State and Local Spending & Intergovernmental Grants
Economics of Public Policy
PADM 625
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Functions of Government
• Q: why are certain programs and services delivered by national governments and others by state/local governments?
• A: Division of Powers
  - Article 1, Section 8 U.S. Constitution
  - Sections 91 & 92 in Canada's Constitution

Demand for state and local public goods
• Q: Why do the level & type of spending vary between states/localities?
• A: a function of demand by residents
  - tastes
  - incomes
  - costs

Demand for state and local public goods
• Median voter - hypothetical person whose vote is decisive in a majority election
• Qd of a gov't good depends on the median voter's a) cost (i.e., tax price) and b) income

Price elasticity of demand
• The price elasticity of demand is the percentage change in quantity demanded for a one percent change in price
• Studies suggest price elasticity of demand for local public goods is negative (quantity demanded goes down as price goes up)

Price elasticity of demand
• Examples:
  - One study finds price elasticity of demand for education is between -0.37 and -0.51 (< 1 so inelastic)
  - At -0.51, a 10% increase in the tax price of education will cause the quantity demanded to drop by about 5%
Price elasticity of demand

- In general:
  - Studies find inelastic demand for local public goods
  - Thus, a price increase causes a less than proportional decrease in quantity demanded

Income elasticity of demand

- The income elasticity of demand is the percentage change in quantity demanded for a one percent change in community income
- Studies suggest income elasticity of demand for local public goods is positive (quantity demanded goes up as income goes up)

Income elasticity of demand

- Examples:
  - Study finds income elasticity of demand for education lies between 0.6 and 0.75
  - A 10% increase in income causes the quantity of education demanded to rise by up to 7.5%

Income elasticity of demand

- Most local public goods are inelastic with respect to income
- A 1% increase in income causes a smaller than 1% increase in demand for the public good
- Parks and recreation and public assistance are income elastic in some studies (luxuries)

Theory of local public goods

- What are local public goods?
- Why do we have lots of communities?
- Accommodating different tastes for public goods

Theory of local public goods

- A local public good is a good that is nonrival in a limited geographical area
  - people within the area can consume the good - one person’s consumption doesn’t reduce the amount available to someone else - and extra people don’t affect the cost of providing it
  - might also be non-excludable
Jurisdictional spillovers

• a type of externality
• occur when the benefits of local public
good are enjoyed beyond the boundaries of
the political jurisdiction that provided it
(e.g., Lake Michigan pollution)
• alternatively, when the costs of a local
public good encroach upon residents of
other political jurisdictions (e.g., enhanced
policing)

Local Public Goods and Community Size

• Why do we have lots of communities?
  - I mean, why don’t we have one large city
  and divide the cost of the public goods
  among everyone?
  - That way we minimize the average costs
  of supplying the public goods (and
  internalize inter-jurisdictional externalities).

Local Public Goods and Community Size

• some local goods may be congestible
  (larger population causes congestion
costs)
• some factors are fixed, e.g., land
  (larger population leads to land
  becoming more crowded and
  expensive)
• different tastes...

Different tastes for public goods

• tastes differ - people can satisfy
diversity of tastes by moving to a
geographic area which offers a
preferred menu of local public goods
• diversity in consumption of public
goods not possible without the
existence of many communities

Different tastes for public goods

• suppose a community has 2 types of people
  • O’s love the outdoors and want parks
  • A’s suffer from hay fever and agoraphobia
    - would prefer pavement
  • parks do not get crowded and As cannot
distance themselves from parks
  • what is the efficient quantity of parks to
  have in this community?

Different tastes for public goods

• MC of parkland is the value of land for private
uses
• efficient quantity of a public good requires that
  the community’s MWTP, which is the sum of the
  MWTPs of all consumers, be equal to the marginal
cost of the good i.e., MWTPo + MWTPa
• but MWTP for agoraphobics is negative because
  they suffer from having parks
• can treat the negative MWTPa as an additional
  marginal cost (MCa = - MWTPa)
• Thus, efficient quantity of parks requires that
  MWTPo = MC + MCa
Different tastes for public goods

- Efficient quantity of parks in a single community is $Q_{all}$
- If forming a new community has no costs, both the outdoors people and the agoraphobics are better off (a Pareto improvement) by separating and living apart
- The Os can live in a community with lots of parks and the As can live in a community with no parks
- The efficiency gain from this arrangement is equal to the area of the two shaded triangles
- Left hand triangle is the gain to As
- Right hand triangle is the gain to Os

