Economic Policy Analysis: Lecture 4

Local Public Finance

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Outline

Figure 1: Local vs Federal Spending in the US

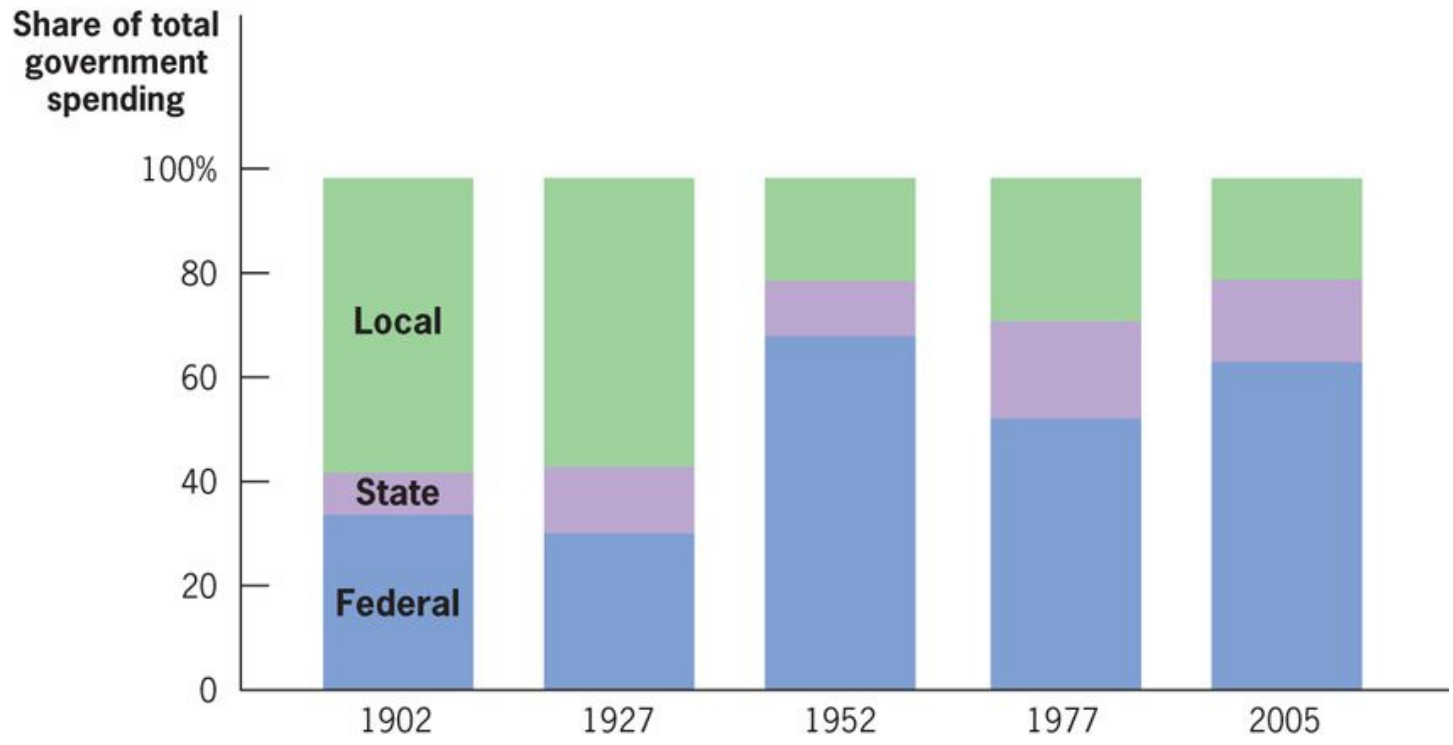


Figure 2: Variations in Local Public Spending in the US

Comparison of State Spending and Revenue Across the United States

		State	Dollars per capita
Spending	**Education**	Alaska	$3,666 (high)
		Washington	2,400 (median)
		Tennessee	1,805 (low)
	Health Care	District of Columbia	8,295 (high)
		Iowa	5,380 (median)
		Utah	3,972 (low)
Taxes	**Income Taxes**	District of Columbia	2,111 (high)
		Vermont	874 (median)
		AK/SD/FL/NV/WY/WA/TX/NH	0 (low)
	Sales Taxes	Washington	1,853 (high)
		Missouri	845 (median)
		DE/OR/MT/NH	0 (low)

What's the problem?

Which activities should take place at which level of government?

E.g.: debate over education and No Child Left Behind

- Is it efficient to have local provision of public goods?
- What is the optimal level of federalism?
- Should we redistribute across communities?

Outline

Tiebout

- **Samuelson**: no market-based solutions to provide public goods efficiently
- **Tiebout**: if the public goods are local(consumer must choose a location to consume it) then market type solution exists because people vote with their feet
- Local vs national public goods...
- Framework:
  - large number of communities offering different levels of public good
  - People by moving reveal their preference for public goods
  - Community managers have instruments to adjust population size so that average cost per person of public good is minimized.

Tiebout: local gvts and consumer migration work as decentralized mechanism to achieve efficient provision of public goods

A formalization of Tiebout: Buchanan's club model

- Clubs of size N provide consumption of public goods G
- Identical consumers with utility $U(x, G)$
- Cost of providing public good $= C(N)$
- Managers of the club maximizes utility of consumers in his club by fixing optimal level of members in the club
- Program:

$$Max_{x,G,N} U(x, G)$$

$$\text{s.c} \quad Y = x + \frac{C(N)}{N} G$$

Optimal provision

$$\mathcal{L} = U(x, G) + \lambda(Y - x - \frac{C(N)}{N}G)$$

F.O.C.:

- Standard Samuelson Rule:

$$\frac{N.U'_G}{U'_x} = C(N)$$

- Optimal size of club given G:

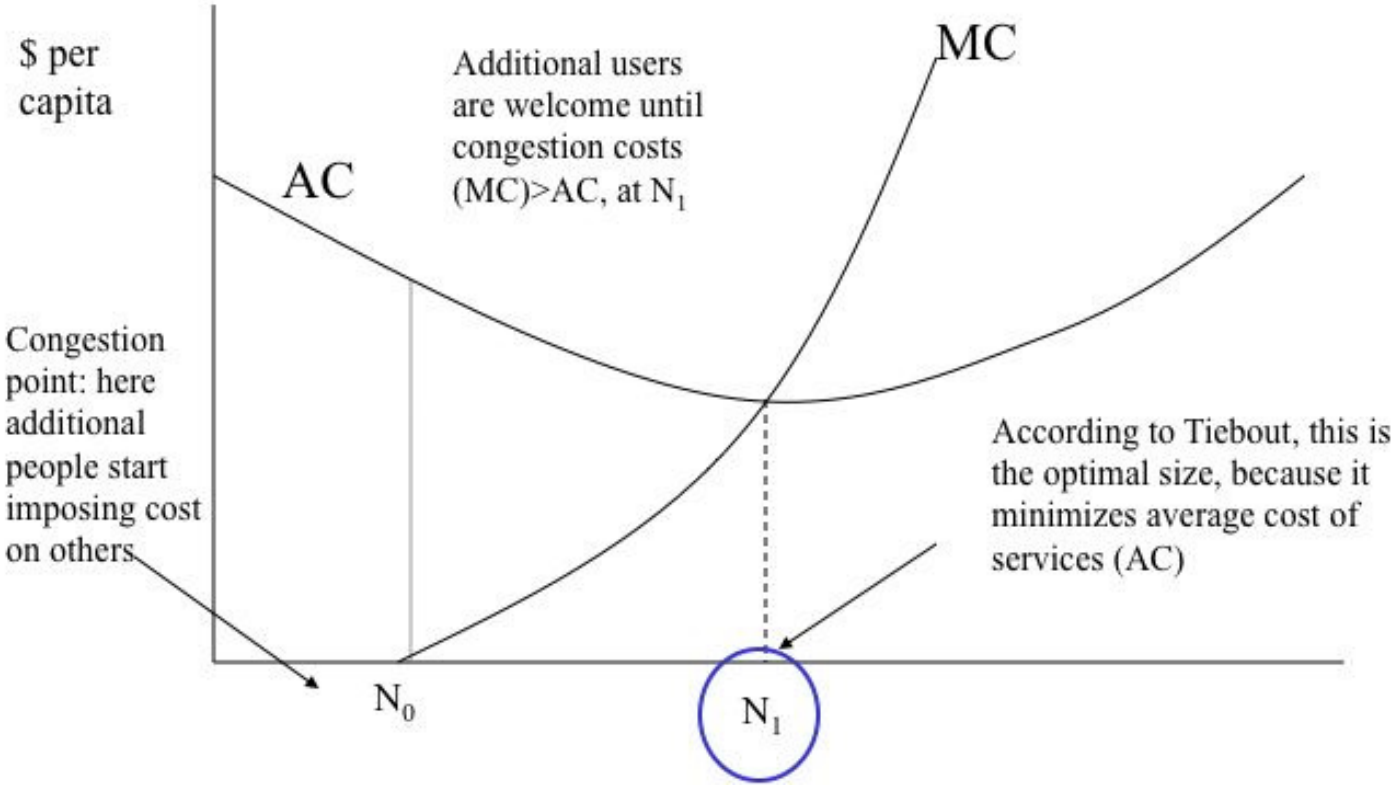
$$C'(N) = \frac{C(N)}{N}$$

Existence

- If G is pure public good: $C'(N) \to 0$ therefore optimal size of community N^* is ∞
- If G is private ($C(N) = pN$): N^* is indeterminate

Congestion necessary in local public goods to ensure existence of the optimum

Figure 3: Optimal Size of Local Communities



Institutional Limitations

- Local govts are political entities:
  Profit maximization may not be achieved when political processes and laws determine provision and pricing of goods

- In club theory, free entry in the market:
  In contrast, if a local govt makes profit new communities are not freely allowed to form themselves. Barrier to entry

- Large number of communities:
  Allow for a close match between distribution of the quantity of public goods each individual prefers and the supply by local communities. Number of communities is critical for existence of an equilibrium and optimality of the equilibrium.

- Existence of perfect instruments to adjust size of the community: advertising, zoning...

Limitations of the Tiebout Conjecture

- Income completely exogeneous:
  - Assumes away all key effects of migration on income
- No externality of the local public goods across communities:
  - Spillovers call for higher level of gvt intervention (federal) to make localities internalize the externality
- Zero mobility cost
- Perfect information of individuals about the mix public goods/taxes in each community
  - E.g. Dowding & al. (1995): survey evidence about knowledge of individuals and stated reasons for moving. Mixed results.

Empirical Implications and Existing Evidence

Testable predictions on:

- Size of communities:
  - The more communities to choose from, the more people can sort and preferences for public goods should be more homogeneous
- Mobility:
  - A change in public good provision, or local taxes to finance them should induce migration responses
- Capitalization:
  - Land being inelastically supplied, the NPV of a change in public good provision or local taxes should translate one for one into house prices
- Sorting

Evidence on Community Size

- Metro areas with one municipality have wide variety of demanders for public services (Gramlich and Rubinfeld 1982)
- The greater the number of municipalities, the more homogeneous each is with respect to demand for public services, and hence clustering of residents with similar preferences occurs (Gramlich and Rubinfeld 1982, Heikkila 1996).
- There are more and smaller municipalities on average in metro areas with heterogeneous demand for public services (Fisher and Wassmer 1998).

Evidence on Capitalization: Rosen 1982

California Prop 13:

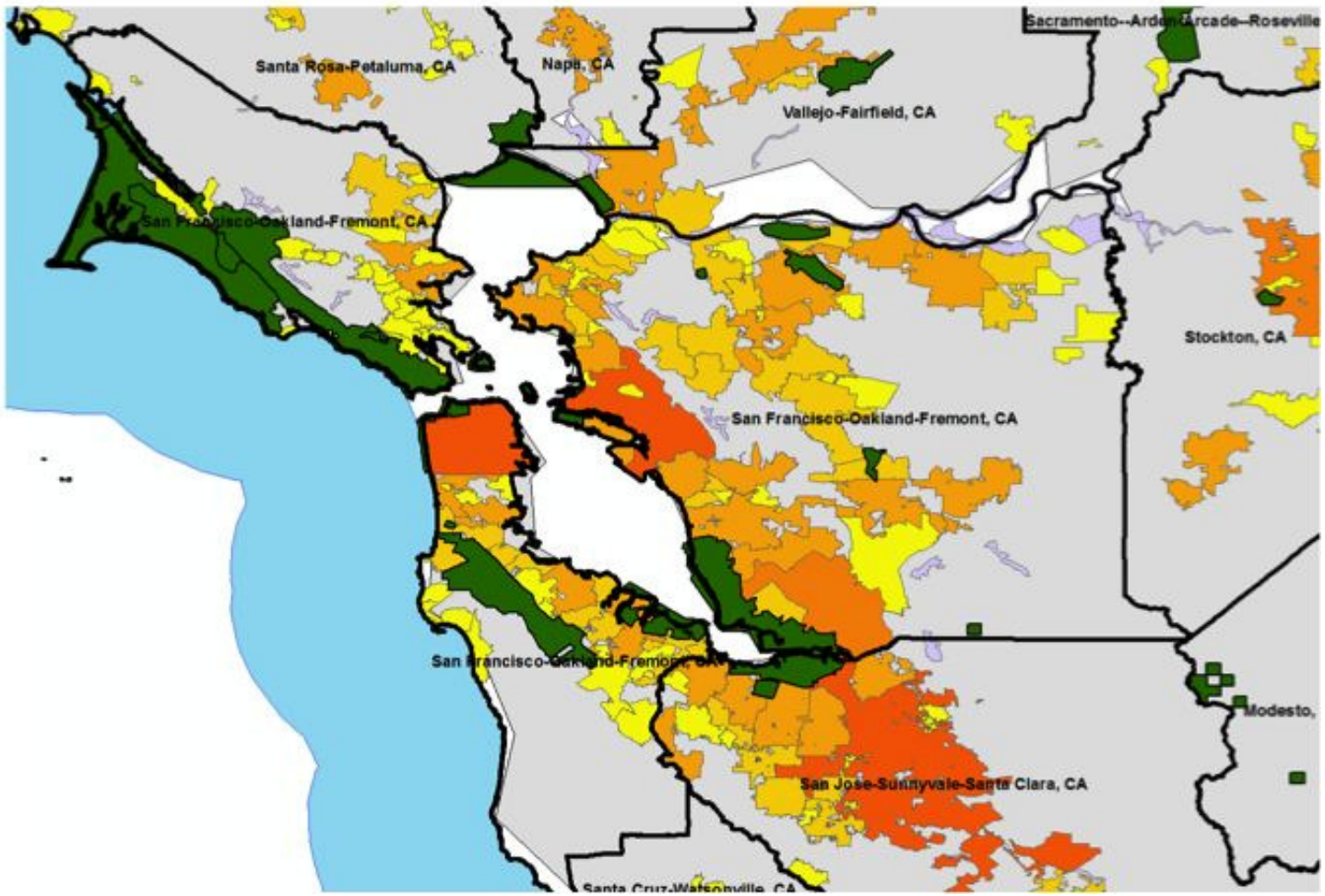
- Enacted in 1978
- Max amount of property tax could not exceed 1% of the "full cash value" of the property
- "Full cash value" defined as assessed value for 1976, plus annual increase of 2% at most
- "Full cash value" defined as sale value if house sold

