The use of Public Funds for Private Benefit: An Examination of the Relationship between Public Stadium Funding and Ticket Prices in the National Football League

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Abstract

During the past decade there has been a proliferation of sports stadia being built in America's municipal districts. While it used to be common for the public to fully fund stadium construction projects, over the past twenty years factors such as political motives, tax reform and increased public awareness of tax equity have forced sports teams to share increasing amounts of the financial burden (Crompton, Howard, & Var, 2003). As public funding for stadia construction has decreased, franchises have continued to strive for maximized profits. Concurrently, the cost of attending events in sports stadia has increased for consumers in terms of higher ticket prices even though changes in fixed costs should not affect pricing (Leeds & von Allmen, 2004).

The purpose of this study was to examine the relationship between the use of public funds to build stadia and the profit maximizing goals of National Football League (NFL) franchises. A hypothesis was formulated that stated the impact of the public share of the construction cost would have no effect on relative ticket prices for those that consume the product. The cross-sectional data for a ticket price model, which consisted of seasonal data from every NFL team to play from 1991 through 2003, was investigated. The results showed an increase in public funding by 10% lowers ticket prices by 42 cents. As shown, the bulk of the variation in ticket prices was due to a general increase over time and MSA per capita income.

The use of Public Funds for Private Benefit:
An Examination of the Relationship between Public Stadium Funding and Ticket Prices in the National Football League

During the past decade there has been a proliferation of new sports stadia in America's municipal districts. While it used to be common for the public to fully fund stadium construction projects, over the past twenty years political motives, tax reform and increased public awareness of tax equity have forced sports teams to share increasing amounts of the financial burden to construct stadia and arenas (Crompton, Howard, & Var, 2003). Yet despite these factors, public money still continues to support approximately 55% of stadium costs (Broughton, 2004). Even when these public funds were used, sport franchises, like most private sector firms, have focused on maximizing shareholder wealth as they strive for maximized profits.

Several forms of public subsidy have been used in the construction of stadia and arenas, from the use of public funds (tax dollars) to build stadia and arenas to the reduction or elimination of property taxes on privately owned facilities. Fort (2004b), in his paper *Subsidies as Incentive Mechanisms in Sports*, examined the relationship between public subsidies and ticket prices. Here, operating subsidies were examined. Fort found that an inverse relationship existed between stadium operating subsidies and ticket pricing in single-use stadia.

In his article, Fort (2004b) divided subsidies into two categories: construction subsidies and operating subsidies. He stated that construction subsidies included both direct and indirect tax and infrastructure subsidies while operating subsidies included subsidies granted to team owners in stadium lease agreements. In this current paper, the subsidy examined was the use of public funds, a tax subsidy, to build new venues. This would be classified by Fort as a construction based subsidy.

Factors Influencing the Use of Public Funds for Sport Venues

Political Motives

Legislators, like politicians at every level, run according to agendas, most of which are determined in the election process. According to Brunori (2001), ambition has guided the motives of state legislators. Once in office, these legislators have focused on reelection, attempted to enhance their political reach, and hoped to further their political careers. It can therefore be assumed that legislators will work hard to advance their agendas, a notion supported by Brunori. With regard to tax policy, the author noted that policy is formulated to advance both public policy and political goals. If these goals have the potential to enhance a legislator's standing with an important special interest group, public policy and political goals have often intersected.

One potential interest, the sport team owner, has become powerful within local political and business communities. Some politicians have utilized this

power during elections, and upon taking office seek support for the public funding of sports stadia (Crompton, Howard, & Var, 2003). The most common public mechanism to raise the capital needed to fund a stadium has been the sales tax, presumably because of its obscurity. This source of funding has been used because politicians attempt to obscure an individual's tax burden by passing increases in taxes that are mostly unnoticed by their constituents (Brunori, 2001). As such, the author noted that the sales tax is the easiest form of tax to hide. The sales tax is paid in such small increments that the public is largely unaware of its gross sales tax liability.

As increases are frequently so small that the cost of fighting them is too much for an individual person or group to bear, sales tax increases have often received little resistance from the public. Thomas R. Dye, in his theory on public taxation acceptance, posed that special interests look for the benefits, subsidies, and privileges government can provide with the costs of these benefits, subsidies, and privileges being born by all taxpayers. As these costs are dispersed to a large number of individuals, it was stated that very few feel that the added tax is worth the time or money to oppose the benefit, subsidy or privilege granted to the special interest (Brown & Paul, 1999).

