auto Racing
- Auto Expo
- Indianapolis Colts
- Indianapolis Ice (IHL hockey)
- Indianapolis Indians (AAA baseball)
- Museums
- Music
- Other Sports
- Indianapolis Pacers
- Shopping

Each event or asset was ranked in the following five categories, which were used as indicators:

- Contribution to civic pride
- Contribution to National reputation
- Events most frequently mentioned by visitors
- Events visitors most frequently ask to see or attend
- Importance to city's reputation

The Pacers and Colts ranked second and third, respectively, in every category, finishing behind auto racing in four out of the five categories. Rosentraub and Swindell concluded that "residents enjoy substantial spillover benefits from the Pacers and the Colts" as well as from auto racing (5). The results of this analysis are important in that they concretely demonstrate that sports teams can produce civic pride and image benefits that are valued by local residents.

In light of this analysis the need for additional research is clear. Some general misconceptions seem to riddle public policymaking in regard to sports stadium investment. I contend that policy-makers misuse arguments of economic growth to promote decisions that are commonly about enhancing city image, competing with suburbs and other localities, and impacting spatial structure (attracting a focus back to the urban core). While these and other public consumption benefits may be legitimate, promotion of stadium investment is often based on what are largely bogus economic impacts analyses. Burbank, Andranovich and Heying (2001) argue that developments that are sponsored to promote image should not be evaluated solely on the ability to

generate economic growth. In so doing, such assessments potentially fail to account for important, albeit less corporeal, associated benefits and illegitimately rationalize public investment decisions. Developing an alternative framework for discussion and analysis seems a necessary step.

Noll and Zimbalist (1997) contend that it is not implausible that “the value of the external benefits of a major league team to consumers...exceed stadium subsidies” (58). They illustrate this point with a hypothetical investment situation. They put forth a stadium, receiving a subsidy of \$250 million in a metropolitan area of five million residents. The per capita annualized cost of servicing the debt to finance such a stadium would be approximately \$5. “It does not vastly stretch credulity to suppose that, say, a quarter of the population of a metropolitan area derives \$20 per person in consumption benefits annually from following a local sports team. If so, the consumption benefits of acquiring and keeping a team exceed the costs” (Noll and Zimbalist 1997, 58). In Cleveland it has been estimated that the per capita cost of the debt service on the Gateway complex is \$10 per year. For Camden Yards in Baltimore the figure is \$15. The public consumption benefits associated with these facilities may be worth \$10 or \$15 per person even if these stadiums never bring their promised economic boon.

Because the public goods associated with professional sports cannot be traded in the marketplace, it is very difficult to determine their value. In a study that provides a foundation for further research, Johnson and Whitehead (2000) demonstrated how contingent valuation (CV) methodology can be used to measure the external benefits generated by a sports facility. CV is a non-market valuation method commonly used in assessing the value of environmental public goods (Mitchell & Carson, 1989). A more detailed description of this methodology will be provided below. Johnson and Whitehead’s study is the only application of this approach to sports facilities and the only example of an empirical analysis designed to value the public consumption benefits associated with sports.

The authors examined two facilities proposed to be built in Fayette County, Kentucky: a new basketball arena for the University of Kentucky (UK) and a minor league baseball facility. The UK arena would be built with private money, but its construction would represent a cost to Fayette County by decreasing the rent received at Rupp Arena – the county owned facility where UK basketball games are currently played. The minor league baseball park would cost the county approximately \$10 million and would be built to host a AA Southern League team. Johnson and Whitehead surveyed 230 county residents to determine their attitudes toward UK basketball and minor league baseball, and elicit their willingness-to-pay for the proposed facilities.

The results showed that “the production of UK basketball games generates substantial nonrivalrous and nonexcludable public good” (Johnson & Whitehead, 2000). Although 60 percent of respondents did not attend any UK basketball games, 72 percent reported reading about UK basketball regularly, and 71 percent reported that they regularly discuss UK basketball with others. The mean annual willingness-to-pay for a new basketball facility was \$6.36, which Johnson and Whitehead estimate would support capital costs in the range of \$3.71 and \$7.28 million. The projected cost of the new arena was \$100 million. Using statistical analysis, the willingness-to-pay estimate was disaggregated into use and non-use value. The estimated non-use value would support between \$1.12 and \$2.20 million in capital costs. For the baseball stadium, the mean willingness-to-pay was \$6.17, which would support capital costs between \$3.60 and \$7.06 million. The non-use value would only support between \$361,000 and \$709,000 in capital costs.

