Local Public Finance & The Economics of Education

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What is "Local Public Finance?"

- Local public finance tends to focus on one of two aspects:

1. How policies are constrained by and affect the way people and companies sort across areas.
   - How, if at all, does mobility affect public good provision?
   - How, if at all, does mobility affect taxation?
   - Which gov't functions should be done at the national level vs state/local level? (i.e. fiscal federalism)

2. General issues related to state and local expenditures.
   - Roughly $\frac{1}{3}$ of all total gov't spending is at the state and local level.
   - State and local gov'ts raise money in different ways.
   - State and local gov'ts spend money on different things.

How does mobility affect public good provision?

- Canonical Model: The Tiebout Model (1956)
- Intellectual Climate at the Time:
  - Post-Great Depression and WWII: What the heck happened?
  - The beginnings of the Cold War: Centralized vs. decentralized economist systems?
  - Economists begin to write mathematical models.
    - Ken Arrow and others show that, under some assumptions, every Pareto optimal point can be achieved in a decentralized system.
    - Paul Samuelson shows that these assumptions do not hold when there are public goods.
    - Enter Tiebout...

Tiebout Model Set-Up

- **Individuals:**
  - Each consumer chooses their city to live in to maximize:

$$u(c|z, \alpha_i) \equiv z_i - t_c + \alpha_i \cdot v(g_c, n_c)$$

    - t_c is the tax he or she has to pay to live in city c, g_c is the level of the publicly provided good in c, and n_c is the number of individuals who live in city c.
    - z_i is their endowment and α_i determines how much i values the publicly provided good.
- **Local Governments:**
  - Governments choose the tax level (t_c) and fraction to the tax money to devote to producing the good (μ_c) to maximize their profit:

$$t_c \cdot n_c(t_c, g_c) \cdot (1 - \mu_c)$$

Tiebout Model Assumptions

1. The technology to produce g_c is linear. If a city devotes \$X to produce g_c, it produces X units.
2. The $v(g_c, n_c)$ function is defined as $v(\frac{g_c}{n_c})$.
3. There are N types of individuals (as defined by their α_i) and $M \geq N$ cities.
4. We want to see what happens in a *competitive equilibrium:*
   - An allocation of citizens to cities, tax levels, and fraction to the tax money devoted to produce public goods such that both consumers and governments maximize their problems.

Tiebout Model Results

- **Result:** Competitive equilibria exist and are Pareto optimal.In fact, the setup is mathematically identical to the canonical Arrow-Debreu model of private goods.
- **Intuition:** The city governments compete against each other for citizens in the same way as companies compete against each other for consumers.
- **Implication:** Devolve government responsibility to a local level and everything takes care of itself!

Importance of Assumptions

- Assumptions #1 & #2 imply constant returns to scale.
  - A traditional public good is non-rival $\rightarrow v(g_c, n_c) = v(g_c)$.
  - If so, there are increasing returns to scale $\rightarrow$ Everyone should live in the same city and pay a tax that depends on α.
  - If no differentiated taxes, you enter the world of information asymmetries $\rightarrow$ There's no longer necessarily a competitive equilibrium & and likely that a centralized system could be more efficient.
- Assumption #3 implies that cities do not have market power $\rightarrow$ All cities make zero profit.
- Implicit Assumptions: Costless mobility, cities maximizing profit, only one type of public good, lump sum taxation, full information, etc.

Where Does That Leave Us?

- Pros:
  - If people do vote with their feet, local governments have to be efficient.
  - The heterogeneity of public good provision is a reflection of the heterogeneity of preferences.
- Cons:
  - The main result is quite fragile, see Bewley (1981).
  - It really doesn't solve all the problems we tend to think about when we think of public good provision.
- In short: Competition between public governments can mean that there's no real difference between local publicly provided goods and privately provided goods, but that also means that it doesn't solve any of problems with the private market, e.g. externalities.