Evidence on Capitalization: Rosen 1982

Rosen studies 60 municipalities in the Bay Area:

- Compares municipalities with high property tax rates in 1978 (treatment) and low property tax rates (control)
- Parallel trend assumption on the evolution of housing prices in these two groups
- Results: each \$ of property tax reduction increases house values by \$7.
  - Remember: \$1 stream of annual income over an infinite horizon as a $NPV = \frac{1}{r}$, with r=discount rate
  - If $r = .12$ (average interest rate at the time of Prop 13 $\Rightarrow$ $NPV = \$8.33$
- Rosen results = almost full capitalization
  - People myopic about reduction in public good provision?

Figure 4: Rosen



Sorting

- Huge level of urban segregation in the US:
  Average dissimilarity index of immigrant groups' distribution across neighborhoods in US cities has risen continuously since 1920 from 0.34 to 0.56 in 2000

- Should we interpret that as evidence of Tiebout mechanism?

- Could be that people care about who their neighbors are, and hence choose their neighborhood based on demographic composition

Manski's reflection problem: If both housing prices and composition are endogeneous functions of neighborood characteristics, how to separately identify preferences and social spillovers?

Sorting

- Poses a methodological problem in the estimation of willingness-to-pay parameters often used for CBA
- Externalities matter for understanding the causes of social segregation across locations and imply multipliers on policies affecting segregation
- If externalities are strong, multiple equilibria in population composition at a given location arise $\Rightarrow$ Discontinuous and large effects of demand shifting policies due to bifurcations $\Rightarrow$ phenomena of rapid gentrification or the reverse.

Outline

Advantages of Federaslim

- Tailoring public goods
- Experimentation
- Intergovt competition fostering efficiency of public spending

Issues with Federalism

- Externalities across jurisdictions
- Scale economies in production of public goods
- Inefficient tax structure $\Rightarrow$ scale economies in tax collection, mobile tax base, (inefficient + redistribution not achieved best at local level)

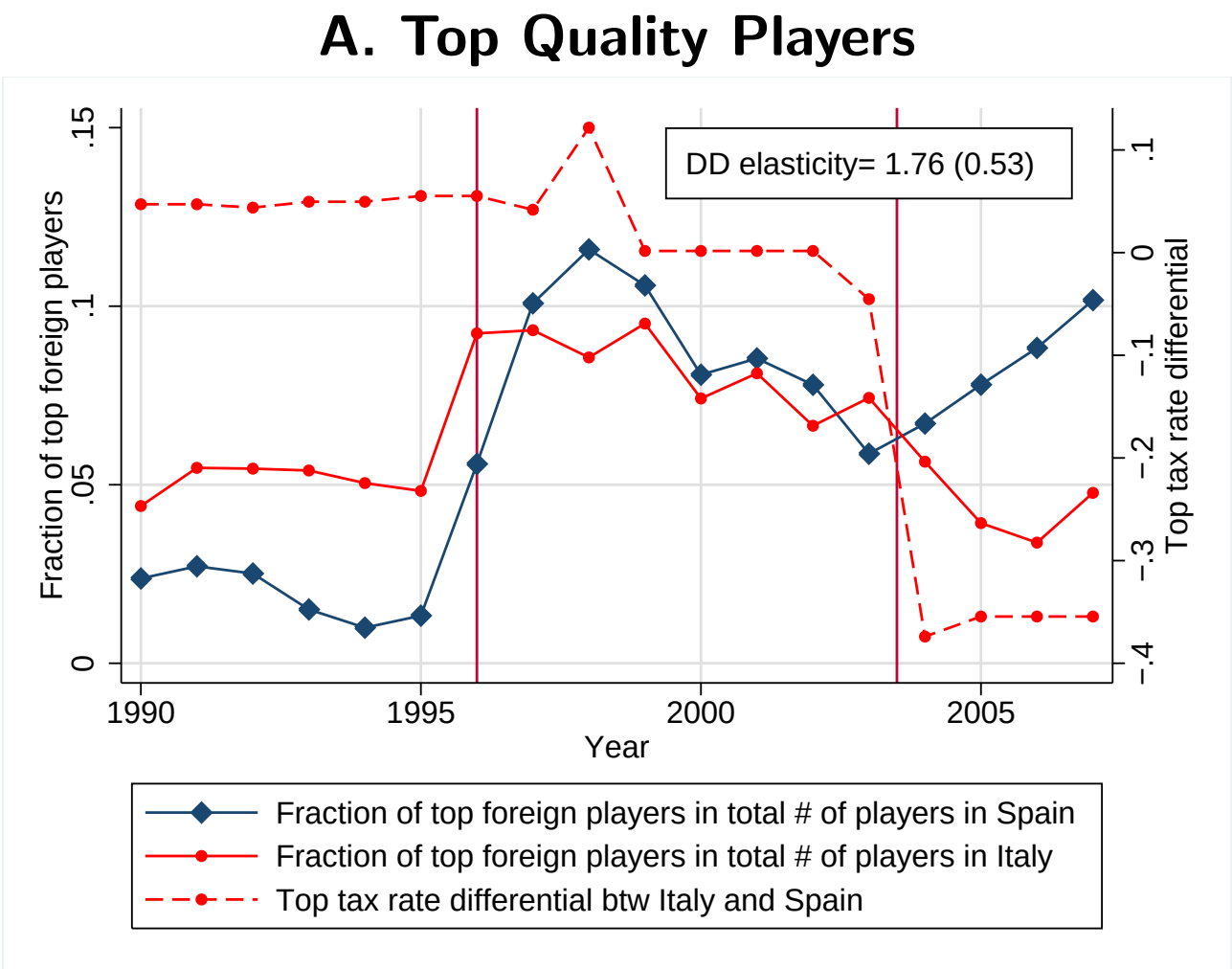
Optimal Tax Structure

Mobile tax base

- Without coordination: suboptimal taxation because of tax competition across jursidictions
- Mobility limits redistributive ability of local tax structures

