

Regional and Local Public Economics

Mengwei LIN

mengwei.lin@ub.edu

Department of Economics, Universitat de Barcelona

and

Barcelona Institute of Economics (IEB)

Zelda Brutti and Candan Erdemli also contributed to the content.

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Recap: Big Idea of the Course

Related Courses on your plan:

- Public Sector Economics
- Public Finance (Public Economics)
- Regional and Local Public Finance/Economics
- Tax System I
- Tax System II

ECONOMIA						
Curs: 2023-2024 Assignatures : Itinerari recomanat - Pla docent - Horaris, professorat, avaluació ...						
Formació Bàsica Obligatòries Optatives Treball fi de grau Pràctiques						
Itinerari	Codi	Assignatura	Crèdits	Pla docent	Horaris, avaluació, llengua...	
1r Curs		361852 HISTÒRIA ECONÒMICA D'ESPANYA	6	Pla docent	--	PRIMAVERA
		361848 MACROECONOMIA I	6	Pla docent	TARDOR	--
2n Curs		361835 ECONOMIA ESPANYOLA	6	Pla docent	--	PRIMAVERA
		361838 HISENDA PÚBLICA	6	Pla docent	--	PRIMAVERA
		361849 MACROECONOMIA II	6	Pla docent	--	PRIMAVERA
		361845 MICROECONOMIA II	6	Pla docent	--	PRIMAVERA
3r Curs		361842 ECONOMETRIA I	6	Pla docent	TARDOR	--
		361839 HISENDA AUTONÒMICA I LOCAL	6	Pla docent	--	PRIMAVERA
		361846 MICROECONOMIA III	6	Pla docent	TARDOR	--
		361834 ORGANITZACIÓ ECONÒMICA INTERNACIONAL	6	Pla docent	TARDOR	--
		361836 POLÍTICA ECONÒMICA INTERNACIONAL	6	Pla docent	TARDOR	--
		361843 ECONOMETRIA II	6	Pla docent	--	PRIMAVERA
		361850 MACROECONOMIA III	6	Pla docent	--	PRIMAVERA
		361837 POLÍTICA ECONÒMICA D'ESPANYA I DE LA UNIÓ EUROPEA	6	Pla docent	--	PRIMAVERA
		361840 SISTEMA FISCAL I	6	Pla docent	TARDOR	--
		361844 ECONOMETRIA III	6	Pla docent	TARDOR	--
4rt Curs		361853 HISTÒRIA DEL PENSAMENT ECONÒMIC	6	Pla docent	TARDOR	--
		361847 MICROECONOMIA IV	6	Pla docent	TARDOR	PRIMAVERA
		361841 SISTEMA FISCAL II	6	Pla docent	TARDOR	PRIMAVERA
		361851 MACROECONOMIA IV	6	Pla docent	TARDOR	PRIMAVERA

Recap: Big Idea of the Course

The Big Idea: Fiscal Decentralization

This course is about **centralization** vs **decentralization**, focusing on *public finance* practices, and examining the behavior and policies of *regional and local* governments.

51

You

What are centralization and decentralization in public finance?



ChatGPT

In the context of public finance, centralization and decentralization refer to the distribution and delegation of fiscal authority and financial responsibilities within different tiers of government. These concepts outline how financial decision-making, revenue collection, and expenditure allocation are structured across central, regional, and local governments. Understanding these terms helps in analyzing the efficiency, equity, and effectiveness of public service delivery and fiscal policy at various levels of governance.

Recap: Roadmap of the Course

I. Theory

1. **Income Decentralization**: taxation (7 lectures) with Andreu
 2. Government Levels and Functions & **Expenditure** Decentralization(3 lectures)
 3. **Intergovernmental** Grants (3 lectures)
-

II. Cases and Policies

4. International **Comparison** (Spain **vs** Canada, China, Germany, US, etc.; 5 lectures)
 5. Application: **Policy** Analysis (education, health, transportation, development, etc.; 5 lectures)
-

III. International Fiscal Federalism (1 lecture) with Andreu

Reminder: some house cleaning

In class: discussion notes & exercise. (PS: an interesting finding Mueller and Oppenheimer, 2014)

After class: mengwei.lin@ub.edu; andreu.arenas@ub.edu (for taxation part)

Continuous assessment: presentation (30%) and midterm (25%)

1) Presentation: Dates: April 8th and April 11th. Compulsory attendance on both days

2) Midterm: multiple choice exam. May 2nd.

Final exam: open-ended questions. June 21st, at 3 pm.

Re-evaluation exam: open-ended questions. July 12th, 3 pm.

Historical Exam Data

Academic Year	Group	Grades						Class Size	% Excel	% Pass
		H	E	N	A	S	P			
2023/24	E2							34	??	??
2022/23	E2	2	2	13	19	1	3	40	10.00%	90.00%
2021/22	E2	3	3	6	13	8	1	34	17.65%	73.53%
2020/21	E2	1	3	12	11	2	2	31	12.90%	87.10%
2019/20	E2	0	3	5	3	3	0	14	21.43%	78.57%
2018/19	E2	0	3	5	5	5	0	18	16.67%	72.22%

Do you see any patterns?

Besides, is this group also a good example of decentralization?

Decentralization of Expenditure

Lecture 1 Government: Levels and Functions

March 11, 2024

Reading for this lecture: **Chapter 1**: "Why study state and local government finance?"

State and Local Public Finance, by Ronald C. Fisher

Basics of the Unit: Expenditure Decentralization

We will spend three lectures on “**Expenditure Decentralization & Government Levels and Functions**”, discussing the following topics:

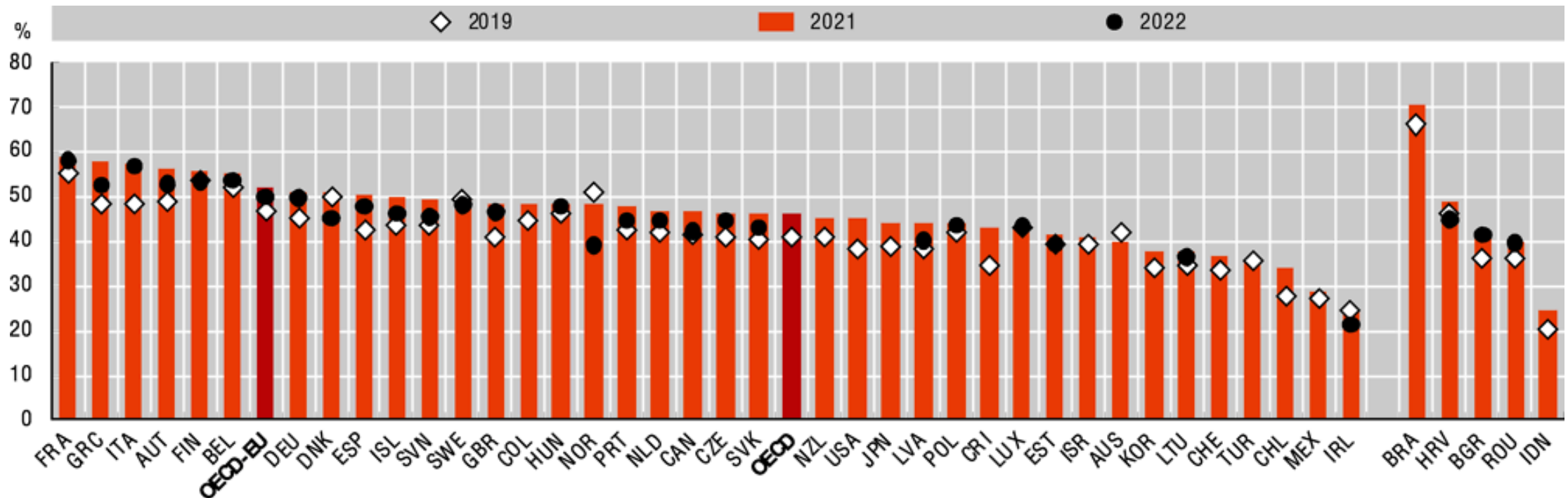
1. General (Economic and Fiscal) Introduction to Government
2. “Fiscal Federalism”—introduction to the academic branch
3. How to Think about (De)Centralization of Expenditure

Note: The way of thinking about decentralization (#3) is the highlight.

The Public Sector is a Big Deal!

But what about the importance of governments (economically) in general?