This analysis indicates that the proposed facilities would not generate enough public consumption benefit to justify the costs of investment. These results are a reflection of the preferences and attitudes of local residents regarding the proposed investment. Johnson and Whitehead suggest that Fayette County residents, even those who described themselves as fans, had little incentive to support an investment in a new UK arena. This is partly because the UK basketball team would remain in Fayette County regardless of whether a new arena was constructed. “The

public goods produced by the team would continue to be produced” (Johnson & Whitehead, 2000).

In contrast, a locality facing threats of relocation or the possibility of acquiring a new team would have to consider very different factors in constructing their willingness-to-pay. It is also likely that the public consumption benefits associated with a major league baseball team would be greater than those associated with a minor league team, as measured in this case.

An application of this methodology to a major league situation could provide a significant contribution and a new perspective to the research that has already been conducted regarding the value of major league sports teams and facilities. Such research would also be instrumental in the development of a more comprehensive and legitimate framework for evaluating stadium subsidy proposals. The CV methodology can also be used to determine the components of willingness-to-pay. An empirical understanding of the distribution of benefits could help ensure equitable financing plans and would suggest a basis for establishing campaigns for or against stadium investment.

Contingent Valuation (CV) Methodology

Because CV is not a commonly understood research method I will briefly discuss the concepts behind the practice and address some criticisms of CV before describing my proposed research design. Mitchell and Carson (1989) provide the most comprehensive guide to CV theory and application techniques. Discussion of recent advances in the application CV can be found in Arrow et al (1993); Carson, Flores and Meade (2000); Carson et al (1995); and Hanemann (1994).

CV is a non-market valuation method commonly used in assessing the value of environmental public goods (Mitchell & Carson, 1989). The CV method elicits respondents' willingness-to-pay (WTP) for the protection or provision of public goods through the use of surveys that present hypothetical opportunities to “buy” the public good in question. Respondents express their WTP for a public good contingent upon a specified hypothetical payment vehicle and provision of the good. The use of hypothetical scenarios circumvent the absence of a market for public goods.

WTP measurements include both use and existence values (sometimes referred to as non-use or passive-use values). The existence benefits of a stadium are comprised of the benefits that the facility and team provide to those who do not participate as actual buyers or sellers of tickets. Although the design of CV surveys vary widely, they generally contain the following common elements (Mitchell & Carson, 1989; Portney, 1994):

1. A description of the good that the respondent is being asked to value with appropriate background context.
2. A question that elicits WTP, based on an appropriate payment vehicle (e.g. a tax increase).
3. Follow-up questions designed to determine the characteristics and attitudes of the respondents, with the intent of estimating a WTP function that includes these characteristics as possible explanatory variables.

CV has been the subject of some criticism, mostly because of its reliance on hypothetical constructs as opposed to observed behavior. Some economists question the validity of measures based on “stated preference” rather than “revealed preference.” They question the ability of respondents to give answers that reflect reality in situations that are not real (Hanemann, 1994). Some critics contend that respondents may not be able to understand and place in context the questions they are being asked, and consequently, will not be able to accurately value the goods in question (Boardman, Greenberg, Vining, & Weimer, 2001). Others argue that respondents’ WTP can be influenced by a “warm glow effect” (Arrow et al., 1993). These critics conclude that responses tend to overstate value in some cases because respondents are influenced by the same warm glow that accompanies a donation to a worthy cause. Another criticism asserts that respondents do not consider their budget constraints when responding to CV surveys.

Because of these criticisms, and the growing need to ensure accuracy in the measurement of environmental goods, the National Oceanic and Atmospheric Administration (NOAA) appointed a panel of economic experts, chaired by Nobel laureates Kenneth Arrow and Robert Solow, to examine whether CV is “capable of providing reliable information about...existence or other passive-use

values” (Arrow et al., 1993). The panel upheld the use of contingent valuation, but provided a set of guidelines for future practice that were designed to address some of the criticism of the method. Many of these criticisms can be addressed through proper survey design and careful choice of elicitation technique.