Different tastes for public goods

- The example illustrates that having different communities for people with different tastes for local public goods can improve economic efficiency
- Optimal size and number of communities must balance the efficiency gains from satisfying the diverse tastes against the costs of serving smaller populations
The Tiebout Hypothesis

- Under certain conditions, efficient amounts of public goods are provided by communities if people "vote with their feet"
- Hypothesis relies on restrictive assumptions but can serve as a useful organizing principle

Tiebout's strong assumptions

- People can move easily (at no cost)
- Optimal size community is finite
- Total population large enough to allow lots of optimal communities
- Local public goods are financed by per capita tax or benefit tax
- People are fully informed (taxes, quantities and qualities)
- No jurisdictional spillovers

People "buy" a package

- supermarket analogy
- consumers shop for the basket of public goods that best suits them and pay the "basket price"
- goods in unsold baskets reconfigured
- every consumer can find preferred basket
- "basket choice" equilibrium is efficient - people choose baskets of public goods by "voting with their feet"

Tiebout model limitations

- if all assumptions not satisfied "market failure" in the provision of public goods occurs
  - constrained choices
  - "basket spillovers"
  - free riding on tax instruments not in the form of per capita/benefit taxes
  - optimal population size not easy to maintain
The Economic Theory of Federalism

- **fiscal federalism** describes how the different economic functions of government are matched with the level of government best equipped to carry them out efficiently

- e.g., is it efficient for local governments to supply national defence?
- e.g., is it efficient for a national government to supply fire protection?

Benefits of decentralization

- **Greater voice**
  - common interests due to geographic proximity more ably responded to (avoids commingling)
  - possibility of "direct voting"
- **Greater choice**
  - uniform federal policies stymie individual preferences e.g., pollution vs. jobs
  - essence of Tiebout model

Benefits of centralization

- **Internalizing jurisdictional spillovers**
  - spillovers can be internalized when gov’t function performed by a higher level of government
- **Avoiding beggar-thy-neighbor policies**
  - allows large enough jurisdictional “footprint” so that aggregate costs and benefits of projects can be properly accounted for
  - e.g., restricts tax competition

- **Economies of scale**
  - some public goods best provided at larger-than-local scale
  - e.g., tax collection
- **Horizontal and vertical equity**
  - higher levels of government better equipped to achieve:
    - horizontal equity (equal burdens)
    - vertical equity (progressive burdens)
Intergovernmental grants

- Money transferred from one government to another
- Contrast with direct expenditure where one government makes disbursements directly to people

Classifications

- Noncategorical - grant does not have to be used for a particular purpose
- Categorical - meant to be used for a particular purpose
- Block - a fixed sum of money
- Matching - a sum of money that varies with the amount spent by the recipient

Non-categorical grants

- A non-categorical grant is a lump sum payment:
  - To a government
  - That can be spent in any way it wants ("no strings")
  - Often called revenue sharing since a higher level of government shares its revenues with a lower level

Non-categorical grants

- Recipient government could use a non-categorical grant to
  - Spend more on existing programs
  - Spend on new programs
  - Reduce taxes

Non-categorical grants

- Consider a community that can spend government money to produce public goods
- Or can leave money in private hands to allow people to buy private goods in the private sector

Non-categorical grants

- A community has a choice between public and private goods
- A budget constraint shows the tradeoff between them
Where do community indifference curves come from?

- Remember the paradox of voting and the difficulty in speaking the will of the people.
- Maybe we can assume everyone in the community is the same (Tiebout)
- Or maybe these are the curves of the median voter (Median voter theorem)

Non-categorical grant

- The community receives a non-categorical grant
- Community income increases
- Its budget constraint shifts out (the income effect of the grant)
What to make of this?

- Grant increases expenditure on public goods
- But also increase communities’ expenditures on private goods if grant reduces (or fails to raise) taxes

Non-categorical grants

- The impact of the grant depends on the community’s income elasticity for public goods
- If elasticity is equal to “1” local government allocates the grant to public and private spending in the same proportions the communities income is currently divided between them

Non-categorical grants

- Studies suggest that community income elasticity for public spending tends to be less than 1 (on the order of 0.6 to 0.8)
- In this case, a non-categorical grant that increases community income by 1% will increase public spending by 0.6% to 0.8%
- Thus, most of the grant goes to reducing taxes

Non-categorical grants

- Consider these numbers for example
- A community with income elasticity = 0.8
- Initially, $100,000 income and $800 public spending
- Gets $1,000 noncategorical grant

