

The Economics of Stadium Subsidies: A Policy Retrospective

John Charles Bradbury¹, Dennis Coates², and Brad R. Humphreys³

¹Kennesaw State University, (jcbradbury@kennesaw.edu)

²University of Maryland-Baltimore County, (coates@umbc.edu)

³West Virginia University, (Brad.Humphreys@mail.wvu.edu)

January 30, 2023

Abstract

This article is intended to inform public policy regarding stadium subsidies, which state and local governments routinely provide to support professional sports teams. We review theoretical and empirical evidence regarding economic justifications for public funding, focusing on recent research and contemporary development strategies, which continue to demonstrate that stadiums are poor public investments. Our analysis includes a history of US major-league professional sports stadiums, documenting trends in building and funding, which portend a forthcoming wave of new costly stadium construction. Despite robust contrary evidence that stadiums are not economic development catalysts, public outlays persist and exhibit a positive growth trajectory. We examine reasons for the disconnect between research and policy, which includes political and institutional factors not previously given due consideration by economists. We suggest ways that researchers may influence media coverage and policymaking regarding stadium subsidies to promote sound policy.

We thank Victor Matheson, session participants at the 2022 Annual Meeting of the Western Economic Association International, and University of Reading ROSES seminar participants for helpful comments.

Data Availability: Data on stadium construction and funding are available in a public database: <https://www.openicpsr.org/openicpsr/project/184364/version/V1/view>.

1 Introduction

Studies consistently demonstrate that sports stadiums have little to no tangible economic impacts on host communities, and thus typical public subsidies tend to exceed any meager economic benefits they may provide (Bradbury, Coates and Humphreys 2023). Despite the universal agreement among economists that sports venues are poor public investments (IGM Economic Experts Panel 2017), elected representatives continue to subsidize their construction. Since 1970, governments have committed \$35 billion to fund new sports venues for professional franchises of the four major United States-based sports leagues—this does not include subsidies for minor-league venues, which are often justified for similar reasons. The historical 30-year replacement cycle of stadiums and the median age of existing facilities (24 years) indicate that a new wave of venue construction appears imminent, as venues opened during the last construction wave of the 1990s–2000s are deemed obsolete. If all venues are replaced after 30 years at current levels of public funding, it will result in an additional \$20 billion in taxpayer contributions by 2030, when the anticipated stadium construction wave reaches its peak.

The expected growth in stadium construction accentuates the immediate policy relevance of stadium subsidies. Our goal with this retrospective analysis is to provide researchers and policy-makers with an updated understanding of the economics of stadium subsidies to inform upcoming policy discussions. Though scholars have thoroughly examined the economic impacts of stadiums over the last 40 years (Coates 2007; Coates and Humphreys 2008), a majority of research on the subject has been published in the past decade, which continues to support earlier findings of limited economic effects (Bradbury et al. 2023). Thus, our review emphasizes more recent research that has benefited from the credibility revolution, employing advanced empirical methods that permit localized geographic analyses and drawing causal inferences. We also summarize the less-well-known social benefits literature, which estimates intangible benefits from civic pride and other quality-of-life amenities from hosting teams to be insufficient to justify observed subsidy levels.

The failure of past stadium projects to spur economic growth has spawned new development strategies, such as ancillary stadium-anchored development and alternate funding mechanisms, which have been touted as panaceas that overcome the economic impotence of stadiums. We show that recent approaches to stadium development have not improved their economic fortunes and

non-general-fund tax instruments intended to shift funding burdens off local taxpayers serve only to create fiscal illusion, obfuscating the costs borne by local residents.

Section 2 reviews historical trends in venue construction, describing the progression of construction, replacement, and funding since the early-20th century. Section 3 presents common economic arguments for subsidizing sports venues and demonstrates their flaws. Section 4 summarizes empirical research findings that demonstrate the impacts of hosting professional sports teams are too small to justify large subsidies. Section 5 evaluates new development and funding strategies that subsidy advocates have argued may permit public stadium investments to generate positive returns. Section 6 examines reasons for the disconnect between research and policy regarding stadium subsidies. Section 7 concludes the paper with a summary of findings, suggestions for future research, and recommendations for connecting research to policy.

2 Trends in modern stadium construction

2.1 Waves of construction (1909–2019)

As baseball stabilized as a profitable business in the early-20th century, team owners began replacing leased wooden ballparks with their own durable concrete and steel structures. The modern age of stadiums is generally defined by the opening of Shibe Park (Philadelphia Athletics) and Forbes Field (Pittsburgh Pirates) in 1909, both of which remained in operation until 1970. Since that time, professional sports venues have evolved as common fixtures in major metropolitan areas of the US and Canada.¹

Figure 1 records the number of annual openings of venues that served the four major US-based sports leagues: Major League Baseball (MLB), National Basketball Association (NBA), National Football League (NFL), and National Hockey League (NHL). The trend line maps the moving eleven-year average of all venues, centered around the year of observation, which shows intermittent openings through the middle of the century, with two distinct waves of construction peaking in 1970 and 2000. Table 1 reports real venue construction costs by decades and construction

¹Other steel and concrete structures were constructed around the same time, but Shibe Park and Forbes Field were considered showpieces that would define the modern standard for stadiums that followed. Benson (1989) provides thorough descriptions of baseball ballparks constructed through the 1980s, many of which hosted football teams, and Lowry (1986) and Gershman (1993) provide additional documentation.

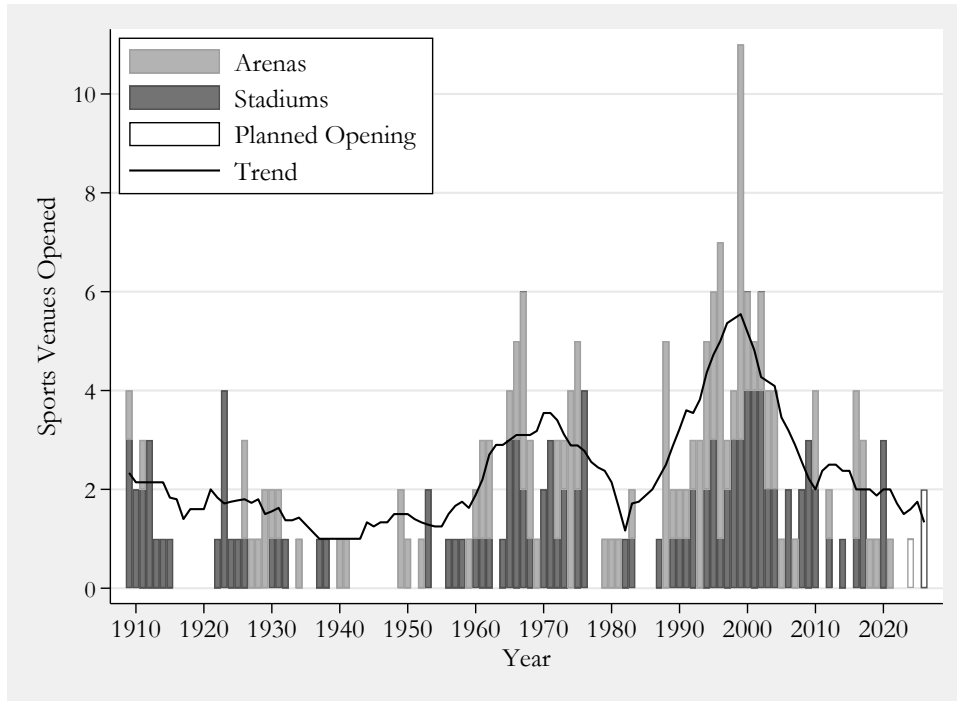


Figure 1: New Stadiums and Arenas, by year (1909-2026)

waves/eras, which we delineate by both timing and construction costs.²

The inaugural era of stadium construction was long and gradual, as teams opened their first durable modern stadiums. During this period, construction occurred in bursts before and after World War I, followed by intermittent openings after World War II through the 1950s. Most venues were ballparks that primarily served MLB teams, though multipurpose facilities that hosted professional football, basketball, and hockey teams as regular tenants also opened. Early venues were largely privately financed until the 1930s, when professional sports venues became almost exclusively public ventures through the 1950s (Figure 2).

The second construction era was dominated by team relocations (e.g., Candlestick Park and Dodger Stadium) and league expansions (e.g., Jack Murphy and Shea Stadiums) during the 1960s. Construction continued into the 1970s with the replacement of aging traditional venues with

²Though the terms “stadium” and “arena” are often used as general terms for all sports venues, in the data presentation we differentiate venue types by referring to large and mostly-outdoor venues that host baseball and football as “stadiums” and smaller enclosed venues that host basketball and hockey as “arenas.” See Appendix A for a discussion of venue designations and costs, which mostly come from Long (2013). Defining eras is a subjective endeavor, and venues on the edges of our designations could be classified appropriately as part of adjacent eras. For example, 1950s venues could be considered as the beginning of the second construction wave, but we classify them as part of the earlier era because their costs and basic designs are more similar to preceding facilities than the grandiose superstadiums that followed.

Table 1: Venue Construction Costs, by decade and era

Decade	Wave/Era	Arenas				Stadiums			
		Opened	Total (\$)	Public (\$)	Public (%)	Opened	Total (\$)	Public (\$)	Public (%)
		<i>Median</i>				<i>Median</i>			
1900s		1	NR	NR	NR	3	\$30	\$0	0%
1910s		1	NR	NR	NR	10	\$15	\$0	0%
1920s	First	6	\$45	\$0	0%	8	\$14	\$0	0%
1930s		3	\$56	\$39	50%	5	\$30	\$30	100%
1940s		4	\$44	\$28	50%	0	NA	NA	NA
1950s		3	\$62	\$62	100%	5	\$58	\$48	100%
1960s		15	\$106	\$43	92%	13	\$200	\$173	100%
1970s	Second	11	\$116	\$116	100%	14	\$287	\$287	100%
1980s		9	\$153	\$116	100%	4	\$231	\$147	54%
1990s		28	\$271	\$26	17%	18	\$342	\$281	82%
2000s	Third	11	\$252	\$212	81%	23	\$572	\$353	68%
2010s		9	\$578	\$343	48%	7	\$1,146	\$538	47%
2020s	Fourth	3	\$1,392	\$0	0%	5	\$1,970	\$750	42%
Construction Wave		<i>Cumulative total</i>			<i>Cumulative total</i>			<i>Median</i>	
First (1900s–1950s)		18	\$608	\$195	0%	31	\$806	\$503	0%
Second (1960s–1980s)		35	\$5,070	\$3,206	100%	31	\$9,688	\$7,148	100%
Third (1990s–2010s)		48	\$17,342	\$7,417	50%	48	\$29,365	\$16,247	72%
Total		104	\$25,804	\$10,818	71%	115	\$51,889	\$27,173	73%

Real 2020 dollars in millions. Not Recorded (NR). Not Applicable (NA).

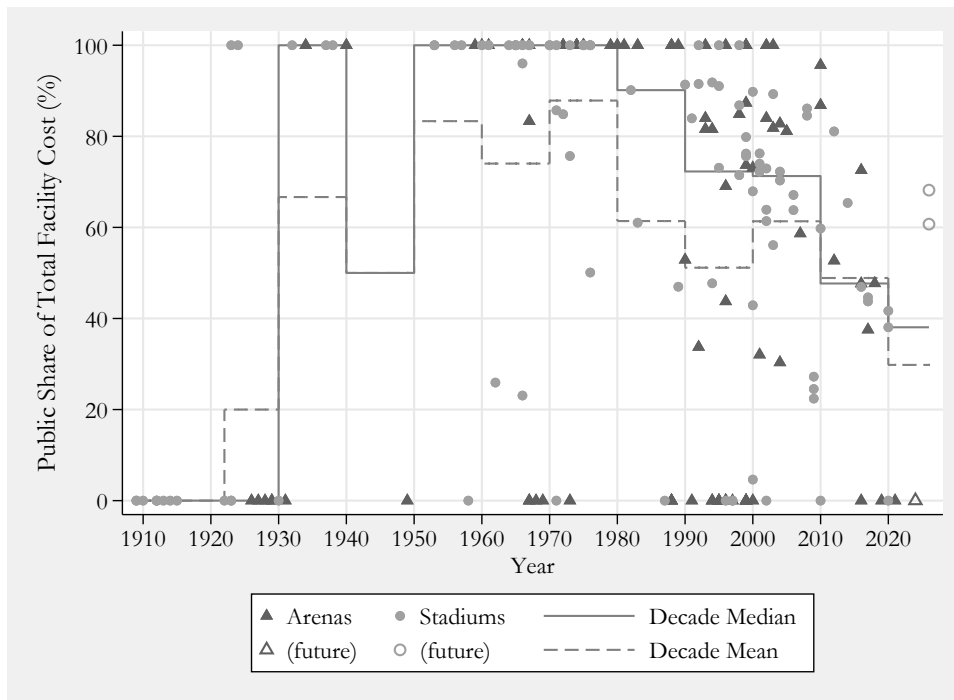


Figure 2: Public Share of Sports Venue Construction Costs (1909-2026)

new modern “superstadiums” (e.g., Riverfront and Veterans Stadiums), which were often shared by multiple teams to maximize their utilization. These large-scale multipurpose venues, some of which had domes (e.g., Astrodome and Kingdome) were more expensive than their predecessors, and their homogenous spartan architectural designs persisted through the 1980s. Though a shared facility was attractive as a municipal funding project, the circular shape required to accommodate baseball and football was not ideal for spectators of either sport. Football fields included dirt infields, baseball diamonds had vast expanses of foul territory, and spectators were seated far from the players. Artificial turf introduced for domes was installed in many outdoor venues, as well. Though the “cookie-cutter” stadiums of this era are often viewed with disdain from the present, they were considered architectural feats of their time, which “evoked such awe and envy that every city with an ego had to have one” (Boswell 1996). During this period, stadiums remained mostly publicly-funded venues, though private contributions became more common.

Following limited construction during the 1980s, the US began its third construction wave as it entered the 1990s, with openings peaking around 2000. It was during this uptick in venue construction that economists began to study the economic impact of stadiums (Baade and Dye 1988a,b, 1990). Though some new venues of this era served expansion teams and franchise relocations, most structures were replacements for existing facilities, many of which were opened during the second construction wave, even though their predecessors remained structurally sound. The total number of host venues increased as most shared stadiums were replaced with single-tenant facilities, which owners preferred because a dedicated venue provides complete control over operations and offers a spectator environment tailored to suit its sole tenant. For example, Atlanta Fulton-County Stadium was replaced by the Georgia Dome (1992) to host the Atlanta Falcons and Turner Field (1997) to host the Atlanta Braves.

Stadiums of this era were also more extravagant than their predecessors, with fan-centric features and traditional architecture, exemplified by Baltimore Oriole’s Camden Yards, which opened as the first retro-style ballpark in 1992. Rather than generate added revenue through expanded bleachers, these venues created new income streams from premium amenities and complementary entertainment options (e.g., luxury suites, private clubs, boutique concessions, and restaurants) that catered to a wealthy cohort of fans. Miami Dolphins owner Joe Robbie demonstrated that revenue from the advanced sales of ten-year leases to luxury “skyboxes” were sufficient to finance

the private construction of his new NFL/MLB stadium (Nordheimer 1987). Though some stadiums were financed entirely by public or private means, most funding burdens were shared, with governments typically covering a majority of the costs. Real costs of facilities ratcheted up with each successive construction era; however, the third construction wave is notable for its continued cost escalation over era, as newer stadiums grew more opulent.

Since the 1970s, the median public share of stadium construction costs has steadily declined from nearly 100% public funding to approximately 50% in the 2010s, with the few opened and forthcoming venues in the 2020s receiving close to 40% of funding from taxpayers. The declining public share of total funding does not represent a reduced taxpayer burden from stadiums; instead, it reflects growing costs for increasingly extravagant facilities. Figure 3 shows that the average public contribution devoted to stadiums has increased substantially over time, as structures have grown more expensive.

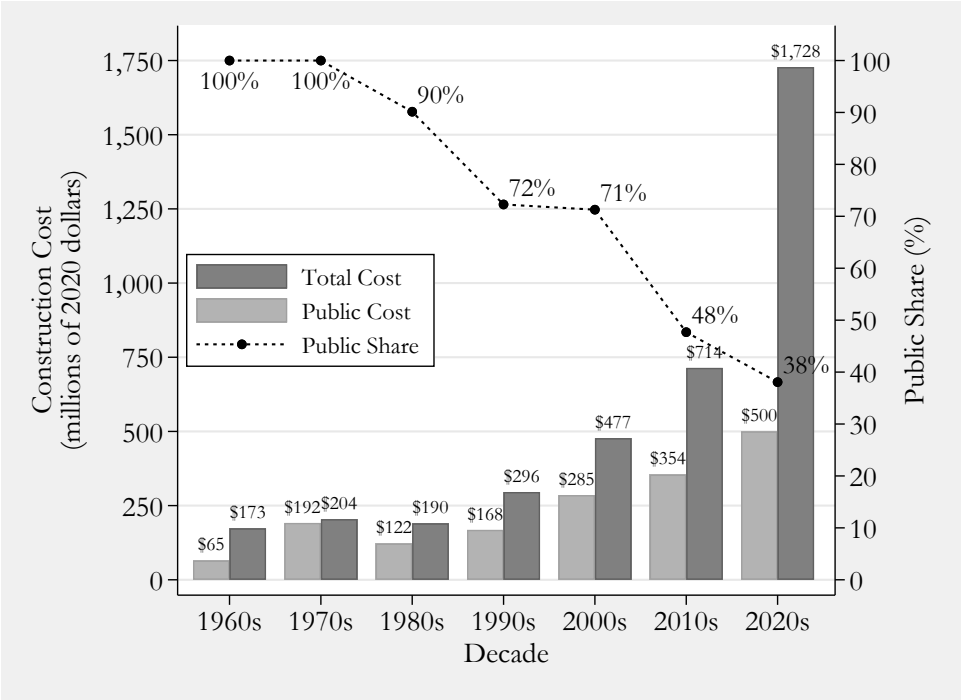


Figure 3: Median Venue Construction Costs, by Decade

It is important to note that the above costs reflect the officially reported capital construction costs. Associated development and operational subsidies, as well as implicit subsidies from property tax abatements and exemptions, are often substantial, even though they may not be recorded consistently or publicly reported as stadium costs. For example, though the New England Patriots’s

Gillette Stadium (2002) received no direct public funding toward stadium construction, it benefited from \$70 million in infrastructure and sewer improvements from the state (Cassidy 1999).

Long (2005, 2013) finds that official reports often exclude costs on associated expenditures—such as land, infrastructure, operations, municipal services, and forgone property taxes—which can increase public obligations between 25% to 40% above reported costs. Propheter (2023) estimates that the cumulative cost in forgone property taxes for all major-league sports facilities through the end of their current leases is \$18 billion, which translates to an annual public cost of \$5.7 million per venue. In addition, many stadiums are financed using municipal bonds, with interest that is exempt from federal taxation. Drukker, Gayer and Gold (2020) estimates that the forgone revenue in federal tax collections from 2000 to 2020 was \$4.3 billion.

Though governments often subsidize other relevant facility costs, the capital construction costs that we report here provide a consistent benchmark for observing how venue funding has changed over time. Average public contributions to stadiums have been increasing since the 1980s, which portends a trend of increasing subsidies as new facilities are opened.

2.2 The forthcoming wave of stadium construction

Figure 4 reports the distribution of venue lifespans by decade of opening. It shows that though stadiums built during the first-half of the 20th century typically lasted 40 years or longer, the average hosting tenure of stadiums has declined to approximately 30 years since the 1960s.³ A recent venue survey by Baumann, Matheson and Stephenson (2023) finds that major-league facilities host an average of 20 (NFL), 84 (MLB), and 90 (NBA/NHL) events per year, revealing that stadiums sit vacant for the vast majority of their lives—an observation that further explains why stadiums are poor instruments for stimulating nearby spillover commercial activity. Sports venues are large and expensive capital structures that are used less than most commercial buildings of similar size and cost; thus, their shrinking longevity is curious given improvements in construction materials and methods that ought to produce more durable structures.

³Complete lifespans of venues that continue to host major-league teams are not known. To account for truncation bias in more recent stadiums, the 1990s sample is limited to stadiums opened before 1997, which provides at least 30 years for stadiums to be replaced based on the expected three-year time frame of stadium construction from the present to permit opening in 2026 (e.g., Tennessee Titans and Buffalo Bills new stadiums announced in 2022 will open in 2026). However, the declining trend in stadium age is evident in the 1960s through the 1980s. Humphreys (2019) also documents the declining hosting lifespan of venues.