The NOAA panel recommended that CV surveys should begin with a clear scenario “that accurately and understandably describes the expected effects of the program under consideration” (Arrow et al., 1993). They also indicated that CV surveys should rely on personal interviews when possible. Furthermore, the panel suggested that CV surveys should remind participants of the effect that their payment choice would have on their overall budget (Arrow et al., 1993). These recommendations were designed to ensure that responses would not be impacted by a lack of understanding or irrational decision-making.

The NOAA panel also recommended that CV surveys should rely on a referendum-style technique for eliciting WTP. Using the referendum or dichotomous choice approach, each respondent in the survey is assigned a randomly selected price and asked whether they would be willing to pay that price for the public good in question. The survey question can be framed as a referendum by asking respondents how they would vote if faced with some program that would produce a certain public good in exchange for higher taxes or product prices (Portney, 1994). This approach provides a sense of reality by putting respondents in a hypothetical situation that they are used to facing. Not only are referenda common in practice, but the day-to-day purchasing behavior of consumers is based on decisions to accept or reject a certain price for a certain good. For this reason, the referendum approach closely approximates market-like transactions.

Alternate techniques for eliciting WTP suffer from several sources of bias. Open-ended WTP questions pose a problem for respondents who may not be able construct a meaningful value for an unfamiliar good without some form of assistance. An alternate elicitation technique based on a bidding process faces the problem of starting point bias, in which the opening bid might seem to

imply a value for the good. The payment card technique, which asks respondents to select from a range of provided values, is susceptible to biases associated with the range and benchmarks used (Mitchell & Carson, 1989).

While the referendum approach offers a significant advantage over other techniques for eliciting WTP, it also has some drawbacks. The discrete choice elicitation of WTP provides less information than a continuous choice technique because respondents are only asked to accept or reject a certain price, rather than to provide their maximum WTP. Because the referendum approach yields only a discrete indicator of WTP instead of an actual maximum, this technique requires a much larger sample to produce a meaningful construct of WTP. Plotting the proportion of “yes” responses against the price traces out the cumulative distribution function of WTP (Hanemann, 1994). A measure of average WTP is given by:

$$WTP = v \sum_{k=0}^N (\text{probability of acceptance at price } kv)$$

where v is the interval between prices and N is the number of prices (Boardman et al., 2001). Analysis of dichotomous choice results becomes more complicated because the researcher must make “assumptions about how to parametrically specify either the valuation function or the indirect utility function to obtain mean WTP” (Mitchell & Carson, 1989). The complication of analysis related to the use of a dichotomous choice variable also limits the utility of such models to explain components of WTP.

Some researchers have attempted to address the limitations of the referendum approach by adding a follow-up question. This is often another dichotomous choice to accept or reject a price that is either higher or lower than the initial price, depending on the initial response. This approach can provide important additional information and reduce the sample size needed, but it is still prone to the analytical drawbacks described above. Mitchell and Carson (1989) indicate that in some cases it

is more useful to follow the initial referendum question with a continuous question rather than a discrete choice. This can increase efficiency and improve the explanatory utility of the model.

Generally, the referendum approach will rely on taxes as a payment vehicle to elicit WTP. It is important to note that the choice of payment vehicle can affect a respondent's WTP. For example, some respondents might be averse to taxes and would indicate a higher willingness to pay if an alternate payment vehicle were used. Some researchers consider this a bias, and suggest that responses that are affected by the choice of payment vehicle should be viewed as outliers. Arrow and others argue that the payment vehicle becomes a part of the bundle of goods that a respondent is being asked to value and that preferences about payment vehicles are actually meaningful components of WTP. I return to this issue in the discussion of my proposed research design.

Finally, it is important to note the value of pretests and follow-up questions in the construction of CV surveys. Using these tools can help ensure that the survey instrument and hypothetical scenario presented are clear and understandable. Unreliable results are often the product of poor survey design. CV can produce valid and reliable results if the methodology is carefully applied. I have considered the criticisms and recommendations discussed here in the development of my proposed research design.

