# State and Local Governments

131 Undergraduate Public Economics
Emmanuel Saez
UC Berkeley

# FISCAL FEDERALISM

Government takes place at different levels: national, state, local (city or county)

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

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

Many countries are much more centralized than US:

Example: France's tax revenue over 90% centralized and local govts (such as cities and regions) receive funding from center but have some discretion on how to spend it

**Key question:** Should government be mostly central or local?

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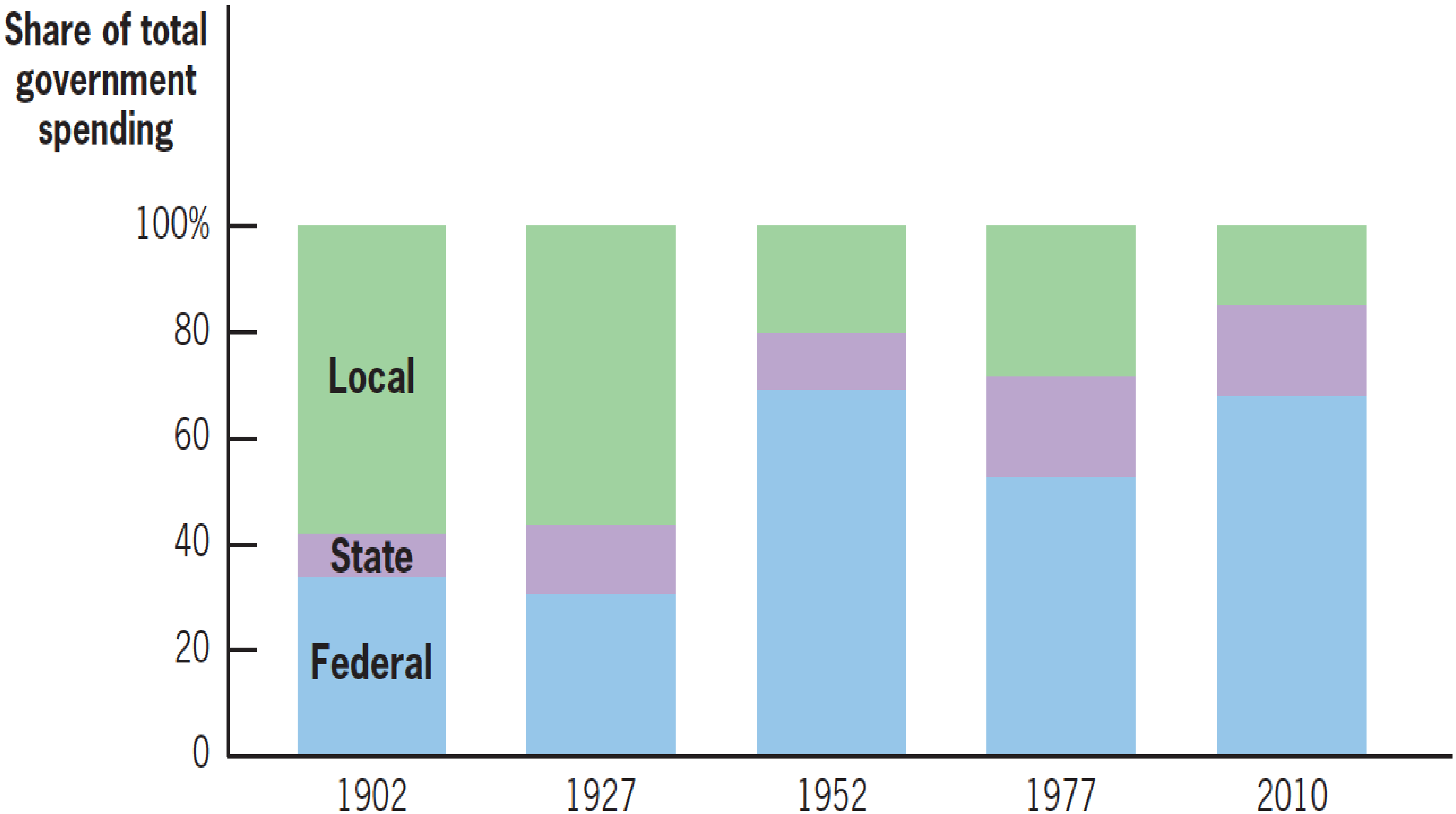
# State and Local Spending in the United States, 1902–2010



# 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.

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)

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

# THE TIEBOUT (1956) MODEL

Darling model of local public economics among economists

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

Factors missing from the market for public goods are shopping and competition

**Tiebout's insight:** The situation is different when public goods are provided at the local level (such as city)

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 city, they can move to the next city

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

# THE TIEBOUT FORMAL MODEL

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 levels $G_1, G_2$ of local public schools

There are 2 types of families:

1) $N$ families with kids, with utility $U^K(C, G)$, value both 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 median voter and financed equally by 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 2 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 $\Rightarrow$ 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 kids town, $G^*$ maximizes $U^K(Y - G/N, G)$ which is also efficient as it is the preferred choice of everybody.