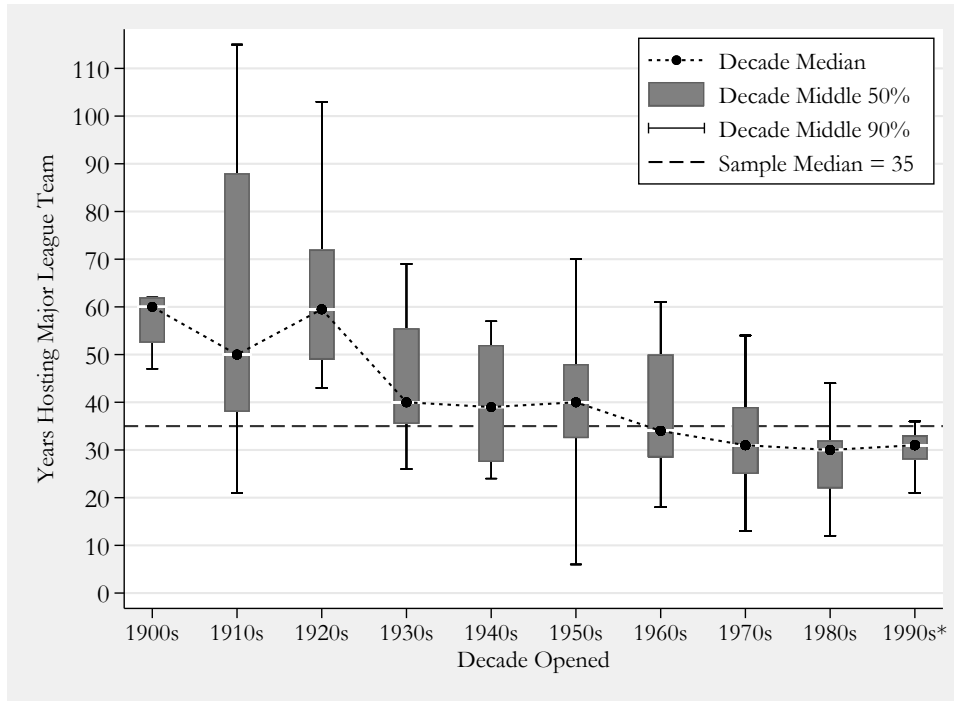


Figure 4: Venue Lifespan, by Decade

*Includes venues open prior to 1997 and venues scheduled to close by 2026.

Though many older stadiums continue to host major-league teams, including two stadiums from the first era of stadiums (Fenway Park and Wrigley Field), which remain functional through periodic refurbishments and renovations, it is common for franchise owners to replace stadiums before their functional lives are exhausted. For example, the Texas Rangers opened new stadiums in 1966, 1994, and 2020 (mean lifespan of 27.5 years) and the Atlanta Braves’s last three stadiums opened in 1965, 1997, and 2017 (mean lifespan of 26 years). Table 2 lists eight venues opened since 1990 that have been, or are scheduled to be, replaced—all of which were replaced before serving their host teams for 30 years. Five of the venues have received significant public funding/commitments for their replacements in their current host metropolitan areas, with the median public contribution being \$500 million.

The reduction in stadium lifespans is likely incentivized by the well-documented “novelty/honeymoon effect,” which is the boost in attendance that clubs experience following the opening of a new venue. Stadiums experience higher revenue during the first few years after opening, which diminishes rapidly over time to where gains have flattened out between 20 and 30 years (Figure 5). First identified by Noll (1974), and since documented in numerous empirical studies,

Table 2: Replaced Venues Opened Since 1990 and Replacements

Original Venue	Hosted Team	Years Hosting			Replacement Venue	Cost (in millions, 2020 dollars)		
		First	Last	Total		Total	Public	Public (%)
Georgia Dome	Atlanta Falcons	1992	2017	26	Mercedes-Benz Stadium	\$1,696	\$742	44%
Alamodome	San Antonio Spurs	1993	2002	10	AT&T Center	\$252	\$212	84%
Globe Life Park	Texas Rangers	1994	2019	26	Globe Life Field	\$1,200	\$500	42%
Edwards Jones Dome	St. Louis Rams	1995	2015	21	SoFi Stadium (Los Angeles)	\$5,500	\$0	0%
Turner Field	Atlanta Braves	1997	2016	20	Truist Park	\$712	\$318	45%
Nissan Stadium	Tennessee Titans	1999	2025	27	TBD [‡]	\$2,100	\$1,260	60%
Crypto.com Arena*	L.A. Clippers	1999	2023	25	Intuit Dome [‡]	\$1,800	\$0	0%
Gila River Arena	Arizona Coyotes	2003	2022	20	TBD [†]			

*Continues to host L.A. Lakers and Kings. †Playing in temporary facility until replacement determined.

‡Future venue costs are reported commitments in current dollars.

the novelty effect is consistent with consumer demand for new experiences and facility features that are tailored to recent consumer tastes (Baade and Sanderson 1997; Clapp and Hakes 2005; Coates and Humphreys 2005; Depken 2006; Bradbury 2019). This relationship is congruent with observed stadium lifespans.

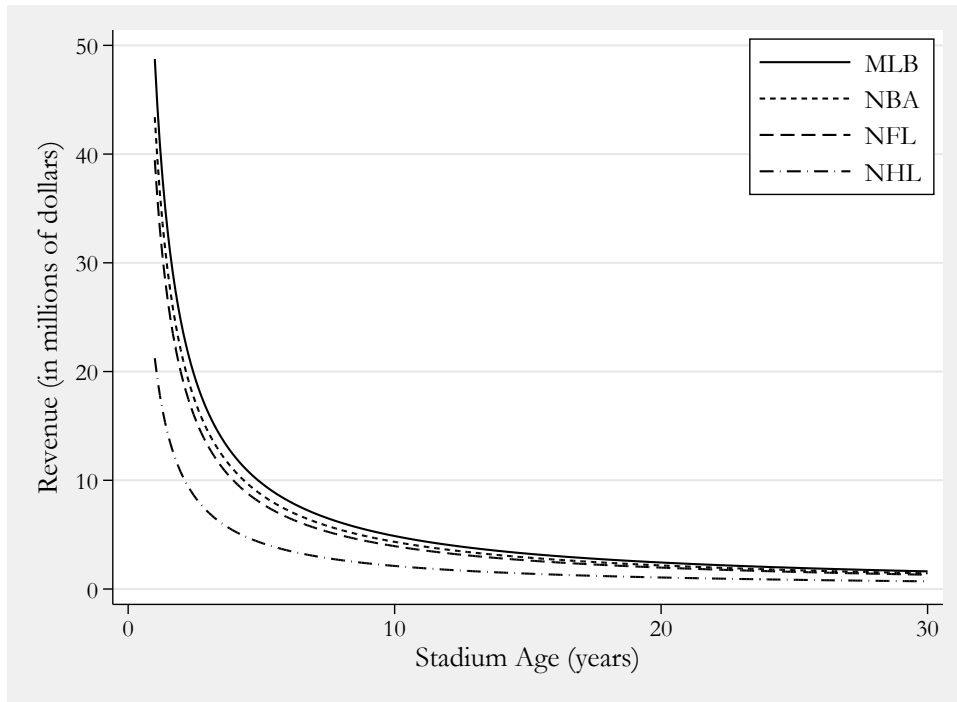


Figure 5: Estimated Relationship Between Stadium Age and Revenue, by league
Estimates from Bradbury (2019)

The premature replacement of functional stadiums may be further incentivized by the availability of public funding from state and local governments. Subsidies lower the effective price of stadiums, thereby increasing the quantity and quality of new stadiums. Subsidies likely promote what Quirk and Fort (1997) refer to as “gold plating” of stadiums with luxury amenities, which

results from team owners designing stadiums without having to bear to the full costs of construction (p. 144). Elasticity estimates by Propheter (2017) indicate that every \$1 million in public funds is associated with an average \$37,000 increase in marginal total construction costs (approximately 4% of public contributions during the sample period).

If the pattern of past construction waves that peaked in 1970 and 2000 continues, a 30-year-replacement cycle in stadium construction indicates that another wave of stadium replacement is anticipated to peak in 2030. Figure 6 maps the previous waves along with a projection of future venue construction based off the replacement of existing venues after 30 years.

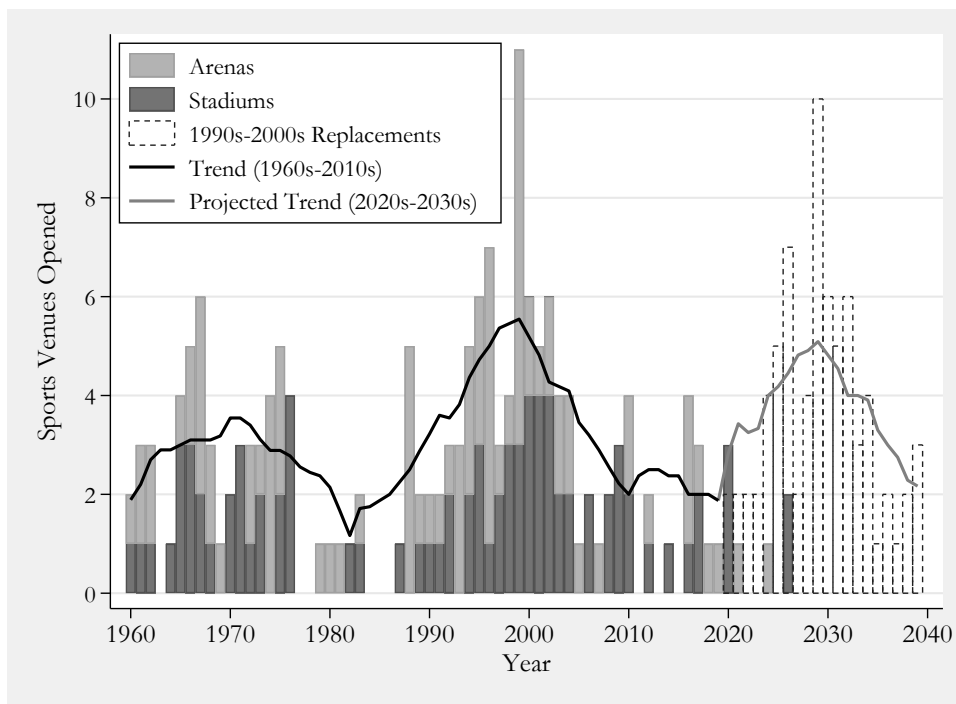


Figure 6: Observed and Projected New Stadiums and Arenas, by year (1960-2039) 2020–2039 forecast based on 30-year lifespan of venues opened during 1990s/2000s that have not been replaced.

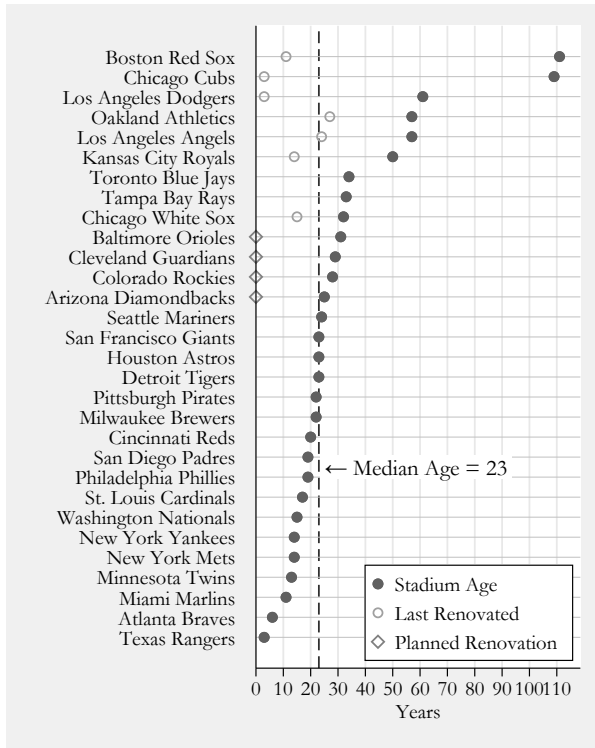
Renovations that can extend the life of a stadium represent an alternative to replacement, and several existing stadiums have undergone major renovations, which Propheter (2023) defines as improvements that extend the useful life of a venue by 15 years. Figure 7 plots the ages of current major-league facilities as of 2023, including years since their last major renovation, planned renovations, and planned replacements.⁴ The median age of the existing 111 venues is 24 years. By 2030, 62 of these venues (31 arenas, 31 stadiums) will be at least 30 years old. Three teams will

⁴Renovation identification is explained Appendix A.

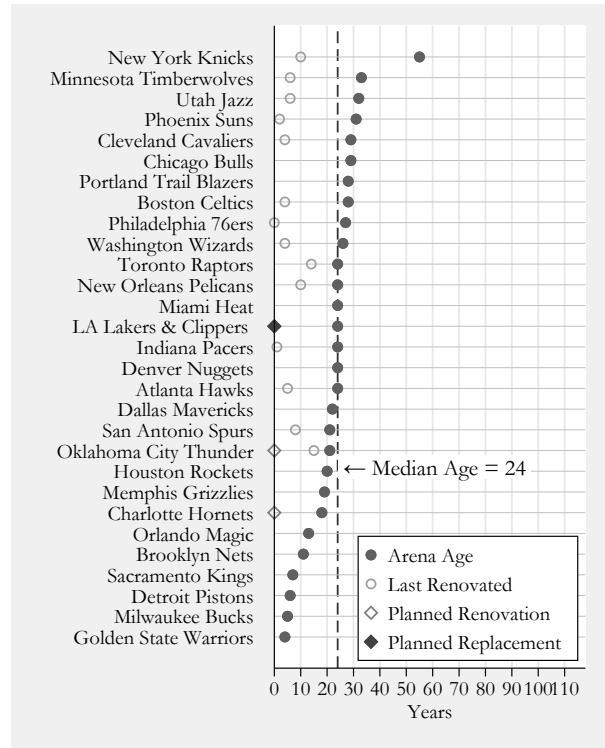
move into replacement venues—Los Angeles Clippers (2024), Buffalo Bills (2026), Tennessee Titans (2026)—and 27 venues will have been renovated within the past 15 years. In total, 32 venues (16 arenas and 16 stadiums) are on track to be at least 30 years old and operated at least 15 years without a major renovation by 2030. This represents a large cohort of stadiums that are likely to be replaced or receive significant refurbishments.

Unreplaced facilities are likely to undergo major renovations, which also may receive significant public funding. 37 current major-league venues have undergone major renovations ranging from \$51 million (Scotiabank Saddledome, 1995) to \$1.1 billion (Madison Square Gardens, 2013), with the median being \$151 million (in real 2020 dollars). Ten venues are currently undergoing or planning renovations ranging from \$105 to \$600 million. Like new construction, renovations receive varying levels of public support. Examples include \$285 million in public funds going to renovate of Cleveland’s Progressive Field (1994, Guardians) and \$1.2 billion made available for refurbishing Baltimore’s Camden Yards (1992, Orioles) and M&T Bank Stadium (1998, Ravens), which rival public funding commitments for new venues (Astolfi 2021; Stole and Dance 2022).

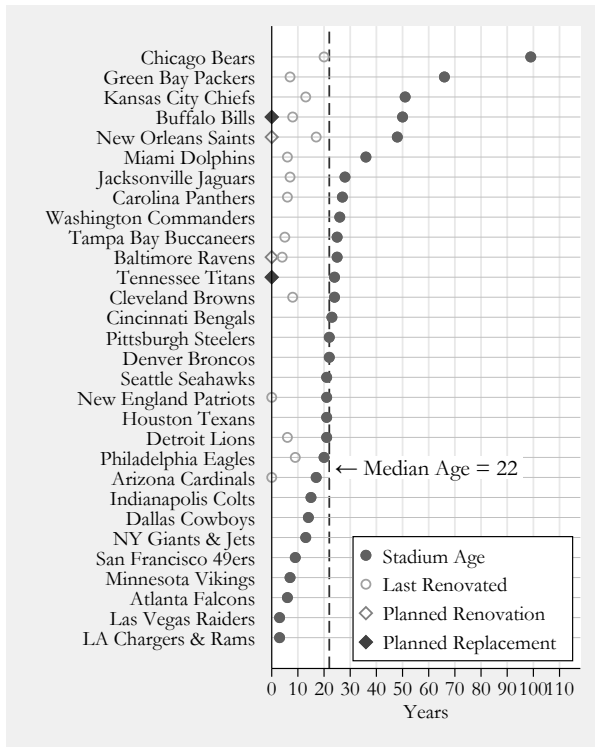
The trends of increasing construction costs and public contributions indicates that public subsidies will similarly grow to fund the next wave of venues. For example, the Buffalo Bills and Tennessee Titans are receiving \$850 million and \$1.26 billion, respectively, from state and local governments to fund replacement stadiums that will open in 2026, which are the highest public contributions to date (Ferré-Sadurní 2022; Stephenson 2022). If governments continue to subsidize stadiums as they have, the public cost of replacements and renovations of these venues will be substantial. Replacing the 40 remaining facilities opened in the 1990s at the current median level public funding allocated for venues opened in the 2020s (\$500 million) would result in \$20 billion in total public outlays by 2030. Therefore, the expected public return on investment is an important consideration as team owners request public contributions to subsidize their chief capital expense.



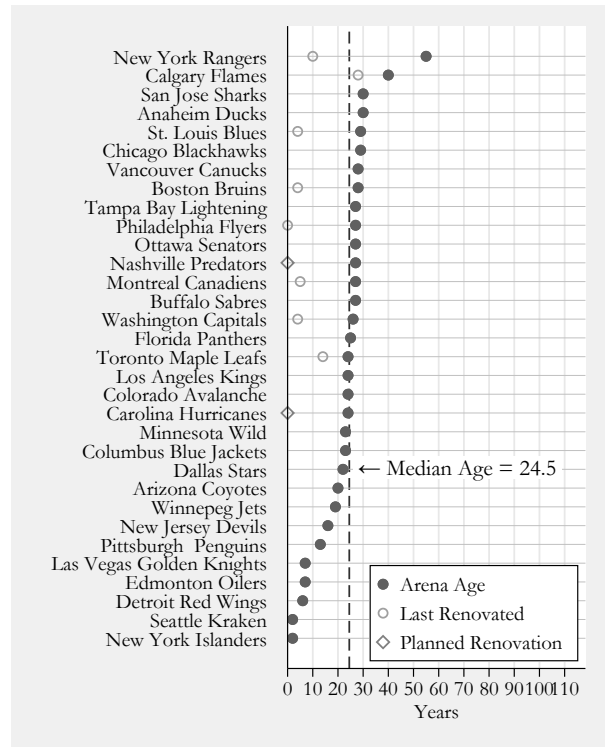
(a) MLB



(b) NBA



(c) NFL



(d) NHL

Figure 7: Ages of Current Major-League Venues in 2023

3 Is there an economic case for stadium subsidies?

The earliest publicly-funded sports venues were erected as public works, funded entirely by governments for the good of the community. Stadiums were built as multipurpose venues to host community events, which came to be used by professional sports teams, such as the Los Angeles Memorial Coliseum (1923) and Chicago’s Soldier Field (1924). Stadiums were justified as civic assets, like roads, parks, and other community amenities, and the venues were often christened as war memorials; hence, the prevalence of “Memorial” and “Veterans” among older stadium names.

Beginning in the 1950s, municipalities began to construct venues for the purpose of serving professional sports teams, with the hope of boosting a host city’s image and economy. This is exemplified in the history of baseball’s oldest existing professional franchise Boston Braves. Milwaukee’s County Stadium attracted the team to relocate from Boston in 1953, which the local association of commerce claimed to have generated \$5 million in new business to city, and imparted “a new spirit of civic enthusiasm” and “brought success to civic enterprise far removed from baseball” (Gendzel 1995).

However, the team’s stay in Milwaukee would be brief, as similar economic motivations prompted Atlanta Mayor Ivan Allen, Jr. to build Atlanta-Fulton County Stadium in 1965 to poach the franchise from Milwaukee, as well as host the NFL expansion Falcons, the following year. In total, he estimated that the stadium brought the city \$18 million in “new money” annually, but that: “the real value of it all was less tangible. All of the growth indexes in the world couldn’t do what major-league sports did in awakening the people of Atlanta and the rest of America to the fact that we really were a major-league city now.” (Allen and Hemphill 1971, p. 153). In contrast, Baim (1994) concluded that the stadium was “not a wise venture” in his careful financial review of several stadiums constructed during the era, and included it among a cohort of stadiums “that were so ill advised that they not only fail to cover their fixed costs, but are running operating losses as well” (pp. 87, 165).

After threatening to relocate to the Atlanta suburbs in the early-1990s, when its 25-year lease was expiring, the team moved across the street to Turner Field, which was donated to the City of Atlanta after serving as the main venue for 1996 Summer Olympic Games.⁵ In 2017, the

⁵Turner Field is a rare example of a privately-subsidized stadium. The team contributed approximately 15% of the total construction costs, with most of its funding provided by corporate Olympic sponsors (Hiskey 1997).

team chose to not renew its favorable 20-year lease of Turner Field to move to the nearby suburb of Cobb County, which provided \$300 million to construct the team’s current home Truist Park, based on the claim that the stadium would bring a fiscal windfall that would be “the single greatest economic development project in the modern history of Cobb County” (Lee 2016).