The Case Study

Methodology / Research Design

Portland provides an excellent opportunity for the application of CV analysis to a major league situation. MLB Commissioner Bud Selig has announced the league's intention to relocate the Montreal Expos franchise following the 2003 season. Portland and Washington, D.C. are considered to be top contenders for relocation. A recent study conducted by American City Business Journals (Thomas, 2002) ranked Portland as the third most appealing new sports market (behind Los Angeles and Philadelphia). The study, which "analyzed 172 markets across America to determine their economic ability to support additional professional teams," concluded that Portland could support a

team in any of four leagues, including the N.F. Major League Soccer (MLS), the National Hockey League (NHL) and MLB (Thomas, 2002). Portland is currently the largest market in the United States with only one major league sports team (the NBA Trailblazers). The Portland Oregon Sports Authority (POSA), the Oregon Baseball Campaign (OBS) and the Portland Baseball Group (PBG) have each been actively campaigning to bring MLB to Portland for some time.

Portland does not currently have a facility adequate to provide a long-term home for an MLB team, and the development of a stadium financing and construction plan is an essential component of the MLB campaign. During the 2003 assembly of the Oregon State Legislature supporters will introduce a bill to authorize \$150 million in state bonding revenue for stadium construction. A similar bill was approved by the house in the 2001 session, but never reached a vote in the senate (Esteve, 2001; "Senate Bill 978," 2001). The state bonding revenue would be backed by income taxes generated by players' salaries and would not impose a direct tax burden on Oregon residents; however, state funding would cover only a fraction of the stadium costs and significant additional local spending would be expected from the Portland metropolitan area. With an estimated total cost of \$350 million, stadium construction could require a local subsidy between \$125 and \$200 million, depending on team contribution and the accuracy of cost estimates.

It is possible that Portland area residents would have a substantial WTP for the benefits associated with hosting a major league baseball team. Portlanders have shown considerable interest in major league baseball, posting the seventh highest Neilson television ratings in the nation for the 2002 World Series. Portland's 22.5 rating for Game 7 nearly doubled that of Washington, D.C. (11.3) ("Series Interest," 2002). A Seattle Mariners 2002 exhibition game held at Portland's minor league facility, PGE Park, sold out in less than fifteen minutes.

Landing an MLB team could bring image benefits that some might find important. Portland is commonly considered as a second-tier city in the Northwest, with Seattle established as the region's dominant metropolis. In 1964, amidst a context of westward expansion of professional

sports leagues. Portland abandoned a plan to develop the Delta Dome -- a multiuse facility that could have hosted an NFL and MLB team. Seattle capitalized on what many considered Portland's missed opportunity and landed the Northwest's first MLB team in 1969 (Abbott, 1992). By 1972 Seattle was also home to the NFL Seahawks. The perceived competition for regional recognition between Portland and Seattle might influence the preferences of Portland residents regarding the value of an MLB team. Those concerned with Portland's image might consider hosting an MLB team as one way to enhance the city's status.

If Portlanders consider such issues to be meaningful and important, and believe that hosting an MLB team can influence these factors, the public consumption benefits associated with a building a stadium could be substantial. On the other hand, it is possible that these factors are relatively trivial to many Portland residents. Portlanders might be more concerned with other social needs that could be considered more pressing, such as stabilizing the public education system. In either case, the preference of Portlanders for the potential public consumption benefits associated with a new professional sports facility should be reflected in an aggregate measure of WTP.

I propose to use CV analysis to quantify the potential public consumption benefits associated with the relocation of an MLB team to Portland. This methodology will be used to develop the Portland metropolitan region's aggregate willingness to pay for the benefits associated with hosting a professional baseball team, which can then be compared to any proposed level of public contribution to a new stadium. Statistical analysis of WTP and explanatory variables will be used to derive use and existence value. This research will help determine to what extent the potential public consumption benefit associated with bringing MLB to Portland would justify a public subsidy. Additional survey questions will also be used to determine the elements that compose WTP for professional baseball in Portland.

