

Summary

- Stadiums built using tax-exempt bonds receive a federal subsidy
- Since 2000, 43 professional sports stadiums used tax-exempt bonds
- Total subsidy is \$3.6 billion and total revenue loss is \$4.3 billion
- Reforms should eliminate the use of tax-exempt bonds for stadiums

Public Policy Interest

- Professional sports leagues are private enterprises controlled by small groups of wealthy owners, yet they play an outsized roll in civil society
- Professional sports teams yield considerable monopoly power over their home cities, who will do almost anything to prevent the teams from leaving
- One way to get teams to stay is to lure them with tens or hundreds of millions of dollars of local subsidies through tax-exempt municipal bonds

Local vs. Federal Subsidies

- These large local subsidies often receive the bulk of the media attention
- Little attention is paid to the implicit federal subsidies
- Headlines for Las Vegas Stadium: Las Vegas to shell out \$750 million to build the new Raiders stadium
- But in addition the federal government will forgo roughly \$100 million in tax revenue

Worth the Cost?

- Justifications for publicly funding stadiums are weak, and the justifications for federal government subsidies are even weaker
- To the extent stadiums confer any benefits, those benefits are local not national
- Provision of public goods is justified if the private sector would fail to provide socially desirable amounts
- The federal government should step in if the benefits would cross jurisdictional borders
- In granting stadium subsidies, governments claim that stadiums are public goods that generate benefits that flow to the community rather than to team owners

Worth the Cost?

- Stadium subsidies require some economic justification because private activities take place in stadiums, and professional sports are clearly not public goods
- Sports stadiums do not exhibit economies of scale
- Justification often given is that there are spillover gains to the local economy from a stadium that are greater than the cost to taxpayers
- But evidence for large spillover gains from stadiums to the local economy is weak

Worth the Cost?

- Academic studies consistently find no discernible positive relationship between sports facility construction and economic development, income growth, or job creation
- Two decades of academic research on the topic contain almost no evidence that professional sports franchises and facilities have a measurable impact on the economy
- “Few fields of empirical economic research offer virtual unanimity of findings ... that there is no statistically significant positive correlation between sports facility construction and economic development” (J. Siegfried & A. Zimbalist, *JEP* 2000)

Legal Background

- Before the 1960s nothing in the federal tax law prevented municipalities from issuing bonds to finance private individuals and businesses
- The Revenue and Expenditure Control Act of 1968 placed restrictions on the activities eligible for tax-exempt financing, though sports stadiums were specifically exempt
- The Tax Reform Act of 1986 attempted to do away with the tax exemption for stadium bonds by removing the exemption and tightening the rules
 - Sen. Daniel Patrick Moynihan was an opponent of stadium subsidies
- The Tax Cuts and Jobs Act of 2017 included a provision to eliminate the subsidy that was ultimately removed from the final bill

Q. What are municipal bonds and how are they used?

A. Municipal bonds (a term that encompasses both state and local government debt) are obligations that entitle owners to periodic interest payments plus repayment of principal at a specified date. States and localities (cities, townships, counties, school districts, and special districts) issue bonds primarily to pay for large, expensive, and long-lived capital projects

A Tax Expenditure

- The interest earned on state and local governmental bonds (“municipal bonds”) is exempt from federal taxation
- Tax exemption means municipal bonds have lower interest rates
- Lower interest rates come at the expense of the federal government
- JCT estimates for all municipal bonds \$194.7 billion 2016–20

Municipal Bond Uses

- Public goods: roads, schools, hospitals
- Certain private activities: airports, docks, public sewage
- Municipalities are limited in their use of tax-exempt bonds

Letter of the Law

26 USC 141

- The term “private activity bond” [taxable] means any bond issued as part of an issue that meets the *private business use test* **and** the *private security or payment test*.
 - *Private business use test*: An issue meets the test if more than 10 percent of the proceeds of the issue are to be used for any private business use.
 - *Private security or payment test*: An issue meets the test if the payment of the principal of, or the interest on, more than 10 percent of the proceeds of such issue is directly or indirectly secured by any interest in property used for a private business use.
- The term “government use” [non-taxable] means any use other than a private business use.

Professional Sports Stadiums:

Private activity?