The economic development rationale for funding stadiums become more prominent in the 1980s as a potential solution to the “urban scissors crisis” of declining municipal budgets from reduced federal grants and falling tax collections (Baade and Dye 1988b). Government officials viewed stadiums as magnets that could attract new commercial activity into cities to replace lost tax revenue.

The main economic argument for stadiums providing economic stimulus is that sports events generate agglomeration economies by attracting spectator spending near host venues, which creates a commercial district that induces complementary businesses to co-locate near the venue (Humphreys and Zhou 2015b). Localized spending ripples out to benefit the wider region through assumed multipliers—where each dollar spent generates more than one dollar of economic activity as it is recirculated within the community—thereby growing employment, income, property values, and tax revenues. The presence of a major-league professional franchise may further benefit a host economy indirectly by demonstrating that the locality is a “big league city,” which signals that the area is a desirable place to work and live and thus attract new businesses and residents to the area. Therefore, supporters often contend that stadiums are worthy recipients of taxpayer funding because they generate positive development externalities that are not fully captured by franchise owners, which make stadiums worthwhile public investments.

The common justification that stadium-related spending results in increased economic activity is not well founded, because most fan spending derives from existing area residents who reallocate their spending from other local leisure consumption options. Thus, spending at sports events crowds out other local spending and does not represent net new spending to the area. To view stadium-related spending as new spending commits the basic economic fallacy of “the seen and the unseen,” confusing observed concentrated spending at sports events as new spending, without accounting of the opportunity cost of reduced spending flowing to other local merchants, which is difficult to observe because of the broad dispersment of lost revenue across many businesses (Bastiat 1850). In addition, there is no reason to expect multipliers on sports spending to be higher

than spending in alternate economic sectors, and empirical estimates indicate they may be lower. As Coates and Humphreys (2003) describes, “The ripples of jobs and earnings creation from the sports environment are like those of a tiny pebble tossed into the ocean on the tides, inconsequential in any practical sense” (p. 191).

Even if there is no ex-ante expectation for tangible fiscal returns through development spillovers, subsidies may be justified through public good and quality-of-life externalities from hosting sports teams. Citizens may feel local pride from hosting a major-league professional team more than the explicit consumption value expressed through attending games, purchasing merchandise, or consuming local broadcasts. The presence of a local team may also foster a central business or entertainment district, which area residents may view as an asset even if it does not increase local wealth. If teams provide sufficiently large intangible social benefits, then they may justify corrective subsidies to construct hosting venues.

However, it is also the case that stadium events generate negative externalities from disamenities associated with sports consumption. Games create traffic and congestion that inconvenience local residents, and sporting events are also associated with greater criminal activity. Certain types of non-complementary businesses may be displaced due to game-related traffic that disrupts neighborhood occupants. Environmental and noise pollution are other potential negative externalities from hosting stadium events. These disamenities typically receive much less attention in stadium policy discussions than the assumed positive externalities from economic and social benefits.

4 Empirical evidence

Whatever ambiguity there may have once been regarding the economic case for subsidizing stadiums has been clarified through extensive study, which universally confirms the theoretical expectation of limited economic and social effects. The empirical evidence is unambiguous: stadiums do not confer large positive economic or social benefits on host communities (Bradbury et al. 2023). In this section, we summarize the consensus findings of empirical research.

4.1 Economic effects on metropolitan areas

The earliest studies of economic impacts of stadiums and professional sports teams focused on regional effects over large metropolitan areas. These studies were motivated by the noticeable increase in stadium construction in the early-1990s, which were often justified by dubious commissioned economic impact studies (see Section 6.4). As a more credible strategy, economists used samples of metropolitan statistical areas (MSA), with and without teams and venues, to compare various metrics of economic well being, such as employment, income, spending, etc. (Baade and Dye 1988a, 1990; Baade 1996a). This approach should identify any relationship between teams/stadiums and economic performance that derives from direct economic stimulus or indirectly attracting new businesses and residents through having a big-city image. For example, Coates and Humphreys (1999) uses a large sample of MSAs over 25 years to estimate the impact of the regions’ “sports environment,” which includes new stadiums and the arrival, departure, and presence of major-league professional sports teams on per capita income. The estimates indicate mostly no relationship on income growth and a small negative relationship with income level. Also, host cities did not experience negative economic shocks from league work stoppages (Coates and Humphreys 2001) or economic stimulus from playoff appearances (Coates and Humphreys 2002), which is not consistent with sports events generating new economic activity.

More recent analyses of MSAs continue to produce similar findings. Coates (2015) extends Coates and Humphreys (1999) with updated observations and finds no effects on wages or income. Agha and Rascher (2021) examines a larger sample of MSAs, along with smaller micropolitan statistical areas (MiSA), and does not identify effects of major- or minor-league teams and stadiums on area establishments or employment. Islam (2019) finds no employment effects in cities that received new NFL teams in the late-1990s, using synthetic control method comparisons to similar cities without teams. Arif, Hoffer, Humphreys and Style (2022) examines migration patterns between US cities, which suggest that stadium construction deters in-migration, a finding that may reflect the forgone opportunity costs of superior amenities and public goods.

Coates and Humphreys (2003) investigates why cities hosting teams do not experience positive effects by examining employment and earnings in occupational sectors, documenting higher wages among amusement and recreation workers but lower wages in other sectors. Coates and

Humphreys (2011) finds some benefits to earnings among sports-related industries hosting NFL teams. These findings are consistent with the hypothesis that sports consumption reallocates spending among local residents from other local consumption options (e.g., restaurants, bars, movies, etc.) to sports, as opposed to generating new spending. Overall, the strong theoretical expectation that sports do not have strong effects on their host economies because sports spending displaces existing spending is supported by empirical evidence.

4.2 Localized economic development effects

Even though stadiums may not benefit the broader region, it may be possible to justify subsidies on the grounds that they promote localized development benefits (Matheson 2019). By anchoring entertainment, business, or residential districts, sports venues may create an area that benefits the wider community as a nearby amenity. However, there is not strong evidence of large development effects near venues; and even when effects are observed, they are small and limited to specific industries in the immediate vicinity of the facility.

Harger, Humphreys and Ross (2016) examines economic activity before and after the construction of several new stadiums, finding no impact on the number of establishments or general employment. The authors observe a small impact on employment of nearby restaurants and bars that is limited to this sub-sector within one mile of the venues. Stitzel and Rogers (2019) examines sales of sports-related industries (restaurants, entertainment, hotel, and retail) following the relocation of the Oklahoma Thunder to Tulsa, finding increased sales within one mile of the arena; however, while some gains were apparent in restaurants, entertainment sales decreased.

Studies that examine the health of business activity outside venues find localized development effects to be limited. Propheter (2020) and Bradbury (2022b) find no effect of stadiums located in business improvement districts. Bradbury (2023) identifies a small increase in spending occurred following the opening of the Atlanta Braves's mixed-use stadium development; however, comparisons of sales tax revenue collections in the Atlanta area indicate that one-third of area sales derived from crowding out by county residents shifting their local consumption to the development. In total, the gains fell well short of covering the cost of the public outlays.

4.3 Intangible social benefits

Though most early estimates of stadium impacts focused exclusively on financial returns, economists have since developed several empirical strategies to quantify intangible social benefits from civic pride and associated quality-of-life amenities. Social benefits may justify using public funds to subsidize stadium construction even if economic benefits are small. We describe findings from studies employing three empirical approaches: survey-based estimates, amenity value capitalized into land prices, and preferences revealed through voting. While there is some evidence of positive non-pecuniary spillovers, estimated social benefits remain too low to justify typical subsidy levels.

4.3.1 Survey estimates

In an attempt to measure the existence value that local citizens receive from hosting sports teams aside from paid use value, Johnson and Whitehead (2000) employ the Contingent Valuation Method (CVM), which is widely used by environmental economists for valuing environmental amenities (e.g., wilderness areas and species preservation), whose existence people may value but do not purchase through markets. CVM uses surveys to ask area residents a series of objective questions about how much they would be willing to pay for the presence of sports teams/venues, whose value is not reflected in direct sales to consumers.

Table 3 presents CVM estimates of non-use benefits from hosting major-league professional sports teams from several published studies. The estimates are consistent across venues, with non-use values of approximately 13% of total capital construction costs and 16% of public contributions. CVM studies suggest that intangible social benefits of hosting professional sports teams are well below levels need to justify typical subsidies.

CVM is an imperfect method whose ability to elicit truthful responses from survey participants has been questioned (Hausman 2012); however, many researchers continue to defend CVM as an appropriate tool for its difficult task, while acknowledging its limits (Walker and Mondello 2007; Whitehead, Weddell and Groothuis 2016). In any event, CVM has been criticized for *overestimating* non-use values, and CVM estimates indicate that intangible social benefits are well below levels needed to justify typical stadium subsidies.

Table 3: CVM-Estimated Mean Non-Use Benefits

Location	League	Non-Use	Construction Costs		Non-Use Value		Study
		Value	Total	Public	Total	Public	
Pittsburgh	NHL	\$33	\$254	\$243	13%	14%	Johnson et al. (2001)
Jacksonville	NFL	\$37	\$171	\$156	21%	23%	Johnson et al. (2007)
Jacksonville*	NBA	\$23	\$216 [†]	\$149 [†]	11%	15%	Johnson et al. (2007)
Portland*	MLB	\$74	\$350 [‡]	\$235 [‡]	21%	31%	Santo (2007)
Indiana	NFL	\$75	\$821	\$707	9%	11%	Swindell et al. (2008)
Calgary [#]	NHL	\$26	\$194	\$194	13%	13%	Johnson et al. (2012)
Edmonton	NHL	\$26	\$555	\$403	5%	7%	Johnson et al. (2012)
<i>Mean</i>					<i>13%</i>	<i>16%</i>	

Construction costs of current/proposed venues reported in millions of real US dollars for year survey was administered. *Proposed team/venue. [†]Cost estimates derived from mean of NBA arenas opened in surrounding five years (Dallas, San Antonio, Oklahoma City, Houston, Memphis). [‡]Projected cost of stadium reported in Santo (2007). [#]Proposed venue not constructed, costs for existing arena.

4.3.2 Property values

Another strategy for identifying social benefits from stadiums is to observe the relationship between hosting teams and local property values. Following Oates (1969)’s conjecture that the value of public services should be capitalized in land prices (e.g., homes zoned for better public schools sell for higher prices than similar homes in less desirable school districts), Carlino and Coulson (2004) posits: “If people like having a professional sports franchise in their community, they are presumably willing to pay for it” through increased housing costs (p. 27). The authors find that MSAs with NFL teams have higher residential rental rates and lower wages, which they infer to reflect the compensating differential that residents experience from hosting a franchise. However, the robustness and interpretation of the estimates have been debated (Coates, Humphreys and Zimbalist 2006; Carlino and Coulson 2006).

Though subsequent studies have also identified positive associations between sports venues and residential property values (Tu 2005; Feng and Humphreys 2012, 2018; Keeler, Stephens and Humphreys 2021), the direction of causality is unclear. Stadium sites are often available in low-income areas that were primed for redevelopment, and thus property value growth around stadiums may reflect redevelopment that was inevitable without a venue. Huang and Humphreys (2014) finds that characteristics inherent to selected stadium sites appear to explain much of the observed improvement of property values near venues. Furthermore, other studies have found mixed (Dehring et al. 2007; Neto and Whetstone 2022; Propheter 2021), null (Bradbury 2022a) and negative (Humphreys and Nowak 2017) effects of sports venues on property values.

Overall, findings from studies of property values are mixed and thus do not provide strong evidence that stadiums confer substantial intangible benefits that justify large public subsidies.

4.3.3 Voting

Public referendums offer another channel for uncovering the social value that residents place on stadiums for hosting sports teams. If spillover benefits accrue mostly to nearby residents, then it is reasonable to expect voters who live closer to venues to be more supportive of subsidies. Coates and Humphreys (2006) finds mixed evidence regarding stadium proximity and voter support in stadium referendums, and the relationship appears to be more complicated than support that continuously decays with distance. While there may be some benefits from living close to a stadium, game events also produce disamenities such as traffic, pollution, and crime that residents would prefer to avoid (see Section 4.4). Instead, there is likely a NIMBY (“not in my back yard”) effect in which residents prefer to live at an intermediate distance from stadiums, which permits an easy commute to stadium events but is far enough away to avoid the disruptions associated with events (Ahlfeldt and Maennig 2012; Horn, Cantor and Fort 2015).

Though the successful approval of stadium subsidies through direct democracy may reflect some public support for public funding, their discrete up-or-down outcomes limit their usefulness in estimating social values. Ballot-determined subsidies are influenced by voter turnout, support and opposition campaign asymmetries (see Section 6.2), and subsidy levels can be proposed strategically at levels likely to be approved (Fort 1997).

There is also some evidence that referendums may offer a moderating effect on stadium subsidies as they do for other public spending (Matsusaka 2018). A survey of 125 stadium subsidy proposals by between 1982 and 2013 found that 58% of the 57 referendums passed, with an average approval of 51%. In contrast, all but three of the 67 proposals evaluated by elected bodies were approved (96%), with 80% support (Propheter and Hatch 2015). Stadium advocates appear to be aware of the diminished prospects of having voters directly approve subsidy proposals: from 2005 to 2017, only 6 of 36 new stadium or renovation proposals were decided via direct democracy (Kellison and Mondello 2014).

4.4 Negative externalities

Though stadium debates largely focus on the potential positive spillovers, which appear to be small, economists have identified considerable evidence of negative externalities from crime, traffic, and pollution, which receive less attention. These spillovers impose significant costs on residential and commercial neighbors.

There is a strong relationship between sports events and criminal activity, where crowds of passionate fans gather and alcohol is often consumed heavily. Crime results from the concentration of spectators who are more likely to commit and become targets of crime, as well as displacing police from general law enforcement in order to monitor game-related activity. Increased criminal activity associated with US sporting events is well-documented (Block 2021; Kalist and Lee 2016; Mares and Blackburn 2019; Pyun 2019). Sports events are also associated with more automobile traffic, which results in inconvenience as well as health costs from emissions (Humphreys and Pyun 2018).

Venue nuisances are consistent with NIMBY preferences regarding residential proximity to stadiums discussed above. Businesses whose operations are not complementary with the commercial agglomerations that stadiums create may be disincentivized to locate in the area due to business disruptions (Humphreys and Zhou 2015b). For example, it may be difficult for grocery stores and dentist offices to operate around game day traffic. Changes in residential property values following team departure and promotions are consistent with negative spillovers from stadiums (Humphreys and Nowak 2017; Joshi, Horn and Berrens 2020).

5 “This one will be different!” New development strategies

Though empirical evidence does not support the common assumption that stadiums stimulate economic development, stadium advocates often dismiss existing studies by arguing that past stadiums suffered from characteristics that are not relevant to more recent and proposed projects (Santo 2005). For example, Chema (1996) states, “there is no merit in extrapolating from the flying saucers of Pittsburgh, Cincinnati, Philadelphia, etc., and drawing conclusions as to the public return from investment in today’s Camden Yards and Jacobs Field” (p. 20). While concerns about the applicability of past experiences to more recent facilities may have once seemed warranted, sub-

sequent studies have confirmed that the economic fortunes of stadiums remain dismal: “Even as empirical methods improved, the findings remained largely consistent across this broad and vibrant literature” (Bradbury et al. 2023).

It is common for stadium advocates to suggest that proposed stadiums possess novel features that promote positive economic benefits that justify public subsidies. Recent popular strategies include constructing stadiums connected to external developments and relying on special tax instruments intended not to burden local taxpayers. We discuss several recent development approaches and funding mechanisms that have been promoted as panaceas for stadiums’s poor economic outcomes.

5.1 Ancillary developments

5.1.1 Urban redevelopment

Sports venues that opened in the middle of the 20th century were designed to support the country’s growing automobile culture, which resulted in stadiums that were isolated within moats of parking lots that may have hindered any development spillovers they might have had. In response, many stadiums were designed to be integrated into the existing urban environment to revitalize the surrounding area. Baltimore’s Camden Yards, Cleveland’s Gateway Sports and Entertainment Complex (includes Progressive Field and Rocket Mortgage FieldHouse), San Diego’s Petco Park, and Denver’s Coors Field have all been touted as examples of stadiums that have catalyzed urban redevelopment; however, such claims are not strongly supported by evidence.

Chapin (2004) employs GIS databases to evaluate development patterns around the Baltimore and Cleveland projects a decade after opening. He concludes, “Camden Yards cannot be considered a successful urban redevelopment catalyst,” which “experienced only modest and very localized success” and “did not catalyze a dramatic transformation” of the area (p. 201). Though the Gateway district may have helped create a new urban district, he describes the overall effect as neutral: “the Gateway district has thrived at the expense of other areas in downtown Cleveland,” reflecting the reallocation of urban activity rather than spurring new development (p. 206).

Erie, Kogan and MacKenzie (2010) finds that San Diego’s ballpark project mostly benefitted the Padres owner from subsidies and surrounding development rights, concluding that the ballpark

project has been “a net drain” on taxpayers, who were “left to absorb the fiscal fallout” during the financial crisis that followed (p. 670).

Denver’s lower downtown (LoDo) resurgence is sometimes credited to the opening of Coors Field; however, the LoDo re-development project pre-dates (1988) the opening of the ballpark (1995) by several years, and the stadium lies on the periphery of district. Most of the restaurants in the area opened prior to the ballpark’s arrival and much of the development of the area has occurred away from the ballpark rather than adjacent to it (Delaney and Eckstein 2003b, pp. 114–118).

Propheter (2021) examines property value effects of three sports complexes in Los Angeles, and finds only positive impacts from Dodger Stadium. This is a curious finding, because the stadium is located away from the city’s center and surrounded by parking lots like most mid-century stadiums, which urban stadium advocates argue should stifle development. Propheter posits that rather than hindering positive spillovers, parking lots may provide a buffer from noise, congestion, and crime externalities by sequestering crowds and the externalities they create.

Despite the widespread belief that placing stadiums in urban environments can redevelop the surrounding area, there is scant evidence that this strategy works. The idea that properly designed urban stadiums are superior to other stadium project designs at stimulating surrounding development is a myth.

5.1.2 Mixed-use real estate developments

Several recent and proposed stadium projects have been designed to include corresponding real estate developments designed to complement game-day operations as well as promote commercial activity on non-game days. In 2022, the Virginia legislature considered funding a billion-dollar stadium for the Washington Commanders that would include a mixed-use stadium district. The bill sponsor argued: “They’re no longer building stadiums that are just surrounded by huge parking lots . . . There will be hotels, retail. It’s almost a mini city” (Arzate 2022). In Nashville, state and local governments have included the construction of a new domed Tennessee Titans stadium as part of a broad redevelopment plan (Mazza 2022).

The most prominent recent example of an ancillary real estate development strategy that has been implemented is Truist Park’s The Battery Atlanta, which opened as a mixed-use campus

of hospitality, retail, and residential space to host the relocated Atlanta Braves in 2017. Following its announcement, the Atlanta Braves executive who negotiated a \$300 million subsidy from Cobb County boasted that the connected development would differentiate it from past stadium boondoggles:

[T]he tired old story pontificated by certain professors is there's been some carnage in these deals. There's no doubt and no debate to that fact. [Truist] Park, as a standalone sports venue (without the mixed-use component), like every one of these, probably cannot pencil out financially. . . . we're going to build a city and we're going to create tons of jobs, tons of density and year-round tax revenues. And that's what's going to make this whole formula set a new standard and result. (Murphy 2019)

This prediction did not prove accurate. Bradbury (2022c) provides an extensive cost-benefit analysis based on several studies of the project's economic and fiscal impacts (Bradbury 2022b,a, 2023), finding that the stadium did not produce the promised economic windfall, but generated an annual deficit of approximately \$12 to \$15 million (pp. 65–70).

Similar development promises have been proposed for minor-league facilities, as well. Worcester, Massachusetts officials approved funding Polar Park (2021) as a development catalyst to build a new stadium for the minor-league Worcester Red Sox. City leaders boasted that revenue collected from the surrounding development would more than pay for the \$100 million project after its hired consultant endorsed “the solid expectation that it won't cost the Worcester taxpayers one penny. Indeed, the project promises to generate net funds to support additional city services in the areas of education, infrastructure and security” (Zimbalist 2018). However, the projected development failed to manifest as promised, and the project has yet to generate the revenues needed to service the debt acquired to construct the project (Koczwarra 2022).