Research Design

This research will be based on a mail survey sent to a random sample of 1,000 households within the Portland metropolitan area (defined as Multnomah County, Clackamas County and Washington County). The survey instrument is attached as Appendix A. This appendix also indicates variable names and coding schemes. The sample population is designed to represent the population who will likely contribute to any local subsidy for a stadium through increased tax payments. The sample size of 1,000 is based on the recommendations of the NOAA panel. Although the panel recommended personal or telephone interviews, I have chosen to use a mail survey. The use of personal or telephone interviews was recommended partially because of the complicated nature of the goods that respondents are often asked to value in CV surveys. Personal interaction can help ensure that respondents understand the hypothetical scenario and the context of the good in question. While this assistance is likely to be necessary in the valuation of environmental goods that respondents might never encounter in their daily activities, the stadium proposal offered in this case represents a tangible outcome with which most respondents will be familiar. Including a clear and concise written description of the scenario would seem to be sufficient in this case. Therefore, I believe that the additional costs associated with personal or telephone interviews are not warranted in this case. Careful pretesting of the survey has not indicated any comprehension problems.

The survey contains four sections, labeled A, B, C, and D and should take respondents approximately ten minutes to complete. Section A is designed to obtain information about respondents' attitudes and preferences regarding existing sports teams in Portland, including the NBA Trailblazers and the Portland Beavers, a minor league baseball team in the Pacific Coast League. These questions ask about whether respondents attend sports events in Portland and whether they receive public goods benefits by regularly discussing or reading about sports in Portland.

Following this introductory set of questions, respondents are introduced to the hypothetical MLB scenario in section B of the survey. This section also presents the WTP questions and follow-up questions designed to ascertain the most important reasons why respondents did or did not indicate a WTP. Respondents are informed of the pending relocation of the Expos and the current MLB campaign in Portland. They are also told that construction of a new stadium in Portland would require local public funding that could result in an increase in taxes for a thirty-year period. Respondents are asked to suppose that construction of a new stadium would ensure the relocation of an MLB team to Portland. Each respondent's maximum WTP is elicited with a dichotomous referendum question, followed up by a continuous choice question. The initial referendum question asks, "How would you vote on a referendum that would provide public funding for the stadium, if it would increase the amount of taxes you pay in a year by \$X." Respondents are presented with one of the following values: \$5, \$10, \$20, \$40, and \$80. This is followed by the maximum WTP question, "What is the most you would be willing to pay out of your own household budget per year in higher taxes to make a new stadium possible?" Respondents are given an option of seven price sets, which range from zero to "more than \$80."

None of the WTP elicitation techniques described in the previous methodology discussion are without criticism, but I have chosen to rely on a approach that yields a continuous maximum WTP because of the analytical utility that such a measure provides. This research is intended to measure the aggregate WTP as well as determine the components of WTP. Relying on a dichotomous measure would complicate this analysis. Using an initial referendum question puts the respondent in a familiar decision-making framework and following up with a continuous question allows for a more useful measure of maximum WTP. In a pretest of the survey, I found that almost all respondents who voted "yes" to the referendum question answered the follow-up question with a WTP amount that was at least equal to the one they accepted in the dichotomous choice. This provides some confidence in the reliability of this elicitation technique.

An aggregate measure of respondents' WTP can be obtained by coding the responses of the maximum WTP question at the midpoint of each range and summing across the responses. This figure can easily be transformed into a mean WTP. Multiplying this mean by the number of households in the region will produce an estimate of the region's aggregate WTP. A 95 percent confidence interval can be calculated to create an estimated range. If the response rate is high enough, the initial referendum question can also be used to create a measure of average WTP. This can be done by plotting the probability of acceptance for each price and calculating the area below a line of best fit. The ability to compare estimates creates a measure of internal reliability in the survey. The aggregate WTP measure can be used to indicate the extent to which a local public subsidy would be justified. The WTP questions are immediately followed by questions that asks respondents to select the reason that best describes why they are or are not willing to pay higher taxes to attract MLB to Portland.

