Undergraduate Public Finance: State and Local Government

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Fiscal Federalism

Optimal fiscal federalism: The question of which activities should take place at which level of government: central vs. local

The US is a fairly decentralized govt (1/3 of taxes are raised at the state and local level) but used to be even more decentralized

Some state and local spending is now supported by intergovernmental grants (transfers from the federal government)

Many countries are much more centralized than US:

e.g., France's tax revenue is over 90% centralized, and local governments (such as cities and regions) receive funding from the center with some discretion on how to spend it

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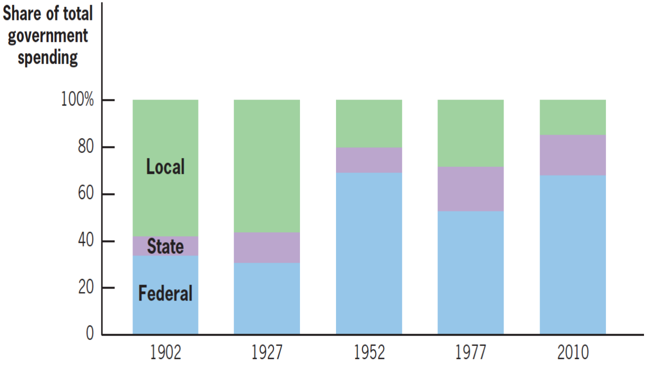
State and Local Spending in the United States, 1902−2010



Spending and Revenue of State and Local Governments

Property tax: The tax on land and any buildings on it, such as commercial businesses or residential homes.

The main source of revenue from local governments due to:

(1) History: real estate property is visible and hence taxable even in archaic economies with informal businesses

(2) Immobile tax base: the real estate tax base cannot flee to another jurisdiction (mobility of the tax base is an issue for local governments)

Nowadays, in the US, the property tax is about 1/3 of revenue raised by state+local government (the rest is 1/3 income tax, 1/3 sales taxes)

The Tiebout Model (1956)

What is it about the private market that generates efficient provision of private goods that is missing for public goods?

Tiebout's insight was that the factors missing from the market for public goods were shopping and competition

The situation is different when public goods are provided at the local level by cities and towns

Competition will naturally arise because individuals can *vote with their feet*: if they don't like the level or quality of public goods provision in one town, they can move to the next town!

This threat of exit can induce efficiency in local public goods production

The Tiebout Formal Model

We consider a very simple model to illustrate Tiebout's insight and theorem

Suppose there are $2 \cdot N$ families with identical income Y and 2 towns with N homes each

Towns 1 and 2 supply level G_1, G_2 of local public schools

There are two types of families:

(1) N families with kids, with utility $U^K(C, G)$, value private consumption C and schools G

(2) N elderly families, with utility $U^E(C)$, value only private consumption C

The Tiebout Equilibrium Definition

Allocation of families across towns is a **Tiebout Equilibrium** if and only if two conditions are met:

1) In each town, G is decided by the median voter and financed equally by the town residents with budget $Y = G/N + C$

$\Rightarrow$ If majority in town is elderly then $G = 0$ as this maximizes $U^E(Y - G/N)$

$\Rightarrow$ If majority in town is families with kids then $G = G^*$ that maximizes $U^K(Y - G/N, G)$

2) No two families want to exchange locations across towns

The Tiebout Theorem

Tiebout Theorem Part I: In equilibrium, families will sort themselves in towns according to their taste for public good (1 town with elderly only, 1 town with families with kids only)

Proof: Suppose elderly dominate in town 1 and $G_1 = 0$, then families with kids dominate in town 2 and $G_2 = G^*$. If there is a family with kids in town 1, then there is an elderly family in town 2 and they are willing to switch ⇒ not an equilibrium.

Tiebout Theorem Part II: In each town, the level of local public good is efficient

Proof: In elderly town, $G = 0$ which is efficient as nobody values G.In the kids town, G^* maximizes $U^K(Y - G/N, G)$ which is also efficient as it is the preferred choice of everybody.