# QUIZ ON TIEBOUT MODEL

Which is true about the Tiebout model and theorem?

A. It is costly to move and therefore people need to consider carefully which city to live in based on the public goods/taxes it provides

B. Because people can move, public goods look like private goods and hence the Samuelson rule for public goods no longer applies

C. The Tiebout model only works if people have different preferences about the public good so that they can sort themselves across cities based on their preferences

D. All of the above

E. None of the above

## THE TIEBOUT MODEL

People vote with their feet by choosing the city 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 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 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 govts forces them to provide local public good 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 the benefits and taxes paid 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)

2 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.

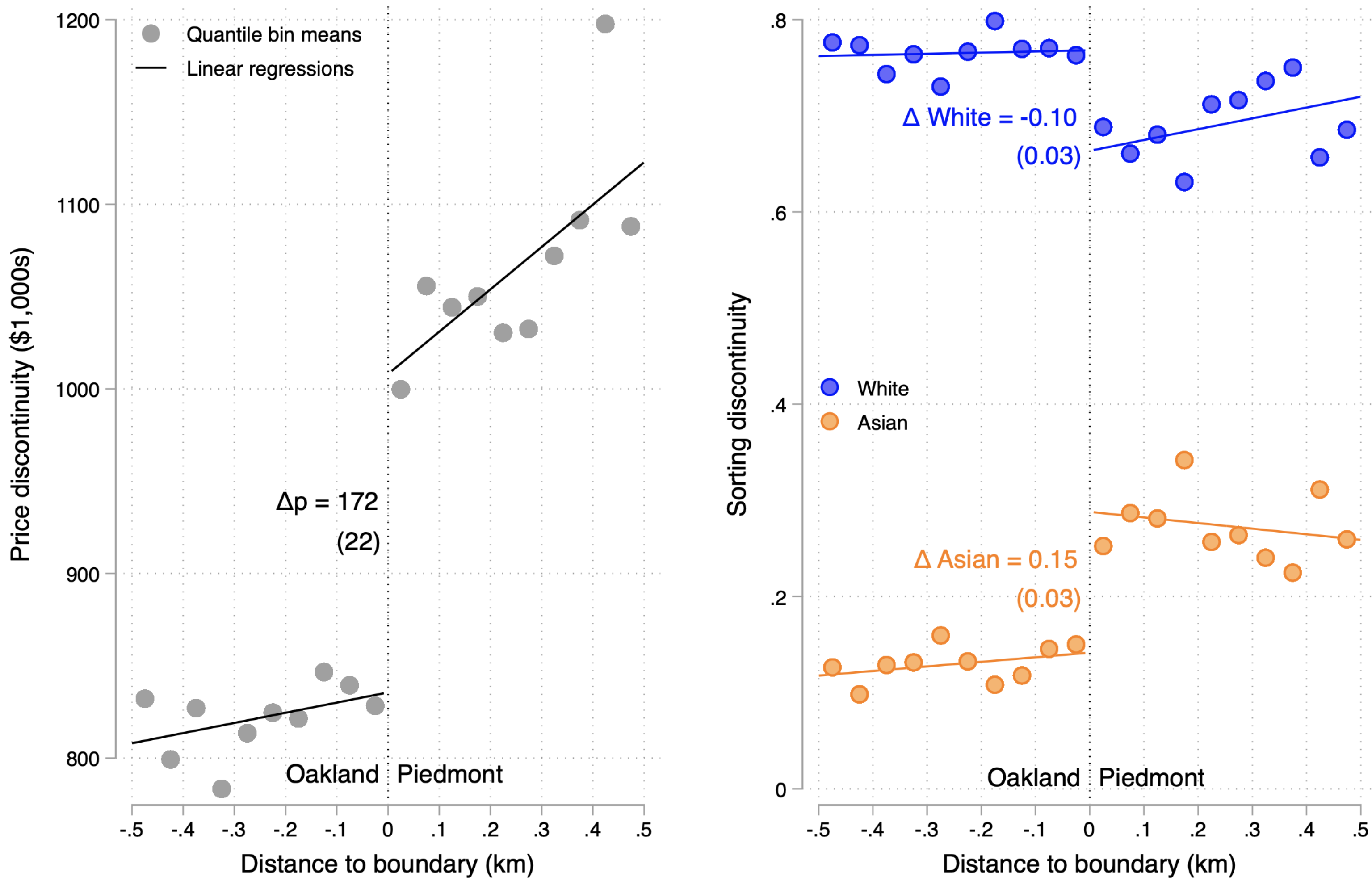
$\Rightarrow$ High property taxes (relative to public goods quality) depresses housing prices

$\Rightarrow$ Low property taxes (relative to public goods quality) 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)