As described above, increased taxes are used as the payment vehicle. Because some people might have an aversion to taxes for a variety of reasons, including a distrust of government or an unwillingness to impose taxes on others, this payment vehicle could impact stated WTP. If a respondent were averse to taxes he or she might indicate a low WTP even if he or she would receive some benefit from having an MLB team in Portland. I do not consider this effect to be bias. In this case the tax becomes a part of the good that is being valued, and WTP reflects a person's utility from MLB *if it involves a tax*. Since in reality, some form of tax increase would be the most likely payment vehicle for a new stadium it is important to include the affect of using a tax in the calculation of public consumption benefits. One of the purposes of this research is to determine to what extent such benefits would justify tax increases. I tested an alternate payment vehicle in an earlier survey design, which I determined would introduce greater bias than the tax payment vehicle. A further explanation of this alternate approach is provided in Appendix B.

Several of the survey questions can be used to test the affect of the payment vehicle on WTP. The responses “I pay enough taxes already,” and “I do not wish to impose taxes on other who might not receive any benefit from having Major League Baseball in Portland,” are both provided as potential reasons for a zero WTP response. Those who indicate zero WTP are also asked whether they would be in favor of a new stadium if it did not involve higher taxes.

Section C of the survey is intended to obtain information about respondents’ attitudes toward the idea of attracting MLB to Portland. The characteristics derived from this section can be used to determine the components that make up WTP. First, respondents are asked how many MLB games they would attend at the hypothetical new stadium. This question provides a use value variable. Respondents are then presented with a list of ten statements and are asked to indicate their level of agreement with each, using a five-point Lykert scale. The responses are coded so that values of 5 indicate the strongest likelihood of predicting a high WTP. The reliability of this scale can be tested using a Cronbach’s Alpha analysis. The statement “I would attend major league baseball in Portland” provides another use value indicator. The following statements provide existence value variables:

- I would read about and watch a Portland major league baseball team on television
- Hosting major league baseball would improve Portland’s image or national reputation
- A major league baseball team would make Portland a better place to live

The variables developed in this section all provide potential predictors of WTP. Multiple regression analyses (using ordinary least squares methods) can be conducted to determine the explanatory value of each, using the demographic characteristics obtained in section D of the survey as control variables. Section C also discerns information about the respondent’s attitudes toward taxes, which can be used as a predictor or control variable. Multiple regression analyses can be used to disaggregate WTP into use and existence value. This can be accomplished through a number of techniques. A hierarchical multiple regression model can be conducted with an initial block that contains only use value and control variables, and a follow-up block that adds existence value variables. The resulting R-square change value will indicate the impact of including existence value

as a predictor. An examination of the regression coefficient for the existence value variables can also provide information about the impact of public goods benefits on WTP.

Depending on the relative amount of zero WTP responses, the data set might violate the homoscedasticity assumption required for ordinary least squares regression analysis. If this is the case, the use of a Tobit model regression will be required. Johnson and Whitehead (2000) used the Tobit model to disaggregate use and existence value in their analysis. In this case, the existence value is the residual difference between WTP and use value, and can be measured by setting the use value variables equal to zero.

The questions and Likert scale statement in section C can also be used to ensure that the WTP elicited truly reflects the utility each respondent would derive from the relocation of MLB to Portland. Cross-tabulating the responses given in this section with a dichotomous variable that indicates whether a respondent gave a zero WTP response can point out potential confounding results. For example, respondents who indicate a zero WTP, but strongly agree that they would attend games , or strongly agree that an MLB team would make Portland a better place to live would seem to have given a WTP figure that does not match their true potential utility. This analysis will help ensure the reliability of the survey.

Pretest Results

Twenty-six respondents participated in a pretest of this survey, ten of whom also completed a follow-up questionnaire. This follow-up questionnaire is included as Appendix C. Since the majority of the respondents were students in an undergraduate business course at Portland State University, this pretest sample cannot be construed as representative of the Portland metropolitan area. However, the pretest and questionnaire do provide valuable information about the effectiveness of the survey instrument, and the results provide some interesting information for discussion. A summary of data analysis from this pretest is included as Appendix D.