The Tiebout Model

People can vote with their feet by choosing the locality that best fits their tastes and provides the best public goods given the tax

The main message of the model is that competition across local jurisdictions puts competitive pressure on the provision of local public goods:

(1) Public goods need to reflect the tastes of local residents

(2) Public goods need to be efficiently provided (without waste)

Centralized vs. Decentralized Government

Conservatives/libertarians tend to like decentralized governments over centralized governments

Conservatives/libertarians dislike redistribution and like individual choice and competition. In the Tiebout model:

(1) Local governments do not do any redistribution: individuals receive in local public goods exactly what they are paying in taxes (= benefit principle of taxation)

(2) Individuals can choose (through their location choice) their preferred mix of public goods and taxes

(3) Competition between local governments forces them to provide local public goods efficiently

Problems with the Tiebout Model

The Tiebout model is an idealized model that requires a number of assumptions that may not hold perfectly in reality:

(1) Individuals can move without any cost across towns

(2) Individuals have perfect information on benefits and taxes in each town

(3) There must be enough towns so that individuals can sort themselves into groups with similar preferences for public goods

(4) No externalities/spillovers of public goods across towns [with spillovers across towns, public goods will be under provided in Tiebout model, e.g. pandemic coordination]

(5) Local govts can charge "poll" taxes (equal payments per person) to residents. In reality, local taxes depend on property, consumption, and sometimes income.

Evidence on the Tiebout Model

Tiebout Sorting: Resident Similarity Across Areas

A testable implication of the Tiebout model is that when people have more choice of local community, the tastes for public goods will be more similar among residents than when people do not have many choices

This fact is indeed pretty well established

More Efficiency when there is more Tiebout sorting

This fact is controversial

Evidence on the Tiebout Model: Hoxby (2000)

Hoxby (2000) considers public school districts in the US. She compares cities where:

(A) There are few large school districts and hence little choice for residents (such as Miami or LA)

(B) There are many small school districts and hence a lot of choice for residents (such as Boston)

Two key findings:

(I) Cities with few districts have less sorting across neighborhood (in terms of school quality) than cities with many districts (this result is well established)

(II) Cities with many districts have **higher** test scores on average: this result is controversial (see Rothstein, 2007 critique)

Capitalization of Fiscal Differences into House Prices

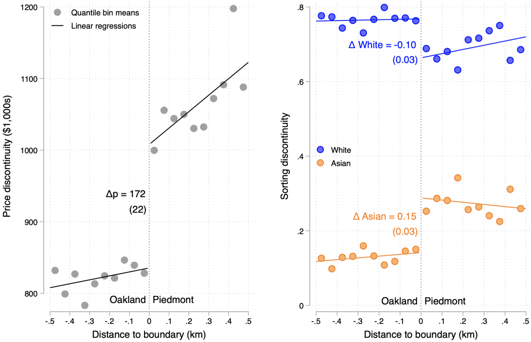
House price capitalization: Incorporation into the price of a house of the costs (including local property taxes) and benefits (including local public goods) of living in the house.

$\Rightarrow$ High (low) property taxes relative to public goods quality decreases (increases) housing prices

Oates (1969) is the classic reference on property tax capitalization. Schonholzer '23 looks at Oakland-Piedmont boundary: Piedmont is wealthy city famed for its good public schools surrounded by Oakland.

Modern study by Cellini-Ferreira-Rothstein (2010) on school bonds in CA using regression discontinuity in vote share of local bond measures: find positive effects of bonds on house values $\Rightarrow$ under-investment in schools

Figure 8: Example: Piedmont-Oakland



Notes: Regression discontinuities in prices and racial shares (for White and Asian households) near the boundary between Oakland and Piedmont. The linear regression specification for the price discontinuity includes an indicator for being on the Piedmont side; separate linear slopes on either side of the boundary; hedonic controls (age, lot size, square feet; fixed effects for number of rooms, baths, and stories); year, race, and boundary point fixed effects.

Source: Schonholzer '23

Source: Cellini et al. (2010)

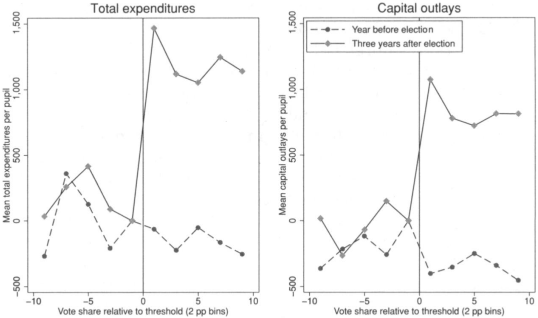


FIGURE II
Total Spending and Capital Outlays per Pupil, by Vote Share, One Year before and Three Years after Election

Graph shows average total expenditures (left panel) and capital outlays (right panel) per pupil, by the vote share in the focal bond election. Focal elections are grouped into bins two percentage points wide: measures that passed by between 0.001% and 2% are assigned to the 1 bin; those that failed by similar margins are assigned to the −1 bin. Averages are conditional on year fixed effects, and the −1 bin is normalized to zero.