- The reality of the situation is that state and local governments want to pay for professional sports stadiums
 - Why? Civic pride, supposed economic benefits, monopoly power
 - Professional sports teams have considerable negotiating power since they control both the movement and number of franchises in the leagues, resulting in demand that exceeds supply
 - Team owners will always have an outside option where they can credibly threaten to move
- Tax-exempt bonds are cheaper to issue because of lower interest rates
- How to legally use tax-exempt bonds to subsidize sports stadiums?

Stadiums as Governmental Use

The Logic

- Governmental = Not Private Activity
- Private Activity = Private Business Use **and** Private Payment
- Not Private Activity = Not Private Business Use **or** Not Private Payment
- Governmental = Not Private Payment

Artificial Financing Structure

- A stadium bond can remain exempt from federal taxation if it fails the private payment test
- To be eligible for federal tax exemption a stadium bond issuance must be structured so that no more than 10 percent of its debt service is secured by interest in the stadium and no more than 10 percent of the bond proceeds are from payments derived from the stadium
- State or local governments must be willing to finance at least 90 percent of the debt service
- Financing cannot come even “indirectly” from private activity so stadium-generated revenue such as ticket taxes or rent collected from the team cannot be used

How Do They Do It?

Sources of Funding

- Main sources: Tourist taxes, sales taxes, general public revenues
- “Tourist taxes” are levied on hotel stays and rental cars
- An attractive option because local authorities can advertise to their constituents that the tax burden will fall primarily on nonresidents
- But only a tiny fraction of the hotel rooms or rental cars used in a city over the course of a year are purchased by sports tourists

Example: FedExForum

Memphis Grizzlies (NBA)

- Breakdown of funding sources:
 - Hotel and vehicle rental taxes: 49%
 - General sales taxes: 28%
 - Seat rental fees: 8%
 - Public utility company PILOT: 15%
- Sales Tax: “Generally applicable” but only tax revenue collected on stadium-related sales (tickets, concessions, and merchandise) is used as security for the bond payments
- Seat Rental Fee: “Not more than 10 percent of the aggregate debt service on the bonds may be paid from seat rental fees”

Basic Portfolio Model

- Estimates are static in the sense that changes in tax law and the amount of tax-exempt bonds issued do not cause changes in economic aggregates
- Market interest rates are unaffected by changes in tax-exempt bond issuance
- Lenders have perfectly elastic demand for tax-exempt debt
- Relative interest rates between taxable and tax-exempt bonds do not change as bond issuance changes
- Changes in the issuance of taxable municipal bonds that occur are small relative to the size of the entire capital market

Taxable Bond Substitution Model

Investor Portfolio Choice

- Taxable bond substitution model assumes a two-asset investment portfolio model where investors choose the amount of taxable and tax-exempt bonds to hold in their portfolios that maximizes after-tax returns
- Market-clearing tax-exempt bond yield is determined by the marginal investor in tax-exempt bonds

Adequacy of the Model

- Some argue the taxable bond substitution model overstates the revenue cost because investors might consider other assets as substitutes for tax-exempt debt
- It is reasonable to assume that some holders of tax-exempt municipal bonds will substitute to taxable municipal bonds to the extent that the investor cares more about the income profile of the investment than the tax treatment
- Many states exclude the interest income on municipal bonds from state taxes regardless of federal tax treatment
- The model is based on a simple characterization of the economy that makes revenue estimation tractable

Tax-Exempt Bond Interest Rate

- Issuers of tax-exempt debt can sell bonds at lower interest rates because investors are willing to accept a lower before-tax rate
- Suppose an investor faces a 35% marginal tax rate and a taxable bond carries a 5% interest rate
- Then as long as the interest rate on a tax-exempt bond exceeds $3.25\% = (100 - 35) \times 5\%$ the investor prefers the tax-exempt bond to the taxable bond
- In general: If τ is the marginal tax rate and r^x is the taxable bond rate, then the investor is willing to purchase the bond as long as the rate of return exceeds $(1 - \tau)r^x$

Subsidy Calculation

- The federal government subsidizes the lower interest rate
- The tax expenditure is equal to the interest rate spread ($r^x - r^m$) times the bond principal (b) summed over years to maturity (n) discounted at rate ρ

$$\text{Subsidy} = \sum_{t=1}^n \frac{b(r^x - r^m)}{(1 + \rho)^t}$$

Efficiency Loss and Windfall Gains

- Tax-exemption is an inefficient form of subsidy
- Consider two taxpayers
 - Taxpayer 1: 35% MTR
 - Taxpayer 2: 25% MTR
- If the taxable bond interest rate is 5% then after-tax return is
 - Taxpayer 1: $3.25\% = (100 - 35) \times 5\%$
 - Taxpayer 2: $3.75\% = (100 - 25) \times 5\%$
- To induce both to buy a tax-exempt bond the net rate of return must be at least 3.75%
- This 0.5% difference is not translated to a gain for the borrower, but is instead a windfall gain for Taxpayer 1