General government expenditures as a percentage of GDP, 2019, 2021 and 2022



Source: OECD National Accounts Statistics (database).

Today's Agenda

1. **Levels of government** (structure of the government system) and the **relationship** among them.
 - some background knowledge for later discussions.
2. **Two economic questions:**
 1. What are the (economic and fiscal) functions of governments?
 2. What responsibilities are better handled by the central government or by the subnational governments, and which can be shared among them?

Part 1. Structure of the Government System

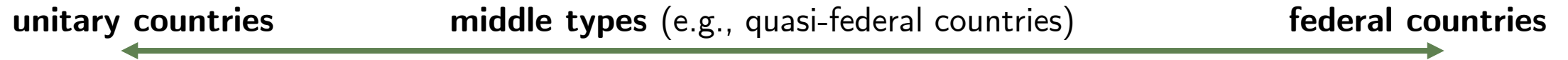
For the purpose of this course, we mainly distinguish between two levels of governments:

- **National** government
 - Usually referred to from inside as the Central Government, the Federal Government, etc.
 - And from outside as “country + government”, for example, “the Spanish government”.
- **Sub-national** governments (can have different levels, most commonly from 1 to 3)
 - State, Autonomous Community, Province, etc.
 - City, Prefecture, Municipality, etc.
 - Town, County, etc.

A useful database of country profiles: [OECD-WOFI](#)

Government Systems around the World

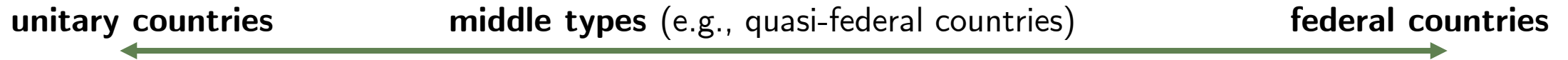
- The **relationship** between nation and subnational governments defines different types of countries.



Reference: OECD (2022), 2022 Synthesis Report World Observatory on Subnational Government Finance and Investment, OECD Publishing, Paris.

Government Systems around the World

- The **relationship** between nation and subnational governments defines different types of countries.



1. **Unitary:** The central government decides which powers and responsibilities are delegated or devolved to lower tiers of government.
 - Examples: Italy, Finland, China, France, UK, Azerbaijan, Nicaragua, Portugal, ...
2. **Federal:** Powers and responsibilities are assigned to the federal government and the federated states either by provision of a constitution or by judicial interpretation.
 - Examples: Austria, Switzerland, Germany, India, Malaysia, US, ...
3. **Quasi-federal:** Unitary but with federal characteristics: basic elements of local government functions and financing defined in national constitutions; substantial autonomy shared with the central power. (Spain)

Reference: OECD (2022), 2022 Synthesis Report World Observatory on Subnational Government Finance and Investment, OECD Publishing, Paris.

Recap: (De)Centralization

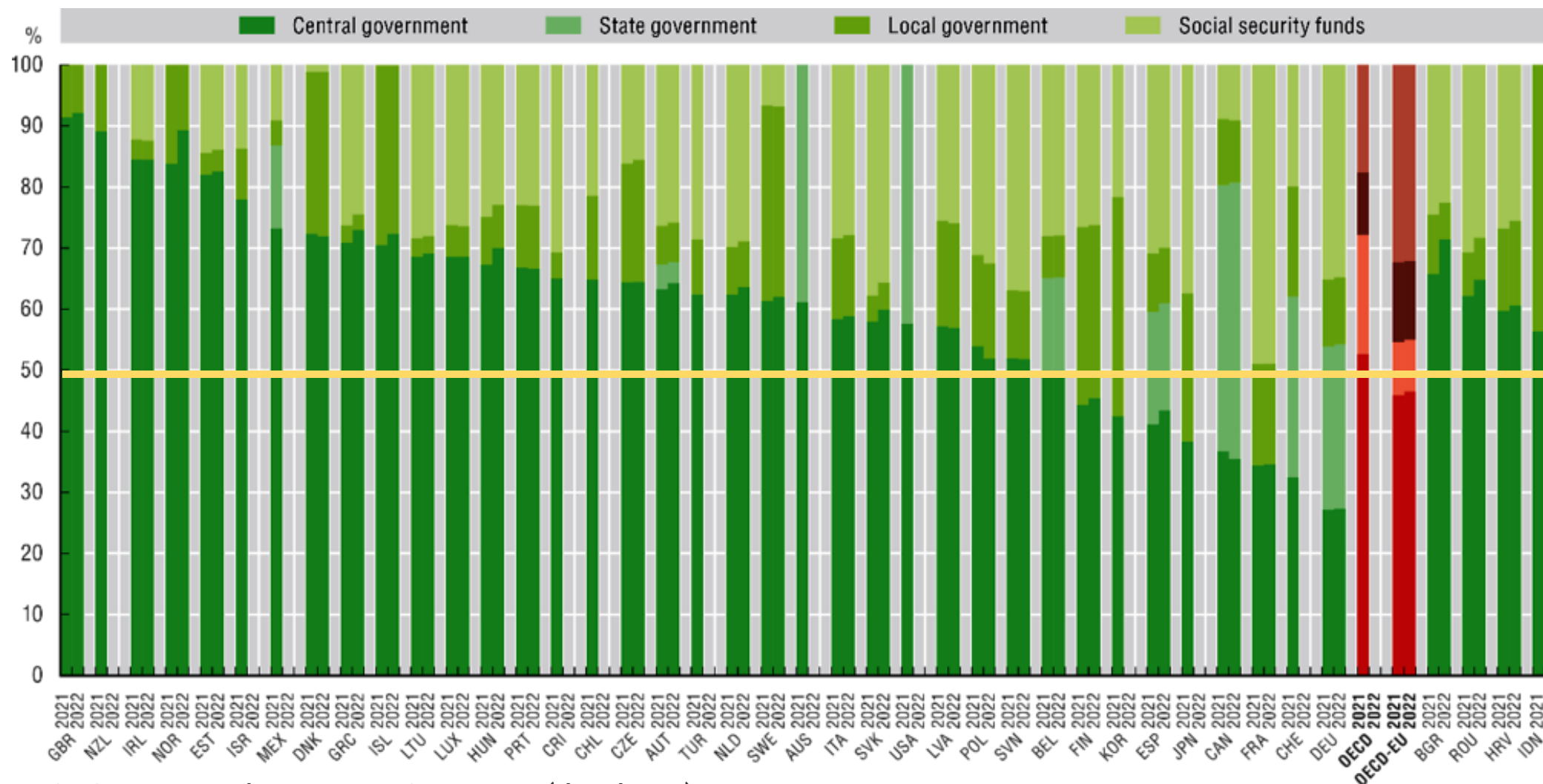
Definition: centralization and decentralization

- **Centralization:** Activities and decision-making processes are concentrated at higher level governments (central or federal).
- **Decentralization:** Activities and decision-making processes are concentrated at lower level governments (regional and local).

Big Question: Is there an **optimal level** of centralization or decentralization in government activity? If so, how to find it and what is it? If not, why?