Though stadium development districts have been described as a novel approach, the concept is not new. The St. Louis Brown's first iteration of Sportsman's Park (1890) was marketed as “the Coney Island of the West,” with a honky-tonk, amusement park rides, a “wine room,” a racetrack, and often combined games with other events (Benson 1989, p. 347). Houston's Astrodome (1965) was part of a larger “Astrodomain” development that included hotels and an amusement park. More recent stadiums have also included external developments. Crypto.com Arena (1999) in

Los Angeles is connected to the L.A. Live entertainment complex. AT&T Stadium (2009) and Globe Life Field (2020) are part of a multi-stadium complex in Arlington, Texas. Gillette Stadium (2002) in Foxborough, Massachusetts is adjacent to the Patriot Place shopping mall. Westgate City Center, associated with the Phoenix Coyotes Gila River Arena and nearby State Farm Stadium, was foreclosed upon 2011 following the team's bankruptcy, though it continues to operate. Overall, the evidence regarding the positive economic performance of venue-anchored external developments is purely anecdotal.

The observed failure of ancillary mixed-use real estate developments to improve the economic contributions of stadium projects is not surprising. A greater development footprint surrounding the stadium does not change the basic economics of stadium-related consumption: spending in and around stadiums largely displaces existing local commerce rather than creating new economic activity, just like other stadium spending. As Wassmer, Ong and Propher (2016) explains:

new real estate development adjoining a professional sports venue results from simply a move of economic activity away from other sites within the jurisdiction. Unless residents perceive this intrajurisdictional shift in economic activity as a social benefit, this is a zero-sum gain for the jurisdiction. (p. 258)

Negative externalities associated with stadium events (discussed in Section 4.4) may also deter certain types of commercial agglomeration, which contributes to the poor economic outcomes experienced by ancillary stadium developments. The districts themselves may generate substantial additional costs for construction, operation, maintenance and public services, which create an additional burden for taxpayers. The fiscal consequences of associated developments may be exacerbated by the common practice of diverting tax revenue from stadium districts to fund stadiums. Sub-local development surrounding stadiums has been quite limited (summarized in Section 4.2); therefore, there is little reason to expect stadium-anchored or community-integrated developments to improve the economic fortunes of stadiums.

5.2 Fiscal illusion of alternate funding mechanisms

Local governments typically fund public projects using general property and sales tax collections, which has proved to be unpopular with voters when funding sports venues. In an attempt to allay

public concerns regarding the costs that stadiums place on local taxpayers, elected officials often rely on alternate funding mechanisms that they claim do not burden local residents. For example, Nashville’s Mayor defended a proposal to provide \$760 million to fund a new Tennessee Titans stadium by stating, with careful precision: “I will not sell public land, raise the sales tax, or spend your property tax dollars to fund the stadium. Tourists and spending around the stadium will pay for this project, not your family” (Cooper 2022).

The notion that a municipality can collect hundreds of millions in new tax revenue at no cost to jurisdiction residents by exporting costs to visitors and creating new tax revenue streams is dubious. Every jurisdiction operates with a stock of wealth from which taxes may be collected to fund public services. No matter what tax instrument is used to underwrite stadium expenses, the local nature of stadium commerce means that most of the revenue collected will come from local residents and businesses. The incidence of these alternate tax instruments may be difficult for the general public and policymakers to observe, which fosters the perception that public funding does not burden taxpayers. Instead, the alternate tax sources serve to produce *fiscal illusion*, which results when the connection between the total and individual share of resources used to fund public services is obscured to hide the true burden to taxpayers (Buchanan 1987).

5.2.1 Venue taxes

Venue taxes for tickets and other in-stadium purchases are use taxes, which are in accord with the benefit principle of taxation that tax burdens should fall on beneficiaries of public expenditures. However, this quality alone does not make stadium funding through venue taxes desirable. Even though venue taxes are paid by stadium attendees, they represent an opportunity cost to local taxpayers. The opportunity cost of stadium spending is other local consumption; thus, stadium spending diverts tax revenue that would have been collected through other local commerce to funding the stadium. This results in less available revenue for other government services funded by general sales taxes, which will necessitate compensating tax increases to recuperate lost tax revenue or reduced services.

In addition, publicly funding a stadium with a use tax is inconsistent with the primary market-failure justification for subsidizing a stadium. If venue attendees can adequately fund the stadium directly through a use tax, then there is no need to collect taxes to subsidize it. Successfully

funding a stadium through use taxes demonstrates that it is feasible for the team tenant to self-fund the construction and operations. Another relevant issue is that many megaevents (e.g., Super Bowl and World Cup), which are touted as future drivers of tax revenue, often require that venue taxes be exempted as a pre-condition for consideration as an event host.

5.2.2 Sin taxes

Excise taxes on items such as alcohol and tobacco (“sin taxes”) have been used to fund stadiums in several jurisdictions. For example, following the failure of property tax referendum Cleveland, stadium supporters proposed assessing sin taxes to fund new venues for the Cavaliers and Guardians after focus group research indicated that voters viewed sin taxes more favorably than general sales taxes (Delaney and Eckstein 2003b, p. 70). The sin tax referendum passed with 52% of the vote (Fort 1997, p. 172).

Sin taxes raise revenue efficiently from highly-inelastic goods while not being immediately observable in property tax bills and general sales tax purchases; however, excise taxes are primarily paid by local residents unrelated to stadium events, and tobacco taxes are more heavily born by the poor. Sin tax revenue also has the opportunity cost of funding other public projects that likely offer higher returns on investment.

5.2.3 Business taxes

Taxes on businesses are another mechanism that has been used to fund stadiums as a means to avoid collecting more general fund taxes. Washington, DC implemented a gross receipts tax on all business that generate more than \$5 million per year to fund the construction of Nationals Park. There is no economic justification for assessing this specific tax to fund a stadium as nearly all taxable revenue collected has no connection to the stadium it funds. The tax serves to distort local business purchases, creating a burden shared by local merchants and customers who are largely resident taxpayers.

5.2.4 Special district taxes

Assessing taxes within a geographic district surrounding the venue provides the appearance of a use tax. District tax advocates often describe the tax revenue collected as being paid only by stadium

patrons, which funds the upkeep of the stadium and area they are patronizing. For example, the proposed Washington Commanders’s stadium in Virginia was to be funded through sales tax revenue generated from a new commercial district surrounding the stadium. Its legislative sponsor stated that because the tax revenue would be collected from a new dedicated revenue stream that it “does not create a penny of debt backed by the Commonwealth” and would not cost the taxpayers “a nickel” (Arzate 2022; Fortier et al. 2022). However, this logic confuses district tax collections as net new revenue to the community.

As explained in Section 5.1, stadium district customers are largely local residents, which means that spending within the district crowds out existing local spending. Therefore, taxes on district spending generate government revenue from reallocated consumption, which reduces jurisdiction tax collections from sales that occurred previously at existing local businesses. For example, diners who patronize a restaurant in the stadium district would otherwise likely have spent their income at a non-district local restaurant, which remits tax revenue to the general fund to support public services. The diversion means the municipality must fund existing services through added taxes or reduced services.

Like general business taxes, stadium district taxes should not be viewed as use taxes paid by stadium customers. Atlanta Braves’s Truist Park is partially funded through a new tax on firms within a pre-existing business district that covers approximately seven square miles around the stadium. Though some entities that pay these taxes may experience increased revenue from patrons attending MLB games—though studies in Section 4.2 indicate limited spillovers—most businesses in the district that remit these taxes operated long before the stadium opened and serve non-baseball customers throughout the year. These local firms also compete with new businesses operating within the team-owned development, which their taxes subsidize. In total, the collections fund nearly half the County’s stadium contributions, and this revenue could have been used to fund other government priorities.

5.2.5 Visitor taxes

State and local governments often fund stadiums using taxes assessed on hotel stays and car rentals (e.g., Houston funds its major-league venues through 2% hotel and 5% car rental taxes). Visitor assessments are justified as quasi-use taxes, because sports events may attract tourists who stay

in hotels and rent cars. The tax instruments are politically popular funding instruments because they appear to export funding costs onto non-residents. Following the approval of a hotel tax to fund a new Atlanta Falcons stadium, the City's mayor issued a press release stating revenue would come "almost exclusively . . . from visitors and tourists, not residents of the City of Atlanta" (City of Atlanta 2015).

However, it is a well-established principle of economics that statutory responsibility for paying a tax does not determine who bears the cost of the tax: the tax burden derives from price elasticities for the taxed good or service. This lesson of tax incidence is so widely-understood by economists that it is included as a key part of the introductory microeconomics course curriculum; thus, it is unfortunate that elected officials responsible for fiscal policy appear to be unaware of, or ignore, this important public finance concept.

In the case of a hotels, taxing guests raises the effective price of room stays, which deters marginal guests. Hotel owners respond by lowering pre-tax prices to compensate for the tax, which reduces their revenue. The tax burden experienced by guests (through higher prices) and hotel owners (through lower revenue) is determined by demand and supply elasticities, with the least price-sensitive party bearing the larger share. Relative demand and supply elasticities for hotel stays differs by location and have not been precisely estimated; however, it is unlikely that hotel demand is perfectly inelastic, which is necessary for the full tax burden to be exported to visitors. Hotels have a fixed supply of rooms that generate revenue only when occupied; therefore, the supply of rooms is likely sufficiently inelastic to incentivize hotel owners to lower pre-tax prices to retain guests. Collins and Stephenson (2018) finds decreased occupancy and net prices in response to an imposed hotel tax in Georgia to conclude that the tax burden was not fully exported to consumers and imposed significant burdens on hotel operators.

In addition, it is incorrect to view hotel and car rental taxes as being assessed on stadium patrons. Most stadium spectators are residents who do not stay in hotels, and most hotel and car rental customers do not attend stadium events. Also, local businesses often rent rooms and cars for out-of-town employees and clients who travel to the city for necessary business, and low-income residents often live in extended stay hotels that are subject to hotel taxes. Many local businesses and residents rent cars for their own use, for personal trips or when experiencing car trouble, who contribute to taxes that fund stadiums.

A related argument for taxing visitors is that new venues are likely to be chosen to host megaevents such as the NFL Super Bowl or NCAA Final Four, which will contribute to tax funding of the stadium. In addition to evidence from economic studies that indicate that megaevents do not yield substantial economic impacts (Baade and Matheson 2016; Scandizzo and Pierleoni 2018), large revenue gains from an influx of hotel guests from megaevents are not expected. Event visitors may fill some otherwise-vacant hotel rooms, but they also displace would-be guests, which results in the net gain in room rentals being considerably less than total rooms rented during the event. Megaevents may produce limited temporary boosts in hotel tax collections, but the revenue gains are small in comparison to hundreds of millions of dollars provided in venue subsidies. Heller and Stephenson (2021) estimates that the 2017 Super Bowl in Houston increased incremental hotel revenue by \$44 million. That means its 2% hotel occupancy tax assessed to fund Super Bowl host NRG Stadium translated to roughly \$880,000 in tax revenue, which represents less than 0.3% of the \$310 million in public funds used to construct the venue in 2002.

Economic studies have estimated weak relationships between venue-hosted events and hotel outcomes and generated tax revenue. Depken and Stephenson (2018) finds occupancy effects of sports events to be “modest at best” and that incremental tax receipts typically are insufficient to cover construction costs of sports venues. Another relevant factor is that visitors are not distributed evenly across hotels in the area, even though hotel taxes are often assessed over a broad jurisdiction. Chikish, Humphreys, Lui and Nowak (2019) finds that though hotels close to Crypto.com Arena in Los Angeles received a small positive impact from arena events, hotels further away were harmed; in total, the net effect was a reduction in hotel revenue. Overall, there is not a strong case to expect tourist-driven revenue from hotel taxes to justify stadium subsidies.

5.2.6 Reallocating existing revenue

Governments have also used existing funds and revenue streams to finance stadiums, claiming that the venue was funded without tax increases. After allocating \$565 million of casino revenues from the Seneca Nation of Indians to fund the Buffalo Bills new stadium, New York Governor Kathy Hochul stated that the allocation of the revenue meant, “the direct hit to taxpayers is significantly less” (Zremski 2022). Though no new taxes were assessed to generate this revenue, the state could have reduced other assessments or funded other public projects with higher returns. When

government funds are used to fund public projects, it represents an opportunity cost to taxpayers and is not windfall revenue.

6 Explaining the disconnect between research and policy

That governments continue to subsidize stadiums contrary to the unambiguous research consensus raises a paradox: Why do policymakers continue to devote tax dollars to fund sports venues in opposition to expert policy guidance? We consider several explanations below.

6.1 Market power of monopoly sports leagues

Sport teams possess significant market power that derives from sports leagues operating as natural monopoly cartels, which have withstood antitrust challenges (Neale 1964; Surdam 2015). Strong consumer preferences for local sports teams and the restriction of competitive alternatives provides owners the opportunity to extract substantial subsidies from residents with relocation threats. The anti-competitive environment creates incentives for rent extraction, which are formalized by Humphreys and Zhou (2015a).

Relocation threats were an effective tactic that teams used during the 1980s and 1990s, following the departures of the Oakland Raiders to Los Angeles (1982) and Baltimore Colts to Indianapolis (1984). It became common for team owners to receive subsidies by publicly exploring alternative markets without having to move. For example, the Chicago White Sox received \$157 million in public assistance to replace Comiskey Park after threatening to leave the city (Smith 1986). The threats were so successful that MLB awarded an expansion team to St. Petersburg, Florida in 1998 to forestall antitrust lawsuits over League relocation restrictions, which the White Sox and other franchises had exploited to extract subsidies (Topkin 1995).

Though relocation fears offer some motivation for localities to grant subsidies, other threats have proved ineffective. After openly considering relocation to other markets, the San Francisco Giants constructed Oracle Park (2000) almost entirely on its own, receiving only \$15 million in public funds. After not hosting an NFL team for 20 years, Los Angeles attracted both the Chargers and Rams, who constructed their own privately-funded multi-billion-dollar shared SoFi Stadium (2020). Tampa Bay Rays have been threatening relocation almost since the franchise was founded,

but the team continues to play in Tropicana Field to small crowds.

The recent paucity and ineffectiveness of relocation threats at extracting subsidies may be because they are no longer perceived as credible, especially when relocation targets involve smaller markets and speculative proposals. Major-league teams wish to locate teams in the most profitable markets, which is where most teams are currently located. Thus, relocation threats may be undermined by the precedent of leagues expanding to replace teams that departed from demonstrated viable markets. For example, Cleveland (Browns), Houston (Texans), and Charlotte (Bobcats/Hornets) ultimately received replacement expansion franchises soon after losing their host teams, albeit with public funding.

Also, many communities have provided significant public funding for new stadiums without relocation threats. Recent examples of teams that received stadium subsidies that were not seeking to move include (real 2020 dollars): Atlanta Falcons (2017, \$742 million), New York Mets (2009, \$171 million), New York Yankees (2009, \$355 million), and Texas Rangers (2020, \$500 million).

The recent example of three NFL franchises that sought public funding for new stadiums in 2022 is illustrative of the limited role that relocation threats can play in seeking subsidies. The Buffalo Bills and Tennessee Titans respectively received \$850 million and \$1.26 billion in state and local commitments to construct new stadiums in their current locations without threatening to leave their host cities. In contrast, the Washington Commanders attempted to play the three jurisdictions of its metropolitan area against each other to bid up subsidy offers. The District of Columbia did not make a bid to host the team, even though the team's former RFK Stadium is a viable stadium site. Though supportive measures passed both chambers of Virginia legislature, the state failed to pass a funding package to lure the team after facing considerable pushback from constituents. Even though Maryland demonstrated that it was not averse to subsidizing teams when it authorized issuing \$1.2 billion in bonds for stadium improvements for the Baltimore Orioles and Ravens, state lawmakers responded by offering only \$400 million in improvements surrounding the Commanders' existing Landover stadium—not the stadium, itself—to revitalize the area whether or not the team remained (Cox et al. 2022). In fact, the relocation auction elicited a rebuke from Maryland's Governor:

I think they're using everybody back and forth, as they have been for eight years... They're

negotiating, trying to pit everybody against each other, but we're not going to get into a bidding war over them. And we're not going to be proposing \$1.2 billion to build them the stadium. If Virginia wants to do that, and they want to go to Virginia, I would say, "Good luck." (DePuyt 2022).

As we discuss in Section 6.3, community relationships play an important role in fostering public support for subsidies. Relocation threats may be a counter-productive strategy for promoting subsidies, because they strain important social bonds with voters who feel spurned by a local team they have long supported.⁶ Thus, market power alone is not sufficient to explain the continued prevalence of stadium subsidies.

6.2 Political bargaining asymmetry

By their nature, stadiums have a concentrated interest group of supporters. Team owners, proprietors of complementary businesses (e.g., concessions and hospitality operators), and sports fans benefit from subsidies collected from a tax base dispersed widely across the polity. A team owner receiving several hundred million dollars in subsidies ought to be willing to expend considerably more resources to lobby local representatives and voters than individual taxpayers who bears a small share of the public cost. For example, a \$500 million subsidy spread out over 30 years in a city with one million households results in an annual cost of \$17 dollars per household. It is often not cost-effective to organize a political coalition to combat proposed subsidies, because the organization costs are greater than their tax burden from the stadium, resulting in rational acceptance of subsidies.

Political bargaining asymmetry offers an intuitively appealing explanation for stadium subsidies, because it conforms to well-known political-economy models of concentrated benefits and dispersed costs (Olson 1965; Peltzman 1976; Becker 1983). Though bargaining asymmetry favors team owners, and stadium boosters do outspend opponents in referendum campaigns, the subsidy allocation process does not operate as a lobbying contest in practice.

As part of their extensive case study of stadium campaigns, sociologists Kevin Delaney and

⁶For example, Delaney and Eckstein (2003b) report the reasoning provided by a downtown stadium advocate in Philadelphia as to why the team avoided using relocation threats to promote subsidies: "If [the team owners] stand on a street corner and threaten to move the teams from Philadelphia, the people of Philadelphia will say 'Fuck you, move the teams. Move.' Whether they mean it or not" (pp. 179–180).

Rick Eckstein (2003) document that team owners played little to no role in advocating for public funding, even though they would be the chief beneficiaries. Instead, subsidy advocacy is typically spearheaded by a “local growth coalition” of area influencers. They observed that rather than evaluating the policy desirability of subsidies with objective vetting of cost-benefit estimates where political bargaining advantages would determine policy, elected representatives were predisposed to defer to the local growth coalition and support stadium projects. The following anecdote is illustrative of the way that requests for stadiums are presented and evaluated by policymakers.

[T]he president of the city council (and later mayor of that city) . . . had received from a constituent a well-informed letter summarizing economist Robert Baade’s critical research about the benefits of spending public dollars for private stadiums. The constituent had even attached one of Baade’s scholarly articles. What was most interesting, however, was the handwritten note from the council president to the team executive, which read, “What do I say to a constituent who makes this argument against the new stadium?” The note did not ask whether Baade’s argument was correct. Instead, it requested a strategy for responding to it. Clearly, the team executive and the politician were both searching for an effective tactic to counter possible community resistance that was supported by the findings of the study. (Delaney and Eckstein 2003b, p.33).

Politicians may also view stadiums as visible public projects for which they can take credit; thus, they may support public funding to pander to voters who believe stadiums are examples of progressive economic development (Jensen and Malesky 2018). Thus, the stadium subsidy determination tends not to be a lobbying contest between support and opposition interest groups, where sports teams outspend a poorly organized opposition coalition. Instead, stadium subsidies are a product of typical policymaking environments of US cities, where pro-stadium local growth coalitions hold significant influence over economic development policy.

6.3 Local growth coalitions

Delaney and Eckstein make a compelling case that local growth coalitions, not team owners lobbying elected officials, are the primary drivers of stadium subsidies. Their hypothesis is informed by careful case studies of stadium campaigns in nine US cities, based on extensive interviews with key

decision-making participants, from which they observed influential elites in shepherding subsidies through the political process in all cities. Local growth coalition advocacy offers an attractive explanation for stadium subsidies because it accurately describes how stadium policy is determined in practice.

Drawing from Molotch (1976)'s growth machine theory of local economic development policy, Delaney and Eckstein (2007) describes local growth coalitions as “institutional and ideological alliances between and among headquartered local corporations, local government, and the local mainstream media” which “articulate and influence social policies intended to stimulate economic growth within certain prescribed parameters.” These parameters “favor large, visible projects that will attract new corporations to the city, and real estate policies that increase exchange value” (pp. 334–335).