As noted in the previous section, the pretest participants did not indicate any difficulty in understanding the survey or the hypothetical scenario presented. The dual-question technique for eliciting WTP also did not seem to pose a problem, as almost all respondents who voted “yes” to the referendum question answered the follow-up question with WTP amount that was at least equal to the one they accepted in the dichotomous choice. The options included in the questions designed to determine why respondents were or were not willing to pay also seemed to be adequate. Only two respondents selected the “other” option, one of whom indicated that his WTP was based on the fact the he or she worked in the field.

To test for confounding responses, the potential predictors obtained in section C were with cross-tabulated with a dichotomous variable coded to indicate whether a respondent gave a WTP response of zero or greater than zero. Three participants who agreed that MLB would enhance Portland’s image indicated a zero WTP. One participant who indicated a zero WTP agreed he or she would attend MLB games in Portland.

A preliminary analysis of frequency tables for various variables provides some noteworthy information. The most popular reasons that respondents gave for their WTP were that they would attend MLB games and that an MLB team and stadium would improve Portland’s economy (26.3 percent). In addition, nearly 70 percent of respondents either agreed or strongly agreed with the statement that an MLB team and stadium would improve Portland’s economy. This indicates the persistence of misconceptions regarding the economic benefits associated with sports development strategies. Regarding existence variables, 40 percent of participants agreed that they would read about or watch MLB games, 66 percent agreed that an MLB team would enhance Portland’s image, and 40 percent agreed that an MLB team would make Portland a better place to live .

A preliminary correlation analysis indicates that several of the variables that were designed as potential predictors of WTP are significantly correlated with the continuous WTP variable ($p < 0.05$).

These include the number of MLB games that the respondent would attend and the following Lykert scale statements:

- I would receive some benefit from having an MLB team in Portland
- I would attend MLB games
- I would read about or watch MLB games on television
- Building professional stadiums is an appropriate use of public money
- Portland has more pressing social issues that should be addressed before public money is spent on a professional sports stadium (reverse coded)

Only one existence value variable was statistically correlated with WTP. This could indicate that existence value issues such as city image are not an important contributors to the potential benefits that Portlanders would receive from a new baseball stadium, but this is probably not a fair conclusion to make based on preliminary analysis of a very small sample.

The correlation analysis does indicate a problem with one of the Lykert scale variables. The statement "I would rather see Portland get an NHL or NFL team," which was included as a potential predictor of WTP, was negatively correlated with WTP. The Lykert scale variables were all coded so that they would be positively correlated with WTP (if the underlying assumptions upon which the variables were based were correct). I reverse coded this variable, assuming that respondents would have a low WTP if they would prefer to see Portland concentrate its efforts on landing a hockey or football team instead of a baseball team. Based on my assumption, someone who strongly disagrees with this statement should be more likely to have a high WTP. Perhaps the intricacies of this statement were not clear to respondents. It is also possible that many respondents who support bringing MLB to Portland would also support NHL or NFL campaigns.

The majority of respondents (73 percent) indicated some WTP for the potential benefits associated with bringing MLB to Portland, and for each referendum price at least 50 percent of respondents indicated a "yes" vote. The mean WTP estimate derived from this sample is \$21.50. When multiplied by the 569,000 households in the three-county metropolitan area, this figure yields an aggregate WTP estimate of \$12.2 million per year.

As described above, the required local subsidy is likely to be between \$125 and \$200 million. Over a thirty-year period, assuming a discount rate of 8 percent, this annual aggregate WTP estimate translates to a net present value of \$137 million. Put another way, the aggregate WTP of \$12.2 million per year could support the debt service on a \$137 million thirty-year bond issue with an 8 percent interest rate. These estimates are based on total value, including both use and existence value components.

While the results described here are based on a very small convenience sample, the considerable aggregate WTP estimate illustrates that Portlanders might receive enough benefit from a stadium to justify a substantial subsidy. The full research design proposed here would provide additional insights about the magnitude of potential use and existence value related to stadium development, and help describe the components of Portland's aggregate WTP. This research could contribute to a comprehensive a legitimate framework for evaluating a proposed stadium subsidy in Portland, which would move beyond tenuously grounded predictions of economic impacts.

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