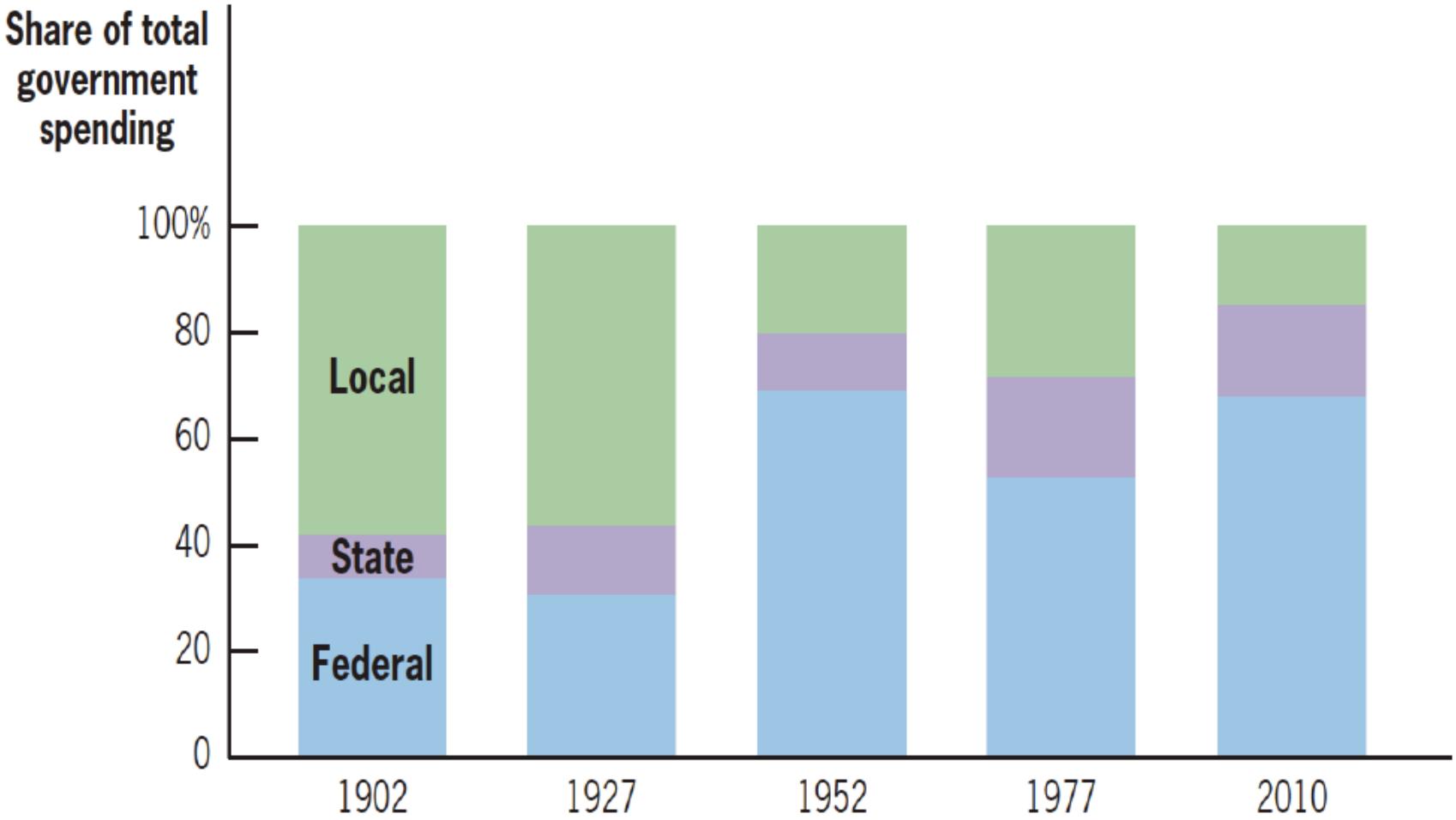
How does mobility affect local taxation?

- In the Tiebout model, the existence of mobility ensured that governments made zero profit in equilibrium.
- The same force means that local governments can't redistribute income at all.
  - "Although state tax structures may appear to be redistributive, real pretax wages must adjust in the long run to make each individual's potential after-tax real income the same in all jurisdictions. If the after-tax real income available to an individual were higher in one state than in another, individuals would locate in states where real net incomes were more favorable." $\rightarrow$ Feldstein & Valliant (1994).
- Counterargument: This office isn't empty (and the above authors live in Massachusetts.)
  - Clearly, people make decisions on more than just the real net income.