Source: Cellini et al. (2010)

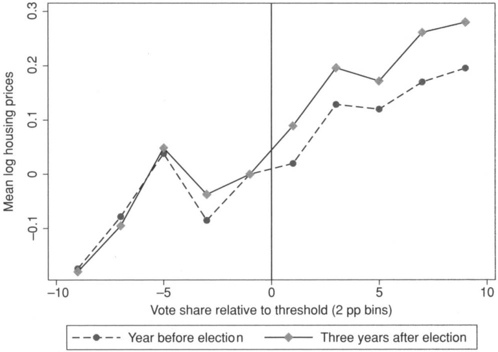


FIGURE V

Log Housing Prices by Vote Share, One Year before and Three Years after Election

Graph shows average log housing prices by the vote share in the focal bond election. Focal elections are grouped into bins two percentage points wide: measures that passed by between 0.001% and 2% are assigned to the 1 bin; those that failed by similar margins are assigned to the −1 bin. Averages are conditional on year fixed effects, and the −1 bin is normalized to zero.

Key Consequence of Tiebout Model

Hard for a local government to redistribute from rich to poor:

If local redistribution is high $\Rightarrow$

(1) Poor flock to the city, which provides welfare benefits

(2) Rich flee to other cities to avoid paying for redistribution

$\Rightarrow$ Local redistribution program will break down

Redistribution programs work better if implemented at a higher level: state or federal (harder to leave the state or country). At the local level, we need to have tax-benefit linkage to avoid migration

Tax-benefit linkage: Relationship between the taxes people pay and the government goods and services they get in return

Redistribution Across Communities

There is currently enormous inequality in both the ability of local communities to finance public goods and the extent to which they do so.

Central government can redistribute across communities **directly** using taxes and spending (CA-NY pay more in Fed taxes per capita than poor states) but also **indirectly** by giving grants to lower levels of government

Higher levels of government can redistribute across lower levels of government through **intergovernmental grants**.

We assume in graphical analysis that local community chooses public spending and private spending according the preferences of Median voter in the community

Intergovernmental Grants

Higher level government can provide grants to redistribute across communities and incentivize communities to spend on public goods

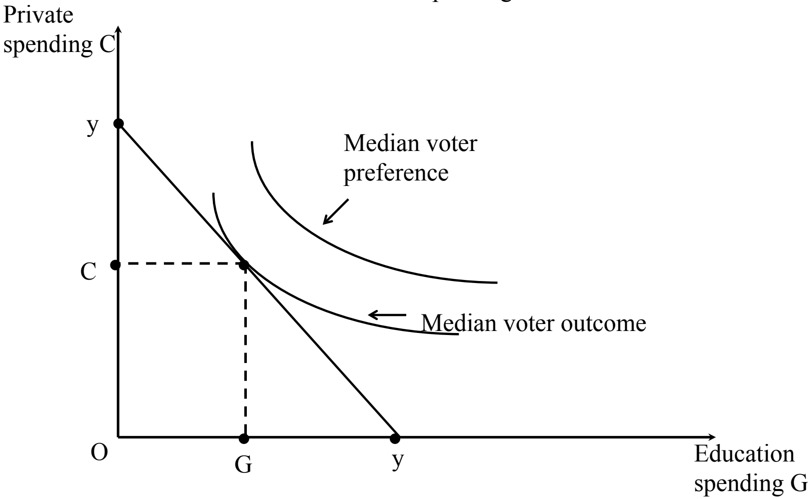
Three main forms of grants:

(1) Matching grant: A grant, the amount of which is tied to the amount of public good spending by the local community.