Public Economic Structure by Level of Government: revenues

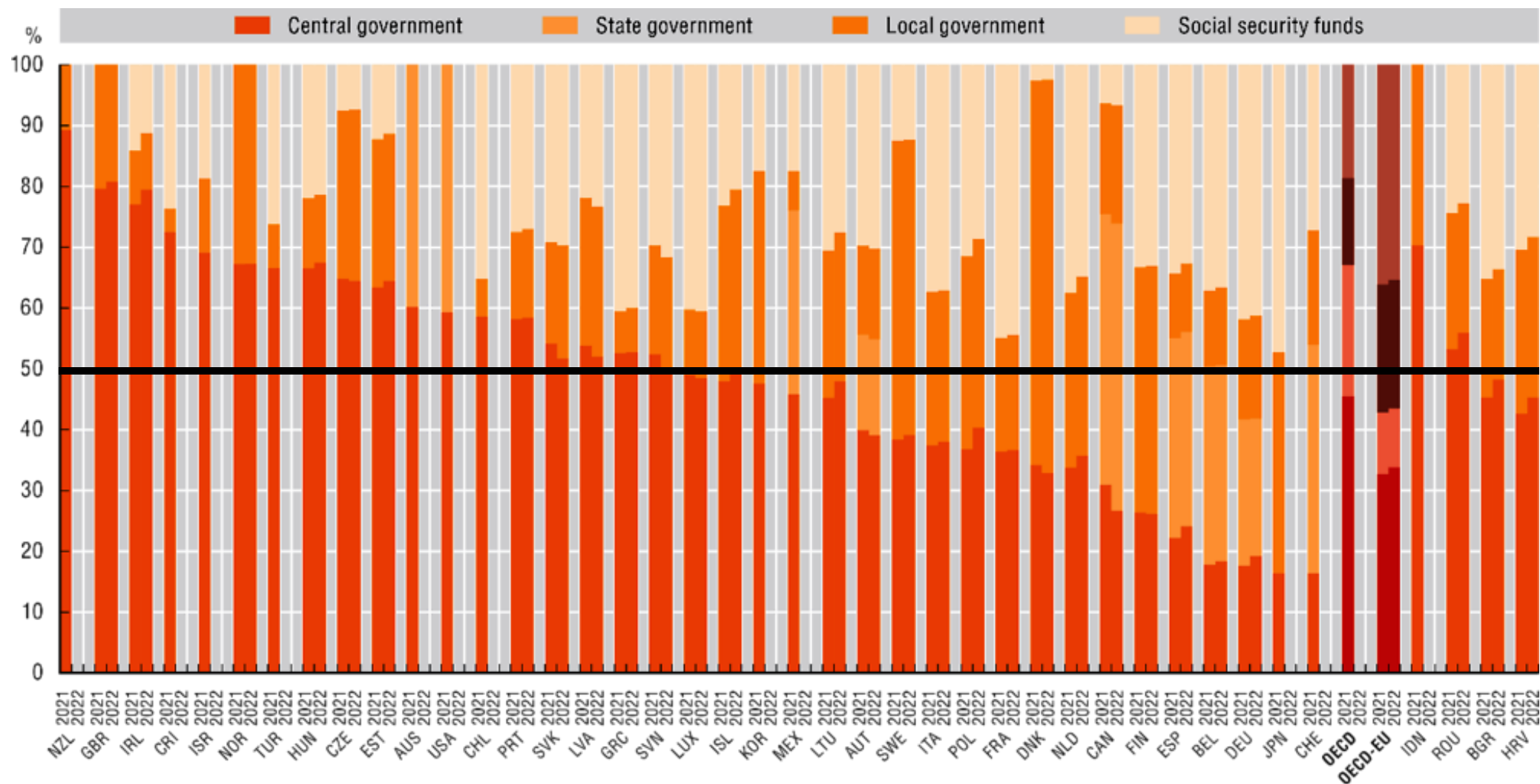
General Government Revenues across Levels of Government, 2021 and 2022



Source: OECD National Accounts Statistics (database).

Public Economic Structure by Level of Government: expenditure

General Government **Expenditure** across Levels of Government, 2021 and 2022



Source: OECD National Accounts Statistics (database).

Today's Agenda

1. **Levels of government** (structure of the government system) and the **relationship** among them.
 - This is to provide some basic background knowledge for later discussions.
2. **Two economic questions:**
 1. What are the (economic and fiscal) functions of governments?
 2. What responsibilities are better handled by the central government or by the subnational governments, and which can be shared among them?

Part 2. Economic Functions of the Government

In general, governments have **three economic functions** (Musgrave, 1959):

1. adjusting the *allocation* of production resources
2. adjusting the *distribution* of income and wealth
3. maintaining economic *stabilization*

Accordingly, we will look at **three types of policies**:

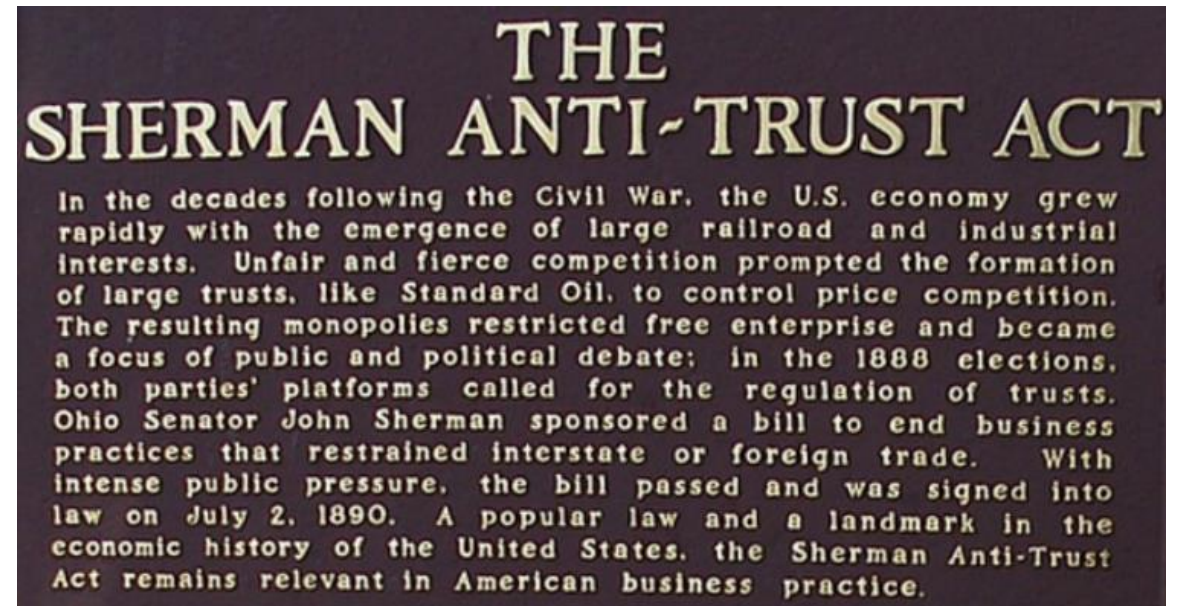
1. Allocation Policy
2. (Re)Distribution Policy
3. Stabilization Policy

“The visible hand”

1) Allocation Policy

Goal: Intervening in the market to **achieve the desired allocation** of *production* resources—that is, for specific goods and services to be produced in the desired quantities. (Recalling from *Microeconomics I*, when the market is not perfect...)

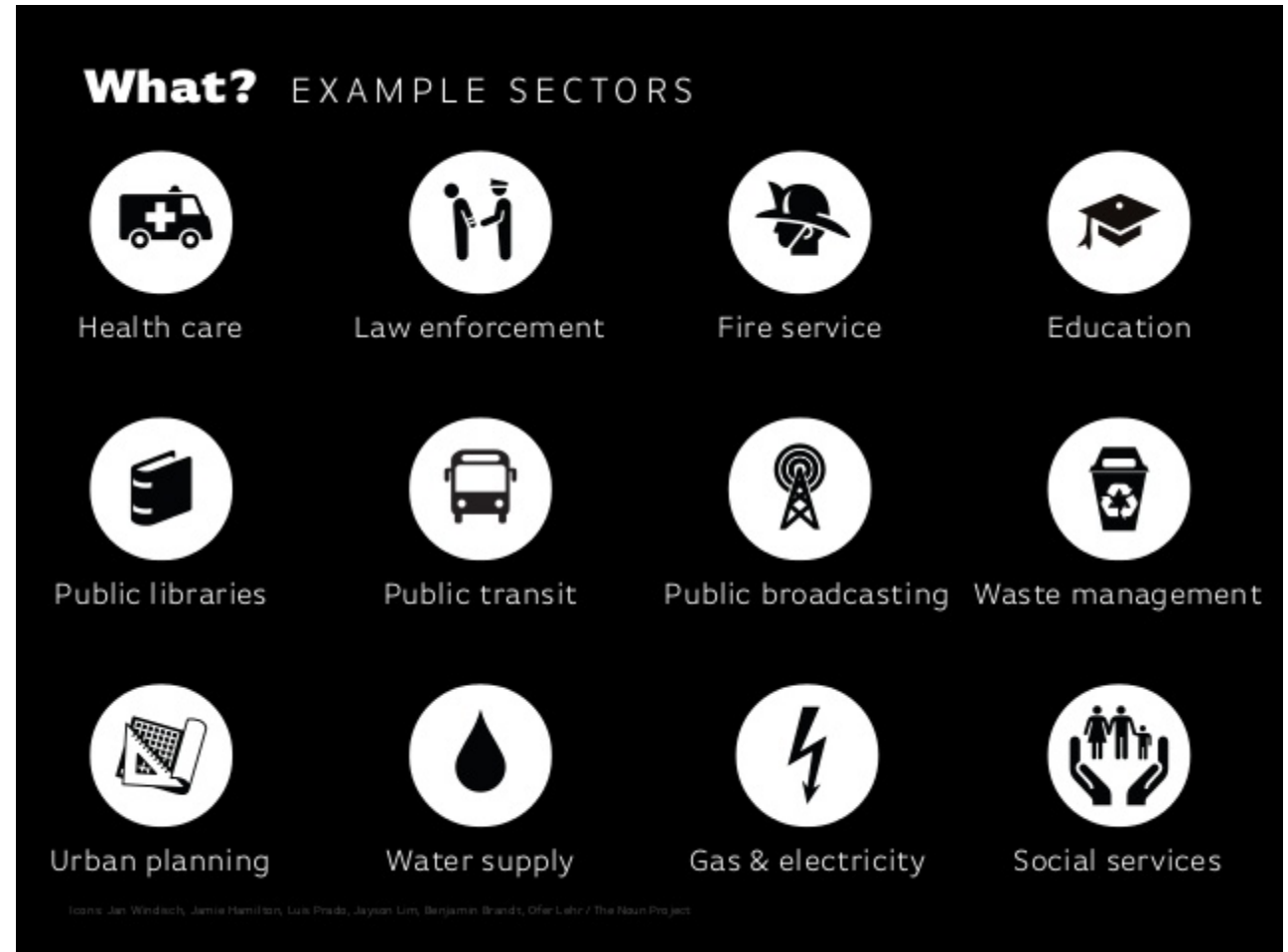
- Maintain market competition (against monopolies, cartels, etc.)
- Directly provide specific goods and services if the market fails to do so efficiently
- Subsidize certain productions