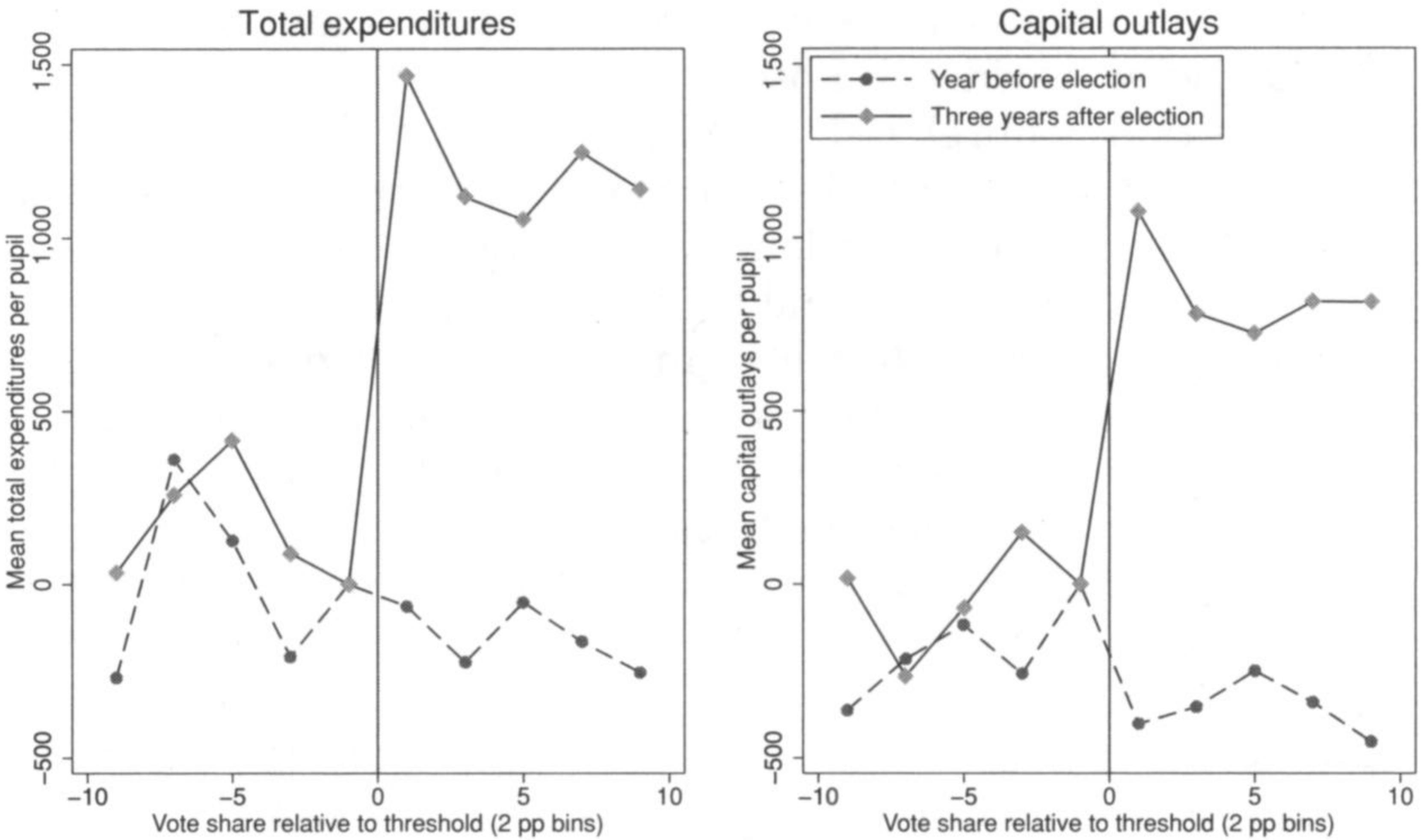



FIGURE II

**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)

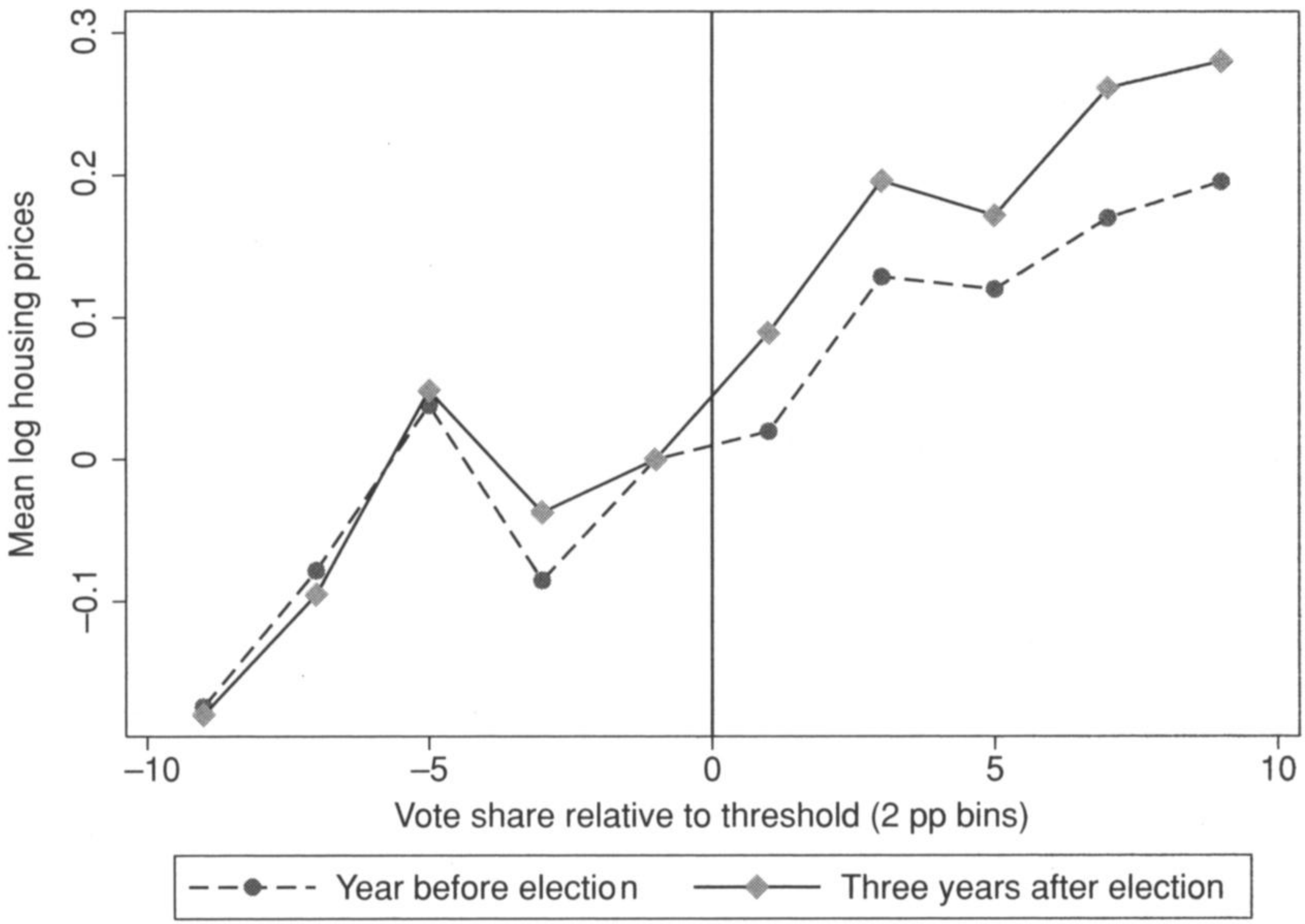



FIGURE V

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 higher level: state or federal (harder to leave the state or country). At local level, 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