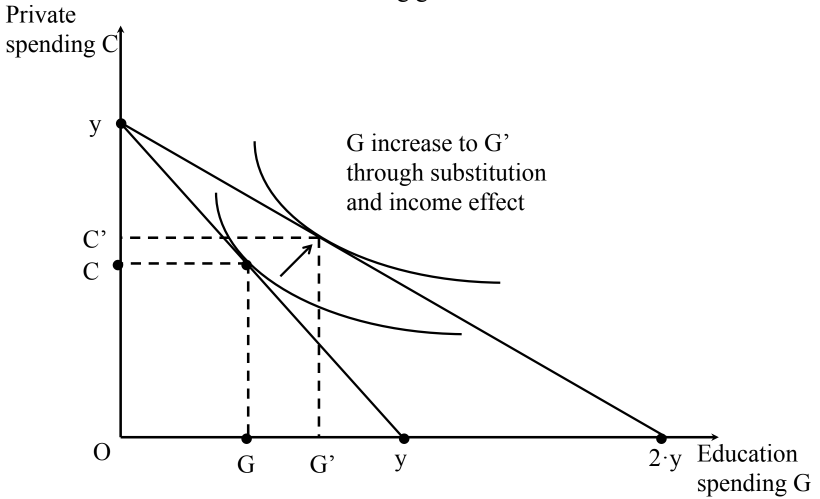
(2) Block grant: A grant of some fixed amount with no mandate on how it is to be spent.

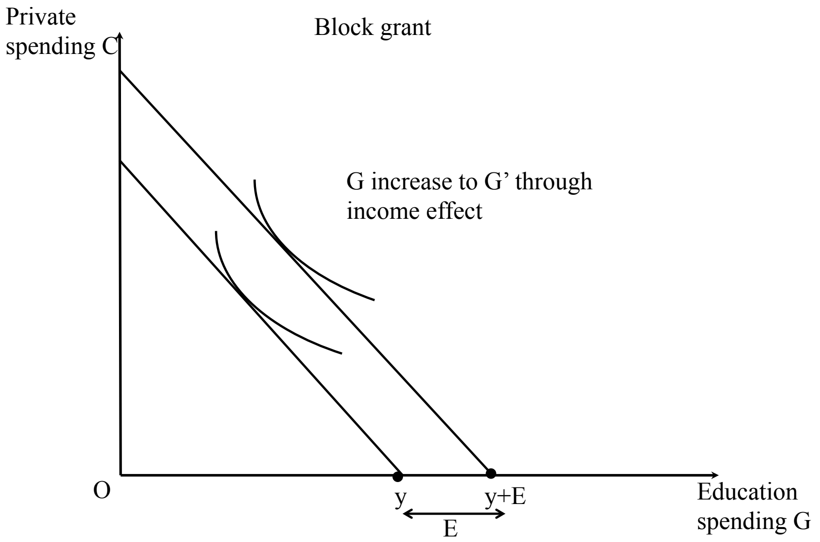
(3) Conditional block grant: A grant of some fixed amount with a mandate that the money be spent in a particular way.