Transfer Efficiency

- The efficiency loss is captured by comparing the tax rate that clears the municipal bond market (τ^*) and the average tax rate of municipal bondholders ($\bar{\tau}$)
- Transfer efficiency: $E = \tau^*/\bar{\tau}$
- Market-clearing tax rate: $\tau^* = 1 - r^m/r^x$
- Marginal tax rate of municipal bondholders: $\bar{\tau} = s^c\tau^c + s^h\bar{\tau}^h$
 - Corporate share: s^c , Household share: s^h
 - Corporate rate: τ^c , average Household rate: $\bar{\tau}^h$

Revenue Loss Calculation

- Total revenue loss equals the subsidy divided by the transfer efficiency
- Revenue loss will exceed the subsidy unless $E = 1$, or the average tax rate equals the market-clearing tax rate

$$E = \frac{\tau^*}{\bar{\tau}} = \frac{1 - \frac{r^m}{r^x}}{s^c \tau^c + s^h \bar{\tau}^h} = \frac{r^x - r^m}{r^x (s^c \tau^c + s^h \bar{\tau}^h)}$$

$$\text{Revenue Loss} = \sum_{t=1}^n \frac{b(r^x - r^m)}{E(1 + \rho)^t} = \sum_{t=1}^n \frac{br^x (s^c \tau^c + s^h \bar{\tau}^h)}{(1 + \rho)^t}$$

Interest Rate Spread

- Subsidy estimates rely crucially on the interest rate spread, $r^x - r^m$
- We want to compare taxable and nontaxable bonds that have the same structure, term length, credit risk, liquidity, and other factors
- Historically, Treasury bonds were considered the appropriate taxable alternative to tax-exempt municipal bonds since both were considered close to riskless

Interest Rate Spread

- More recently, high-grade corporate bonds have been considered the appropriate taxable alternative to tax-exempt municipal bonds
- Although municipal bonds and corporate bonds vary somewhat in terms of risk, maturity, interest payment structure, and other factors, several potential sources of bias likely offset each other
- Specifically, our preferred estimates compare the Moody's Aa-rated 20-year municipal bond average with the Moody's Aa-rated corporate bond index, but results are robust to using alternative spreads

Scope of the Paper

- All newly constructed, majorly renovated, or currently under construction US stadiums among the 4 largest US sports leagues from 2000 to 2019
- 57 total stadiums, 43 used tax-exempt bonds
 - MLB: 17 stadiums (14)
 - NFL: 21 stadiums (17)
 - NBA: 12 stadiums (8)
 - NHL: 7 stadiums (4)

Data

- Original bond issuance documentation
 - Electronic Municipal Market Access, MSRB (emma.msrb.org)
- Interest rates
 - Moody's (Bloomberg), S&P, The Bond Buyer, CEA, US Treasury
- Stadium costs
 - Long (2012), Baade & Matheson (2012), Anderson (2018)
- Household and corporate shares of municipal debt holdings
 - Federal Reserve, US Financial Accounts
- Average household marginal tax rate among municipal bondholders
 - Federal Reserve Board, Survey of Consumer Finances

Structure of Bonds

- Stadium bonds frequently combine three types of bonds:
 - Serial, Term, Capital Appreciation
- Serial bonds consist of smaller units that mature gradually over time
- Term bonds are single bonds that come due all at once, often with a mandatory early call feature
- Capital appreciation bonds reinvest the return on the initial principal at a stated compound rate until maturity

Example: FedExForum

Memphis Grizzlies (NBA)

- 3 bond issuances, split into 5 series, each consisting of many bonds

Table 2

Bond Issuance Structure for the Funding of FedExForum, 2002

Series	Total principal value (2002 dollars)	Total principal value (2018 dollars)	Number of bonds	Types of bonds
A	113,325,000.00	157,763,644.39	21 and 1	Serial and term
B	88,965,000.00	123,851,247.50	19 and 2	Serial and term
C	18,535,000.00	25,803,213.31	1	Term
D	2,699,414.55	3,757,948.18	1	Capital appreciation
E	1,300,890.80	1,811,014.99	1	Capital appreciation