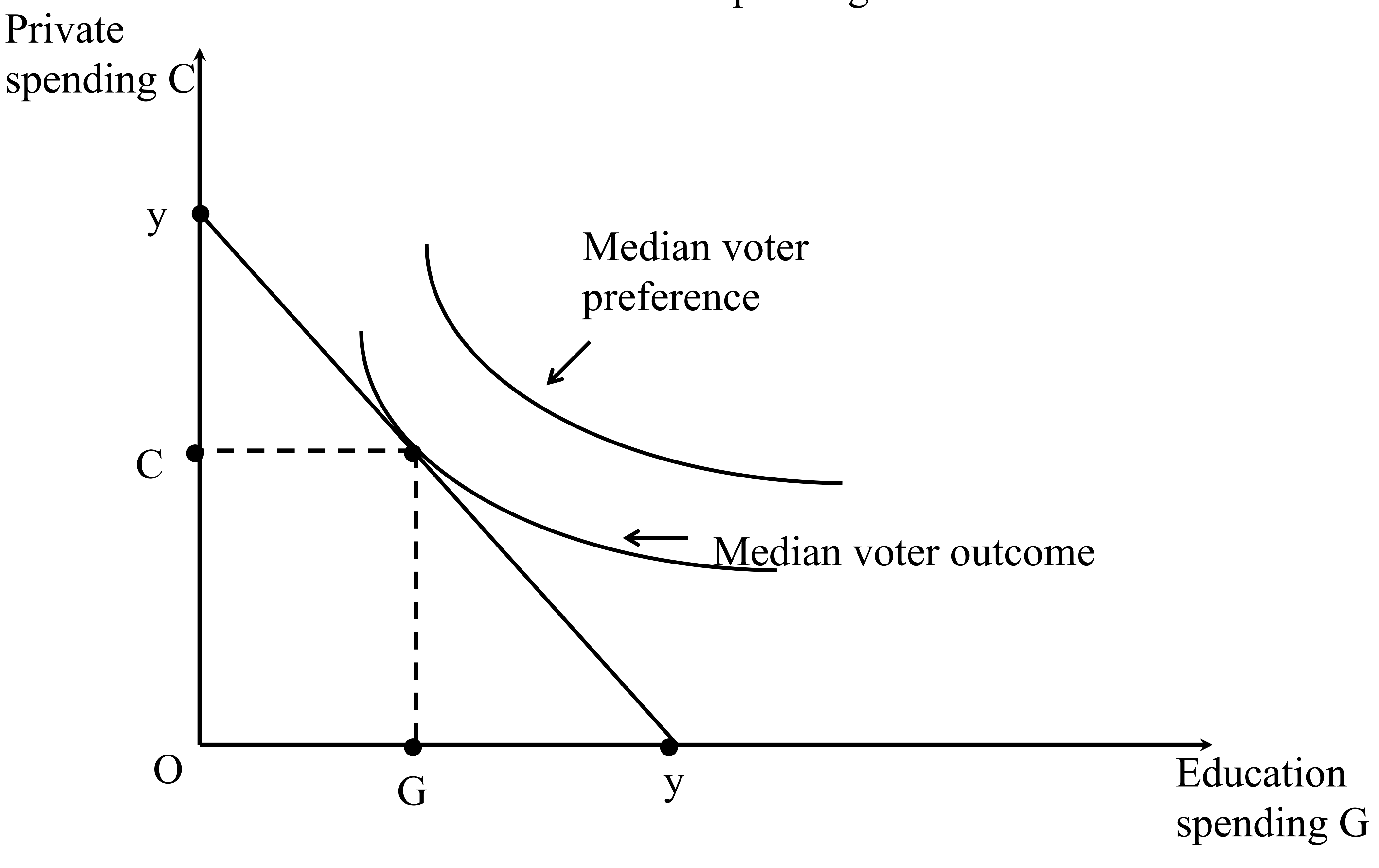
Three main forms of grants:

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