Example: provide specific goods and services

Big Part of “Expe Decentralization”

Also to be covered in “Policy Analysis”



2) (Re)Distribution Policy

Goal: Obtaining and maintaining the socially preferred distribution of *resources or income*. (Recall: primary/pre-distribution, redistribution, further distribution.)

In most cases **redistributing from the rich to the poor**, tools include:

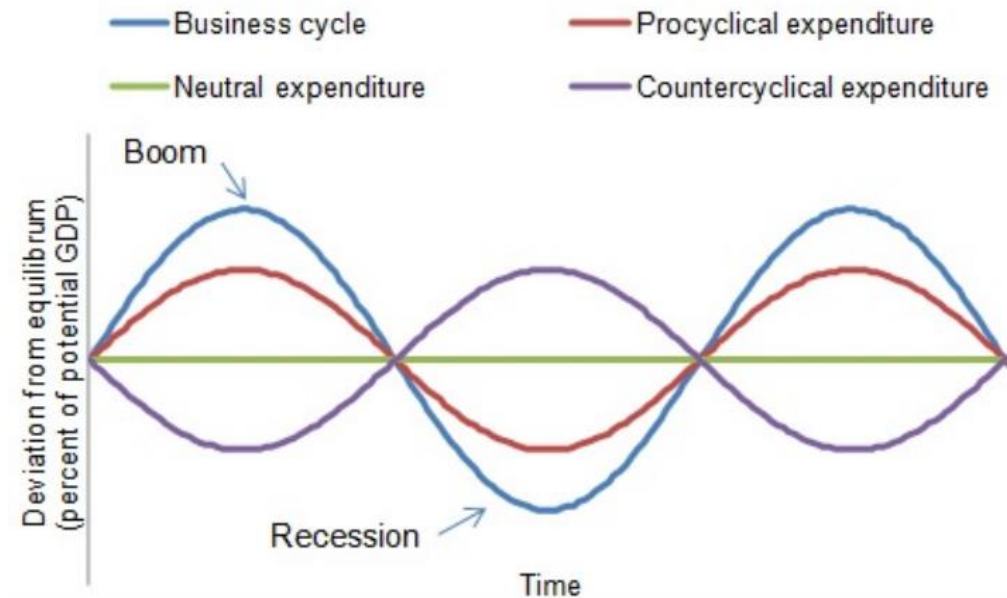
- Taxes and subsidies
- progressive fees (poor pay less, rich pay more)
- fee-exemption (e.g. large families)
- ...

Columns to read: On (p)redistribution in the US and France; on the “Third Distribution” in China.

3) Stabilization Policy

Goal: Using macroeconomic policies to maintain (recalling from *Macroeconomics I*)

- employment,
- price stability, and
- economic growth



The tools (“stabilization policies”), are:

1. **fiscal policy**
2. **monetary policy**

Today's Agenda

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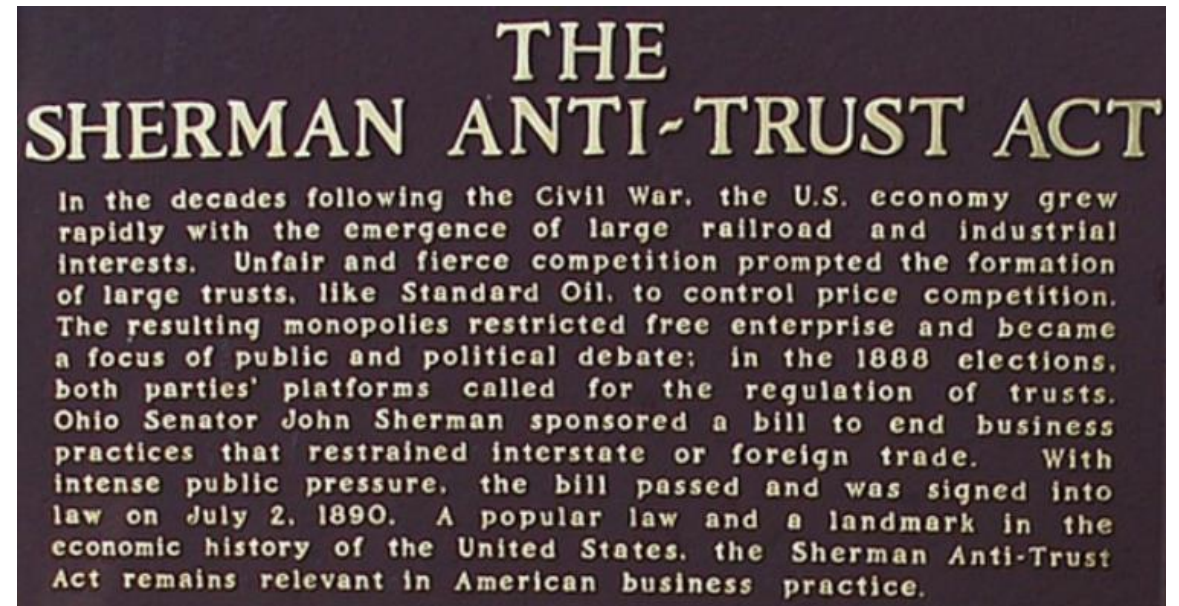
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2. What responsibilities are better handled by the central government or by the subnational governments, and which can be shared among them?