What makes local growth coalitions distinct from traditional lobbying, where advocacy and opposition groups compete to influence policymakers, is that the coalition establishes itself as an informal community institution whose approval is valued by elected officials. Though a local growth coalition may lobby on-behalf of team owners, its influence differs from traditional political lobbying in that the coalition is a bellwether constituency that shapes the policymaking environment. Its membership is typically not partisan and claims to promote a neutral pro-community agenda. Coalitions may tout fiscally conservative principles, such as low taxes, but they may also advocate on behalf of special bond issues and tax increases that support schools and infrastructure projects. Rather than out-lobbying the opposition, a powerful local growth coalition inhibits opposition arguments from consideration. Even a well-organized opposition group will have difficulty in defeating proposals that the local growth coalitions supports, because politicians who go against the coalition risk losing the backing of an important constituency in other matters.

Local growth coalitions are organized chiefly by local business leaders, but they often include influential community members, such as politicians, community organizers, and media members. In particular, business leaders may view sports as directly beneficial to their personal financial interests, because it signals that the city is a desirable place to live and work to highly sought-after executives, whom they want to recruit and retain. They view a local sports franchise as an asset that attracts talented young professionals, who are likely consumers of sports events and stadium amenities (Delaney and Eckstein 2007). Opulent modern venues that emerged in

the 1990s also provide a comfortable environment for casual business networking, as Baade (1996b) describes, “Business once promoted and conducted in boardrooms and restaurants now is facilitated in skyboxes and stadium clubs.” Coalition members also benefit from unique perks that teams can provide, such as special access to exclusive events, celebrity athletes and spectators, and luxury amenities. Thus, coalition members benefit directly through their sports consumption, which is subsidised by tax contributions from the general public.

Coalition members are influential among politicians and exploit support networks (e.g., chambers of commerce, executive groups, and community booster organizations) to mobilize and promote favorable policies. The success of local growth coalitions at garnering subsidies derives from members’ prominence in the community, who appear detached from the team owner receiving significant subsidies. Delaney and Eckstein (2003b) observes “non-sports corporations can more easily obfuscate their vested interests in new stadiums and portray their advocacy as being in the best interest of the entire community” (p. 3).

Perl, Howlett and Ramesh (2018) explains that common core beliefs, even mistaken beliefs, are the glue that bind local advocacy coalitions together.

These beliefs at the center of each coalition include both normative values about the way the world should be, and axiomatic understandings of how policy can and does function in support of such a worldview. These principles motivate policy actors to cooperate with likeminded counterparts in formulating policy options that advance their preferred outcomes, and to learn from both advocacy and research efforts about how to expand the likelihood of those outcomes over time... The [advocacy coalition framework] presumes that coalition members will maintain their core beliefs, even in the face of evidence that might call these beliefs into question. ... The durability of core beliefs that draw coalition members together suggests their resilience in the face of alternative facts and misinformation. Indeed, a stream of disruptive information could work to reinforce solidarity within established coalitions as their members are motivated to redouble their efforts to organize and advocate for preferred policy options in the face of perceived efforts to challenge or intimidate the policy subsystem (pp. 591–592).

The dominance of local growth coalitions in guiding economic development policy makes it

difficult for policy debates over the desirability of public stadium investments to occur. Delaney and Eckstein (2007) observes: “municipalities are not neutral referees in these stadium initiatives but are clearly predisposed toward building publicly financed stadiums. . . . this has become the *default* policy” (p. 334, emphasis original). Therefore, stadium subsidy critics—including economists who have studied the economic impacts of sports events and venues extensively—are in a position where they must “un-convince” influential insiders who are not amenable to reviewing contrary evidence that indicates a stadium proposal is undesirable. “From a growth coalition perspective, opponents of publicly financed stadiums must fight city hall, whereas proponents of publicly financed stadiums are already aligned with city hall” (p. 335–336).

The importance of local growth coalitions in stadium campaigns offers a compelling explanation as to why governments continue to subsidize stadiums contrary to the advice of economic experts. It also suggests that it is coalition members, not just elected representatives, who need convincing that stadiums are not worthwhile public investments.

6.4 Commissioned economic impact reports

An important component in all stadium advocacy campaigns is a commissioned economic impact report that forecasts the proposed stadium’s strong financial prospects. Rather than providing objective evaluation of an economic development project, like peer-reviewed studies published in academic outlets, this “promotional literature” consists of commissioned “studies” by for-hire consultants that are intended of to persuade the public, community leaders, and policymakers that using tax dollars to fund a stadium is a good public investment (Coates and Humphreys 2008). These advocacy reports are typically conducted by professional consulting firms but moonlighting academic economists with established reputations have also accepted commissions to produce independent reports on behalf of teams, supportive community organizations, and local governments (deMause 2018). It is also common for universities to support affiliated centers that offer economic consulting services, which are willing to attach the university’s academic reputation to superficial economic impact reports that tout large economic benefits to paying clients and government entities. Stadium boosters likely commission private economic impact reports because voters view public funding of stadiums more favorably when they are framed as economic development catalysts (Connolly and Touchton 2020). Commissioned studies are promoted to the community, media, local

growth coalition members, and elected representatives as proof of a stadium’s economic favorable prospects.

Economists who have scrutinized commissioned reports have found them to be deeply flawed, regularly committing basic errors, such as overestimating benefits and underestimating costs, confusing gross and new spending, using unrealistic multipliers that inflate growth expectations, and relying on unrealistic assumptions about future economic development (Crompton 1995; Hudson 2001; Wassmer et al. 2016). Commissioned analyses differ considerably from established methods employed in academic studies, which estimate economic effects through retrospective analysis of observed outcomes. Consultant reports favor speculative projections of future impacts, often employing commercial input-output computer models not used in academic economics research, declaring the calculations to be validated by the software packages they employ. Rarely are the methods and assumptions explained sufficiently to defend the estimates as credible, nor do study authors explore why forecasts of positive benefits differ from consensus academic findings of objective research.

Even though the biases and flaws of commissioned studies are obvious, they appear to be effective at neutralizing the economics consensus to promote the positive public perception of stadium proposals. Team owners and booster coalitions often insist that a commissioned study of their specific project is superior to past academic research, which they assert to be outdated or inapplicable because of novel features of the proposed project. For example, a report commissioned by Truist Park boosters (Center for Economic Development Research 2018) argued that though “historically, publicly financed stadiums do not pay for themselves . . . the Atlanta Braves changed the stadium-financing paradigm” with its mixed-used development to forecast a positive fiscal return—a claim that has not held up to scrutiny (Bradbury 2022c).

The novelty argument is likely effective because all new stadiums have unique qualities. Though it is unlikely that any novel features of a proposed stadium would provide an improvement that could overcome the well-documented economic failures of stadiums, the commissioned report provides sufficient comfort to individuals predisposed to support a new stadium. Delaney and Eckstein (2003a) surmises that the esoteric nature of quantitative economic and financial analyses promotes their fallacious credibility: “The economic issues are complex enough so that it doesn’t take much to obfuscate matters a little more and send relatively well-informed citizens running for

cover” (p. 202). Advocacy reports are also produced for a layman audience as public relations documents, with general summaries that highlight the favorable estimates and press releases using graphics and quotable passages for press coverage.

Advocacy reports also benefit from a short decision-making time frame. Stadium proposals are often presented and approved within a matter of weeks or months, with urgency imposed by arbitrary deadlines and vague relocation speculation. Policymakers and community members may thus accept a commissioned report’s favorable findings as expedient confirmation of their policy preference to fund a new stadium.

In an effort to counteract the misinformation in commissioned studies, Wassmer et al. (2016) provides a set of questions (Table 4) for quickly evaluating the credibility of economic impact studies. Encouraging policymakers and media members to use this rubric to identify common flaws of commissioned reports may lessen their influence.

Table 4: Evaluative Questions for Commissioned Economic Impact Studies

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

Questions from Wassmer et al. (2016).

6.5 Media coverage

The above-mentioned factors that favor the adoption of stadium subsidies may be muted or intensified by media reporting. Delaney and Eckstein (2008) observes that local media coverage plays an influential role in shaping the public perception of stadium proposals. Critical media coverage can impede a stadium project, when the local growth coalition is weak, but uncritical media often become “the primary institutional booster” (p. 72).

Recent research has discovered an important roll for misinformation and “fake news” in effecting policy. Nyhan (2020) reports that public misperceptions often derive from prominent politicians, pundits, groups, and media outlets, noting that elites often play a key role in popularizing fallacious information. The willful ignorance embraced by local growth coalition members undermines the assumed rationality of objective policy evaluation to promote actions based on misleading evidence that is subject to manipulation (Perl et al. 2018). Deliberately and unintentionally, media coverage may exacerbate public and policymaker misunderstanding of the returns to public stadium investments, which promotes bad policy.

We discuss three types of biased media coverage we have observed that may contribute to the perception that subsidizing stadiums is reasonable or desirable policy.

6.5.1 Uncritical reporting: Just the facts

The most basic form of uncritical media coverage is limiting reporting to basic facts regarding a proposed stadium deal without including context regarding potential policy implications. Reporting may include relevant financial figures and logistics regarding political hurdles for approval and schedules for stadium construction with little policy commentary. In some cases, economic impact estimates from advocacy reports may be repeated without external validation of credibility, and press release statements from stadium boosters are quoted in stories without critical assessment.

For example, coverage of a proposed Tennessee Titans stadium in *The Tennessean* described the stadium as “a centerpiece for Nashville’s imagined future” in its headline, and provided only positive commentary from the team’s president and Nashville’s mayor, who brokered the deal (Mazza 2022). The article describes the \$760 million of local government funding covering the cost of the new domed stadium as “a fraction of the cost [of the \$2.1 billion total] . . . using revenue bonds

to be repaid with future tax proceeds from the project,” repeating a booster talking point that “financing strategy that doesn’t require any taxpayer investment.” While the statements about tax revenue collection mechanism are technically true, it is not correct that the public funding does not require any taxpayer investment, because the revenue bond funds would come mostly from existing local commerce reallocated to a new dedicated tax district (see Section 5.2.4). Thus, the reporter passes along intentionally misleading statements without checking the dubious assertions of biased sources, which may influence readers who assume that the claims were evaluated for credibility.

Uncritical reporting of stadium advocate claims may be inadvertent and derive from the intermittent nature of stadium construction. Given the typical 30-year lifespan of modern stadiums, most local markets will face policy questions regarding stadium replacement and refurbishments only a few times over the typical career of reporter, unlike school board budgets and debates over municipal services, which are regular topics for local news coverage. Local media outlets do not have reporters dedicated to covering stadiums, which necessitates allocating assignments to other news beats. When stadium proposals arise, local news reporting comes from journalists who cover a range of subjects (e.g., local government, business, and sports), which results in coverage from reporters who may lack familiarity and interest in the economics of stadiums. Media members may be ignorant of the economic consensus and thus be more apt to accept non-credible estimates from commissioned reports, press release statements, and booster talking points intended for quotation in news stories. In addition, reporters may seek and receive assistance from local growth coalition members who have served as sources on other local stories.

Reporters may defend their reporting as objective, because they are merely the conduit for information relayed from other sources without judgement. However, the result is that a favorable policy consequences become a public focal point for context. That a new stadium *could* have a \$100 million impact on the local economy, because a commissioned report declared it to be a possibility, may be interpreted as a reasonably likely or moderately optimistic outcome, when the most credible benchmark expectation based on the most credible research is \$0.

6.5.2 False balance or “bothsidesism”

Another bias in media coverage of stadiums proposals is to portray pro- and anti-subsidy argument as equally reasonable points of view, providing “balanced” coverage as part of a neutral presentation,

without conveying that the overwhelming expert consensus rejects arguments for stadium subsidies. Media outlets typically report news-worthy but dubious claims from non-experts with caution. For example, most credible media outlets do not nakedly report motivated contrarian claims regarding global warming, vaccination risks, and election fraud without explicit caveats that such claims are unsupported by evidence and contrary to the opinions held by most subject experts. It has been our experience, that skeptical questioning and fact-checking of non-credible stadium claims is less common.

False balance is particularly harmful in spreading misinformation regarding the economic impacts of stadiums due to the prevalence of advocacy reports. Pitting privately-commissioned studies against academic research creates the illusion of equal credibility, and sometimes stories are framed to present the economic consensus as the exceptional skeptical voice. For example, a *Tennessean* story on a poll showing voters opposed to a new Tennessee Titans stadium described sports stadiums as having, “a mixed history of delivering on economic promises,” when the evidence is overwhelming that stadiums fail to deliver on economic promises (Friedman 2022). This language suggests that it is reasonably plausible to expect a positive economic impact from the stadium proposal under consideration, when consensus economics evidence indicates that it is not.

6.5.3 Editorial sycophants

Local growth coalitions often include media members, who actively use their position to influence the community’s perception of a proposed stadium project. Media members may personally benefit from anticipated networking opportunities and see sports as a product that draws readers and viewers, which supports their advertising business. This relationship results in what Delaney and Eckstein (2007) describes as “ideological convergence” with the local growth coalition, which results in intentionally biased news coverage that is supportive of stadium subsidies:

This convergence revolves around the “proper” vision of local economic growth and the role new stadiums play in that vision. . . .Editors and reporters . . . seem predisposed to believe in the wonders of stadium-centered economic development. The practice of uncritically reproducing press releases from stadium advocates and covering the “dog and pony” shows, such as ground-breaking ceremonies, help produce this bias and disseminate

it throughout the community (p. 341).

In their case studies, Delaney and Eckstein observed that media outlets often went beyond omitted critical coverage and presenting criticism as false balance; instead, they became “editorial sycophants for proponents of new publicly subsidized stadiums and ridiculed opponents as short-sighted and selfish” (Delaney and Eckstein 2003b, p. 18). For example, *The Buffalo News* publisher was part of a group of local executives working with the Buffalo Bills’s owner to advocate for its recent stadium deal (Miner 2022), and the newspaper published several pro-stadium editorials, ultimately describing the subsidies as “a good deal” and “fair to all” (Editorial Board 2022). This is in stark contrast of the opinion issued by well-known stadium economics expert Victor Matheson, who declared the Bills stadium deal to be “one of the worst deals for taxpayers I’ve ever seen” in a widely circulated essay just two weeks earlier (Matheson 2022). The publisher’s conflict of interest as an active participant in the stadium advocacy group was not declared in news stories, and the newspaper’s pro-Bills-stadium slant was palpable in its news coverage, which often parroted stadium booster talking points while providing only passing acknowledgement of economists’ strong objections as moderate skepticism to convey false balance. For example, coverage of a commissioned economic assessment by the team’s owners justified its conflict with academic research findings with the headline: “What are the Buffalo Bills and a new stadium worth? Why the economics are hard to calculate,” even though economists have had no difficulty in calculating the impacts to be small to non-existent.(O’Shei 2021). This frames the disparity in assessments as a simple disagreement among equally-informed and reasonable points of view, which uninformed readers are unlikely to understand.

6.5.4 Overcoming media bias

Perl et al. (2018) argues that even though misinformation may be entrenched by core advocacy coalition beliefs and that scholars have an important role to play in combatting misinformation:

[A]cademic capability and credibility in assessing such deliberative degeneration can also help erode truthiness, . . . Policy scientists and scholars have a responsibility to explain and help society and policymakers understand policymaking in an era of truthiness and

how they can deal with the growth, especially, of willful ignorance and obliviousness (p. 596).

We think it is important to encourage improved reporting of stadium deals, especially when bias in reporting may be inadvertent due to the infrequency of stadium deals occurring in local communities. As a guide, we expect that reporters should respect the economic consensus that stadiums are poor public investments like they treat expert conclusions on other subjects where misinformation is common (e.g., climate change, vaccine efficacy, and voter fraud). Reporters should emphasize that the economic evidence does not support the claim that stadiums promote economic development and scrutinize contrary claims with appropriate skepticism. It would be helpful to explain why large economic effects from stadiums are not expected, rather than focus only on past empirical findings, which may be dismissed as arcane ivory tower contrarianism. Pointing out that stadium-related spending largely represents a reallocation of other local spending promotes understanding of the non-obvious relationship between observed stadium-related spending at the expense of unobservable forgone spending from other local merchants.

Journalists should provide critical coverage of commissioned studies that involves outside evaluation from objective economic experts with no conflict of interest regarding the project. Reporting projected positive impacts qualified with speculative modifiers like “could” or “may,” or attributing estimates to other sources (e.g., “according to a report from the local convention and visitors bureau”) does not absolve reporters from their responsibility to scrutinize antithetical claims from stadium boosters. Positive economic impact forecasts from consultant advocacy studies should be treated similar to non-representative findings in other subjects. For example, studies commissioned by petroleum companies that doubt the existence of global warming would not receive banner headlines touting their findings or receive uncritical reporting without reaching out to expert climatologists for comments. Also, the conflict of interest of private commissioned reports should be stated explicitly.

Scholars also have a role in disseminating research findings beyond publishing academic studies and expecting media outlets to accurately report only credible research findings. Researchers have a responsibility to engage faulty reporting and refute misinformation with evidence. We concur with Williamson (2016): “the scientific process doesn’t stop when results are published in a peer-

reviewed journal. Wider communication is also involved, and that includes ensuring not only that information (including uncertainties) is understood, but also that misinformation and errors are corrected where necessary.”

7 Conclusion

The extensive study of the economic effects of stadiums on host communities demonstrates that sports venues have limited economic and social benefits, which do not justify the significant public subsidies that they typically receive. Even if limited spillover benefits exist, subsidies are no more warranted for sports venues than they are for other private businesses that confer inframarginal external benefits on surrounding community that typically operate without public assistance (e.g., fine restaurants, amusement parks, and shopping malls).

Table 5 provides a list of 23 venues that host current major-league teams constructed since 1990 without public funding, serving franchises in multiple leagues and different-sized markets. The private provision of sports venues demonstrates that public subsidies are not needed to support the major-league sports industry. Furthermore, stadium subsidies serve to transfer wealth from the general tax base to billionaire team owners.

Despite the fact that economists agree that stadium subsidies are poor public policy, state and local governments continue to fund venue construction levels that now routinely exceed \$1 billion. This practice raises concerns as to how public policy will be implemented during the expected increase in stadium construction from the wave existing facilities that are reaching the end of their typical hosting lifespans.

The sustained disconnect between academic research and policy regarding stadium subsidies suggests that it is important for researchers to do more than reference the findings of rigorous peer-reviewed studies, which may appear esoteric to the general public and policymakers, to effect policy outcomes. Most evidence regarding the ineffectiveness of stadiums as drivers of economic development has been published using complicated economics jargon that is not easy to interpret by non-economists. Researchers should consider presenting findings in layman’s terms that are more easily understood by the general public. Simply directing policymakers to academic studies presenting econometric estimates is unlikely to foster wide understanding or agreement. It is also

Table 5: Current Venues Constructed without Public Funding Since 1990

Venue	Teams	Year Opened	Total Cost(\$)
UBS Arena	New York Islanders	2021	\$1,056
SoFi Stadium	Los Angeles Chargers & Rams	2020	\$5,500
Chase Center	Golden State Warriors	2019	\$1,414
T-Mobile Arena	Las Vegas Golden Knights	2016	\$405
MetLife Stadium	New York Giants & Jets	2010	\$1,868
Gillette Stadium	New England Patriots	2002	\$468
Nationwide Arena	Columbus Blue Jackets	2000	\$225
Crypto.com Arena	LA Lakers & Clippers & Kings	1999	\$488
Scotiabank Arena	Toronto Raptors & Maple Leafs	1999	\$369
FTX Arena	Miami Heat	1999	\$330
Ball Arena	Denver Nuggets & Colorado Avalanche	1999	\$279
Capital One Arena	Washington Wizards & Capitals	1997	\$322
FedEx Field	Washington Commanders	1997	\$290
Bank of America Stadium	Carolina Panthers	1996	\$309
Bell Centre	Montreal Canadiens	1996	\$356
Wells Fargo Center	Philadelphia 76ers & Flyers	1996	\$307
Canadian Tire Centre	Ottawa Senators	1996	\$224
Moda Center	Portland Trail Blazers	1995	\$388
Rogers Arena	Vancouver Grizzlies & Canucks	1995	\$218
TD Garden	Boston Celtics & Bruins	1995	\$245
United Center	Chicago Bulls & Blackhawks	1994	\$315
Enterprise Center	St. Louis Blues	1994	\$298
Vivint Arena	Utah Jazz	1991	\$179

Construction costs in millions of real 2020 dollars. Does not include costs of maintenance, operations, and tax abatements that these facilities may receive.

important to emphasize the theoretical reason why stadiums tend not to boost local economies: stadiums fail to catalyze economic development because most stadium-related spending reflects the reallocation of spending from other local establishments.

In addition, researchers should not allow privately-commissioned advocacy studies to be presented unchallenged. Commissioned advocacy reports with favorable economic impact projections appear to be an effective mechanism for advancing stadium campaigns. Researchers should actively engage policymakers, media members, and the general public to point out the flaws inherent in these speculative projections that are often touted as equivalent to rigorous academic research. The evaluative questions developed by Wassmer et al. (2016) may prove useful for identifying fallacious estimates in commissioned reports that are often employed to justify subsidies. We also discourage scholars from conducting commissioned research on behalf of stadium boosters, especially when academic credentials may bolster the appearance of credibility. Academic researchers who choose to author commissioned reports outside of peer review should declare their conflicts of interest and adhere to established rigorous research standards of the discipline. Commissioned findings that

contradict published research should be vetted through peer review to verify their credibility.