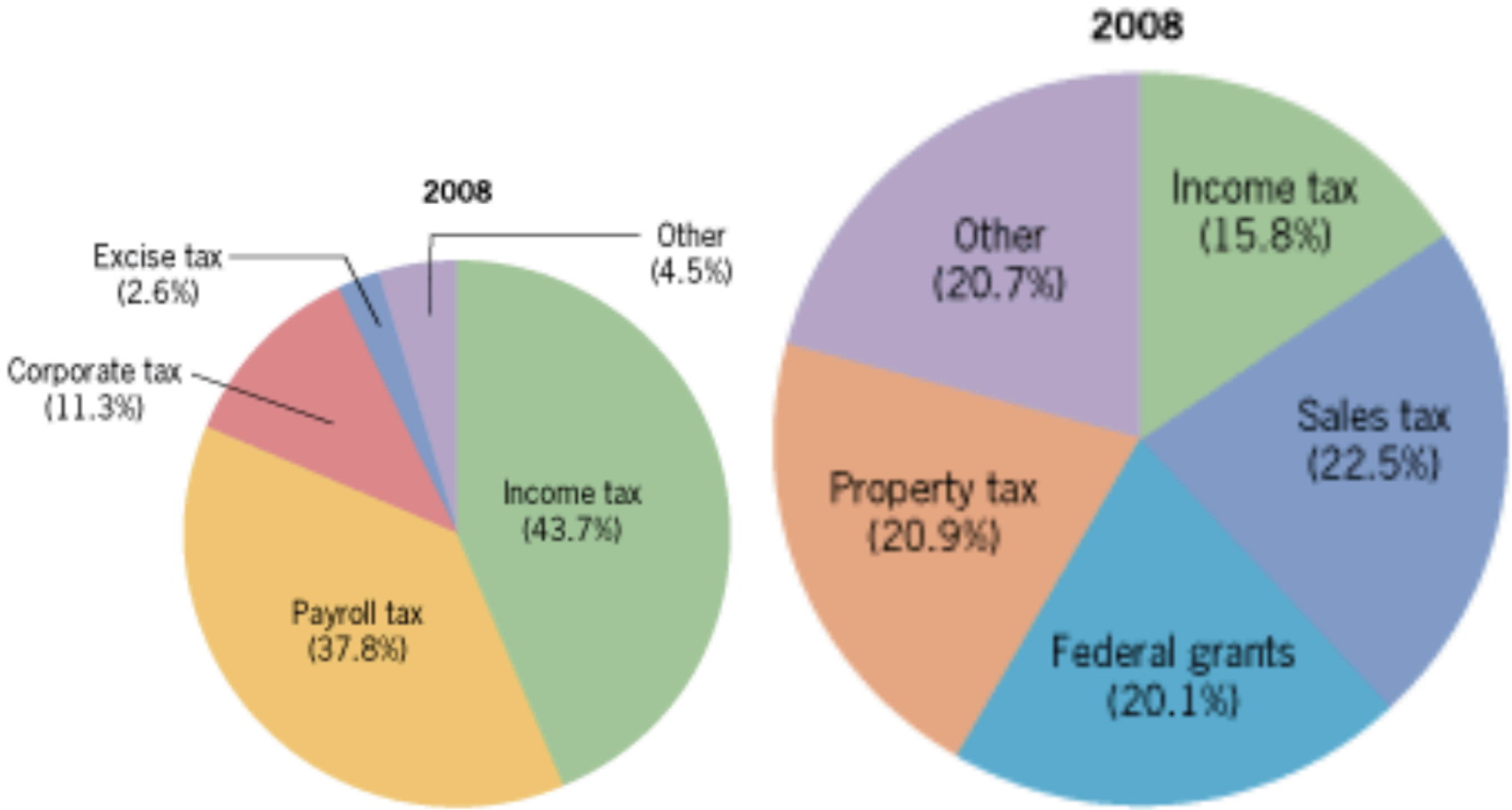
Theory & Empirical Evidence

- Theory:
  - Much of the theoretical work has focused on how international capital mobility hinders national capital taxation.
  - Theoretically, thinking about how national individual mobility hinders subnational individual taxation raises all the same issues as thinking about how international capital mobility hinders national capital taxation.
- Empirics:
  - Serrato and Zidar (2016) find that firm owners bear roughly 40% of the incidence of state capital taxation.
    - If there was perfect mobility, they would bear 0%.
  - I don't know of any good estimates of the incidence of state income taxation.