Occasionally, taxpayers have joined together to oppose a benefit for a special interest. In Hamilton County, Ohio, taxpayers fought a sales tax increase designed to fund two new sports venues along Cincinnati's riverfront. The two

stadia were funded through the use of a sales tax, thus assuring that the costs of building the stadia would be spread over as large a population as possible. To counter opposition to the sales tax increase, the sales tax increase was combined with a property tax rollback; therefore, for property owners only, there was a net tax reduction (Brown & Paul, 1999). The Hamilton County sales tax increase was so marginal to the millions affected; few had the inclination, time, or resources to fight it politically.

Additionally, politicians are forced to make decisions concerning where tax revenue is spent. Often if they chose to use tax revenue to fund one project, resources were taken away from other projects. This has been referred to as opportunity cost. Crompton, Howard, and Var (2003) defined opportunity costs in sport as benefits that would be received if public resources committed to a sporting facility were redirected for other use. Within the political process, however, opportunity costs have been often ignored when determining where funds are spent.

To understand the concept of opportunity costs in public administration, Crompton, Howard, and Var (2003) discussed the differences between capital and operating budgets. Importantly, funds from capital and operating budgets cannot be directly substituted. Those that advocate additional funds for education, public safety, and public health rather than funds for a sporting venue look to a city's operating budget for increased support. To solve the fiscal problems for the social

programs listed above, permanent acceptance of higher tax rates has been required. It has usually been easier to convince voters to support increases in taxes for capital projects, such as stadia, where tax increases are almost always temporary. Further as operating budgets are not approved by a public vote, resulting tax changes will be linked to those in office at the time of election. Operating budgets also increase incrementally, and thus are on-going and likely to increase. Capital investments, however, have a fixed time frame determined by a bond's maturity.

The differences between operating and capital budgets have explained some of the political incentives for advocating stadium funding. In addition, as Crompton, Howard, and Var (2003) stated, public subsidies for sport venues frequently come from non-residents (hotel/motel tax, car rental tax) while items in operating budgets are funded primarily from the community taxpayer. As politicians are driven by results and constituents can visually see the impact of stadium construction, the physical improvements can be equated as progress. For social programs, it has been much harder to measure progress by pointing to tangible results; therefore, progress in these areas often has been overlooked.

Even though political motives can drive the push for increased public funding in capital projects, the use of tax revenue must still be justified. According to Crompton, Howard, and Var (2003), these capital expenditures must show a positive return on investment. Additionally, the investment in the capital

project must return an amount at least equal to other capital projects in which the government could have invested. Therefore, if a municipality decided to fund a sports stadium it needed to be able to justify the benefits of such a project. Baade (1996) stated decisions to subsidize a sports stadium force either delays or reductions in other needed capital projects, or force a community to increase their total tax burden to support all needed projects.

Tax Reform

Despite the prowess of many politicians, stadium tax levies have faced increasing resistance from the public. According to Baade and Dye (1990), operating deficits in publicly owned, or financed, stadia have led to taxpayer resistance in communities proposing new funding for new sporting venues. In San Francisco, the citizens have voted down a number of proposals that would have created public funding mechanisms for new stadia to be used by the San Francisco Giants (baseball) and 49ers (football).

In addition to the faltering financial status of existing stadiums, tax reform has added to the external pressures facing public budgeters. In Dubuque, Iowa, voters resoundingly voted down a stadium bond issue that would have been used to partially fund the construction of a new baseball facility (Stiles, 2004). In Minnesota, the Saint Paul City Council voted 4-2 to reject a public funding proposal to build a ballpark and attract the Twins (baseball) out of Minneapolis (Associated Press, 2004).

The two tax reforms that have affected the public funding of sport venues both were passed during the Reagan administration. The first, the Deficit Reduction Act of 1984 ended the use of tax-exempt bonds to finance luxury boxes, and the second, the Tax-Reform Act of 1986, prohibited the use of tax-exempt bonds for sports facilities if more than 10 percent of its revenue came from one tenant. With the elimination of their tax exemption, the cost of financing stadia through the offering of bonds increased; therefore, municipalities were forced to find other means to help defer the cost. At the same time, municipalities increased the use of 'load shedding,' where costs were shifted from the public sector and absorbed by private entities (Crompton, Howard, & Var, 2003). As a result, many sports teams now had to incur a portion of the cost of constructing new facilities. Though public/private funding partnerships began to appear with some regularity, most stadium projects consisted of sport franchises contributing a substantial, but minority, share of the facility's cost. This shared cost approach was more widely accepted by the public and helped politicians continue to accommodate sport franchises.