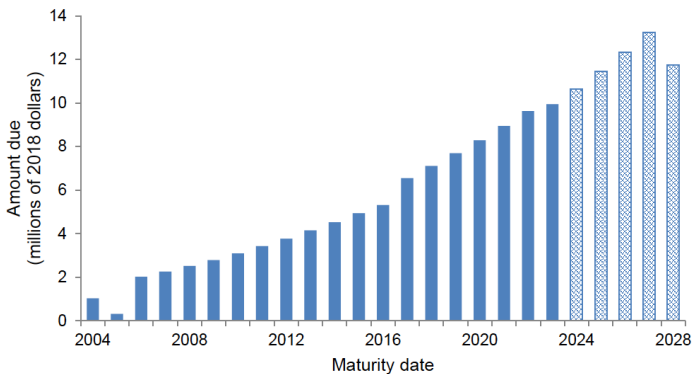
- Serial bonds mature every year between 2004 and 2023, followed by large term bonds with mandatory early redemption

Example: FedExForum

Memphis Grizzlies (NBA)

Figure 1

Redemption Schedule for the FedExForum Series A Bonds, 2004–28



Cost Estimates

- Total cost: \$42.2 billion
- Top 5:
 - Los Angeles Stadium: \$5.0 billion (Los Angeles Rams/Chargers, NFL)
 - Yankee Stadium: \$2.0 billion (New York Yankees, MLB)
 - MetLife Stadium: \$1.8 billion (New York Giants/Jets, NFL)
 - Las Vegas Stadium: \$1.8 billion (Las Vegas Raiders, NFL)
 - Mercedes-Benz Stadium: \$1.6 billion (Atlanta Falcons, NFL)

Bond Principal

- Total issuance: \$16.7 billion
- Top 5:
 - Yankee Stadium: \$1,760 million (New York Yankees, MLB)
 - Lucas Oil Stadium: \$832 million (Indianapolis Colts, NFL)
 - Citi Field: \$776 million (New York Mets, MLB)
 - CenturyLink Field: \$709 million (Seattle Seahawks, NFL)
 - Marlins Park: \$654 million (Miami Marlins, MLB)

Subsidy Estimates

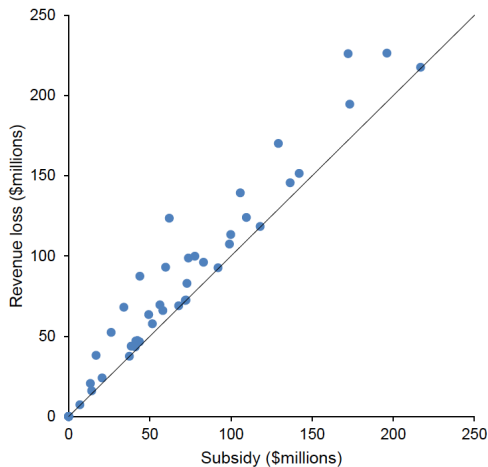
- Total subsidy: \$3.6 billion
- Top 5:
 - Yankee Stadium: \$456 million (New York Yankees, MLB)
 - Soldier Field: \$217 million (Chicago Bears, NFL)
 - Citi Field: \$196 million (New York Mets, MLB)
 - Paul Brown Stadium: \$173 million (Cincinnati Bengals, NFL)
 - Lucas Oil Stadium: \$172 million (Indianapolis Colts, NFL)

Revenue Loss Estimates

- Total revenue loss: \$4.3 billion
- Top 5:
 - Yankee Stadium: \$521 million (New York Yankees, MLB)
 - Lucas Oil Stadium: \$226 million (Indianapolis Colts, NFL)
 - Citi Field: \$226 million (New York Mets, MLB)
 - Soldier Field: \$218 million (Chicago Bears, NFL)
 - Paul Brown Stadium: \$195 million (Cincinnati Bengals, NFL)