Importance of Local Governments

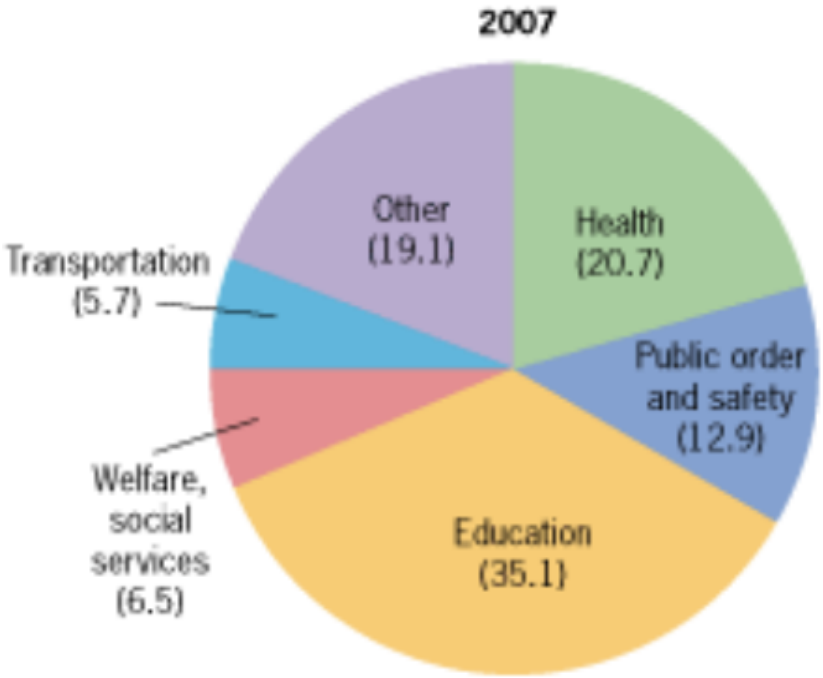


Local Governments Tax Differently



Source: Gruber (2013)

Local Governments Spend on Different Things



Source: Gruber (2013)

Four Topics in the Economics of Education

1. Returns to Education
2. Education Production Function
3. Financing Education
4. Other Topics

Returns to Education

- Estimating the Causal Effect of Schooling
  - Zimmerman (2014); Ashenfelter and Krueger (1994); Chetty et. al. (2011); Heckman, Humphries, and Varamendi (2016)
- Signaling vs. Human Capital
  - Spence (1973); Stiglitz (1975); Clark and Martorell (2014); Diamond and Persson (2016); Lavy and Sand (2015)
- Social Returns to Education
  - Acemoglu and Angrist (1999); Moretti (2004)
- Effect of Education on Health/Other Measures
  - Lance (Handbook, 2011); Billings, Deming, Ross (2016); Cullen, Jacob, and Levitt (2006)

Education Production Function

- Teachers
  - Teacher Value Added
    - Chetty, Friedman, and Rockoff (2014); Koedel, Mihaly, and Rockoff (2015)
  - Teacher Accountability
    - Neal (Handbook, 2011); Fryer (2013)
  - The Labor Market for Teachers
    - Dolton (Handbook, 2006); Boyd, Lankford, Loeb, and Wyckoff (2013)
- Peers
  - Endogenous vs. Exogenous Peer Effects
    - Sacerdote (Handbook, 2011); Sacerdote (2014)
- Other Inputs
  - Class Size: Lavy and Angrist (1999)
  - Principals: Gates et. al. (2014)
  - Family, Community, Mentors, Health, etc.: Fryer and Dobbie (2011)

Financing Education

- Does More Money Lead to Better Outcomes?
  - Card and Krueger (1992); Card and Payne (2002); Cellini, Ferreira, and Rothstein (2010); Hanushek (1996)
- How should education be financed: Federal money vs. state money vs. local money?
  - Hoxby (2011)

- School Choice
  - Vouchers: Sandstrom and Bergstrom (2005); Abdulkadiroblu, Pathak, and Walters (2015)
  - Charter Schools: Fryer and Dobbie (2015); Walters (2014); Hoxby, Kang, and Murarka (2009)
  - Matching Theory: Abdulkadiroglu and Sonmez (2003); Abdulkadiroblu, Angrist, Narita, and Pathak (2015)

Other Topics

- The Market for Private Schools
  - Dinerstein and Smith (2016)
- Post-Secondary Education
  - Deming, Goldin, and Katz (2012)
- Early Childhood Education
  - Heckman; Deming (2009)
- Online Education
  - Deming, Goldin, Katz, and Yuchtman (2015)
- What is Human Capital?
  - Almlund, Duckworth, Heckman, and Kautz (Handbook, 2011); Deming (2016)

How to Read a Paper?

- What's the Question?
  - What's the ideal variation to answer the question?
- What is the Approach?
  - What do she or he *say* they're doing?
  - What is she or he *actually* doing?
  - Are there any reasons why what they're actually doing means they're not answering the question?
- What are the findings?
  - Did they show enough for you to believe the results?
  - What more information would you need to make a policy recommendation related to the question?