Equity in Taxation

Inherently, taxation has been viewed negatively by the public as it reduces personal income. However, taxation has been necessary in modern society. The primary issue in taxation has not been the tax itself, but the fairness of the tax. According to Mikesell (2002), tax policy has been formulated to cause the least

amount of economic harm as taxes move available resources from private use, thereby harming the private sector. Therefore, a socially acceptable tax would collect as much revenue as possible for government operations while leaving ample resources for private sector use.

When evaluating tax policy, equity has been the major thrust. Mikesell (2002) stated that there were two general standards of equity. The first was benefits received. Taxpayers have examined tax equity based upon the direct benefits from, or usage of, the public service funded via the tax. The second standard of equity was the ability to pay. Here, the author stated the taxpayer evaluates equity based upon his or her ability to bear the burden of the tax. For example, when examining a tax on gasoline, the benefits received approach to evaluating equity could be used. The purchaser of the gasoline would determine the level of taxation by the amount gasoline he or she consumed and then relate the taxation amount to road improvements, a public service funded by the gasoline tax. The tax would be evaluated based upon the perception of the benefits received. Using the ability to pay approach, the purchaser evaluated the tax based upon the perceived amount of tax burden he or she felt that he or she could pay.

The benefits based approach has been criticized however. Mikesell (2002) stated that today's governments have attempted to redistribute wealth when providing social services. Services have been provided which transfer (net)

income from one group to another. Here the benefits received approach has failed as the objective of taxation is subsidization rather than exchange. Although impractical in some situations, the ability to pay method has had wider appeal. As Mikesell described, the market-exchange philosophy can be found in this approach as, regardless of service, those capable of bearing the costs of government should bear the greatest amount of those costs.

Mikesell (2002) described two additional forms of equity that have been used to further evaluate methods of taxation. Horizontal and vertical equity have been commonly used standards to measure the fairness of a tax across and within social segments. Horizontal equity, or the equal treatment of taxpayers with the same capability to pay taxes, has been supported in the Supreme Court in regard to property taxes. Further, the court's ruling has been extended to similar forms of taxation. When applying the concept of vertical equity, the relationship between the taxes paid by individuals with different abilities to pay is examined. Importantly, vertical equity measures the association between effective rates of taxation and income.

Taxation equity has been an issue in sport stadia financing on two accounts. The first was the vertical equity of the tax and the second was the equity of tax revenue allocation. According to Crompton, Howard and Var (2003), when examining public resources, one must examine who gets the resources, and even who should get the resources. In the public funding of stadia, taxpayer's dollars

have been used to pay for the construction of stadia that primarily house sports franchises owned by millionaires. Therefore, the public has transferred income from the community to a small group of wealthy owners. Further, if not to enhance the inequity of the relationship, sports franchises charged consumers to watch games despite receiving a substantial public subsidy.

The issue of inequity in the funding of public stadia has been hotly debated. While municipalities have attempted to justify funding stadiums using the economic development argument, many have questioned the true value of professional sports as a public good. Regardless of the argument, without these subsidies, the prevalent but inequitable practice of transferring resources from the ordinary taxpayer to the wealthy owner would end. However, the inequity of resource allocation would continue as long as the public funds any form of capital project, whether sport related or not. While some cases may be more blatant than others, sports stadia typically have garnered greater exposure and thus public funding for such projects has been easier to scrutinize.

As discussed earlier, the original sales tax in Hamilton County, Ohio increased by one percentage point in the county; however, the final proposed tax was reduced when a property tax break was included in the ballot initiative. As reported by Brown and Paul (1999), the final proposal ended with 70% of the tax revenue being used to fund new stadia for the Reds (baseball) and Bengals (football) and 30% being used to offset the reduction in local property taxes. This

tax proved, however, to be vertically inequitable given the large proportion of renters within the county.