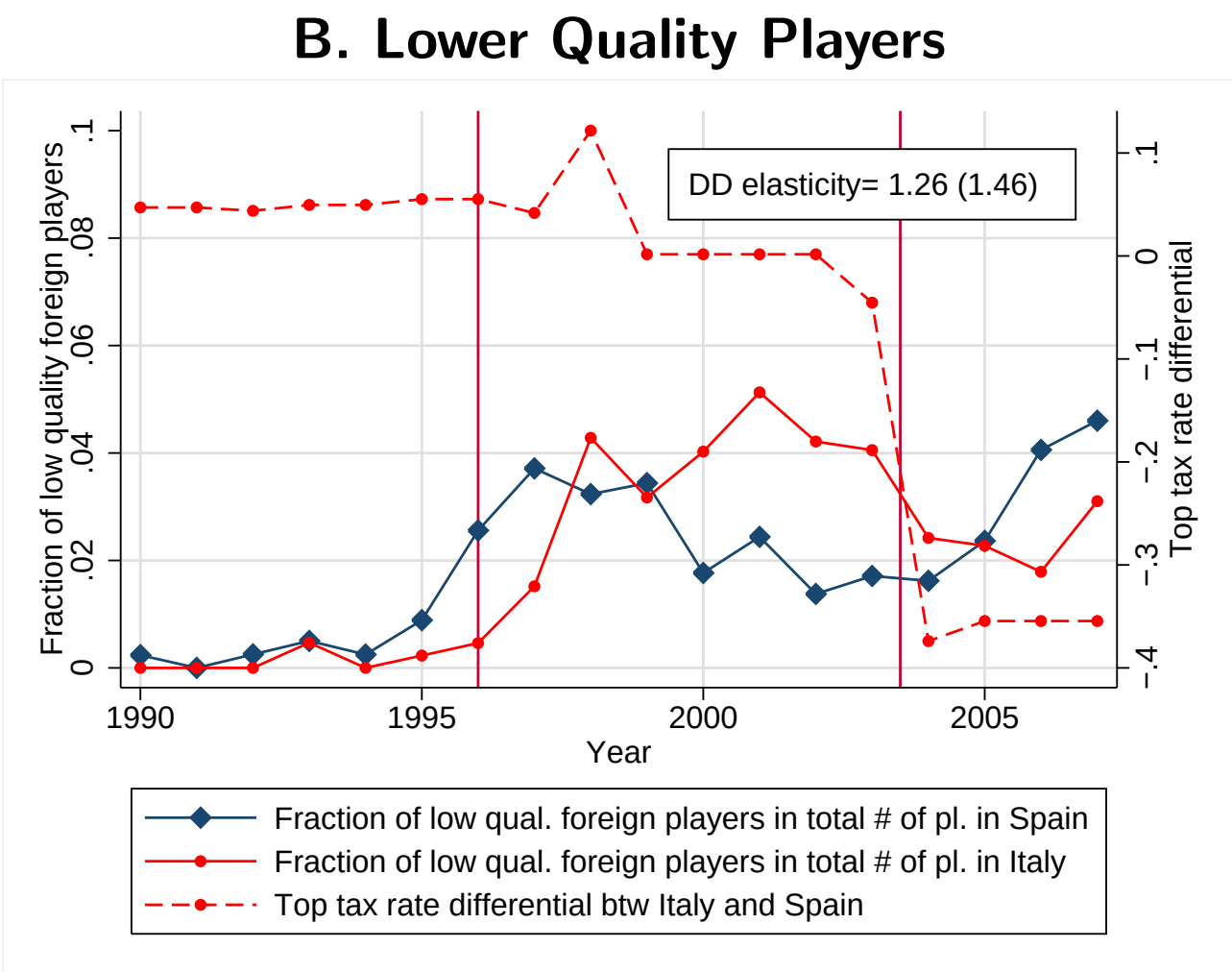
Evidence on mobility of skilled workers Kleven Landais & Saez (2011)

Figure 5: The Effects of the Beckham Law in Spain



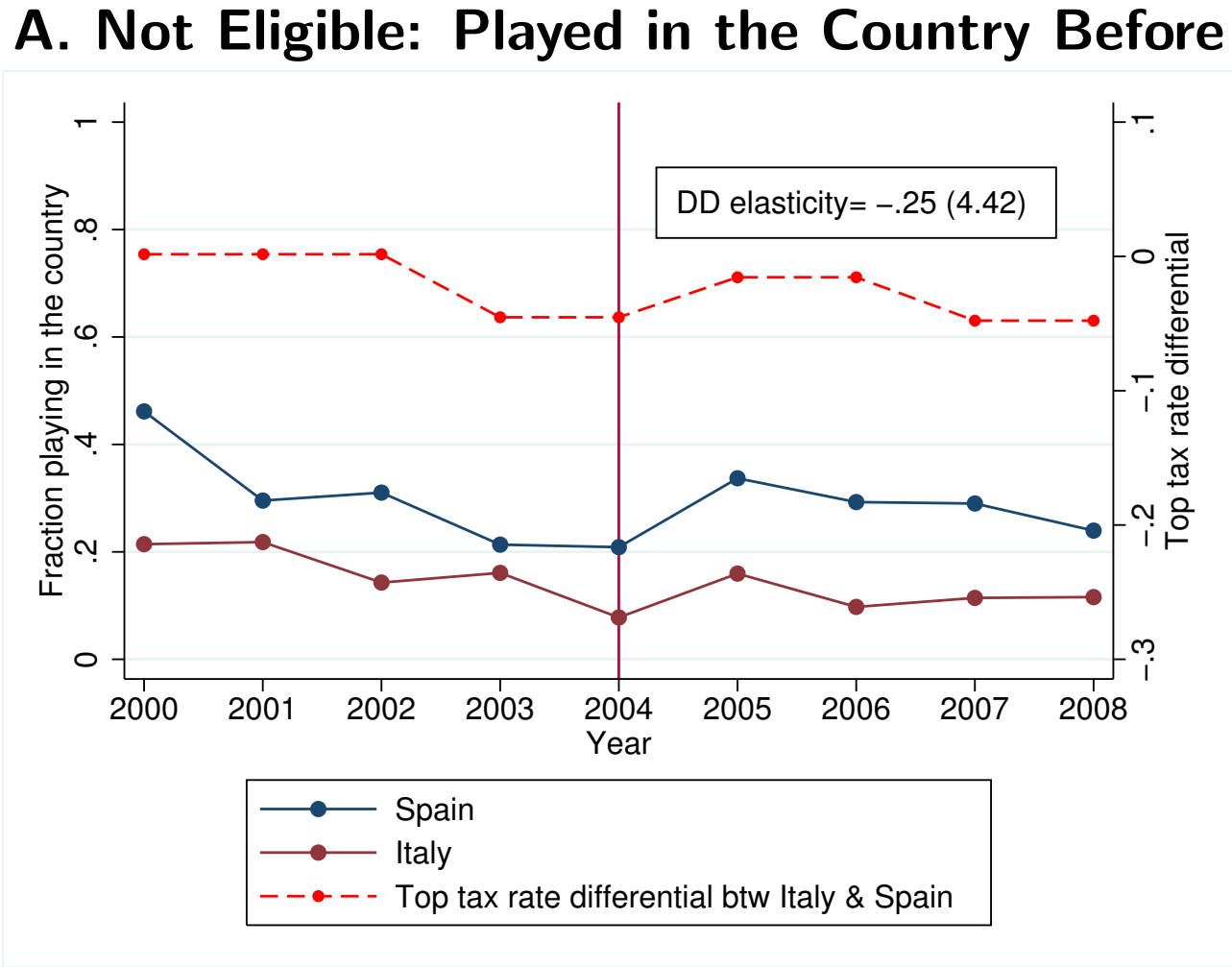
NOTE: A 2004 tax reform ("Beckham law"), depicted by a vertical line, introduced a preferential tax treatment for foreign players in Spain. The Bosman ruling is also denoted by a vertical line. Year t is for season running from September year t to July year $t+1$. Panel A displays the fraction of top foreign (non-Spanish) players in the first league in Spain and the fraction of top foreign (non-Italian) players in the first league in Italy (which did not implement a preferential tax regime for foreign players and is used as a control country).