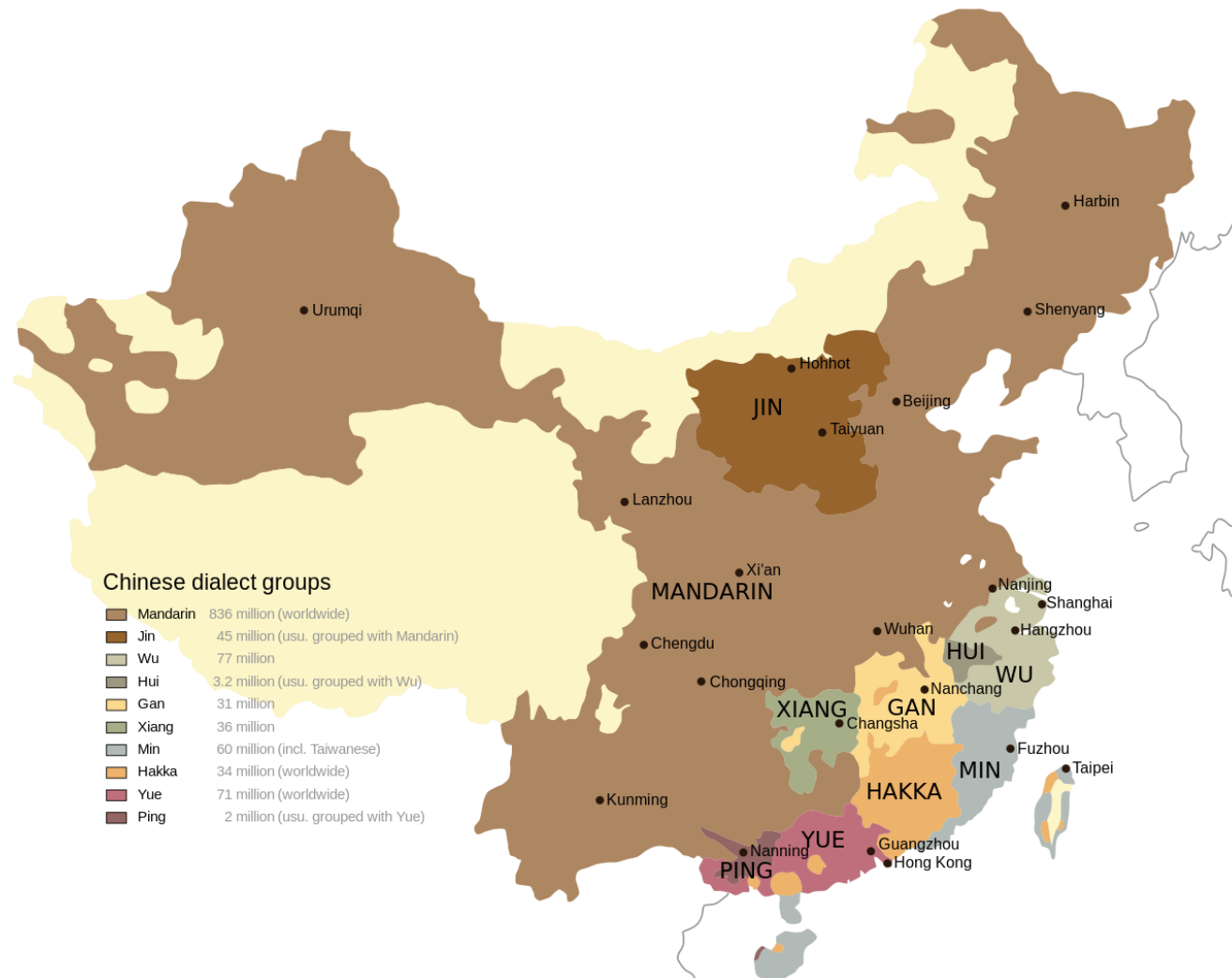
1) Allocation Policy

Goal: Intervening in the market to **achieve the desired allocation** of *production* resources—that is, for specific goods and services to be produced in the desired quantities. (Recalling from *Microeconomics I*, when the market is not perfect...)

- Maintain market competition (against monopolies, cartels, etc.)
- Directly provide specific goods and services if the market fails to do so efficiently
- Subsidize certain productions



1) Allocation Policy: Public Language Training Programs



1) Centralization OR Decentralization? —Allocation Policy

*“Believing that state and **local governments are inherently limited in carrying out stabilization and distribution policy**, the focus of economic analysis and research has been on the allocative role of subnational governments – their role, methods, and effectiveness in directly providing goods and services.”*

(Fisher, 2023)

Do you agree?

2) (Re)Distribution Policy

Goal: Obtaining and maintaining the socially preferred distribution of *resources or income*. (Recall: primary/pre-distribution, redistribution, further distribution.)

In most cases **redistributing from the rich to the poor**, tools include:

- Taxes and subsidies
- progressive fees (poor pay less, rich pay more)
- fee-exemption (e.g. large families)
- ...

Columns to read: On (p)redistribution in the US and France; on the “Third Distribution” in China.

2) Centralization OR Decentralization? —(Re)Distribution Policy

DEBATES

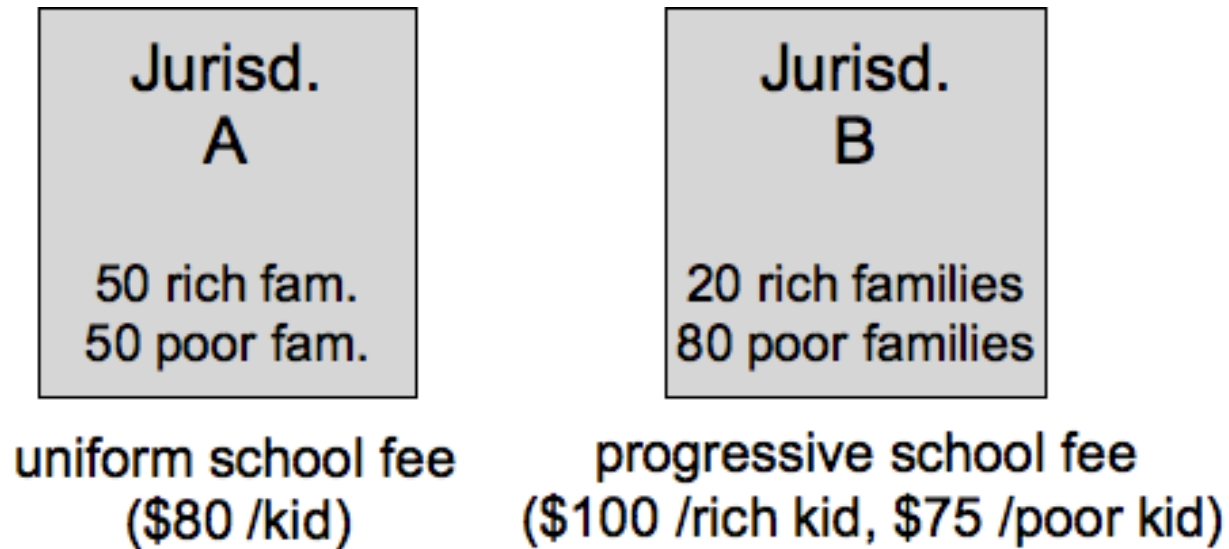
Decentralization: Local governments are better able to identify and satisfy **local needs and preferences**.

Centralization: But we need nationwide coordination, as local policies create **subnational inequality and unfairness** (horizontal equality concept).

Centralization: Whenever different localities choose different forms/amounts of redistribution, citizens and firms will **move to other locations and make the policies ineffective** (or less so).

Decentralization: People mostly care about the welfare of their neighbors, not so much about other localities; incentives to move are low (**little mobility**).

2) (Re)Distribution Policy: A simple example



2) (Re)Distribution Policy: Real World Situation

In most countries, **local governments** are indeed handling redistributive functions

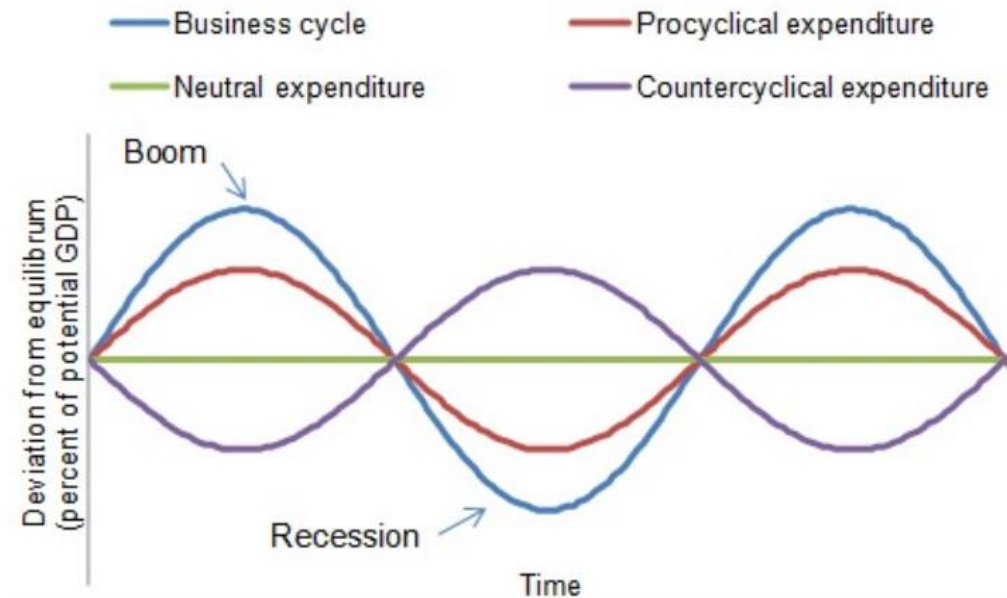
- welfare programs, education, health, local taxes
- Empirical evidence shows that few transfer recipients (2%) actually move to other States in order to receive higher benefits in the US (Gramlich, 1985)—**what about now? what about Europe?**

Central governments are involved in redistribution decisions of subnational governments through central/federal grants and transfers to subsidize such local programs

3) Stabilization Policy

Goal: Using macroeconomic policies to maintain (recalling from *Macroeconomics I*)

- employment,
- price stability, and
- economic growth



The tools (“stabilization policies”), are:

1. **fiscal policy** by the government (e.g., ministry of treasury/finance)
2. **monetary policy** by the central bank (e.g., Central banks, Federal Reserve System, ...)