As a potential institutional reform to limit subsidies, we recommend that communities consider stadium subsidy proposals through referendums, which have become less prevalent than they once were. Propher and Hatch (2015) finds that subsidies approved through direct democracy are less likely to be approved, and referendums are associated with lower public expenditures (Matsusaka 2018). Referendums also slow down the speed at which subsidies are considered, so that voters have more time to make informed decisions after evaluating costs and benefits, and politically disadvantaged grass-roots opposition is more likely to form (Delaney and Eckstein 2007). The decision about whether or not to fund the construction of a sports stadium is not time sensitive, despite common claims of false urgency, and should receive patient consideration given the consistent poor returns to public investments in stadiums.

Though the research regarding the economics of stadiums is vast, we encourage scholars to study the economic effects of stadiums further due to its pressing policy relevance. New empirical methods that examine specific projects, especially stadiums employing novel development strategies, using formalized case study methods provides updated credible information on the efficacy of stadium investments. Studies that provide a better understanding the distribution of costs and benefits throughout tax jurisdictions and estimates of social benefits would also be welcome to researchers in the field and help guide policy.

References

- Agha, Nola and Daniel Rascher (2021) “Economic development effects of major and minor league teams and stadiums,” *Journal of Sports Economics*, 22 (3), 274–294, [10.1177/1527002520975847](https://doi.org/10.1177/1527002520975847).
- Ahlfeldt, Gabriel M. and Wolfgang Maennig (2012) “Voting on a NIMBY facility: proximity cost of an “iconic” stadium,” *Urban Affairs Review*, 48 (2), 205–237.
- Allen, Ivan Jr. and Paul Hemphill (1971) *Mayor: notes on the sixties*, New York: Simon & Schuster.
- Arif, Imran, Adam Hoffer, Brad R. Humphreys, and Matthew Style (2022) “New sports facilities do not drive migration between US cities,” *Economics of Governance*, 23 (3-4), 195–217.
- Arzate, Héctor Alejandro (2022) “Virginia lawmakers advance \$1 billion bond bill to build stadium for Washington Commanders,” *DCist*, February 11, <https://dcist.com/story/22/02/11/virginia-football-commanders-dan-snyder/>, (accessed January 20, 2023).
- Astolfi, Courtney (2021) “Cleveland Indians strike \$435 million public-private deal for Progressive Field renovation, 15-year lease extension,” *Cleveland.com*, August 5, <https://www.cleveland.com/news/2021/08/cleveland-indians-strike-435-million-public-private-deal-for-progressive-field-renovation-15-year-lease-extension.html>, (accessed May 24, 2022).
- Baade, Robert A. (1996a) “Professional sports as catalysts for metropolitan economic development,” *Journal of Urban Affairs*, 18 (1), 1–17.
- (1996b) “What explains the stadium construction boom,” *Real Estate Issues*, 21 (3), 5–11.
- Baade, Robert A. and Richard F. Dye (1988a) “An analysis of the economic rationale for public subsidization of sports stadiums,” *The Annals of Regional Science*, 22 (2), 37–47.
- (1988b) “Sports stadiums and area development: a critical review,” *Economic Development Quarterly*, 2 (3), 265–275.
- (1990) “Stadiums and professional sports on metropolitan area development,” *Growth and Change*, 12 (2), 1–14.

- Baade, Robert A. and Victor A. Matheson (2016) “Going for the gold: the economics of the Olympics,” *Journal of Economic Perspectives*, 30 (2), 201–218.
- Baade, Robert A. and Allen R. Sanderson (1997) “The Employment Effect of Teams and Sports Facilities,” in Noll, Roger G. and Andrew Zimbalist eds. *Sports, Jobs and Taxes: The Economic Impact of Sports Teams and Stadiums*, 92–118: Brookings Institution.
- Baim, Dean V. (1994) *The Sports Stadium as a Municipal Investment*, Westwood, CT: Greenwood Press.
- Bastiat, Frederic (1850) “That which is seen, and that which is not seen,” *Essays on Political Economy.*, <https://oll.libertyfund.org/page/wswns>.
- Baumann, Robert W., Victor A. Matheson, and E. Frank Stephenson (2023) “Comparing the Tourism Impacts of Sports versus Cultural Events,” Manuscript.
- Becker, Gary S. (1983) “A theory of competition among pressure groups for political influence,” *The Quarterly Journal of Economics*, 98 (3), 371–400.
- Benson, Michael (1989) *Ballparks of North America: A Comprehensive Historical Encyclopedia of Baseball, Grounds, Yards, and Stadiums, 1845 to 1988*, Jefferson, North Carolina: McFarland.
- Block, Kristina (2021) “Professional sports and crime: do professional hockey games increase city-level crime rates?” *Crime & Delinquency*, 67 (12), 2069–2087, [10.1177/00111287211010491](https://doi.org/10.1177/00111287211010491).
- Boswell, Thomas (1996) “A sweet stroll back in time,” *Washington Post*, December 23, D1.
- Bradbury, John Charles (2019) “Determinants of revenue in sports leagues: an empirical assessment,” *Economics Inquiry*, 57, 121–140.
- (2022a) “Does hosting a professional sports team benefit the local community? Evidence from property assessments,” *Economics of Governance*, 23 (3-4), 219–252.
- (2022b) “The impact of sports stadiums on localized commercial activity: evidence from a business improvement district,” *Journal of Regional Science*, 62 (1), 194–217, <https://doi.org/10.1111/jors.12560>.

- (2022c) “A home run for Cobb? The economic impact of Truist Park and The Battery Atlanta Cobb County,” March, https://coles.kennesaw.edu/econopp/docs/Bradbury_Cobb_report_March2022.pdf, Bagwell Center for the Study of Markets and Economic Opportunity Policy Report.
- (2023) “Sports stadiums and local economic activity: evidence from sales tax collections,” *Journal of Urban Affairs*, <https://www.tandfonline.com/doi/full/10.1080/07352166.2022.2044837>, In press.
- Bradbury, John Charles, Dennis Coates, and Brad R. Humphreys (2023) “The impact of professional sports franchises and venues on local economies: A comprehensive survey,” *Journal of Economic Surveys*, <https://doi.org/10.1111/joes.12533>, In press.
- Buchanan, James M. (1987) *Public Finance in Democratic Process: Fiscal Institutions and Individual Choice*, Chapel Hill: UNC Press.
- Carlino, Gerald and N. Edward Coulson (2004) “Compensating differentials and the social benefits of the NFL,” *Journal of Urban Economics*, 56 (1), 25–50.
- (2006) “Compensating differentials and the social benefits of the NFL: Reply,” *Journal of Urban Economics*, 60, 132–138.
- Cassidy, Tina (1999) “NFL approves plan to help finance new Massachusetts stadium,” *The Boston Globe*, May 27, (accessed August 23, 2022).
- Center for Economic Development Research (2018) “Fiscal impact of SunTrust Park and The Battery Atlanta on Cobb County,” Report commissioned by Cobb Chamber of Commerce, https://www.cobbchamber.org/economic-development/suntrust_park_fiscal_impact.aspx.
- Chapin, Timothy S (2004) “Sports facilities as urban redevelopment catalysts: Baltimore’s Camden Yards and Cleveland’s Gateway,” *Journal of the American Planning Association*, 70 (2), 193–209.
- Chema, Thomas V. (1996) “When professional sports justify the subsidy, a reply to Robert A. Baade,” *Journal of Urban Affairs*, 18 (1), 19–22.

- Chikish, Yulia, Brad R. Humphreys, Crocker Lui, and Adam Nowak (2019) “Sports-led tourism, spatial displacement, and hotel demand,” *Economic Inquiry*, 57 (4), 1859–1878.
- City of Atlanta (2015) “Georgia Supreme Court Upholds Atlanta Stadium Financing,” March 16, <https://www.atlantaga.gov/Home/Components/News/News/3407/>, (accessed May 27, 2022).
- Clapp, Christopher M. and Jahn K. Hakes (2005) “How long a honeymoon? The effect of new stadiums on attendance in Major League Baseball,” *Journal of Sports Economics*, 6 (3), 237–263.
- Coates, Dennis (2007) “Stadiums and arenas: economic development or economic redistribution?” *Contemporary Economic Policy*, 25 (4), 565–577.
- (2015) “Growth effects of sports franchises, stadiums, and arenas: 15 years later,” <https://www.mercatus.org/publications/targeted-economic-development/growth-effects-sports-franchises-stadiums-and-arenas-15>, Mercatus Working Paper.
- Coates, Dennis and Brad R. Humphreys (1999) “The growth effects of sports franchises, stadia and arenas,” *Journal of Policy Analysis and Management*, 18 (4), 601–624.
- (2001) “The economic consequences of professional sports strikes and lockouts,” *Southern Economic Journal*, 67 (3), 737–747.
- (2002) “The economic impact of postseason play in professional sports,” *Journal of Sports Economics*, 3 (3), 291–299.
- (2003) “The effect of professional sports on earnings and employment in the services and retail sectors in U.S. cities,” *Regional Science and Urban Economics*, 33 (2), 175–198.
- (2005) “Novelty effects of new facilities on attendance at professional sporting events,” *Contemporary Economic Policy*, 23 (3), 436–455.
- (2006) “Proximity benefits and voting on stadium and arena subsidies,” *Journal of Urban Economics*, 59 (2), 285–299.
- (2008) “Do economists reach a conclusion on subsidies for sports franchises, stadiums, and mega-events?” *Econ Journal Watch*, 5 (3), 294–315.

- (2011) “The effect of professional sports on the earnings of individuals: evidence from microeconomic data,” *Applied Economics*, 43 (29), 4449–4459.
- Coates, Dennis, Brad R. Humphreys, and Andrew Zimbalist (2006) “Compensating differentials and the social benefits of the NFL: A comment,” *Journal of Urban Economics*, 60 (1), 124–131.
- Collins, Clay and E. Frank Stephenson (2018) “Taxing the travelers: A note on hotel tax incidence,” *Journal of Regional Analysis & Policy*, 48 (1), 7–11.
- Connolly, Jennifer M. and Michael Touchton (2020) “The lure of new jobs: how framing impacts perceptions of local subsidies for sports teams,” *Public Budgeting & Finance*, 40 (4), 86–103.
- Cooper, John (2022) “Nashville’s football stadium will not be taxpayer burden under new plan,” *The Tennessean*, May 12, <https://www.tennessean.com/story/opinion/2022/05/12/mayor-cooper-nashvilles-new-football-stadium-not-burden/9732484002/>, (accessed August 8, 2022).
- Cox, Erin, Laura Vozzella, and Julie Zauzmer Weil (2022) “Md. has \$400 million plan for Commanders, but it won’t build a stadium,” *Washington Post*, April 4, <https://www.washingtonpost.com/dc-md-va/2022/04/04/maryland-commanders-deal/>, (accessed August 9, 2022).
- Crompton, John L. (1995) “Analysis of sports facilities and events: eleven sources of misapplication,” *Journal of Sport Management*, 9 (1), 14–35.
- Dehring, Caroline A., Craig A. Depken, and Michael R. Ward (2007) “The impact of stadium announcements on residential property values: evidence from a natural experiment in Dallas-Fort Worth,” *Contemporary Economic Policy*, 25 (4), 627–638.
- Delaney, Kevin J. and Rick Eckstein (2003a) “The devil is in the details: neutralizing critical studies of publicly subsidized stadiums,” *Critical Sociology*, 29 (2), 189–210.
- (2003b) *Public Dollars, Private Stadiums: The Battle over Building Sports Stadiums*: Rutgers University Press.
- (2007) “Urban power structures and publicly financed stadiums,” *Sociological Forum*, 22 (3), 331–353.

- (2008) “Local media coverage of sports stadium initiatives,” *Journal of Sport & Social Issues*, 32 (1), 72–93.
- deMause, Neil (2018) “The stadium scam goes minor-league, and it has an unlikely ally,” *Deadspin*, September 10, <https://deadspin.com/the-stadium-scam-goes-minor-league-and-it-has-an-unlik-1828896356>, (accessed December 7, 2022).
- Depken, Craig A. (2006) “The impact of new stadiums on professional baseball team finances,” *Public Finance & Management*, 6 (3).
- Depken, Craig A. and E. Frank Stephenson (2018) “Hotel demand before, during, and after sports events: evidence from Charlotte, North Carolina,” *Economic Inquiry*, 56 (3), 1764–1776, <https://doi.org/10.1111/ecin.12572>.
- DePuyt, Bruce (2022) “Maryland Won’t Enter Bidding War to Keep the Commanders, Hogan Says,” *Maryland Matters*, March 15, <https://www.marylandmatters.org/2022/03/15/maryland-wont-enter-bidding-war-to-keep-the-commanders-hogan-says/>, (accessed August 9, 2022).
- Drukker, Austin J., Ted Gayer, and Alexander K. Gold (2020) “Tax-exempt municipal bonds and the financing of professional sports stadiums,” *National Tax Journal*, 73 (1), 157–196, [10.17310/ntj.2020.1.05](https://doi.org/10.17310/ntj.2020.1.05).
- Editorial Board (2022) “It’s a fact: The Bills could have left. A fair agreement keeps them here,” *The Buffalo News*, May 2, (accessed May 2, 2022).
- Erie, Steven P., Vladimir Kogan, and Scott A. MacKenzie (2010) “Redevelopment, San Diego style: the limits of public—private partnerships,” *Urban Affairs Review*, 45 (5), 644–678, [10.1177/1078087409359760](https://doi.org/10.1177/1078087409359760).
- Feng, Xia and Brad R. Humphreys (2012) “The impact of professional sports facilities on housing values: evidence from census block group data,” *City, Culture and Society*, 3 (3), 189–200.
- (2018) “Assessing the economic impact of sports facilities on residential property values: a spatial hedonic approach,” *Journal of Sports Economics*, 19 (2), 188–210.

- Ferré-Sadurní, Luis (2022) “Buffalo Bills strike deal for taxpayer-funded \$1.4 billion stadium,” *New York Times*, March 28, <https://www.nytimes.com/2022/03/28/nyregion/buffalo-bills-stadium-deal.html>, (accessed May 6, 2022).
- Fort, Rodney (1997) “Direct democracy and the stadium mess,” in Noll, Roger G. and Andrew Zimbalist eds. *Sports, Jobs and Taxes: The Economic Impact of Sports Teams and Stadiums*, 146–177, Washington, DC: The Brookings Institution.
- Fortier, Sam, Laura Vozzella, and Karina Elwood (2022) “Virginia legislature has bipartisan support to build stadium complex for Washington Commanders,” *Washington Post*, February 15, <https://www.washingtonpost.com/sports/2022/02/15/washington-commanders-stadium-northern-virginia-legislature/>, (accessed June 10, 2022).
- Friedman, Adam (2022) “Beacon Center poll: 61% of Tennesseans oppose state funding for Titans stadium,” *The Tennessean*, September 1, <https://www.tennessean.com/story/news/politics/2022/09/01/tennessee-titans-nfl-stadium-beacon-center-poll-most-tennesseans-oppose-state-funding/7954490001/>, (accessed January 9, 2023).
- Gendzel, Glen (1995) “Competitive boosterism: How Milwaukee lost the Braves,” *The Business History Review*, 69 (4), 530–566, <https://doi.org/10.2307/3117144>.
- Gershman, Michael (1993) *Diamonds: The evolution of the ballpark*, New York: Houghton Mifflin Company.
- Harger, Kaitlyn, Brad R. Humphreys, and Amanda Ross (2016) “Do new sports facilities attract new businesses?” *Journal of Sports Economics*, 17 (5), 483–500.
- Hausman, Jerry (2012) “Contingent valuation: from dubious to hopeless,” *Journal of Economic Perspectives*, 26 (4), 43–56.
- Heller, Lauren R. and E. Frank Stephenson (2021) “How does the Super Bowl affect host city tourism?” *Journal of Sports Economics*, 22 (2), 183–201, [10.1177/1527002520959393](https://doi.org/10.1177/1527002520959393).
- Hiskey, Michelle (1997) “Seven-month makeover: The Paralympics moved out and the cranes moved in, beginning a race against time to get the Braves’ new home in shape for baseball season.,” *Atlanta Journal-Constitution*, March 23, G5.

- Horn, Brady P., Michael Cantor, and Rodney Fort (2015) “Proximity and voting for professional sporting stadiums: the pattern of support for the Seahawk stadium referendum,” *Contemporary Economic Policy*, 33 (4), 678–688.
- Huang, Haifang and Brad R. Humphreys (2014) “New sports facilities and residential housing markets,” *Journal of Regional Science*, 54 (4), 629–663.
- Hudson, Ian (2001) “The use and misuse of economic impact analysis,” *Journal of Sport & Social Issues*, 25 (1), 20–39.
- Humphreys, Brad R. (2019) “Should the construction of new professional sports facilities be subsidized?” *Journal of Policy Analysis and Management*, 38 (1), 264–270.
- Humphreys, Brad R. and Adam Nowak (2017) “Professional sports facilities, teams and property values: Evidence from NBA team departures,” *Regional Science and Urban Economics*, 66, 39–51.
- Humphreys, Brad R. and Hyunwoong Pyun (2018) “Professional sporting events and traffic: evidence from U.S. cities,” *Journal of Regional Science*, 58, 869–886.
- Humphreys, Brad R. and Li Zhou (2015a) “Reference-dependent preferences, team relocations, and major league expansion,” *Journal of Economic Behavior & Organization*, 109, 10–25.
- (2015b) “Sports facilities, agglomeration, and urban redevelopment,” *Regional Science and Urban Economics*, 54, 60–73.
- IGM Economic Experts Panel (2017) “Sports stadiums,” <https://www.igmchicago.org/surveys/sports-stadiums/>, (accessed June 14, 2021).
- Islam, Muhammad Q. (2019) “Local development effect of sports facilities and sports teams: case studies using synthetic control method,” *Journal of Sports Economics*, 20 (2), 242–260.
- Jensen, Nathan M. and Edmund J. Malesky (2018) *Incentives to pander: How politicians use corporate welfare for political gain*, New York: Cambridge University Press.
- Johnson, Bruce K., Peter A. Groothuis, and John C. Whitehead (2001) “The value of public goods generated by a major league sports team,” *Journal of Sports Economics*, 2 (1), 6.

- Johnson, Bruce K., Michael J. Mondello, and John C. Whitehead (2007) “The value of public goods generated by a National Football League team,” *Journal of Sport Management*, 21 (2), 123–136.
- Johnson, Bruce K. and John C. Whitehead (2000) “Value of public goods from sports stadiums: the CVM approach,” *Contemporary Economic Policy*, 18 (1), 48–58.
- Johnson, Bruce K., John C. Whitehead, Daniel S. Mason, and Gordon J. Walker (2012) “Willingness to pay for downtown public goods generated by large, sports anchored development projects: the CVM approach,” *City, Culture and Society*, 3 (3), 201–208.
- Joshi, Aakrit, Brady P Horn, and Robert P Berrens (2020) “Major league soccer expansion and property values: do sports franchises generate amenities or disamenities?” *Applied Economics*, 52 (44), 4881–4899.
- Kalist, David E. and Daniel Y. Lee (2016) “The National Football League: does crime increase on game day?” *Journal of Sports Economics*, 17 (8), 863–882, [10.1177/1527002514554953](https://doi.org/10.1177/1527002514554953).
- Keeler, Zachary T., Heather M. Stephens, and Brad R. Humphreys (2021) “The amenity value of sports facilities: evidence from the Staples Center in Los Angeles,” *Journal of Sports Economics*, 22 (7), 799–822, [10.1177/15270025211018258](https://doi.org/10.1177/15270025211018258).
- Kellison, Timothy B. and Michael J. Mondello (2014) “Civic paternalism in political policymaking: The justification for no-vote stadium subsidies,” *Journal of Sport Management*, 28 (2), 162–175.
- Koczwarra, Kevin (2022) “Paying Polar Park’s debt: for the second year, underwhelming tax collections were saved by a public property sale,” *Worcester Business Journal*, November 28, <https://www.wbjournal.com/article/paying-polar-parks-debt-for-the-second-year-underwhelming-tax-collections-were-saved-by-a>, (accessed November 28, 2022).
- Lee, Tim (2016) “County is moving in right direction,” *Marietta Daily Journal*, July 24, https://www.mdjonline.com/opinion/tim-lee-county-is-moving-in-right-direction/article_eeca2522-5157-11e6-a9e7-07e39a46db44.html, (accessed May 14, 2021).
- Long, Judith Grant (2005) “Full count: the real cost of public funding for major league sports facilities,” *Journal of Sports Economics*, 6 (2), 119–143.