Figure 6: The Effects of the Beckham Law in Spain



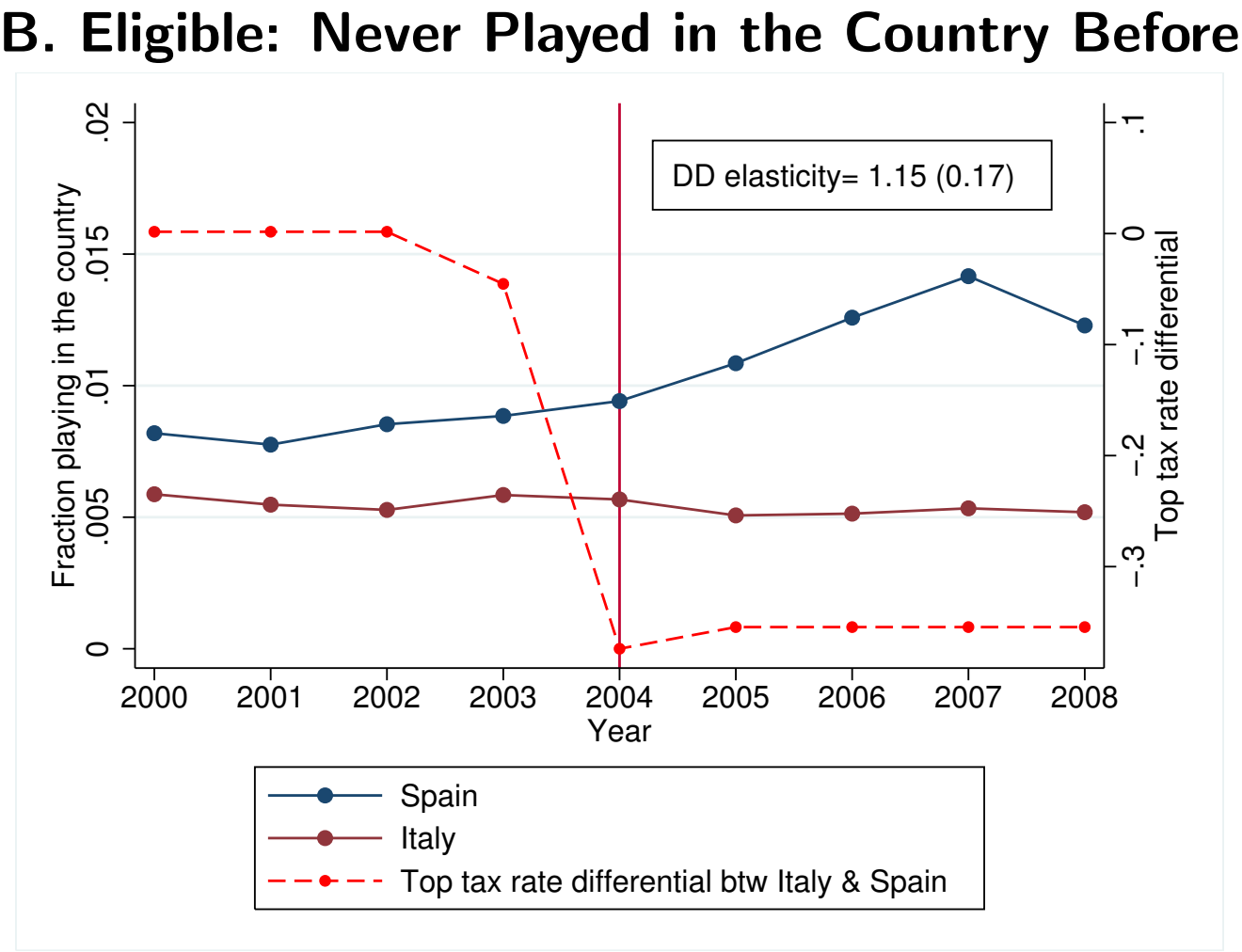
NOTE: The dataset is restricted to all players from our 14 countries of interest. A 2004 tax reform ("Beckham law"), depicted by a vertical line, introduced a preferential tax treatment for foreign players in Spain. The Bosman ruling is also denoted by a vertical line. Year t is for season running from September year t to July year $t+1$. Panel B displays the fraction of non-top foreign players playing in the first leagues of Spain and Italy (respectively). Top earnings tax rate differential between Spain and Italy (defined as $\tau_{Spain}/\tau_{Italy} - 1$) is reported on right y-axis.

Figure 7: The Effects of the Beckham Law in Spain: Eligible vs. Not Eligible Foreigners



NOTE: A 2004 tax reform ("Beckham law"), depicted by a vertical line, introduced a preferential tax treatment for foreign players in Spain. Panel A focuses on non-Spanish players having played in Spain (resp. non-Italians having played in Italy) at any point in the window 10 to 5 years before the current year t, and therefore not eligible for the Beckham tax regime in Spain after 2004. We plot the fraction of these players playing in Spain (resp. Italy) in year t and the differential in top tax rates between Spain and Italy expressed as a percentage of the Italian top tax rate.

Figure 8: The Effects of the Beckham Law in Spain: Eligible vs. Not Eligible Foreigners



NOTE: A 2004 tax reform ("Beckham law"), depicted by a vertical line, introduced a preferential tax treatment for foreign players in Spain. Panel B focuses on non-Spanish players who never played in Spain (resp. non-Italians who never played in Italy) before year t and therefore eligible for the Beckham tax regime after 2004.

Table 1: Multinomial Logit Estimates Including Sorting Effects and Displacement Effects

	Sorting		Sorting + Displacement	
	Long term	Short term	Long term	Short term
$log(1-\tau) * Qual_{0-25}$	-0.233	-0.791***	-0.329**	-0.811***
	(0.126)	(0.144)	(0.126)	(0.138)
$log(1-\tau) * Qual_{25-50}$	-0.609***	0.215	-0.722***	0.116
	(0.163)	(0.171)	(0.163)	(0.172)
$log(1-\tau) * Qual_{50-75}$	0.453**	0.785***	0.332*	0.699***
	(0.171)	(0.184)	(0.169)	(0.179)
$log(1-\tau) * Qual_{75-95}$	1.911***	1.356***	1.852***	1.379***
	(0.160)	(0.256)	(0.158)	(0.247)
$log(1-\tau) * Qual_{95-100}$	2.275***	0.307	2.229***	0.487
	(0.335)	(0.754)	(0.329)	(0.713)
$log(1-\tau^f) * domestic$			-0.956***	-0.869***
			(0.127)	(0.128)
$log(1-\tau^d) * foreign$			-0.144	-0.136
			(0.174)	(0.180)
Observations	61806	61806	61806	61806

Redistribution Among Local Communities

Should we care about inequalities across communities?
Yes, if...