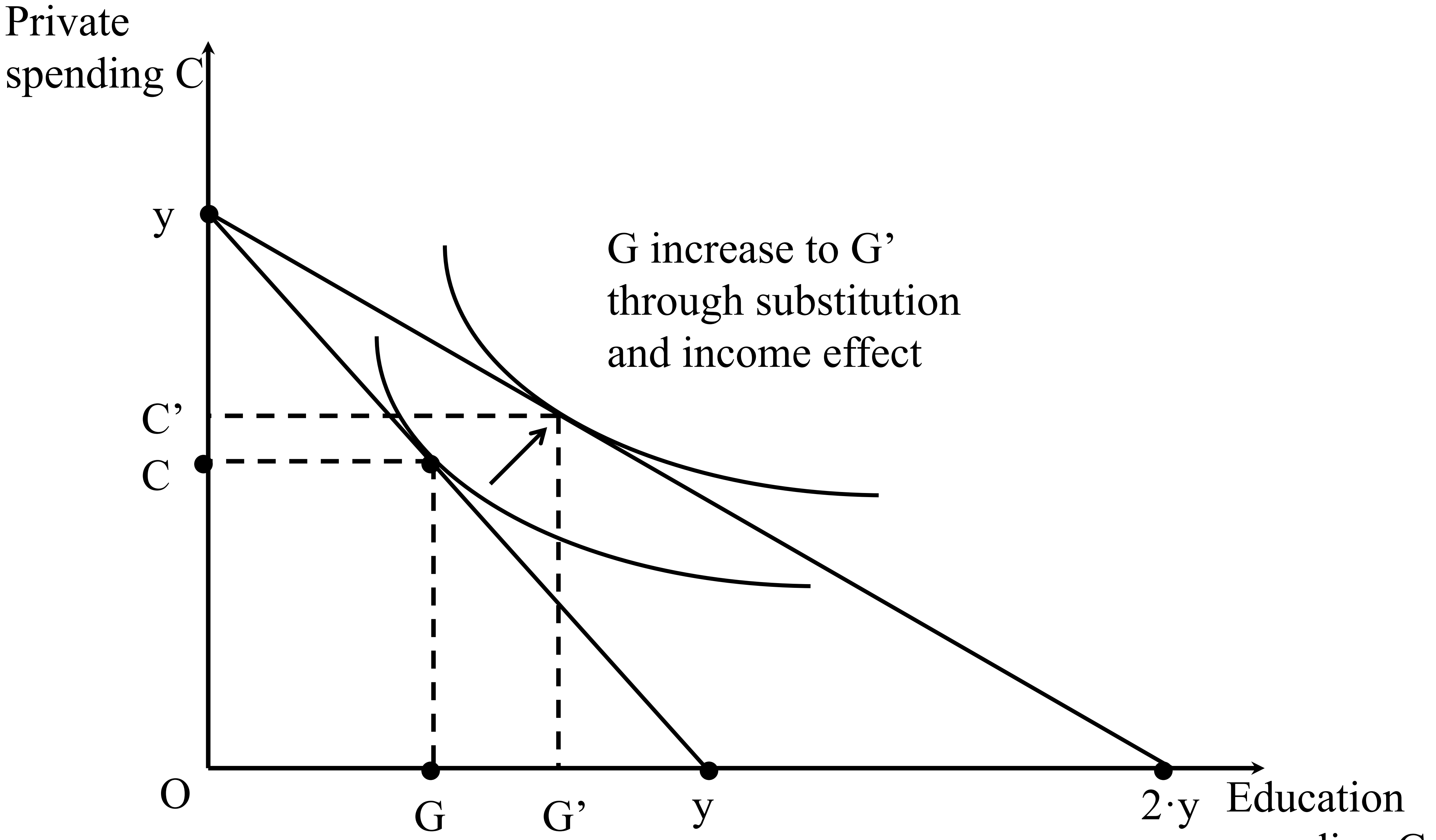
**2) Block grant**: A grant of some fixed amount with no mandate on how it is to be spent.