- (2013) *Public-Private Partnerships for Major League Sports Facilities*, New York, NY: Taylor and Francis.
- Lowry, Philip (1986) *Green Cathedrals*, Manhattan, Kansas: AG Press.
- Mares, Dennis and Emily Blackburn (2019) “Major League Baseball and crime: opportunity, spatial patterns, and team rivalry at St. Louis Cardinal games,” *Journal of Sports Economics*, 20, 875–902.
- Matheson, Victor (2019) “Is there a case for subsidizing sports stadiums?” *Journal of Policy Analysis and Management*, 38 (1), 271–277.
- (2022) “I’ve studied stadium financing for over two decades — and the new Bills stadium is one of the worst deals for taxpayers I’ve ever seen,” *Maryland Matters*, April 15, <https://theconversation.com/ive-studied-stadium-financing-for-over-two-decades-and-the-new-bills-stadium-is-one-of-the-worst-deals-for-taxpayers-ive-ever-seen-180475>, (accessed August 9, 2022).
- Matsusaka, John G. (2018) “Public policy and initiative and referendum: a survey with some new evidence,” *Public Choice*, 174, 107–143.
- Mazza, Sandy (2022) “How the new Nashville stadium plan is a centerpiece for Nashville’s imagined future,” *The Tennessean*, June 22, <https://www.tennessean.com/story/money/2022/06/22/nashville-stadium-plan-centerpiece-imagined-future/7690154001/>, (accessed June 23, 2022).
- Miner, Dan (2022) “How a group of Buffalo business execs is working with the Bills on a new stadium,” *Buffalo Business First*, March 16, <https://www.bizjournals.com/buffalo/news/2022/03/16/buffalo-bills-stadium-business-insiders.html>, (accessed August 9, 2022).
- Molotch, Harvey (1976) “The city as a growth machine: Toward a political economy of place,” *American Journal of Sociology*, 82 (2), 309–332.
- Murphy, J.K. (2019) “Part 2: How the Braves came to Cobb: The lunch,” *Marietta Daily Journal*, December 30, https://www.mdjonline.com/premium/part-2-how-the-braves-came-to-cobb-the-lunch/article_fba27896-2370-11ea-be8c-13c049e1627a.html, (accessed July 26, 2021).

- Neale, Walter C. (1964) “The peculiar economics of professional sports,” *The Quarterly Journal of Economics*, 78 (1), 1–14.
- Neto, Amir and Kayla Whetstone (2022) “The effect of the Raiders’ relocation to Las Vegas on residential property values,” *Journal of Housing Research*, forthcoming, 1–15, [10.1080/10527001.2021.2021725](https://doi.org/10.1080/10527001.2021.2021725).
- Noll, Roger G. (1974) “Attendance and price setting,” in Noll, Roger G. ed. *Government and the Sports Business*, 115–157, Washington, DC: The Brookings Institution.
- Nordheimer, Jon (1987) “Joe Robbie’s success story,” *New York Times*, August 16, A9.
- Nyhan, Brendan (2020) “Facts and myths about misperceptions,” *Journal of Economic Perspectives*, 34 (3), 220–36.
- Oates, Wallace E. (1969) “The effects of property taxes and local public spending on property values: an empirical study of tax capitalization and the Tiebout hypothesis,” *Journal of Political Economy*, 77 (6), 957–971.
- Olson, Mancur (1965) *The Logic of Collective Action: Public Goods and the Theory of Groups*, Cambridge, Massachusetts: Harvard University Press.
- O’Shei, Tim (2021) “What are the Buffalo Bills and a new stadium worth? Why the economics are hard to calculate,” *The Buffalo News*, September 19, https://buffalonews.com/news/local/what-are-the-buffalo-bills-and-a-new-stadium-worth-why-the-economics-are-hard/article_d879b6ca-1808-11ec-ae66-93d40339fb57.html, (accessed September 21, 2021).
- Peltzman, Sam (1976) “Toward a more general theory of regulation,” *The Journal of Law & Economics*, 19 (2), 211–240.
- Perl, Anthony, Michael Howlett, and Michael Ramesh (2018) “Policy-making and truthiness: Can existing policy models cope with politicized evidence and willful ignorance in a “post-fact” world?” *Policy Sciences*, 51 (4), 581–600.
- Propheter, Geoffrey (2017) “Subsidies and stadia’ opulence,” *Journal of Sports Economics*, 18 (1), 3–18.

- (2020) “Does proximity to a new sports facility affect existing businesses’ survival time?” *Journal of Sports Economics*, 21 (5), 451–476.
- (2021) “Sports facilities and the local property tax base in recovery,” *Regional Science Policy & Practice*, 13 (5), 1687–1701, <https://doi.org/10.1111/rsp3.12444>.
- (2023) *Major league sports and the property tax: Costs and implications of a stealth tax expenditure*, Sports Economics, Management, and Policy, New York: Springer.
- Propheter, Geoffrey and Megan E. Hatch (2015) “Evaluating parking monetization as a strategy for subsidizing major league sports facilities,” *Growth and Change*, 46 (1), 1–15.
- Pyun, Hyunwoong (2019) “Exploring causal relationship between Major League Baseball games and crime: a synthetic control analysis,” *Empirical Economics*, 57 (1), 365–383.
- Quirk, James and Rodney D. Fort (1997) *Pay dirt: The business of professional team sports*, Princeton, New Jersey: Princeton University Press.
- Santo, Charles A. (2005) “The economic impact of sports stadiums: recasting the analysis in context,” *Journal of Urban Affairs*, 27 (2), 177–191.
- (2007) “Beyond the economic catalyst debate: can public consumption benefits justify a municipal stadium investment?” *Journal of Urban Affairs*, 29 (5), 455–479.
- Scandizzo, Pasquale Lucio and Maria Rita Pierleoni (2018) “Assessing the Olympic Games: the economic impact and beyond,” *Journal of Economic Surveys*, 32 (3), 649–682, <https://doi.org/10.1111/joes.12213>.
- Smith, Sam (1986) “‘My conscience is clear,’ Reinsdorf says of plans,” *Chicago Tribune*, July 15, <https://www.chicagotribune.com/news/ct-xpm-1986-07-15-8602200342-story.html>, (accessed August 8, 2022).
- Stephenson, Cassandra (2022) “Tennessee Titans, Nashville mayor unveil details of \$2.1B stadium deal,” *The Tennessean*, October 17, <https://www.tennessean.com/story/news/local/davidson/2022/10/17/tennessee-titans-nashville-mayor-detail-2-1b-nissan-stadium-deal/69568486007/>, (accessed January 16, 2023).

- Stitzel, Brandli and Cynthia L. Rogers (2019) “NBA sweet spots: distance-based impacts on establishment-level sales,” *Growth and Change*, 50 (1), 335–351, <https://doi.org/10.1111/grow.12262>.
- Stole, Bryn and Scott Dance (2022) “Maryland Gov. Hogan signs dozens of just-passed bills, including \$1.2 billion for Orioles, Ravens stadium improvements,” *Baltimore Sun*, April 12, <https://www.baltimoresun.com/politics/bs-md-pol-bill-signing-20220412-dptn5zqg7zgxpd4hi37fe265e-story.html>, (accessed May 13, 2022).
- Surdam, David George (2015) *The Big Leagues Go to Washington: Congress and Sports Antitrust, 1951–1989*: University of Illinois Press.
- Swindell, David, Mark S. Rosentraub, and Sasha Tsvetkova (2008) “Public dollars, sports facilities, and intangible benefits: the value of a team to a region’s residents and tourists,” *Journal of Tourism*, 9 (2), 133–159.
- Topkin, Marc (1995) “We got it!,” *Tampa Bay Times*, March 9, <https://www.tampabay.com/archive/1995/03/09/we-got-it/>, (accessed August 30, 2022).
- Tu, Charles C. (2005) “How does a new sports stadium affect housing values? The case of FedEx Field,” *Land Economics*, 81 (3), 379.
- Walker, Matthew and Michael J. Mondello (2007) “Moving beyond economic impact: a closer look at the contingent valuation method,” *International Journal of Sport Finance*, 2 (3), 149–160.
- Wassmer, Robert W., Ryan S. Ong, and Geoffrey Propher (2016) “Suggestions for the needed standardization of determining the local economic impact of professional sports,” *Economic Development Quarterly*, 30 (3), 252–266.
- Whitehead, John C., Melissa S. Weddell, and Peter A. Groothuis (2016) “Mitigating hypothetical bias in stated preference data: Evidence from sports tourism,” *Economic Inquiry*, 54 (1), 605–611.
- Williamson, Phil (2016) “Take the time and effort to correct misinformation,” *Nature*, 540 (7632), 171–171.

Zimbalist, Andrew (2018) “The case for Worcester’s stadium deal,” *Telegram & Gazette*, August 26, <https://www.telegram.com/story/news/local/worcester/2018/08/26/guest-columnist-andrew-zimbalist-case-for-worcesters-stadium-deal/10940746007/>, (accessed July 6, 2022).

Zremski, Jerry (2022) “Hochul ties Seneca payment of nearly \$565 million to Bills stadium deal,” *The Buffalo News*, March 29, (accessed August 29, 2022).

A Appendix: Historical Database of Stadiums and Arenas

Data on stadium construction and funding was compiled by the authors from several sources. Most 1909–2010 financial information is from (Long 2013, Table 2.1), which provides a consistent source of valuation over the sample that has been closely vetted by an expert for consistency. Benson (1989), Gershman (1993), and Lowry (1986) provide additional information. Post-2010 and a few missing observations were collected by the authors from various media sources. Publicly-reported costs often differ across sources; thus, we reviewed multiple sources and report data that we find to be most credible. Reporting standards are not identical over time or across publications; however, though imperfect, the data are sufficiently reliable to offer useful guidance on trends in venue construction, duration, and costs. Sources that informed the determination of costs, openings, and hosting for individual venues will be made available in data file in a public repository upon publication.

Renovations are difficult to track over time, because they are not consistently documented and reported across facilities and media sources. Most venues receive periodic renovations as part of their regular life (e.g., reconfiguring seats and luxury boxes, upgrading video boards, replacing depreciated capital), which typically range from hundreds of thousands of to tens of millions of dollars. We do not track these minor refurbishments, even though they may be described as “major” in public reports. For venues currently hosting major-league teams, we record the most recent and planned substantial renovations that contribute significant capital construction that is intended to prolong the facility’s lifespan for 15 years or longer. Typical substantial renovations have reported costs of more than approximately \$50 million for arenas and \$100 million for stadiums. We document the timing of renovations in Table 7, but we do not report funding contributions in a table. Renovations may be completed over time; therefore, the date of last renovation is the first year following the reported completion of the renovations. Renovations data reported in Figure 7 were gathered from media reports.

In a few cases we record substantial reconstruction of an existing facility as new venues, because it resulted in the effective replacement of an existing facility that would otherwise not be up to major-league standards. We believe it is appropriate to view these projects as new venues even though they incorporated some features of their predecessors. The exceptions below are

denoted with asterisks in Table A1, and we do not report their funding data, which are not directly comparable to new venue construction costs and often unreported.

- Sportsman’s Park (St. Louis, 1909) and League Park (Cleveland, 1910) replaced small wooden-framed stadiums with larger concrete and steel structures similar to the new durable stadiums erected during the era. The stadiums would host baseball for 58 and 37 years, respectively.
- The original Mile High Stadium in Denver opened as a small 15,000 seat minor-league baseball stadium in 1948. It was gradually reconfigured to host football during the 1960s. 1968 marks its beginning as a major-league stadium, when a second deck was added to expand its capacity to 50,000 spectators, which was a condition for the American Football League’s Broncos being included in the rival league’s merger with the NFL.
- Climate Pledge Arena is a rebuilding of Key Arena, which had been deemed not acceptable to host the Seattle Sonics, which departed Seattle in 2008. Its \$1.15 billion renovation gutted the facility to reconstruct it to be equivalent to other contemporary NHL arenas in order to host the expansion Seattle Kraken in 2021. Both arenas are listed in the table separately, as new and defunct arenas.

Some extensive renovations that we do not count as new venues include refurbishments of Soldier Field (2003) and Yankee Stadium (1976). Even though the renovations were expensive and substantial, and some sources do classify them as new venues, we conclude that the changes did not alter the character of the stadiums enough to rise to the level of being effective replacements.

We do not include the Baker Bowl (Philadelphia Phillies, 1895–1938) in our sample, which was the first non-wooden stadium. Though its was constructed with fire resistant steel and brick and used cantilever architecture, the stadium is generally not considered to be a modern era stadium. It experienced several partial collapses during its history and did not inspire imitation (Benson 1989, pp. 297–302).

Table A1 includes venues that hosted franchises in present day major leagues. Teams and venues often pre-date league founding for non-MLB teams. Stadiums that hosted only teams of now-defunct rival major leagues (e.g., Federal League, American Basketball Association, World

Hockey Association, All American Football Conference) are not included; however, some of these stadiums are included because they later hosted existing major-league franchises (e.g., Wrigley Field).

Venue characteristics: General description of the venue and its hosting responsibilities.

Venue: Venues that currently host major-league teams are listed by their current name.

Venues that no longer host teams are listed by the name most commonly-associated with the facility during its hosting period. Venues that served as temporary or occasional hosts are not included.

In general, arenas are smaller and less expensive than stadiums, typically hosting less than 35,000 spectators and are always enclosed. Stadiums are larger facilities capable of hosting crowds of 40,000 to 100,000 spectators. Stadiums are mostly outdoor facilities, though they sometimes feature permanent domes or retractable roofs. We classify venues as either an arena or a stadium according to the type of professional team it hosted, where arenas hosted only NBA and/or NHL teams, and stadiums primarily hosted MLB and/or NFL teams.

Teams: Team names of major-league clubs that considered the facility its principal home venue. Teams are listed by their most common name during the hosting period, and some defunct franchises of present-day major leagues are listed for older venues. Many venues hosted multiple teams, which are listed.

Operation: Records the duration of the venue's hosting period.

Year Open: The first season that the venue opened as capable of hosting a major-league sports team. In some cases, eventual hosts did not host a major-league team for several years (e.g., Tropicana Field opened in 1990, but it did not host the Tampa Bay Rays until 1998); however, the opening year reflects the depreciation of the facility over time to quantify longevity.

Last Year: The last season in which the venue served as a regular host for a major-league team. Many stadiums remain open as public entertainment venues or host minor-league

and college sports teams after they were deemed obsolete for hosting major-league franchises.

Lifespan: Facility lifespan is calculated from the venue's date of opening through the last year the facility served as an intended long-term host for a major-league team, or 2023 if the stadium continues to host a major-league team. Venues that served as temporary hosts for major-league teams are not included, even if they once served as permanent homes for major-league teams. For example, though Washington Nationals played three seasons in Robert F. Kennedy Stadium from 2005–2007 while waiting for its new stadium to be constructed, 1996 is the year it last served as the regular host for the city's NFL team.

Costs: Costs reflect publicly reported capital costs on building, land, and infrastructure for constructing new sports stadiums and arenas that served as the primary regular hosting venue for a major-league team. It does not include maintenance and operations expenditures. All costs are reported in current dollars in the year the venue opened and in real 2020 dollars. While previous researchers have reported real dollars using producer and construction indexes, we use the Consumer Price Index (CPI) to deflate cost to reflect the opportunity cost of consumption. The CPI has the added advantage of being recorded using objective methods since 1913, which covers most of the sample. Pre-1913 costs are deflated using the 1913 CPI and post-2020 costs are deflated using the 2021 CPI. Costs are left blank when no credible reports are available.

Total Cost: Total funding devoted to new facility construction.

Public Cost: The sum of government contributions to new facility construction costs. It does not include additional contributions of public land and supporting infrastructure, because these costs are often reported differently across jurisdictions. Though we do not include these contributions, it is important to acknowledge that they can be substantial (Long 2013).

Public Share: Public costs as a percentage of total costs reflects the relative share between public and private entities in funding venue construction.

Table A1: Venues Hosting Major US Sports League Teams (1909–2026)

Venue	Teams	Operation			Funding (in millions)				Share
		Year Open	Last Year	Lifespan (years [†])	Total (current)	Public (current)	Total (2020)	Public (2020)	Public (%)
Boston Arena	Boston Celtics & Bruins	1909	1955	47					
Forbes Field	Pittsburgh Pirates & Steelers	1909	1970	62	\$2	\$0	\$52	\$0	0%
Shibe Park	Philadelphia Athletics & Eagles	1909	1970	62	\$0.30	\$0	\$8	\$0	0%
Sportsman’s Park*	St. Louis Browns & Cardinals (MLB & NFL)	1909	1966	58					
Comiskey Park	Chicago White Sox & Cardinals (NFL)	1910	1990	81	\$0.70	\$0	\$20	\$0	0%
League Park*	Cleveland Indians	1910	1946	37					
Griffith Stadium	Washington Senators & Redskins	1911	1960	50					
Mutual Street Arena	Toronto Maple Leafs	1911	1931	21					
Polo Grounds	New York Giants (MLB & NFL) & Yankees & Jets	1911	1957	47					
Crosley Field	Cincinnati Reds	1912	1970	59	\$0.22	\$0	\$6	\$0	0%
Fenway Park	Boston Red Sox	1912		112	\$0.65	\$0	\$17	\$0	0%
Tiger Stadium	Detroit Tigers	1912	1999	88	\$0.50	\$0	\$13	\$0	0%
Ebbets Field	Brooklyn Dodgers	1913	1957	45	\$0.75	\$0	\$20	\$0	0%
Wrigley Field	Chicago Cubs & Bears & Cardinals (NFL)	1914		110	\$0.25	\$0	\$6	\$0	0%
Braves Field	Boston Braves	1915	1952	38	\$0.60	\$0			0%
Kezar Stadium	San Francisco 49ers & Oakland Raiders	1922	1970	49	\$0.30	\$0	\$5	\$0	0%

(continued)

Venue	Teams	Year Open	Last Year	Lifespan (years [†])	Total (current)	Public (current)	Total (2020)	Public (2020)	Public (%)
Franklin Field	Philadelphia Eagles	1923	1970	48					
Los Angeles Coliseum	Los Angeles Rams & Raiders	1923	1994	72	\$0.95	\$0.95	\$14	\$14	100%
Municipal Stadium	Kansas City Athletics & Chiefs	1923	1972	50	\$0.40	\$0	\$6	\$0	0%
Yankee Stadium	New York Yankees & Giants (NFL)	1923	2008	86	\$3	\$0	\$38	\$0	0%
Soldier Field	Chicago Bears	1924		100	\$10	\$10	\$151	\$151	100%
Pitt Stadium	Pittsburgh Steelers	1925	1970	46					
Madison Square Garden	New York Knicks & Rangers & Americans	1926	1968	43					
Montreal Forum	Montreal Canadiens	1926		98	\$1	\$0	\$15	\$0	0%
Tulane Stadium	New Orleans Saints	1926	1974	49					
Detroit Olympia	Detroit Pistons & Red Wings	1927	1979	53	\$3	\$0	\$45	\$0	0%
Boston Garden	Boston Cetics & Bruins	1928	1995	68	\$10	\$0	\$151	\$0	0%
Chicago Stadium	Chicago Bulls & Blackhawks	1929	1994	66	\$7	\$0	\$106	\$0	0%
St. Louis Arena	St. Louis Hawks & Blues	1929	1994	66	\$2	\$0	\$30	\$0	0%
Cotton Bowl	Dallas Texans & Cowboys	1930	1971	42	\$0.33	\$0	\$5	\$0	0%
Philadelphia Convention Hall	Philadelphia Warriors & 76ers	1930	1967	38					
Green Bay City Stadium	Green Bay Packers	1931	1956	26					
Maple Leaf Garden	Toronto Maple Leafs	1931	1999	69	\$2	\$0	\$34	\$0	0%
Cleveland Municipal Stadium	Cleveland Indians & Rams	1932	1993	62	\$4	\$4	\$76	\$76	100%
Municipal Auditorium	St. Louis Hawks	1934	1968	35	\$4	\$4	\$77	\$77	100%
War Memorial Stadium	Buffalo Bills	1937	1972	36	\$3	\$3	\$54	\$54	100%
Orange Bowl	Miami Dolphins	1938	1986	49	\$0.34	\$0.34	\$6	\$6	100%

(continued)