Local Public Spending

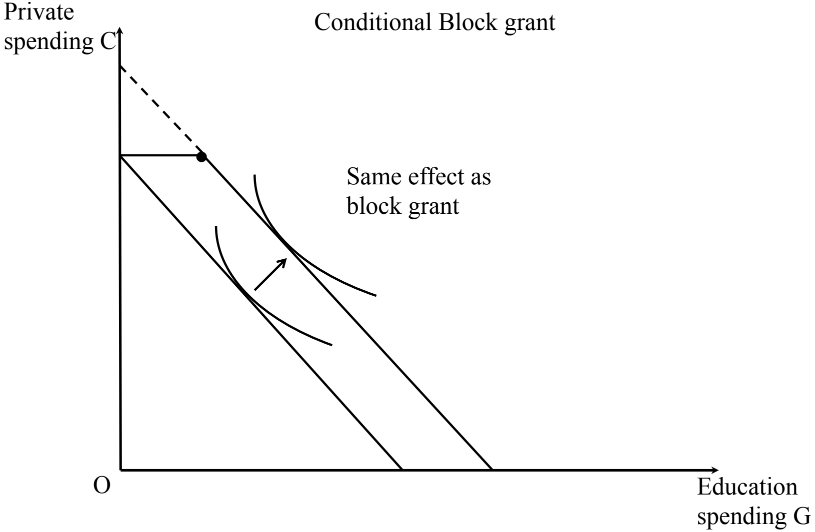


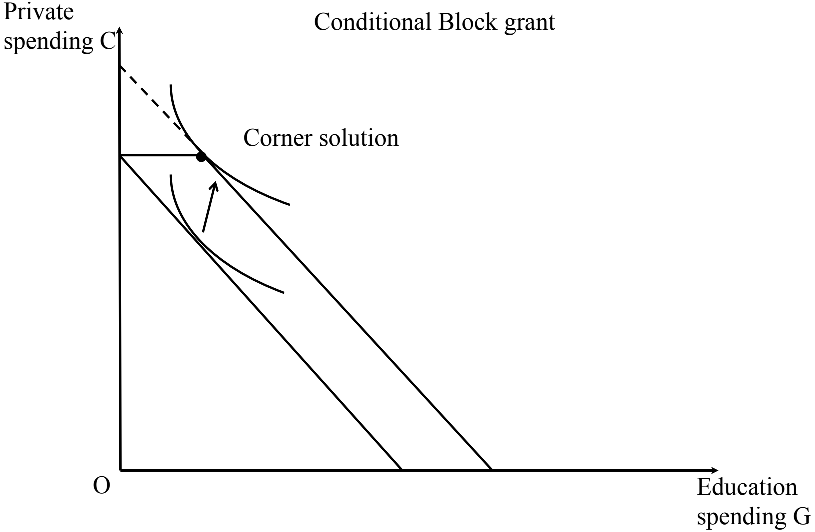
Matching grant




Private
spending C
Block grant
G increase to G' through
income effect
O
y
y+E
E
Education
spending G

Conditional Block grant




Private
spending C
Conditional Block grant
Corner solution
O
Education
spending G

Key Prediction of Theory: Crowd-out

In theory, a \$1000 increase in private income has the same effect as a \$1000 increase in Fed block grant: both shift the budget in the same way and lead to the same outcome

e.g., \$1000 private income increase leads to \$800 more in private consumption and \$200 more in local taxes and public spending. \$1000 extra fed grant leads to \$200 extra in public good spending and \$800 cut in local taxes and hence \$800 extra in private consumption

Similarly, with multiple public goods (e.g., schools and police), an extra \$1000 Fed grant for school has the same effect on schools and police as a \$1000 Fed grant for police

Money is fungible: only total resources matter for the allocation across private goods and public goods at the local level

The Flypaper Effect

Hines and Thaler JEP'95 found that the crowd-out of state spending by federal spending is low and often close to zero

Economist Arthur Okun described this as the flypaper effect because "the money sticks where it lands" instead of replacing state spending

But evidence is based on correlation [not necessarily causation as states that get grants maybe the ones that like spending the most]

Recent studies show that there is a flypaper effect in the short-run but that there is substantial crowd-out from block grants in the long-run

Redistribution in Action: School Finance Equalization

School finance equalization: Laws that mandate redistribution of funds across communities in a state to ensure more equal financing of schools.

Without school finance equalization, huge disparity in property tax base and hence school funding (per pupil) across areas (e.g. in Bay Area: Piedmont is very wealthy, Oakland is poorer)

Many states (including California) impose equalization: pool local taxes at state level and redistribute them across districts

Equalization often imposed by courts without thinking carefully about economic consequences

Redistribution in Action: School Finance Equalization

Implicit tax on local government tax revenue: For school equalization schemes, for $1 of extra local taxes, how much the central govt takes away in reduced transfers to local govt

(1) With no equalization, the tax rate is 0% (local govt keeps all its revenue)

(2) With perfect equalization, the tax rate is 100% (raising local revenue has zero impact on local spending)

California School Equalization

In 1960s-1970s, California used to have one of the best K-12 public school systems in the nation, now it has one of the worst

California used to have no school finance equalization and hence big disparities across areas

1971: Serrano vs. Priest case: California Supreme court ruled that disparities above a threshold were unconstitutional

$\Rightarrow$ Wealthy districts forced to give all their tax revenue above the threshold to the common pool to fund poor districts

$\Rightarrow$ local government has no incentive to raise taxes $\Rightarrow$ taxes and school funding fall in rich districts

$\Rightarrow$ Property taxes no longer able to fund schools adequately

California Proposition 13

In 1970s, discontent among the public about growing property taxes in CA due to (1) fast housing price increases and (2) local property taxes no longer funded local schools due to school equalization (prop tax not capitalized into local prices)

Proposition 13 was voted in 1978 and imposed strong limits on property taxes (and required super majority 2/3 vote in state legislature to increase ANY tax)

"Section 1. (a) The maximum amount of any ad valorem tax on real property shall not exceed one percent (1%) of the full cash value of such property."

Assessed value of real estate property can only grow at most by 2% per year (instead of following price increases which are around 4-5% on average)

⇒ Property owners no longer face big increases in prop tax (helps retirees on fixed income)

⇒ New owners end up paying much more than old owners (e.g., house assessed at $200K that sells for $1m will see a 5-fold increase in property taxes). Creates a lock-in effect (Ferreira 2010)

⇒ K-12 school system is now centrally funded by CA state (and no longer by local districts as before the 1970s) but not as generously (web)

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