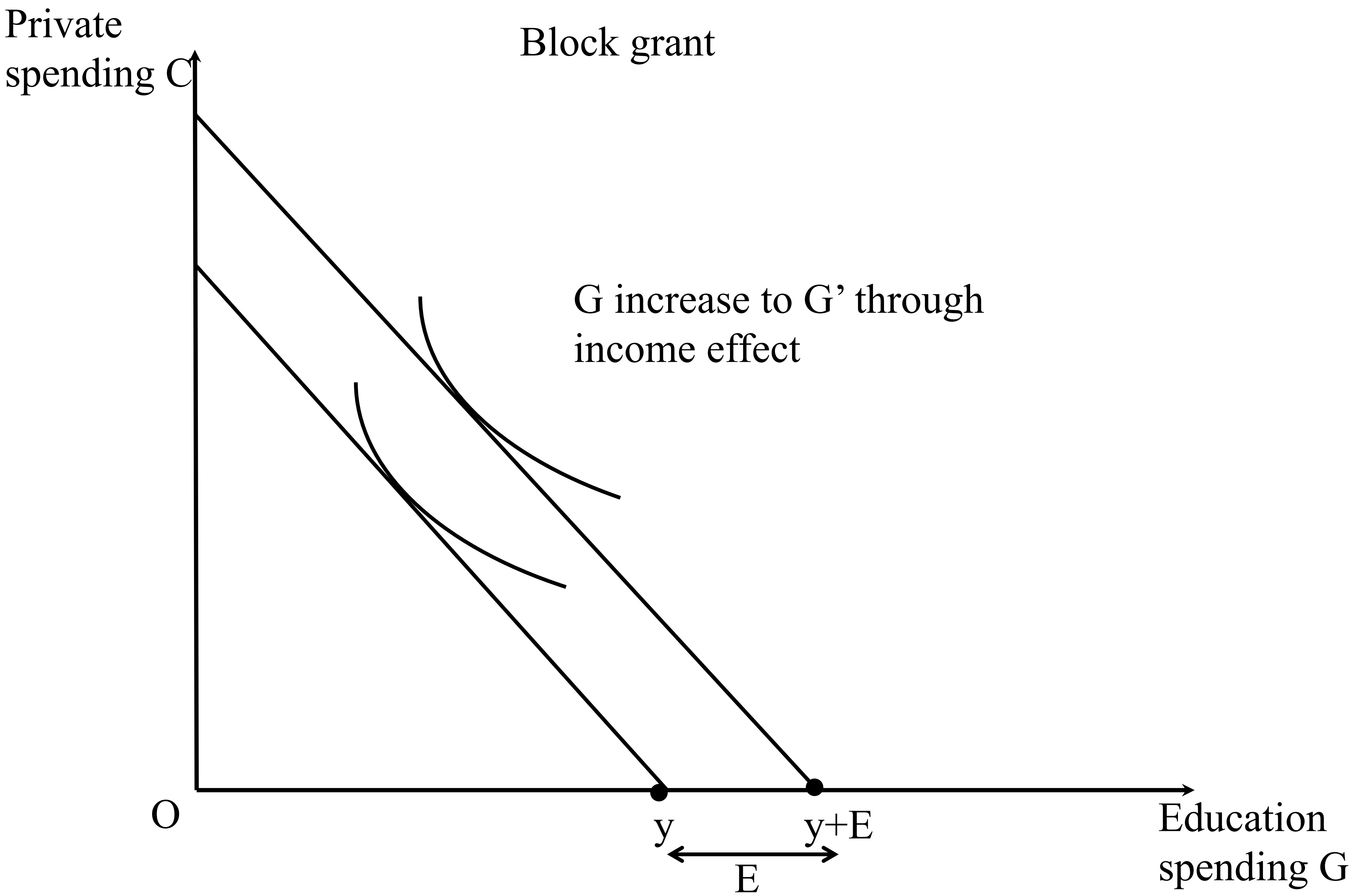
**3) Conditional block grant**: A grant of some fixed amount with a mandate that the money be spent in a particular way.