Venue	Teams	Year Open	Last Year	Lifespan (years [†])	Total (current)	Public (current)	Total (2020)	Public (2020)	Public (%)
Memorial Auditorium	Buffalo Braves & Sabres	1940	1996	57	\$3	\$3	\$55	\$55	100%
Cow Palace	San Francisco Warriors	1941	1971	31					
Cincinnati Gardens	Cincinnati Royals	1949	1972	24	\$3	\$0	\$33	\$0	0%
Colisee de Quebec	Quebec Nordiques	1949	1995	47					
Milwaukee Arena	Milwaukee Hawks	1950	1988	39					
War Memorial Coliseum	Fort Wayne Pistons	1952	1957	6					
Memorial Stadium	Baltimore Orioles & Colts	1953	1991	39	\$6	\$6	\$58	\$58	100%
Milwaukee County Stadium	Milwaukee Braves & Green Bay Packers	1953	2000	48	\$5	\$5	\$48	\$48	100%
Metropolitan Stadium	Minnesota Twins & Vikings	1956	1981	26	\$9	\$9	\$86	\$86	100%
Lambeau Field	Green Bay Packers	1957		67	\$1	\$1	\$9	\$9	100%
Sun Devil Stadium	Arizona Cardinals	1958	2005	48	\$12	\$0	\$108	\$0	0%
Los Angeles Memorial Sports Arena	Los Angeles Lakers & Clippers	1959	1999	41	\$7	\$7	\$62	\$62	100%
Candlestick Park	San Francisco Giants & 49ers	1960	2013	54	\$11	\$11	\$96	\$96	100%
Veterans Memorial Coliseum	Portland Trail Blazers	1960	1995	36	\$8	\$8	\$70	\$70	100%
Civic Arena	Pittsburgh Penguins	1961	2010	50	\$22	\$22	\$191	\$191	100%
Cobo Arena	Detroit Pistons	1961	1978	18					
RFK Stadium	Washington Senators & Redskins	1961	1996	36	\$22	\$22	\$191	\$191	100%
Baltimore Civic Center	Baltimore Bullets	1962	1973	12					
Dodger Stadium	Los Angeles Dodgers	1962		62	\$27	\$7	\$231	\$60	26%
Key Arena	Seattle Sonics	1962	2008	47					
Shea Stadium	New York Mets & Jets	1964	2008	45	\$24	\$24	\$200	\$200	100%

(continued)

Venue	Teams	Year Open	Last Year	Lifespan (years [†])	Total (current)	Public (current)	Total (2020)	Public (2020)	Public (%)
Arizona Veterans Memorial Coliseum	Phoenix Suns	1965	1992	28					
Arlington Stadium	Texas Rangers	1965	1993	29	\$2	\$2	\$16	\$16	100%
Astrodome	Houston Astros & Oilers	1965	1999	35	\$38	\$38	\$312	\$312	100%
Atlanta-Fulton County Stadium	Atlanta Braves & Falcons	1965	1996	32	\$19	\$19	\$156	\$156	100%
Angel Stadium	Los Angeles Angels & Rams	1966		58	\$25	\$24	\$200	\$192	96%
Busch Memorial Stadium	St. Louis Cardinals (MLB & NFL)	1966	2005	40	\$26	\$6	\$208	\$48	23%
Oakland Arena	Golden State Warriors & California Golden Seals	1966	2019	54	\$26	\$26	\$208	\$208	100%
RingCentral Coliseum	Oakland Athletics	1966		58	\$30	\$30	\$240	\$240	100%
San Diego Sports Arena	San Diego Rockets	1966	1984	19	\$7	\$7	\$56	\$56	100%
Great West Forum	Los Angeles Lakers & Kings	1967	1999	33	\$16	\$0	\$124	\$0	0%
Jack Murphy Stadium	San Diego Padres & Chargers	1967	2016	50	\$28	\$28	\$217	\$217	100%
Metropolitan Sports Center	Minnesota North Stars	1967	1993	27	\$6	\$6	\$47	\$47	100%
Pacific Coliseum	Vancouver Canucks	1967	1995	29	\$6	\$5	\$47	\$39	83%
Tampa Stadium	Tampa Bay Buccaneers	1967	1997	31	\$5	\$5	\$39	\$39	100%
The Spectrum	Philadelphia 76ers & Flyers	1967	1996	30	\$12	\$0	\$93	\$0	0%
HemisFair Arena	San Antonio Spurs	1968	1993	26					
Madison Square Gardens	New York Knicks & Rangers	1968		56	\$133	\$0	\$990	\$0	0%
Mile High Stadium*	Denver Broncos	1968	2000	33					
Salt Palace	Utah Jazz	1969	1991	23	\$17	\$0	\$120	\$0	0%
Riverfront Stadium	Cincinnati Reds & Bengals	1970	2002	33	\$56	\$56	\$374	\$374	100%

(continued)

Venue	Teams	Year Open	Last Year	Lifespan (years [†])	Total (current)	Public (current)	Total (2020)	Public (2020)	Public (%)
Three Rivers Stadium	Pittsburgh Pirates & Steelers	1970	2000	31	\$55	\$55	\$367	\$367	100%
Foxboro Stadium	New England Patriots	1971	2002	32	\$7	\$0	\$45	\$0	0%
Texas Stadium	Dallas Cowboys	1971	2008	38	\$35	\$30	\$224	\$192	86%
Veterans Stadium	Philadelphia Phillies & Eagles	1971	2003	33	\$48	\$48	\$307	\$307	100%
GEHA Field at Arrowhead Stadium	Kansas City Chiefs	1972		52	\$33	\$28	\$204	\$173	85%
Nassau Veterans Memorial Coliseum	New York Islanders	1972	2021	50	\$31	\$31	\$192	\$192	100%
The Omni	Atlanta Hawks & Flames	1972	1997	26	\$17	\$17	\$105	\$105	100%
Capital Center	Washington Wizards & Capitals	1973	1997	25	\$18	\$0	\$105	\$0	0%
Highmark Stadium	Buffalo Bills	1973	2025	53	\$22	\$22	\$128	\$128	100%
Kauffman Stadium	Kansas City Royals	1973		51	\$37	\$28	\$216	\$163	76%
Kemper Arena	Kansas City Kings	1974	1985	12	\$22	\$22	\$116	\$116	100%
Market Square Arena	Indiana Pacers	1974	1999	26	\$16	\$16	\$84	\$84	100%
Northlands Coliseum	Edmonton Oilers	1974	2016	43	\$54	\$54	\$284	\$284	100%
Richfield Coliseum	Cleveland Cavaliers	1974	1994	21	\$45	\$45	\$236	\$236	100%
Caesars Superdome	New Orleans Saints	1975		49	\$163	\$163	\$784	\$784	100%
Hartford Civic Center Arena	Hartford Whalers	1975	1997	23	\$35	\$35	\$168	\$168	100%
McNichols Arena	Denver Nuggets	1975	1999	25	\$13	\$13	\$63	\$63	100%
Pontiac Silverdome	Detroit Lions	1975	2001	27	\$56	\$56	\$269	\$269	100%
The Summit	Houston Rockets	1975	2003	29	\$18	\$18	\$87	\$87	100%
Exhibition Stadium	Toronto Blue Jays	1976	1988	13	\$18	\$18	\$82	\$82	100%
Giants Stadium	New York Giants & Jets	1976	2009	34	\$68	\$68	\$309	\$309	100%

(continued)

Venue	Teams	Year Open	Last Year	Lifespan (years [†])	Total (current)	Public (current)	Total (2020)	Public (2020)	Public (%)
Kingdome	Seattle Mariners & Seahawks & SuperSonics	1976	1999	24	\$67	\$67	\$305	\$305	100%
Olympic Stadium	Montreal Expos	1976	2004	29	\$539	\$270	\$2,452	\$1,229	50%
Joe Louis Arena	Detroit Red Wings	1979	2017	39	\$57	\$57	\$203	\$203	100%
Reunion Arena	Dallas Mavericks	1980	2001	22	\$27	\$27	\$85	\$85	100%
Brendan Byrne Arena	New Jersey Nets & Devils	1981	2010	30	\$85	\$85	\$242	\$242	100%
The Metrodome	Minnesota Twins, & Vikings & Timberwolves	1982	2013	32	\$71	\$64	\$190	\$172	90%
Hoosier Dome	Indianapolis Colts	1983	2007	25	\$77	\$47	\$200	\$122	61%
Scotiabank Saddledome	Calgary Flames	1983		41	\$100	\$100	\$260	\$260	100%
Hard Rock Stadium	Miami Dolphins & Florida Marlins	1987		37	\$115	\$0	\$262	\$0	0%
ARCO Arena	Sacramento Kings	1988	2016	29	\$40	\$0	\$88	\$0	0%
Bradley Center	Milwaukee Bucks	1988	2018	31	\$84	\$0	\$184	\$0	0%
Charlotte Coliseum	Charlotte Hornets	1988	2002	15	\$58	\$58	\$127	\$127	100%
Miami Arena	Miami Heat & Florida Panthers	1988	1999	12	\$53	\$53	\$116	\$116	100%
The Palace of Auburn Hills	Detroit Pistons	1988	2017	30	\$70	\$0	\$153	\$0	0%
Orlando Arena	Orlando Magic	1989	2010	22	\$110	\$110	\$230	\$230	100%
Rogers Centre	Toronto Blue Jays	1989		35	\$413	\$194	\$863	\$405	47%
Target Center	Minnesota Timberwolves	1990		34	\$104	\$55	\$206	\$109	53%
Tropicana Field	Tampa Bay Rays	1990		34	\$162	\$148	\$321	\$293	91%
Guaranteed Rate Field	Chicago White Sox	1991		33	\$187	\$157	\$355	\$298	84%
Vivint Arena	Utah Jazz	1991		33	\$94	\$0	\$179	\$0	0%
Footprint Center	Phoenix Suns	1992		32	\$83	\$28	\$153	\$52	34%

(continued)

Venue	Teams	Year Open	Last Year	Lifespan (years [†])	Total (current)	Public (current)	Total (2020)	Public (2020)	Public (%)
Georgia Dome	Atlanta Falcons	1992	2017	26	\$200	\$200	\$368	\$368	100%
Oriole Park at Camden Yards	Baltimore Orioles	1992		32	\$106	\$97	\$195	\$178	92%
Alamodome	San Antonio Spurs	1993	2002	10	\$175	\$147	\$313	\$263	84%
Honda Center	Anaheim Ducks	1993		31	\$123	\$123	\$220	\$220	100%
SAP Center	San Jose Sharks	1993		31	\$163	\$133	\$292	\$238	82%
Enterprise Center	St. Louis Blues	1994		30	\$170	\$0	\$298	\$0	0%
Globe Life Park	Texas Rangers	1994	2019	26	\$147	\$135	\$257	\$236	92%
Progressive Field	Cleveland Guardians	1994		30	\$176	\$84	\$308	\$147	48%
Rocket Mortgage FieldHouse	Cleveland Cavaliers	1994		30	\$152	\$124	\$266	\$217	82%
United Center	Chicago Bulls & Blackhawks	1994		30	\$180	\$0	\$315	\$0	0%
Coors Field	Colorado Rockies	1995		29	\$197	\$144	\$335	\$245	73%
Edwards Jones Dome	St. Louis Rams	1995	2015	21	\$300	\$300	\$510	\$510	100%
Moda Center	Portland Trail Blazers	1995		29	\$228	\$0	\$388	\$0	0%
Rogers Arena	Vancouver Grizzlies & Canucks	1995		29	\$128	\$0	\$218	\$0	0%
TD Garden	Boston Celtics & Bruins	1995		29	\$144	\$0	\$245	\$0	0%
TIAA Bank Field	Jacksonville Jaguars	1995		29	\$145	\$132	\$247	\$224	91%
Amalie Arena	Tampa Bay Lightning	1996		28	\$139	\$96	\$229	\$158	69%
Bank of America Stadium	Carolina Panthers	1996		28	\$187	\$0	\$309	\$0	0%
Bell Centre	Montreal Canadiens	1996		28	\$216	\$0	\$356	\$0	0%
Bridgestone Arena	Nashville Predators	1996		28	\$144	\$144	\$238	\$238	100%
Canadian Tire Centre	Ottawa Senators	1996		28	\$136	\$0	\$224	\$0	0%

(continued)

Venue	Teams	Year Open	Last Year	Lifespan (years [†])	Total (current)	Public (current)	Total (2020)	Public (2020)	Public (%)
KeyBank Center	Buffalo Sabres	1996		28	\$128	\$56	\$211	\$92	44%
Wells Fargo Center	Philadelphia 76ers & Flyers	1996		28	\$186	\$0	\$307	\$0	0%
Capital One Arena	Washington Wizards & Capitals	1997		27	\$200	\$0	\$322	\$0	0%
FedEx Field	Washington Commanders	1997		27	\$180	\$0	\$290	\$0	0%
Turner Field	Atlanta Braves	1997	2016	20	\$235	\$0	\$378	\$0	0%
Chase Field	Arizona Diamondbacks	1998		26	\$354	\$253	\$563	\$402	71%
FLA Live Arena	Florida Panthers	1998		26	\$185	\$157	\$294	\$250	85%
M&T Bank Stadium	Baltimore Ravens	1998		26	\$220	\$191	\$350	\$304	87%
Raymond James Stadium	Tampa Bay Buccaneers	1998		26	\$169	\$169	\$269	\$269	100%
Ball Arena	Denver Nuggets & Colorado Avalanche	1999		25	\$180	\$0	\$279	\$0	0%
Crypto.com Arena	LA Lakers & Clippers & Kings	1999		25	\$315	\$0	\$488	\$0	0%
FTX Arena	Miami Heat	1999		25	\$213	\$0	\$330	\$0	0%
FirstEnergy Stadium	Cleveland Browns	1999		25	\$311	\$237	\$482	\$367	76%
Gainbridge Fieldhouse	Indiana Pacers	1999		25	\$178	\$178	\$276	\$276	100%
Nissan Stadium	Tennessee Titans	1999	2025	27	\$258	\$206	\$400	\$319	80%
PNC Arena	Carolina Hurricanes	1999		25	\$158	\$138	\$245	\$214	87%
Scotiabank Arena	Toronto Raptors & Maple Leafs	1999		25	\$238	\$0	\$369	\$0	0%
Smoothie King Center	New Orleans Pelicans	1999		25	\$114	\$84	\$177	\$130	74%
State Farm Arena	Atlanta Hawks & Thrashers	1999		25	\$150	\$150	\$233	\$233	100%
T-Mobile Park	Seattle Mariners	1999		25	\$517	\$391	\$801	\$606	76%
Comerica Park	Detroit Tigers	2000		24	\$310	\$133	\$465	\$200	43%

(continued)

Venue	Teams	Year Open	Last Year	Lifespan (years [†])	Total (current)	Public (current)	Total (2020)	Public (2020)	Public (%)
Minute Maid Park	Houston Astros	2000		24	\$265	\$180	\$398	\$270	68%
Nationwide Arena	Columbus Blue Jackets	2000		24	\$150	\$0	\$225	\$0	0%
Oracle Park	San Francisco Giants	2000		24	\$324	\$15	\$486	\$23	5%
Paul Brown Stadium	Cincinnati Bengals	2000		24	\$450	\$404	\$675	\$606	90%
Xcel Energy Center	Minnesota Wild	2000		24	\$130	\$95	\$195	\$143	73%
American Airlines Center	Dallas Mavericks & Stars	2001		23	\$390	\$125	\$569	\$183	32%
American Family Field	Milwaukee Brewers	2001		23	\$392	\$290	\$572	\$423	74%
Empower Field at Mile High	Denver Broncos	2001		23	\$400	\$289	\$584	\$422	72%
Heinz Field	Pittsburgh Steelers	2001		23	\$261	\$199	\$381	\$291	76%
PNC Park	Pittsburgh Pirates	2001		23	\$271	\$196	\$396	\$286	72%
AT&T Center	San Antonio Spurs	2002		22	\$175	\$147	\$252	\$212	84%
Ford Field	Detroit Lions	2002		22	\$430	\$264	\$619	\$380	61%
Gillette Stadium	New England Patriots	2002		22	\$325	\$0	\$468	\$0	0%
Lumen Field	Seattle Seahawks	2002		22	\$360	\$230	\$518	\$331	64%
NRG Stadium	Houston Texans	2002		22	\$425	\$310	\$612	\$446	73%
Paycom Center	Oklahoma City Thunder	2002		22	\$89	\$89	\$128	\$128	100%
Gila River Arena	Arizona Coyotes	2003	2022	20	\$220	\$180	\$310	\$254	82%
Great American Ballpark	Cincinnati Reds	2003		21	\$280	\$250	\$395	\$353	89%
Lincoln Financial Field	Philadelphia Eagles	2003		21	\$360	\$202	\$508	\$285	56%
Toyota Center	Houston Rockets	2003		21	\$175	\$175	\$247	\$247	100%
Canada Life Centre	Winnipeg Jets	2004		20	\$108	\$33	\$148	\$45	30%

(continued)

Venue	Teams	Year Open	Last Year	Lifespan (years [†])	Total (current)	Public (current)	Total (2020)	Public (2020)	Public (%)
Citizens Bank Park	Philadelphia Phillies	2004		20	\$458	\$322	\$627	\$441	70%
FedEx Forum	Memphis Grizzlies	2004		20	\$250	\$207	\$343	\$284	83%
Petco Park	San Diego Padres	2004		20	\$483	\$349	\$662	\$478	72%
Spectrum Center	Charlotte Hornets	2005		19	\$212	\$172	\$282	\$229	81%
Busch Stadium	St. Louis Cardinals	2006		18	\$365	\$245	\$467	\$314	67%
State Farm Stadium	Arizona Cardinals	2006		18	\$395	\$252	\$506	\$323	64%
Prudential Center	New Jersey Devils	2007		17	\$375	\$220	\$469	\$275	59%
Lucas Oil Stadium	Indianapolis Colts	2008		16	\$720	\$620	\$864	\$744	86%
Nationals Park	Washington Nationals	2008		16	\$524	\$443	\$629	\$532	85%
AT&T Stadium	Dallas Cowboys	2009		15	\$1,194	\$325	\$1,445	\$393	27%
Citi Field	New York Mets	2009		15	\$575	\$141	\$696	\$171	25%
Yankee Stadium	New York Yankees	2009		15	\$1,308	\$293	\$1,583	\$355	22%
Amway Center	Orlando Magic	2010		14	\$380	\$330	\$452	\$393	87%
MetLife Stadium	New York Giants & Jets	2010		14	\$1,570	\$0	\$1,868	\$0	0%
PPG Paints Arena	Pittsburgh Penguins	2010		14	\$321	\$307	\$382	\$365	96%
Target Field	Minnesota Twins	2010		14	\$435	\$260	\$518	\$309	60%
Barclays Center	Brooklyn Nets	2012		12	\$1,000	\$527	\$1,130	\$596	53%
LoanDepot Park	Miami Marlins	2012		12	\$634	\$514	\$716	\$581	81%
Levi's Stadium	San Francisco 49ers	2014		10	\$1,300	\$850	\$1,417	\$927	65%
Golden 1 Center	Sacramento Kings	2016		8	\$535	\$255	\$578	\$275	48%
Rogers Place	Edmonton Oilers	2016		8	\$638	\$463	\$689	\$500	73%
T-Mobile Arena	Las Vegas Golden Knights	2016		8	\$375	\$0	\$405	\$0	0%

(continued)

Venue	Teams	Year Open	Last Year	Lifespan (years [†])	Total (current)	Public (current)	Total (2020)	Public (2020)	Public (%)
U.S. Bank Stadium	Minnesota Vikings	2016		8	\$1,061	\$498	\$1,146	\$538	47%
Little Caesars Arena	Detroit Pistons & Red Wings	2017		7	\$863	\$324	\$915	\$343	38%
Mercedes-Benz Stadium	Atlanta Falcons	2017		7	\$1,600	\$700	\$1,696	\$742	44%
Truist Park	Atlanta Braves	2017		7	\$672	\$300	\$712	\$318	45%
Fiserv Forum	Milwaukee Bucks	2018		6	\$524	\$250	\$540	\$258	48%
Chase Center	Golden State Warriors	2019		5	\$1,400	\$0	\$1,414	\$0	0%
Allegiant Stadium	Las Vegas Raiders	2020		4	\$1,970	\$750	\$1,970	\$750	38%
Globe Life Field	Texas Rangers	2020		4	\$1,200	\$500	\$1,200	\$500	42%
SoFi Stadium	Los Angeles Chargers & Rams	2020		4	\$5,500	\$0	\$5,500	\$0	0%
Climate Pledge Arena*	Seattle Kraken	2021		3					
UBS Arena	New York Islanders	2021		3	\$1,100	\$0	\$1,056	\$0	0%
Intuit Dome	Los Angeles Clippers	2024			\$1,800	\$0	\$1,728	\$0	0%
<i>New Bills Stadium</i>	Buffalo Bills	2026			\$1,400	\$850	\$1,344	\$816	61%
<i>New Titans Stadium</i>	Tennessee Titans	2026			\$2,100	\$1,260	\$2,016	\$1,210	60%

[†] Lifespan as of 2023 for current host venues.

*Significant refurbishment of existing facility that represents an effective replacement.

Current major-league venues in **bold**.

Planned venues pending final approval in *italics*.