Subsidy vs. Revenue Loss

Figure 3
Subsidy and Revenue Loss Estimates Using 3 Percent Discount Rate



Cross-League Comparisons

Table 5
Summary Statistics by League

League	Number of new or renovated stadiums	Number financed by tax-exempt bonds	Average cost (\$millions)	Average amount financed by tax-exempt bonds (\$millions)	Average discounted (3%) subsidy (\$millions)	Average discounted (5%) subsidy (\$millions)	Average (3%) subsidy value per \$100m in costs (\$millions)
MLB	17	14	672.9	465.8	112.4	95.0	16.3
NFL	21	17	1,001.9 ²	399.5	75.7	66.7	11.8
NBA ¹	12	8	507.1	305.1	69.5	57.0	16.3
NHL	7	4	413.7	294.0	41.0	33.9	9.8
Total or average	57	43	741.2	395.5	100.0	81.5	13.9

Annual Tax Expenditure in Context

Back-of-the-Envelope

- Total tax expenditure: \$4.3 billion
- Scope of the study: 20 years (2000–2019)
- Average term length: 30 years
- Annual tax expenditure for stadium bonds: ~\$8 million
- Annual tax expenditure for all municipal bonds (JCT): \$38.9 billion

Annual Tax Expenditure in Context

- The magnitude of the federal subsidies for stadium construction is relatively small
- But *should* the federal government be subsidizing the construction of professional sports stadiums?
- “Egregious but small misuse of federal tax dollars.”

Options to Eliminate Use

26 USC 103(b)

- Plainly specify that interest earned on municipal bonds used to construct professional sports stadiums is not excludable from federally taxable income
- 26 USC 103(b) lists exceptions to the exclusion of interest on state and local bonds
- Stadium bonds could be added to the list
- This approach was employed in H.R. 1 (2017), S. 1242 (2019), and H.R. 2446 (2019)

Options to Eliminate Use

26 USC 141(b)

- Specify that bonds used to construct stadiums will be treated as if meeting the private payment or security test
- 26 USC 141(b) explains the private business use test and lists several caveats
- Stadium bonds could be added to the list
- This approach was employed in H.R. 811 (2017), S. 1342 (2017), and recommended by JCT (2005) and the Treasury (2015, 2016)

Options to Eliminate Use

Change One Word

- Alternatively, tax-exempt stadium bonds could be eliminated by changing one word: **and** to **or**
- Recall that a bond is treated as private activity if it meets the private business use test **and** the private payment test
- This approach is arguably too broad because it changes the legal definition of “private activity” and could extend beyond stadiums
- However, certain private activities Congress deems worthy of federal subsidies are already designated as *qualified* private activity

Options to Limit Use

Qualified Private Activity Bonds

- Current law allows tax exemption for bonds used to finance any of a list of qualified private activities
- Stadium financing was removed from the list after TRA86
- Total volume cap for qualified bonds is capped for each state
- Designating stadiums as qualified activity would have several effects:
 - Force states to choose between subsidies for stadiums versus other qualified activity
 - Allow municipalities to tax the users of the stadiums
 - Eliminate subsidy for stadium luxury boxes
 - Require express public approval via voter referendum and public hearing

Options to Eliminate Inefficiency

Tax Credit and Direct Pay Bonds

- A broader reform would deal with the inefficiencies of tax-exempt financing in general, not just stadium financing
- The current subsidy would be maintained but at a lower cost to the federal government
- Tax exemption could be changed to a tax credit
- “Tax Credit Bonds” provide a credit against the bondholder’s federal tax liability
- “Direct Pay Bonds” provide a credit to the bond issuer equal to the interest payments made to the bondholder
 - In addition to eliminating inefficiency, direct pay bonds would be subject to the federal government’s annual appropriations limit

Conclusions

- Even if one believes, contrary to the empirical evidence, that the spillover benefits to the local economy justify local subsidies, there is no economic justification for federal subsidies
- Under current law, stadium financing is eligible for tax-exempt status, which amounts to an implicit federal subsidy
- Current law provides perverse incentives for a federal government match for state and local government subsidies for stadiums, while also providing a disincentive for local governments to finance stadiums with taxes that fall on the beneficiaries of the stadium

Conclusions

- We examine 57 new US stadiums built since 2000
- Federal subsidy is \$3.6 billion and total revenue loss is \$4.3 billion
- The simplest and most direct way to end the use of tax-exempt municipal bonds for stadiums would be to disallow the exclusion of the interest of such bonds for federal taxation, or to eliminate the private payment test for such bonds
- Short of that, one could limit the federal tax subsidy by classifying stadium bonds as qualified private activity