3) Centralization OR Decentralization? —Stabilization Policy

In-class practice: **5-min** quick thoughts!

Topic: Centralization vs Decentralization of Stabilization Policies

Do you think **Stabilization Policies** should be centralized (implemented by the central government) or decentralized (handled by sub-national governments)? Or should they be shared among the two?

- Within 5 minutes, state **your position**, list possible **factors** and (briefly) their possible impacts
- After listing your reasons, please select the strongest one or two as your “**main points**”.

*To have a sharp mind,
and know how to provide support for your positions/ideas.*

Discussion in small groups (10 min)

Topic: Centralization vs Decentralization of Stabilization Policies

Do you think **Stabilization Policies** should be centralized (implemented by the central government) or decentralized (handled by sub-national governments)? Or should they be shared among the two?

- Now **discuss** in groups of two or three. Present your idea and explain the reasons
- **Be open!** It's about sharing ideas and understanding each other, **not about persuasion**.
- After the discussion, some of you will repeat the positions and ideas of you and your partner.

*To have an open mind,
be willing to discuss with others, and admit our own bounded rationality.*

How was your first try?

Have you considered:

1. Heterogeneous Demands (+2)
2. Effectiveness varying across localities (+2)
3. Economies of scale (+2)
4. Externalities, Mobility, and Congestion (+2)
5. Other factors: e.g., political pressure, information asymmetry, market segregation, managerial costs, etc. (+2)

Difficult? Easy? Clear? Messy?

3) Centralization OR Decentralization? —Stabilization Policy

DEBATES

Centralization: Local economies are open to each other; any attempt by a single locality to use fiscal policies would **spill over** the benefits to other localities.

Decentralization: Local economies are not that open: Citizens and firms do not move much among localities; to provide services, local governments are buying increasingly locally. (few spillover)

Decentralization: Ability to change prices might be desirable when a country faces high **subnational diversity** (in resources, in needs, in preferences...).

Centralization: Giving subnational governments monetary authority would increase **transaction costs** over local boundaries, and each locality would **expand its own money supply** too much (to pay for trade with other localities).

Real World Situation: A (Supra-national) Analogy in Europe

Monetary policy: ECB & NCBs

Fiscal Policy: Argument for centralized arrangements

- The EU framework for fiscal policies?
- A quick read: ["The EU's New Fiscal Rules"](#)
- What would you say (based on the previous discussions)?

A quick *preview* for the formal analysis

Core elements for thinking about **(de)centralization** :

1. Diversity of demands within the national community
2. Economies of scale
3. Inter-jurisdictional externalities and mobility
4. Managerial costs

And:

5. Information structure (imperfection and asymmetries of information)
6. Cost of collective decision-making, political pressure

Takeaways

1. Government structures → public finance
2. The three functions
3. Your first analysis: Centralization vs decentralization

Some useful sources: *Government at a Glance*; OECD-WOFI database, ...

Decentralization of Expenditure

Lecture 2 Optimal level of decentralization

March 14, 2024

Reading for this lecture: *State and Local Public Finance*, by Ronald C. Fisher

Chapter 6 Organization of subnational government

Recap: Government levels and functions

First, we briefly looked at the structure of the government system (various **levels of governments**) .

Second, we tried to answer these **two economic questions**:

1. What are the (economic and fiscal) functions of governments?
 - Three functions & three types of policy
2. What responsibilities are better handled by the central government or by the subnational governments, and which can be shared among them?

Today's Agenda

1. **Summarize and formalize** our previous discussion and Introduction to “*fiscal federalism*”
 - Important factors, the Decentralization Theorem
2. Workhorse models on the **optimal** level of decentralization.
 - Oates Optimal Jurisdiction Size Theory (1972) and Buchanan's Economic Theory of Club (1965)

Fiscal Federalism

The study of the division of fiscal tasks among different levels of government.

Fiscal Federalism: a recap of lecture 1 (with Andreu)

“Understanding which functions and instruments are best centralized and which are best placed in the sphere of decentralized levels of government” (Oates, 1999)

Fiscal federalism: the study of the problem of assigning fiscal tasks to different levels of government

Key questions of fiscal federalism:

- 1) What is the **optimal level** of fiscal decentralization?
- 2) Is there a universal rule, or does it vary depending on society's characteristics? Does it differ between countries?

Core Elements in Fiscal Federalism

Core elements for thinking about **(de)centralization** :

1. **Diversity of demands within the national community**
2. **Economies of scale**
3. **Inter-jurisdictional externalities**
4. Inter-jurisdictional mobility
5. Administrative and compliance costs

and

6. Information structure (imperfection and asymmetries of information)
7. Cost of collective decision-making, political pressure

1. Variations in demand

How to understand “variations in demand”?

This way:	District 1 wants product A	District 2 wants product B
Or this way:	District 1 wants A, but 100 units	District 2 wants A, but 50 units

1. Variations in demand

How to understand “variations in demand”?

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Formally, we have a list of public services labeled as 1, 2, 3, ... n

Each subgroup i within the national community consumes $X_1^i, X_2^i, X_3^i, \dots$ amount of each service

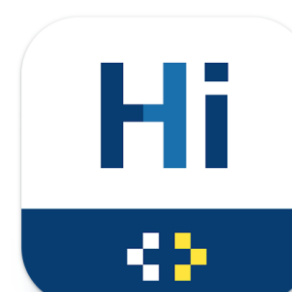
2. Economies of scale

Average costs of public service provision $AC(n)$ defined as a function of community population n

Economies of scale:

$$\frac{dAC(n)}{dn} < 0,$$

a decrease in cost per person for a public service as the population served increases.



3. Interjurisdictional externalities

In the context of local public economics:

- Those who pay for it are not exactly those who enjoy the outcome—some imperfect “correspondence” between the groups of payers and beneficiaries.

for a certain public service, non-residents:

- pay part of the costs (negative externalities) \rightarrow demand \uparrow from optimal
- enjoy part of the benefits (positive externalities) \rightarrow demand \downarrow from optimal

Part 1 Fiscal Federalism: a recap

We will introduce several classical and **representative theories** proposed by economists decades before.

These ideas are old, but they have laid the foundation for our discussions today!

Part 1 Fiscal Federalism: a recap

1. The Decentralization Theorem (Oates, 1972):

Assumption 1: The average cost is **not higher** for lower quantities of provision

Assumption 2: The benefits of these services **do not spill over significantly** to other jurisdictions

Conclusion: “[*M*]ore **efficient** (or at least as efficient) for the local governments to provide the Pareto-efficient levels of output for their respective jurisdictions **than** for the central government to provide any specified and uniform level of output across all jurisdictions.”

That is, under certain conditions, we should decentralize!

(Do you see other underlying assumptions?)

Elements considered in this theorem

1. Economies of Scale
2. Inter-jurisdictional externalities
3. ?

Elements considered in this theorem

1. **(No)** Economies of Scale
2. **(No)** Inter-jurisdictional externalities
3. **Variations in Demand:** This is what makes it possible for the decentralized jurisdiction to provide the Pareto-efficient quantity of good X_i on their territory.
 - What about: “at least as efficient”?
 - Do we only see heterogeneity here?

Perfect correspondence: the size of a government corresponds to the area of benefit from the goods it provides

BUT WAIT...

- What exactly do we mean by optimal “**level**” of decentralization in economic analysis?

Two starting points of reasoning in economics (and public policies)

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The study of the division of fiscal tasks among different levels of government.

Part 1 Fiscal Federalism: a recap

2. Optimal Jurisdiction Size: the ideal size of a jurisdiction to efficiently provide public goods and services

The typical way of economic modeling/reasoning: finding an equilibrium between the two opposite forces

- 1) Benefits/saving of costs associated with decentralization (e.g., economies of scale, tailoring services to local needs and preferences, ...)
- 2) Costs/loss of benefits associated with decentralization (spillover effects, ...).