Non-categorical grants

- That’s a 1% increase in the communities income.
- Public spending will rise by 0.8%, or by $800*.08 = $64
- Private consumption will rise by $1,000 - $64 = $936
- Thus, most of the noncategorical grant is used to lower taxes

Categorical grants

- Grants to be spent for specific purpose
- Grants for highways or schools must be spent for those purposes
- Often subject to restrictions on how spent, or on the nature of the program that can receive them
Categorical grants

• Block grants: fixed amount of money to be spent on a specific purpose
• Matching grant: a variable amount that increases as the recipient government spends more on the specified purpose
  - can be open-ended or closed-ended

Block grants

• In this analysis:
  - community can choose between spending its money on private goods or on public goods
  - Choice is represented by a budget constraint
  - A community indifference curve (for the median voter?)

Public and private consumption

Block grants

• Block grant shifts the community’s budget constraint to the right
• by the amount of the grant
• budget line is truncated since the grant can’t be used for private spending or to provide tax relief
Block grant

- Block grant affects the recipient government in the same way as the noncategorical grant (as long as the recipient government was already spending more on the function than the size of the grant)
- money is fungible (interchangeable)
- recipient government will reduce its own spending on the function and spend it on other functions

Matching grants

- Granting government and recipient government each make a contribution to a function
- increase in the grant per dollar of additional spending by recipient is called the match rate

Matching grants

- The impact of the match rate is to lower the “price” of the public good to the recipient government
- We can represent this by a change in the slope of the budget constraint.
- Introduction of a grant, or an increase in a match rate will cause the budget constraint to pivot out
Matching grant

- matching grant provides stronger encouragement for the community to spend on the good for which the match is provided
- An open ended match grant matches whatever the recipient government chooses to spend
- A close ended matching grant matches local expenditures up to a certain limit

The Flypaper effect

- Non-matching categorical grants (block grants) appear to increase spending more than they "should."
  - i.e., a nonmatching categorical grant should affect the recipient just like a categorical grant because money is fungible
- Given income elasticities of demand the increase on local government spending of a block grant should increase spending by 10 to 15 cents per $1 of grant

Flypaper effect

- Suppose the recipient government wanted to spend less on the function than the amount of the grant...

Budget constraint
Block grant shifts constraint

Suppose it was a non-categorical grant...

Suppose it was a non-categorical grant...

Suppose it was a non-categorical grant...

But that choice isn't available - next best choice:
Flypaper effect

- Maybe voters will resist new tax increases but find the current level of taxes acceptable -- the government gets the money and then spends it on the function rather than reducing taxes
- or, is it a statistical illusion? (e.g., disguised matching grants)

Intergovernmental grant policy

- Why grants at all? Why not let local governments raise their own revenues?
- Why use categorical grants?

Why should the federal government make unconditional grants?

- Economies of scale in tax collection - federal government may be able to collect taxes at lower costs (administrative or deadweight loss) than state or local governments
- Vertical equity: balance expenditures among jurisdictions with different income levels

Why should the federal government make conditional grants?

- have higher administrative cost but:
  - can correct for differences in fiscal capacity among jurisdictions (e.g., variable match rates for education)
  - flypaper effect
  - allows granting government to maintain control over the details of the programs it funds (e.g., Canadian health care system)

An application: state and local spending on education

- rationale for government education spending #1: market failure
  - a local public good? i.e., non-rival?
  - adds to human capital, creates external benefits
  - selfish/negligent parents?
  - not easy to borrow against value of human capital

An application: state and local spending on education

- rationale for government education spending #2: equity
  - to ensure access for the needy
  - but why not means tested?
  - "leveling down" vs. tax & transfer measures
An application: state and local spending on education

• Savage inequalities
  - inequalities in public schools a result of local property tax financing
  - but cannot “tie” expenditure per pupil to property tax base
  - public schools in some states have become more reliant on state grants
  - federal government has no mandate to equalize education spending across states, relies on programs like Head Start

An application: state and local spending on education

• Savage inefficiencies?
  - not a lot of evidence supports the view that more spending improves educational quality
  - or simply a measurement problem?
  - Prof. Hanushek’s survey of empirical studies: no solid link between school expenditure and student performance

An application: state and local spending on education

• public school reform: it’s about choice
  - vouchers ($zz per child; allows “school shopping”)
    - advocates say vouchers would improve both equity and efficiency
    - opponents say vouchers would lead to a two-tier system with greater inequality
  - charter schools
  - magnet schools

Sources

• Bruce, Chapter 18