- Failure of Tiebout mechanism
- Externalities in local public goods across communities

Redistribution Among Local Communities

How to optimally redistribute across communities

- Matching grant: ties grant to amount spent on public good
- Block grant: no mandate
- Conditional block grant: fixed amount but mandate to be spent only on public good

Figure 9: Local Provision of Public Good

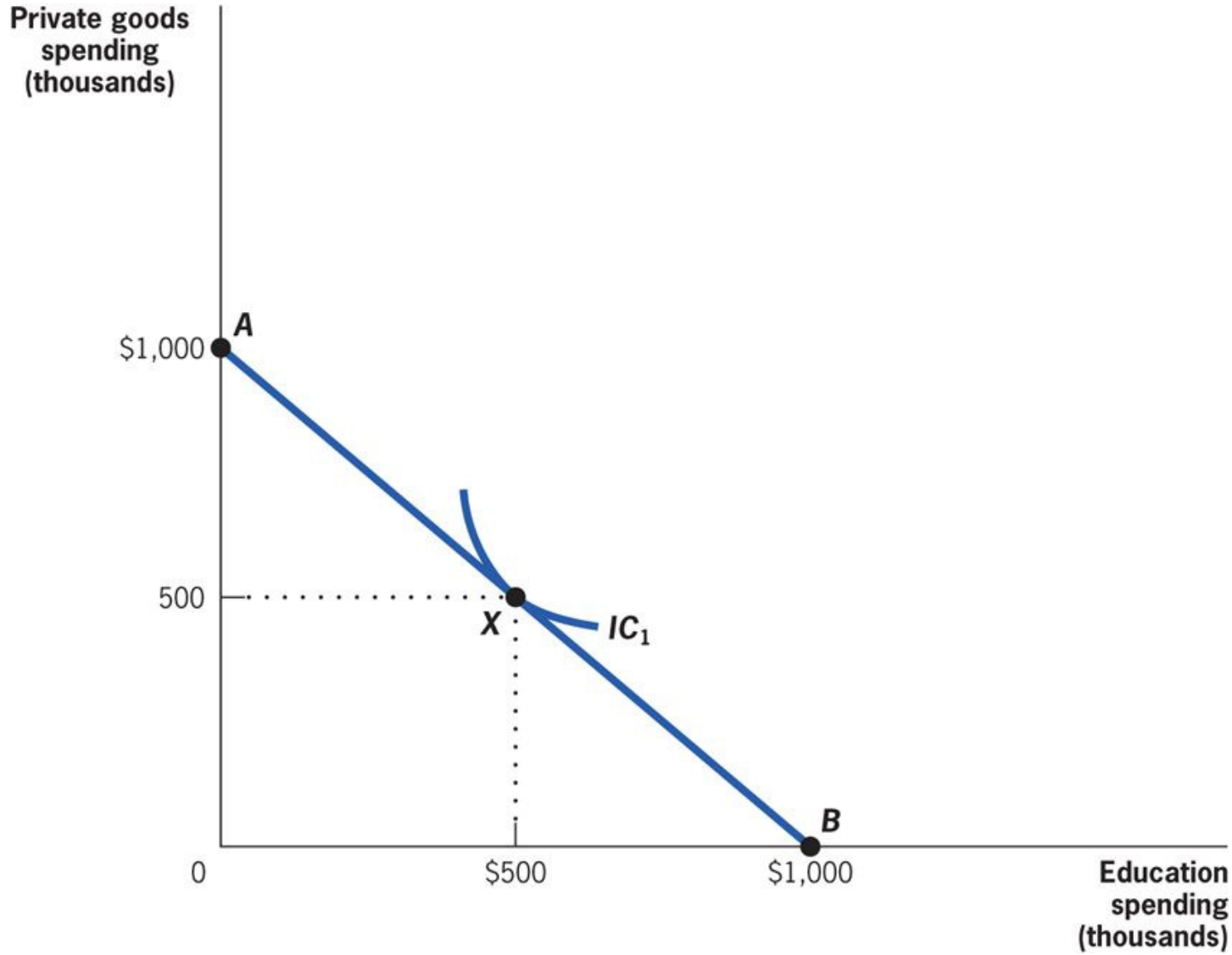


Figure 10: Macthing Grants

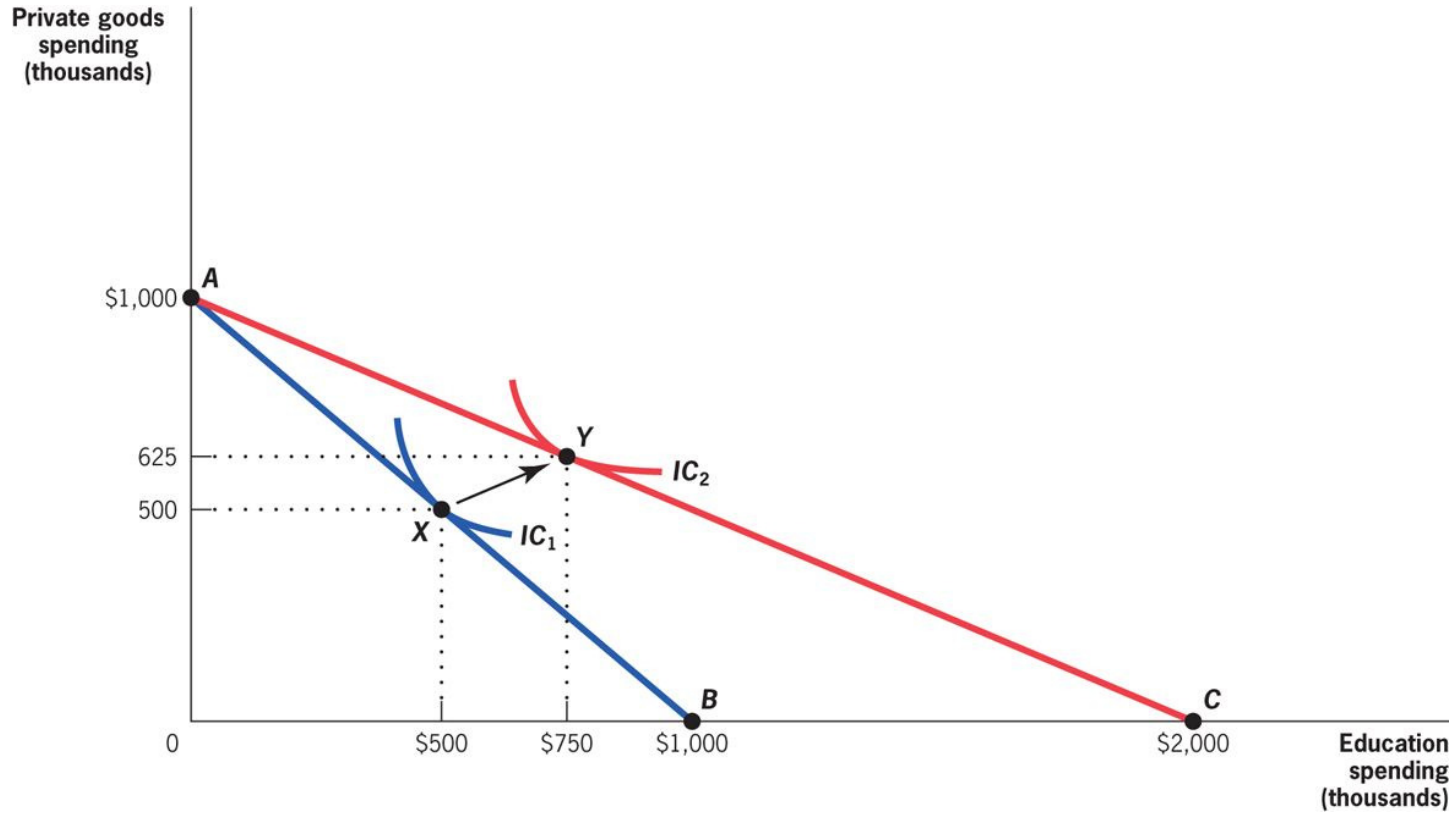


Figure 11: Block Grants

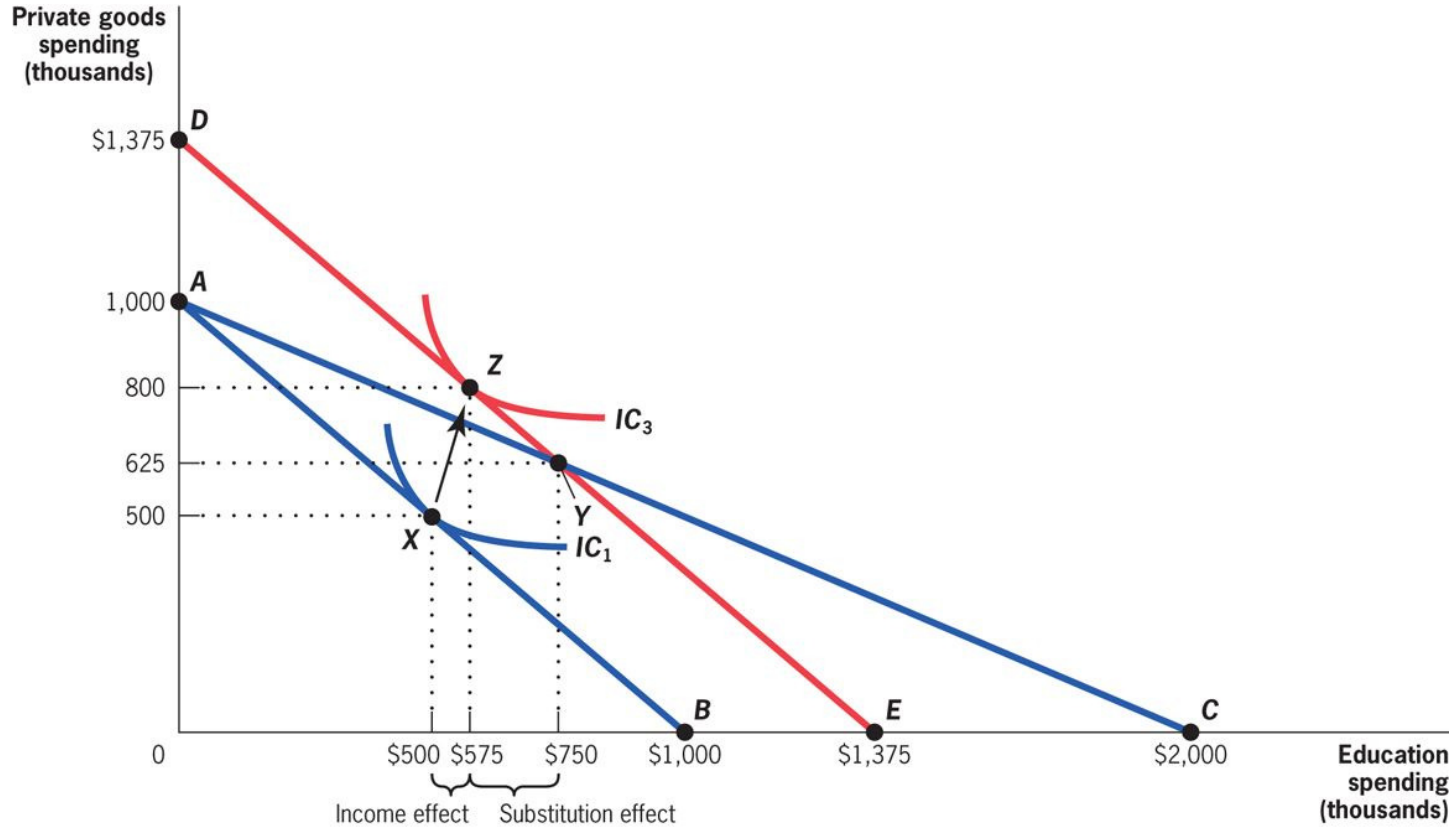
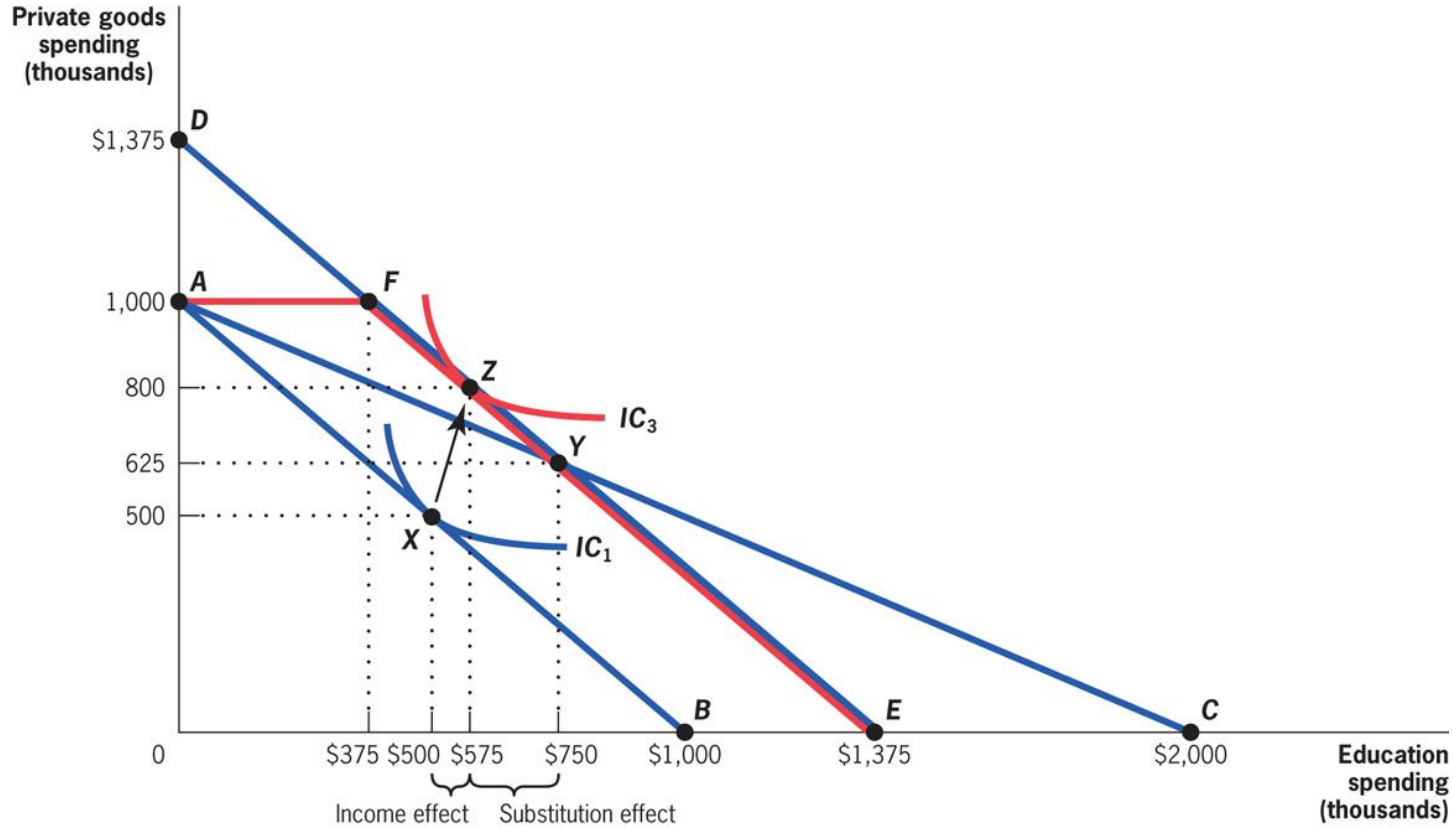