Determining jurisdiction size (n^*) is just an optimization problem:

$$\max_n \text{Benefits}(n) - \text{Costs}(n)$$

Opening the Blackbox

Determining jurisdiction size (n^*) is just an optimization problem:

$$\max_n \text{Benefits}(n) - \text{Costs}(n)$$

What are the factors to be considered when talking about these functions?

How to determine the optimal point?

Model 1: Oates's optimal jurisdiction size (1972)

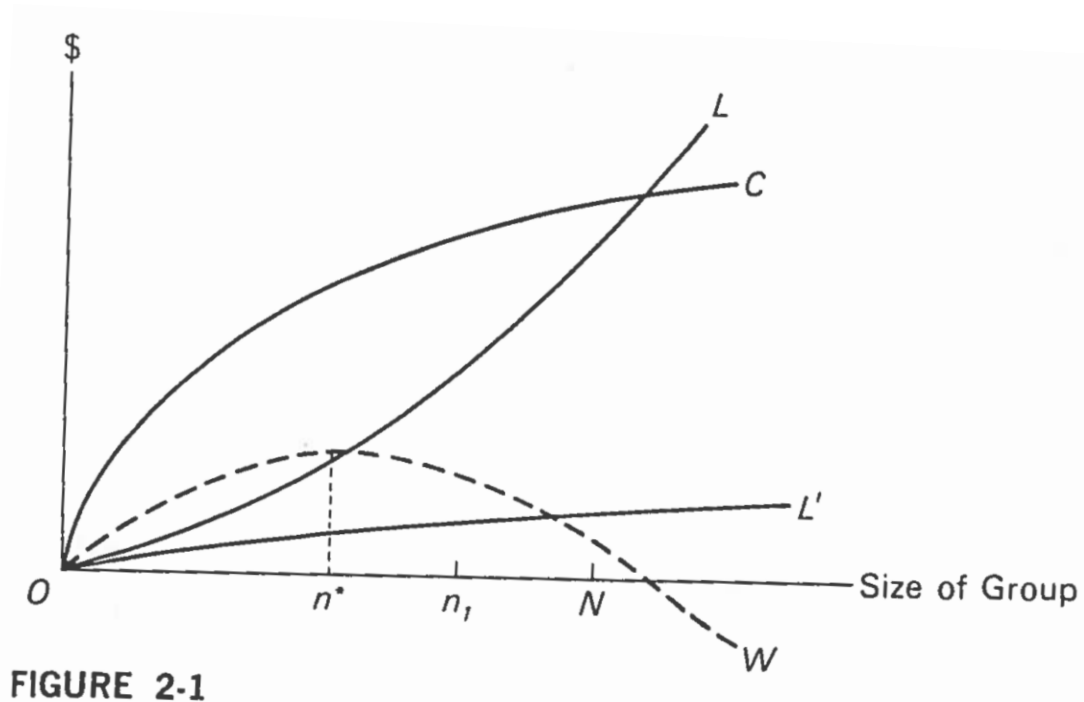
Setup

- WTP_i = willingness to pay for each marginal unit of the public service, i = individual.
- P_n = price set for the public good, n = jurisdiction size. :
- $Q_i^*(P_n)$ = quantity of demand at the prevailing price

Key elements considered:

1. Variation in demands: WTP_i and $Q_i^*(P_n)$ would vary
2. Economies of scale: $\frac{dP_n}{dn} < 0$. (e.g., $P_n = T/n$, T = total production cost)

Model 1: Oates's optimal jurisdiction size (1972)



OC: aggregate **cost savings** (welfare gain): $\sum_{i=1}^n WTP_i - P_n$

OL: aggregate **cost increases** (welfare loss): $\sum_{i=1}^n L(|\bar{Q} - Q_i^*(P_n)|)$

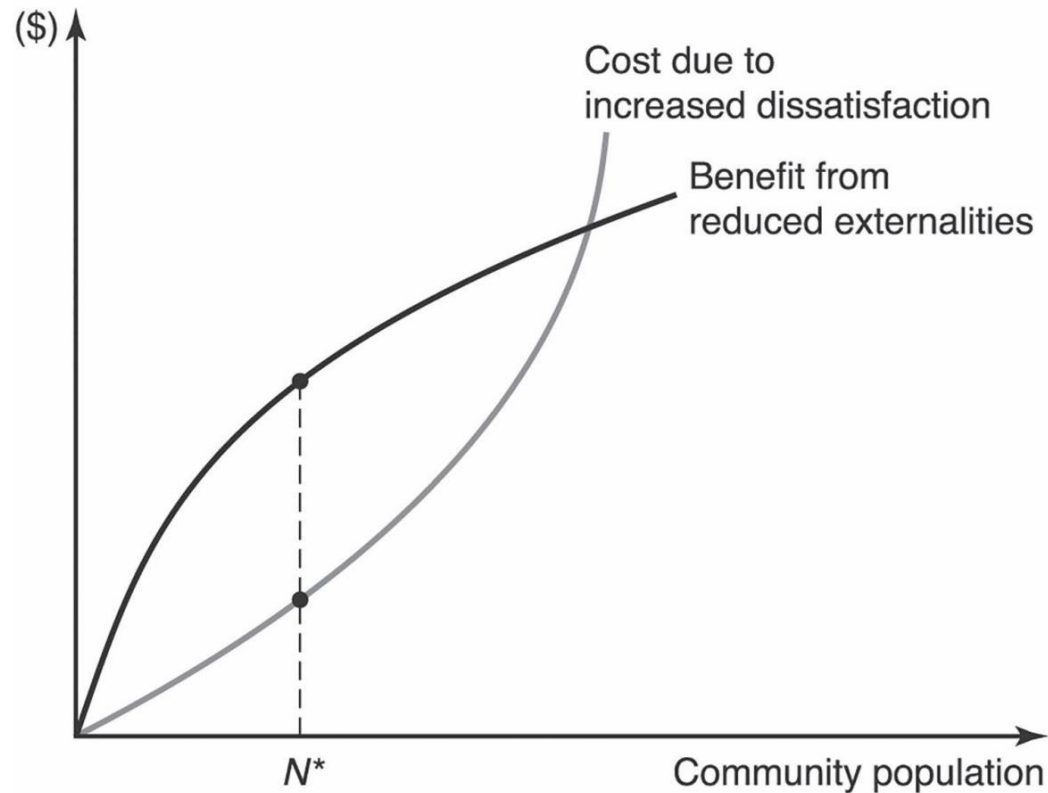
Balancing?

If $OL \rightarrow OL'$, then $OW \uparrow\uparrow$

- $n^* = N$, no incentive for decentralization

O: individuals pay for own public good consumption.

Model 1': Preferences versus spillovers



$$\frac{dC(N)}{dN} > 0; \frac{d^2C(N)}{dN^2} < 0$$

$$\frac{dB(N)}{dN} > 0; \frac{d^2B(N)}{dN^2} < 0$$

This is balancing between ...?

Intuition behind modeling assumptions?

Figure 6.1 Optimal jurisdiction size for a service

(2) Preferences versus spillovers: Intuition behind assumptions

In-class practice: **10-min** quick thoughts!

Topic: Benefits from Reduced Externalities

Why (Through what channels) can a jurisdiction benefit from reduced externalities as the community population increases?

- Within 10 minutes, **list** the possible mechanisms you can think of, and
- try to **organize/categorize** them according to some criteria

*To have a clear mind,
and know how to form a framework.*

Discussion in small groups (10 min)

Topic: Benefits from Reduced Externalities

Through what channel(s) can a jurisdiction benefit from reduced externalities as the community population increases?

- Now **discuss** in groups of two or three. Present your categories and mechanisms.
- **Be open!** It's about sharing ideas and understanding each other, **not about persuasion**.
- After the discussion, some of you will repeat the framework of you and your partner.

*To have an open mind,
be willing to discuss with others, and admit our own bounded rationality.*

Can we extend the Oates' model?