Though passed by the community, the Hamilton County tax proposal failed the vertical equity test by providing greater net tax relief to higher income earners primarily based on their home ownership. According to Brown and Paul (1999), homeowners earning over $45,000 received a net tax reduction. Those earning less than $27,000 had a net tax increase. Finally, homeowners earning between $27,000 and $45,000 broke even when the effects of the two tax changes were combined. As the authors noted, there was a clear disparity between the level of tax paid by lower income earners and the proportion paid by higher income earners, and this disparity was vertically inequitable. Michaud, a Cincinnati news writer, was quoted by Brown and Paul and stated that the plan was "a transfer of wealth from the poor to higher income groups … we are in fact taking money from the little guy … and transferring it to the millionaires" (p. 227).

Expenditure of Public Funds and Profit Maximization

While the factors that ultimately affect public funding decisions are debated and tax equity is measured, the owners of sport organizations may view the operation of their clubs as similar to the operation of other businesses and seek financial gains, such as shareholder wealth maximization (Foster, Greyser, & Walsh, 2006). In the case of a private business like a sport franchise, the

shareholders are company ownership. Essentially, the concept of profit maximization has referred to increasing the profit transferred to ownership. These goals have been widely accepted by the business community and have been the aim of most for-profit organizations. The sports industry has been no different, in that team owners have attempted to maximize a combination of their personal wealth and some aspect of winning (Brown & Paul, 1999). Naturally, implications have arisen from this.

When outside forces, such as tax increases or increases in stadium construction cost, pressure a business, ownership has attempted to maximize its wealth by shedding the burden of these new expenses onto other elements of the company. This process has been characterized in business by a concept called shifting. Mikesell (2002) stated that there were three ways a business may respond. First, in forward shifting, a business will respond by increasing its prices to reflect the new expense. Or, a business might backward shift. Here a business will reduce the price paid to the owners of the resources it purchases. It may also reduce the wages paid to employees and the prices paid for raw materials. Finally, a business might absorb the cost thereby returning a lower profit to its shareholders. As most businesses utilize the profit-maximizing model, the effect of increased taxes or increased capital expenditures has been to shift the increased financial burden to the consumer or employee. Tax decreases or a decrease in

capital expenditure, however, have been absorbed by shareholders in the form of increased profits or dividends[1].

Based upon economic theory, however, there should be no connection between increased or decreased capital expenditures and costs to consumers. Therefore, there should be no relationship between fixed cost, the cost of constructing a new stadium, and marginal cost, the cost of selling one more seat to the game (Leeds & von Allmen, 2004). Stadium subsidies reduce an organization's fixed costs. But, stadium subsidies do not impact the marginal costs of increasing attendance or revenues. As marginal costs are not affected, there is no incentive for a profit maximizing organization to either lower price if stadium subsidies are increased or raise price if stadium subsidies are decreased.

Current public stadium financing trends have seen sport owners accept a greater burden of the construction and operational costs. Regardless of whether or not the stadium capital investment was funded totally or partially by an incremental tax covering millions of people, in the end the profit maximizing company will act in one of two ways. First, according to Mikesell (2002), it may shift as much of its own cost upon its customers, employees, and suppliers. Crompton, Howard and Var (2003) added that teams without public funding have to compensate by utilizing more of their revenue to repay annual facility debt

[1] The profit-maximizing incentive to pass on costs in the form of higher prices depends on whether the costs are fixed or variable. The ability to pass on costs also depends on the elasticities of both supply and demand.

load. Second, there may be no impact on pricing as economic theory dictates that changes in fixed costs should not affect pricing (Leeds & van Allmen, 2004). The purpose of this study was to explore this process in the National Football League (NFL) by examining the effect on consumer prices. A hypothesis was formulated that stated the impact of the public share of the construction cost would have no effect on relative ticket prices for those that consume the product.

Data

A cross-sectional and time series ticket price model was used in this study to test the hypothesis. The data used in the model consisted of seasonal data from every NFL team that played from 1991 through 2003. Included in these data was information regarding each NFL stadium, and variables that may describe fluctuations in ticket pricing (see Table 1). In total there were 19 potential explanatory variables that were determined by the review of literature. Team Marketing Report published pricing information on a yearly basis, and for the purpose of this research, was the most reliable source for pricing data (www.teammarketing.com/fci.cfm, 2004).