Figure 12: Conditional Block Grants



Redistribution and the Flypaper Effect

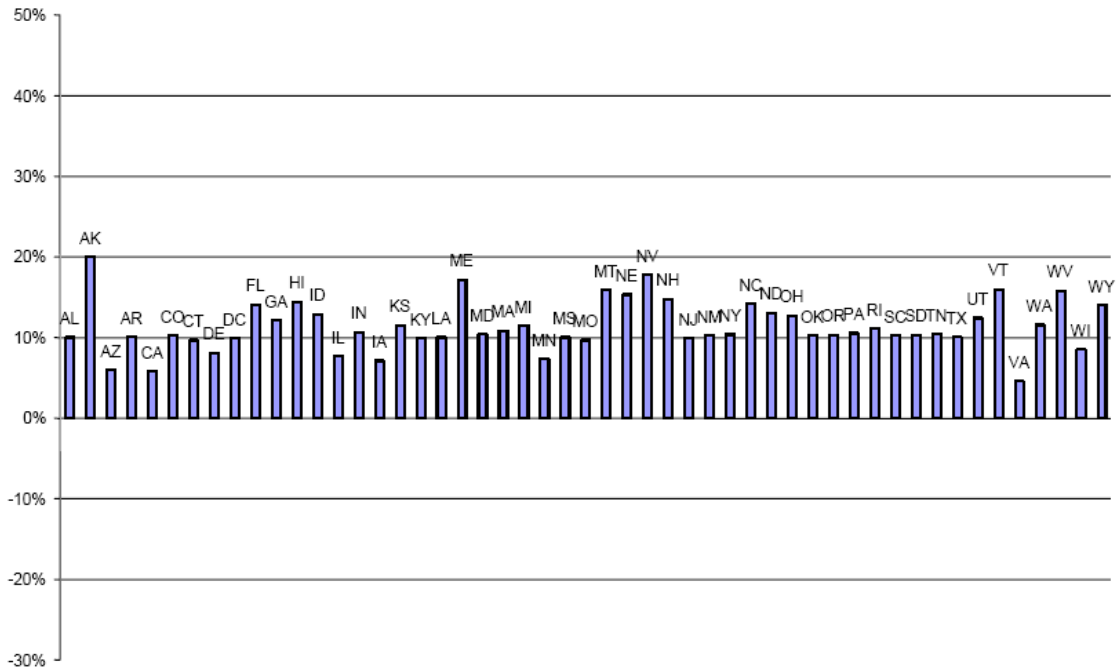
Is there a flypaper effect?

- Early studies found that conditional block grants had little crowding-out effect on local public good spending
- Potential bias: localities that value public goods most are most active to lobby for extra money to fund that public good
- Instrument variations in federal grants (Gordon 2003): uses federal elementary and secondary education programs Title I, which allocates money for compensatory education to school districts based on child poverty. Sharp changes in per-pupil grant amounts surrounding the release of decennial census data

Figure 13: Gordon 2003

Figure 1

Percent change in state-level Title I grants, 1991-92 to 1992-93

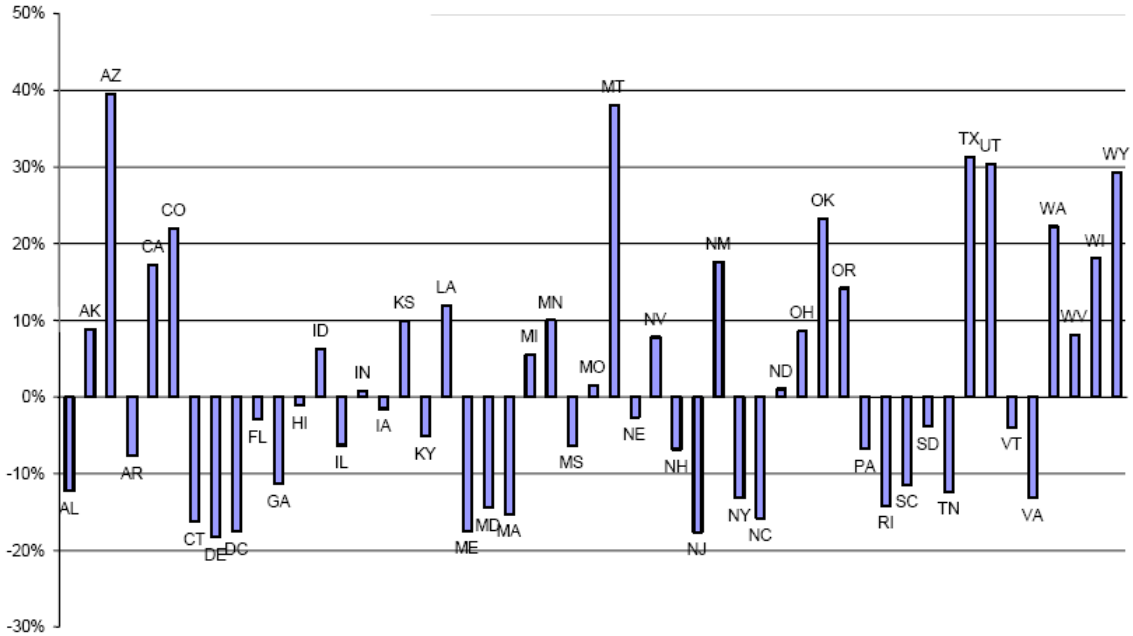


Changes in aggregated state Title I grants from 1991 to 1992 clustered around a 10 percent increase, which was the amount by which the total appropriation for Title I increased over those years.

Figure 14: Gordon 2003

Figure 2

Percent change in state-level Title I grants, 1992-93 to 1993-94



The switch from using 1980 to 1990 census child poverty data in allocating Title I grants yielded varied changes in aggregated state Title I grants from the 1992 to 1993.

Figure 15: Gordon 2003

IV estimates of effects of change in Title I funds per pupil on changes in revenue and expenditures per pupil

	One-year change, 1992-1993 (1)	Two-year change, 1992-1994 (2)	Three-year change, 1992-1995 (3)
REVENUE			
total revenue	0.981**	0.538	-0.036
	(0.406)	(0.485)	(0.469)
state revenue	0.348	0.465	0.251
	(0.308)	(0.487)	(0.396)
formula aid	0.019	0.072	-0.576*
	(0.315)	(0.555)	(0.309)
categorical aid	0.329	0.393	0.828***
	(0.250)	(0.298)	(0.259)
local revenue	-0.199	-0.952**	-1.215***
	(0.337)	(0.452)	(0.338)
federal revenue	0.832***	1.026***	0.928***
	(0.118)	(0.120)	(0.130)
EXPENDITURES			
instructional spending	1.401**	0.960*	0.119
	(0.551)	(0.509)	(0.501)