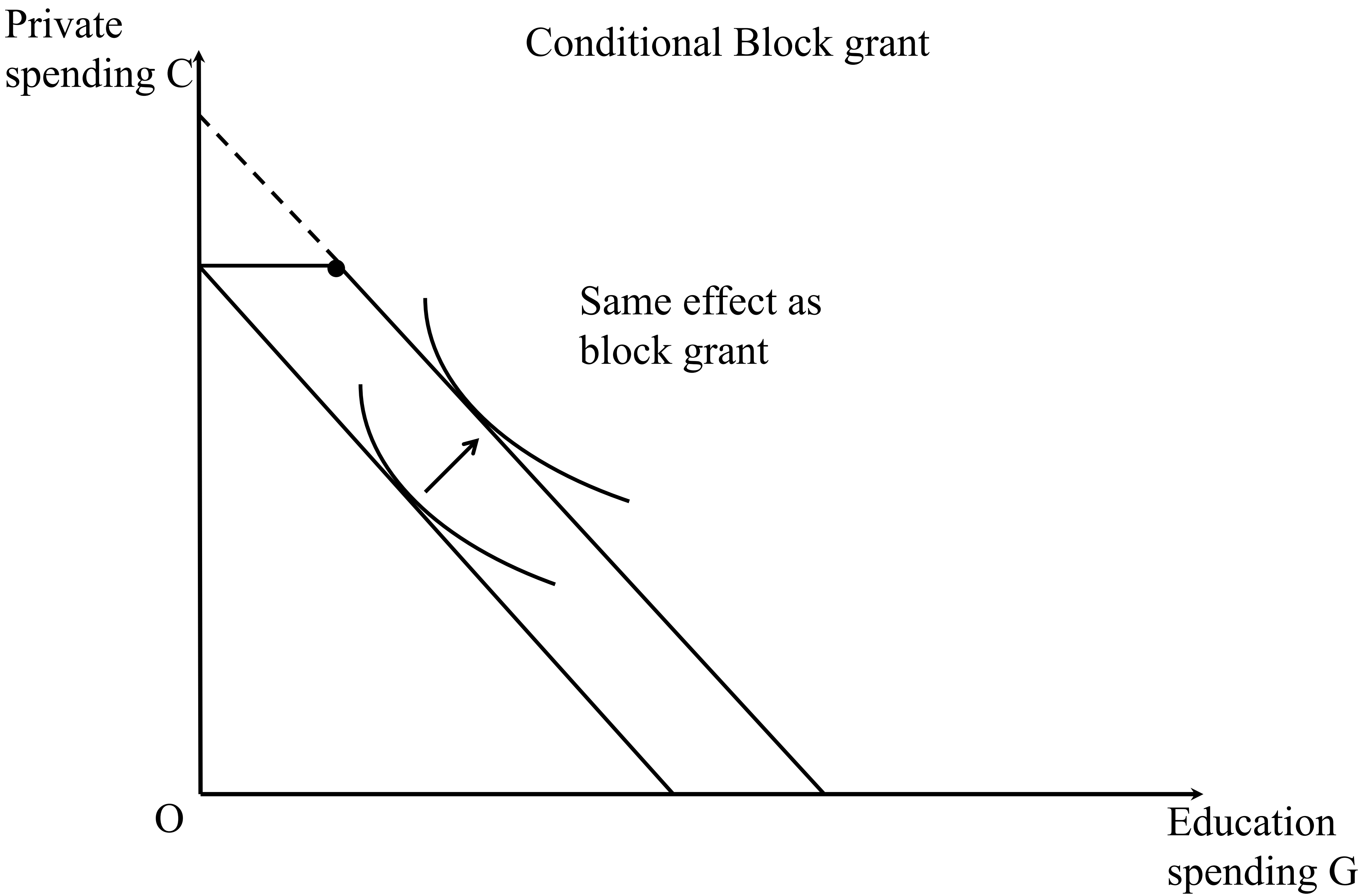
Local Public Spending

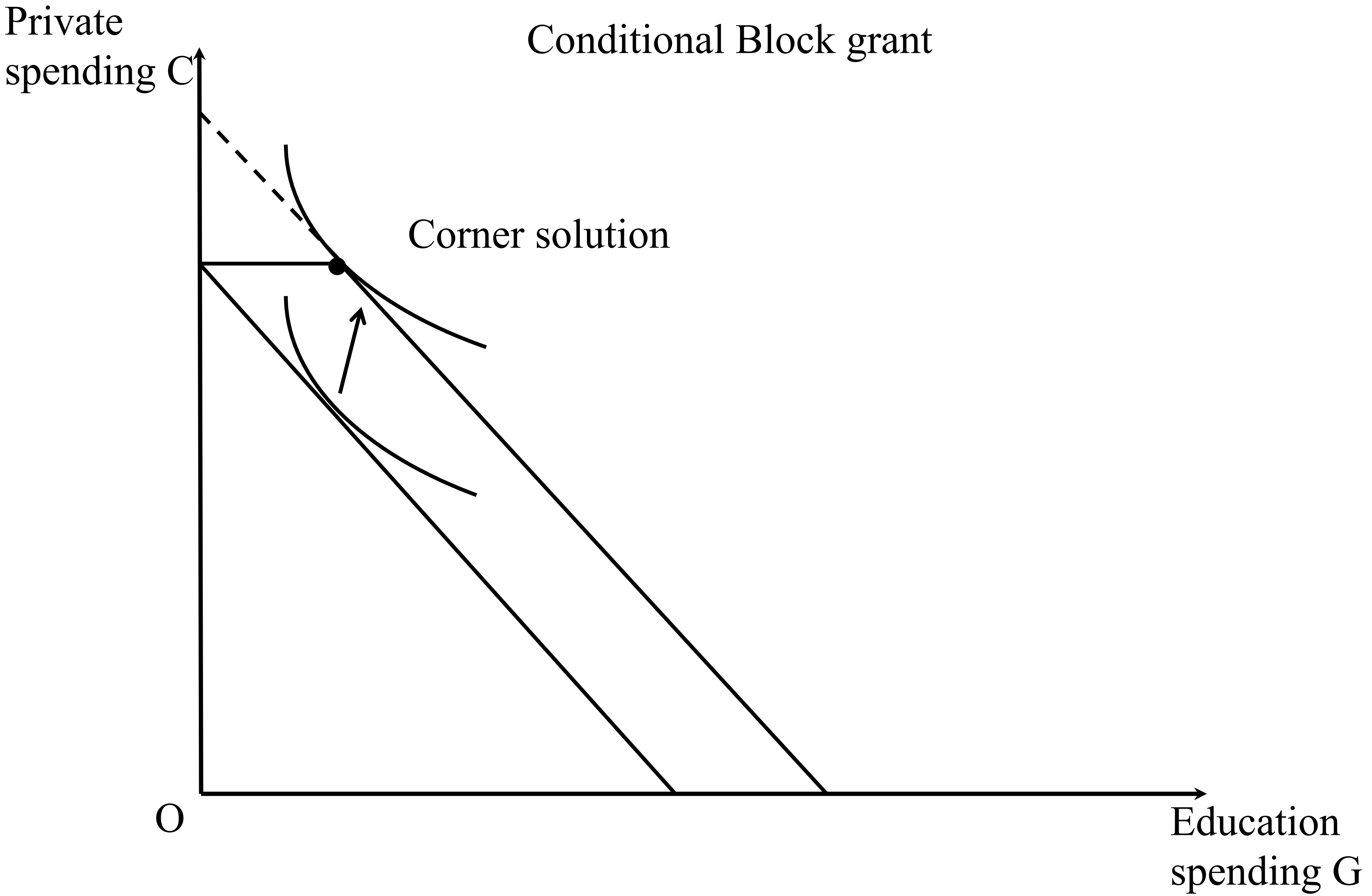


Matching grant




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


Conditional Block grant
Private
spending C
Same effect as
block grant
O
Education
spending G


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

Example: \$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 than a \$1000 Fed grant for police

Money is fungible: only total resources matter for the allocation across private good 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):

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)

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

$\Rightarrow$ 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)

$\Rightarrow$ 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)

# REFERENCES


Jonathan Gruber, Public Finance and Public Policy, Fifth Edition, 2016 Worth Publishers, Chapter 10

Cellini, Stephanie, Fernando Ferreira and Jesse Rothstein. 2010. "The Value of School Facility Investments: Evidence from a Dynamic Regression Discontinuity Design", Quarterly Journal of Economics, 125(1), 215-261. (web)

Ferreira, Fernando. 2010. "You can take it with you: Proposition 13 tax benefits, residential mobility, and willingness to pay for housing amenities." Journal of Public Economics 94(9-10), 661-673. (web)

Hines, James R., and Richard H. Thaler. "Anomalies: The flypaper effect." The Journal of Economic Perspectives 9.4 (1995): 217-226.(web)

Hoxby, Caroline M. "Does Competition among Public Schools Benefit Students and Taxpayers?." The American Economic Review 90.5 (2000): 1209-1238.(web)

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. (web)

Rothstein, Jesse. "Does Competition Among Public Schools Benefit Students and Taxpayers? Comment." The American Economic Review 97.5 (2007): 2026-2037.(web)

Schonholzer, David. 2023. "Measuring Preferences for Local Governments". (web)

Tiebout, Charles M. "A pure theory of local expenditures." The Journal of Political Economy 64.5 (1956): 416-424.(web)