Insert Table 1

about here

In order to develop an applicable model for NFL ticket pricing, it was important to include the population and per capita income of the market for each team. To achieve this, Metropolitan Statistical Area (MSA) data were used. This data was taken from US Census estimates. NFL teams likely draw fans from the city in which they play and from the surrounding communities. Therefore, MSA data had the potential to provide the most applicable forecast of population (MSA Population) as well as income variables (MSA Per Capita Income). According to Rascher (1999), studies found income to be a significant factor in determining attendance at sporting events. The expected effect of increases in MSA population and per capita income was an increase in the cost of an NFL ticket. Further, the model utilized a dummy variable to denote those NFL teams that share MSAs. The model also utilized two dummy variables, Expansion Year and Relocation Year, to control for trends related to franchise movement. The model took the following form:

NFL Average Ticket Prices = *f*(season, capacity, public share, stadium age, MSA income, average of lagged wins and current winning percent)

Team Marketing Report's Fan Cost Index™ (FCI), a vector of prices that fans pay to attend sporting events, included two adult average price tickets, two child average price tickets, four small soft drinks, two small beers, four hot dogs,

two programs, parking, and two adult sized caps. The first law of demand predicted that higher prices will lead to lower levels of demand, *ceteris paribus*. The average Fan Cost Index for attending one game was $229.60 for the sample, with a low of $124.68 and a high of $438.59.

Winning percentage (Season Winning %) was expected to be an important proxy for the quality of the home team. The winning percentage in the year each season began, seasons 1991 to 2003, was used. There were a number of studies that found winning to be an important determinant of attendance demand (Burdekin & Idson, 1991; McDonald & Rascher, 2000). Further, Martell and Tehranian (1988) found that winning percentage impacted the cost of a scalped ticket. As expected, the average winning percentage was near 0.500[2] (at 0.501), with the minimum at 0.063 and the maximum at 0.938.

Lagged winning percentage (Lagged Winning %) was also expected to affect demand because the previous season's performance affected season ticket sales and the appeal of early season games. For instance, Rascher (1999) showed that in baseball an extra win by the home team in the previous season increased per game attendance by about 450 fans for the first half of the season, but declined in magnitude, to 150 fans per game, and in significance, for the second half of the season.

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[2] For the last four seasons of the data set, there were an odd number of teams in the NFL. Winning percentage will not exactly equal .500 due to ties that are a possible outcome of a game in a league with an odd number of teams.

There were factors unrelated to the game itself that could also act as forecasting tools such as those associated with stadia. There was a presumed difference in ticket prices associated with the level of public funding provided for the construction of a stadium. Thus, the level of public funding (Public Funding %) and the level of private funding (Private Funding %) for each stadium was incorporated into the study. The average level of public funding support was 84.94 percent with a minimum value of zero percent and a maximum value of 100 percent.

There was also a presumed effect of stadium age upon the desirability of attending an event (McEvoy, Nagel, DeSchriver, & Brown, 2005). As a result stadium age (Stadium Age) was included in the model. Finally, instead of utilizing attendance as a factor, percent capacity (Percent Capacity Sold) was deemed a more appropriate measure as it allowed for meaningful comparison between teams. Capacity (Stadium Capacity) was used as well as overall supply was fixed and unchangeable.

Analysis and Results

A ticket-pricing model was developed to test the hypothesis that the impact of the public share of the construction cost would have no effect on relative ticket prices for those that consume the product. Typically, simultaneity problems exist when trying to estimate models of prices because price is simultaneously determined by supply and demand. However, in this case supply

was fixed and unchangeable. An owner cannot change the capacity of the stadium or the number of games played. In fact, the many articles that estimate attendance relied on this notion when introducing ticket price into the econometric models. These issues are discussed in Fort (2004a). Only if teams provide prices by number of seats available at each price point and tickets sold at each price point will there be a better method of estimation.

In addition to ticket price, the full cost of attendance should be analyzed. However, there is no data on the full cost of attendance other than what is estimated by a team's FCI. There is no reason to believe that travel costs (and other costs) vary across teams in any systematic manner or vary according to the source of stadium financing. Thus, these effects will be captured in the intercept term.

As described in the previous section, there were a number of variables shown in previous studies to have an effect on ticket price. In this study, the time trend was shown to have a great impact on average ticket price. Based on the results shown in Table 2, average ticket prices increased $2.07, or about 5%, each additional season when starting at the average ticket price. As predicted, the quality of the team during the previous season affected expected demand, and lagged winning percentage was very significant. However, season winning percentage was not significant. Different specifications of season winning percentage and lagged winning percentage were tested, with season winning

percentage never being significant. By averaging season winning percentage with lagged winning percentage, the F-statistic of the overall model improved (as compared to the model with just lagged winning percentage), even though the t-statistic on the average of season and lagged winning percentage was less than on lagged winning percentage alone. A 10 percentage point increase in the average of lagged and season winning percentage was associated with a rise in average ticket prices of 1%, or $0.63 on average.

Insert Table 2

about here

Older stadiums had lower ticket prices. While statistically significant, the economic importance is minimal. For each year older, average ticket prices were about $0.05 lower. Additionally, wealthier MSAs had higher ticket prices. For every $10,000 increase in MSA per capita income[3], average ticket prices were approximately $3.64 higher, *ceteris paribus*.

In determining if the impact of the public share of the construction cost would not affect relative ticket prices for consumers of the NFL product, the results proved that the hypothesis was incorrect. An increase in public funding by

[3] In a comparison of F-statistics, it is better to have MSA income instead of MSA population. Using wealth (MSA population*MSA income) has a lower F-statistic and R^2 in general. Therefore, it is not a solution to collinearity.

10% lowered the average ticket price by approximately $0.42 cents. As shown, the majority of the variation in average ticket price was due to a general increase over time and MSA per capita income. Further, the negative relationship between ticket price and the percentage of the stadium that was publicly financed was masking the negative relationship between public financing and season. Over the past decade-and-a-half, ticket prices rose and the percentage of public financing declined, but most of the ticket price increase was accounted for by simple increases in demand and inflation, as well as MSA per capita income.

Finally, the analysis corrected for heteroscedasticity using White's robust errors. The Ramsey RESET test showed no omitted variable bias, and the Shapiro-Wilk test showed that each variable was normally distributed at the less than 3% level. A variance inflation factor analysis caused the removal of a few collinear variables (Lagged Playoff Appearance, Lagged Super Bowl Win, Lagged Super Bowl Appearance).

Discussion and Conclusions

The findings did not support the hypothesis that higher percentages of public stadium funding would have no impact on ticket prices. However, the findings add to Fort's (2004b) study on subsidies as both have found that an inverse relationship exists between ticket price and subsidy, whether operating or construction.

It must be noted that the impact of public funding of stadia on the average ticket price of a team was small. Average ticket prices have been increasing seasonally, regardless of the composition of stadium funding. Given that the average NFL stadium was almost 90 percent full for every game, team owners have been able to increase the price of tickets without significant negative impacts on attendance. Therefore it can be assumed that ticket price increases reflect an increase in the fan's willingness to pay over time.

The data indicated that on average there is a reduction of $0.42 in ticket prices with a 10% increase in public finding, thereby running counter to the notion from Leeds and von Allmen (2004) that there is no incentive for a profit maximizing firm to lower prices if subsidies are increased. It is possible that there are still some important omitted variables, even though the diagnostic tests showed otherwise, that would drive down the impact of public funding to near zero. Further, the data indicated that Mikesell (2002) and Crompton, Howard and Var (2003) were correct in that teams with a lower percentage of public funding shift the burden of these extra fixed costs to the consumer in order to generate revenue for their increased fixed costs as compared to teams with higher percentages of public funding.

As the results of this study are counter to economic theory, it is possible that a team may charge lower prices as a *quid pro quo* for the public paying for its stadium. There even might be an implicit agreement between team and city to do

so when public funding is arranged. Fort (2004b) found this to be true in regard to operating subsidies. However, without such an agreement in place, it would be assumed that teams would inherently price optimally regardless of fixed costs like stadiums.

Another reason why the results of this study are counter to economic theory may be that a team is shifting price increases to concessions, parking, and merchandise instead of tickets because the public paid so much for the stadium. This move would lessen public relations problems when it is reported that ticket prices increased as the team moved into a new publicly funded stadium. Again though, it would be assumed that teams would inherently price optimally regardless of fixed costs like stadiums.

This research has implications for municipalities considering stadium projects. New stadium projects are in vogue, especially for cities hoping to reinvigorate downtown regions. In 2005, it is estimated that $1.93 billion will be spent to construct new sport venues in the United States, with 55% of the costs being paid for with public funding (Broughton, 2004). However, as previous research has suggested, the economic impacts of new stadia construction are mixed, with some cities seeing promising results and others still hoping for positive returns. For municipalities considering funding stadium projects partially or fully, this research does support the profit maximizing theory as it applies to sports team owners. Local residents should not expect to have much lower ticket

prices if they vote to approve the use of public funds to build a stadium, especially if they only vote to approve the partial funding of a stadium. Average ticket prices increased $2.07, or about 5%, each additional season when starting at the average ticket price. Again, it can be assumed that ticket price increases reflect an increase in the fan's willingness to pay over time.

As the negative impact on ticket price by increase in percent of public funding is small, the citizens of a municipality must decide the value of having a sports team in town, and if this value outweighs the cost. When presented to taxpayers as a referendum, these tax payers must measure the benefits received, their ability to pay, horizontal equity, and vertical equity before agreeing to transfer wealth from the masses to franchise shareholders.

It has been seen that the amount of public funding used has been an issue between franchise owners and municipalities over the last 20 years. When citizens decide that there is little or no equity when presented with a new tax initiative, franchise owners likely will seek different opportunities to maximize profit. In the mid-1990s, Cleveland refused to publicly fund a new stadium for the Browns (football). As a result, Art Modell, the Browns' owner moved the team to Baltimore, where the city pledged to furnish Modell's team (now the Ravens) with a new publicly funded stadium. The same occurred in Charlotte, where the community refused to fund a new arena for the Hornets National Basketball Association franchise. The Hornets moved to New Orleans, where the

promise of a new arena was used to lure the team. In both of these cases, ownership sought to improve their ability to generate revenue. Without the burden of paying debt obligations on new facilities, both teams are able to earn greater profits.

Furthermore, when a municipality decides to publicly fund a stadium project in the NFL, it will eliminate a large portion of the fixed costs of a sport franchise. Franchises may then use the reduction in their fixed expenses to retain current players or sign free agents with up-front signing bonuses (Brown, Nagel, McEvoy & Rascher, 2004). The NFL's Collective Bargaining Agreement[4] enables teams to circumvent (in the short term) the present year's salary cap by allocating the bonus to future years (National Football League, 1998).

Ultimately though, sports franchises are the least affected by stadia funding decisions. The cost of building or renovating new stadia will be shifted to the consumers, suppliers, and employees, but not ownership groups.

[4] During the last six years of the timeframe for this study, the 1998 CBA was in effect.

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Table 1

Simple Descriptive Statistics of the NFL Ticket Pricing Model

Variable	N	Minimum	Mean	Maximum	Std. Dev.
Team Code	389	1	16.90745501	32	9.3814728
NFL Season	389	1991	1997.172237	2003	3.7400935
Stadium Capacity	389	41203	69672.66067	92000	8420.31896
Public Funding %	389	0	84.938560	100	28.3939990
Private Funding %	387	0	15.141860	100	28.4481039
Average Ticket Price	389	18.17	39.51	81.89	11.3377113
Fan Cost Index	389	124.68	229.66	438.54	58.6056087
FCI Adjusted for Inflation	389	168.44	260.00	468.59	48.7725123
Stadium Age	389	1	25.213368	82	17.9412910
Percent Capacity Sold	389	0.45	0.8925707	1.03	0.1137622
MSA Population	389	198527	4912434.8	2.15E+07	4930004.91
MSA Per Capita Income	389	21216	31438.298	59693	6285.76974
Season Winning %	389	0.063	0.5010540	0.938	0.1833635
Lagged Winning %	385	0.063	0.5012519	0.938	0.1846927
Expansion Year	389	0.0	0.0102828	1.0	0.1010112
Relocation Year	389	0.0	0.0154242	1.0	0.1233912
Shared MSA	389	0.0	0.1979434	1.0	0.3989624
Lagged Playoff Appearance	389	0.0	0.4010283	1.0	0.4907379
Lagged Superbowl Win	389	0.0	0.0308483	1.0	0.1731293
Lagged Superbowl Appearance	389	0.0	0.0616967	1.0	0.2409136

Table 2

Regression Results

Dependent Variable	Average Ticket Prices		
Number of Observations	385		
F-statistic	191.7		
Prob > F	0.0000		
R-squared	0.691		
Independent Variable	**Coefficient**	**t-statistic**	**P > |t|**
Constant Term	-4104.9	-23.13	0.000
Season	2.069	23.20	0.000
Capacity	0.000044	1.10	0.270
Public Share	-0.0415	-2.81	0.005
Stadium Age	-0.0455	-2.63	0.009
MSA Income	0.000364	7.55	0.000
Average of Lagged and Current WPCT	6.31	3.08	0.002