Core elements for thinking about **(de)centralization** :

1. **Diversity of demands within the national community**
2. **Economies of scale**
3. **Inter-jurisdictional externalities**
4. Inter-jurisdictional mobility
5. Administrative and compliance costs

and

- FOC: $MB=MC$

Model 1'': Oates model with externalities

OC: aggregate **cost savings** (welfare gain):

$$B(n) = \sum_{i=1}^n WTP_i - P_n$$

OL: aggregate **cost increases** (welfare loss):

$$C(n) = \sum_{i=1}^n L(|\bar{Q} - Q_i^*(P_n)|)$$

OE: **benefits** from internalizing externalities

$$g(n)$$

Now Oates is balancing among?

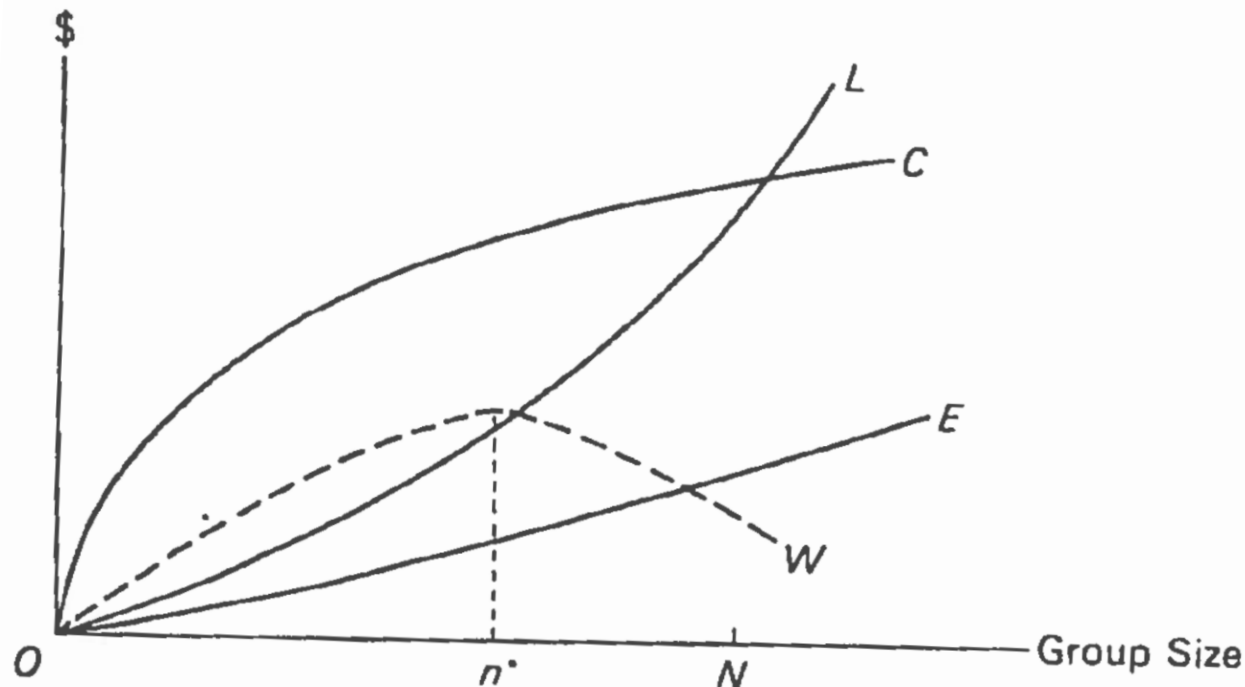


FIGURE 2-2

Takeaways

Formally incorporating **some core elements** for thinking about (de)centralization:

1. Variations in demands
2. Economies of scale
3. (Inter-jurisdictional) Externalities/Spill-over effects
4. ...

Modeling (de)centralization decision:

- Setting up and solving an **optimization** problem featuring the core elements

Decentralization of Expenditure

Lecture 3 Mobility, Congestion, and Clustering

March 18, 2024

Reading for this lecture: *State and Local Public Finance*, by Ronald C. Fisher

Chapter 5 Public choice through mobility

Core Elements in Fiscal Federalism

Core elements for thinking about **(de)centralization** :

1. Diversity of demands within the national community
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4. **Inter-jurisdictional mobility**
5. Administrative and compliance costs

and

- FOC: $MB=MC$

Mobility: Cost or Benefit?

Benefits

- higher geographical concentration of similar consumers \rightarrow welfare gains from decentralization \uparrow
 - If, **within** a jurisdiction, **homogeneity** \uparrow , then $|\bar{Q} - Q_i^*(P_n)| \downarrow$.

Costs

- **congestion** \rightarrow welfare loss (the individual level of public good that can be enjoyed \downarrow)
 - Education quality \downarrow as number of students \uparrow (e.g., Krueger, 1999)
 - Healthcare quality, road space, etc.

Model 2: An Economic Theory of Clubs (Buchanan, 1965)

Setup: Privately organized “clubs” where consumers share a certain amount of public goods and can charge a fee (or subsidize) to an additional club member.

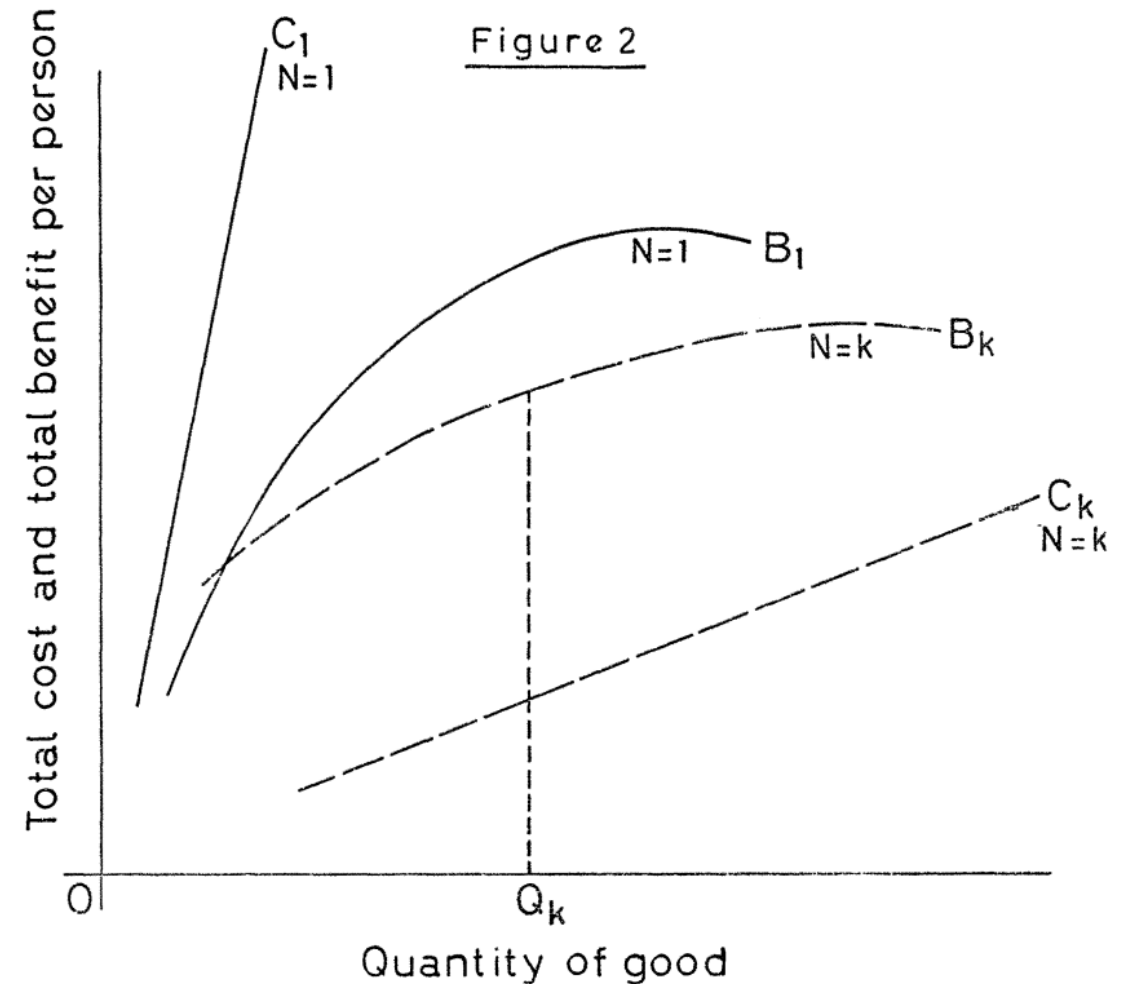
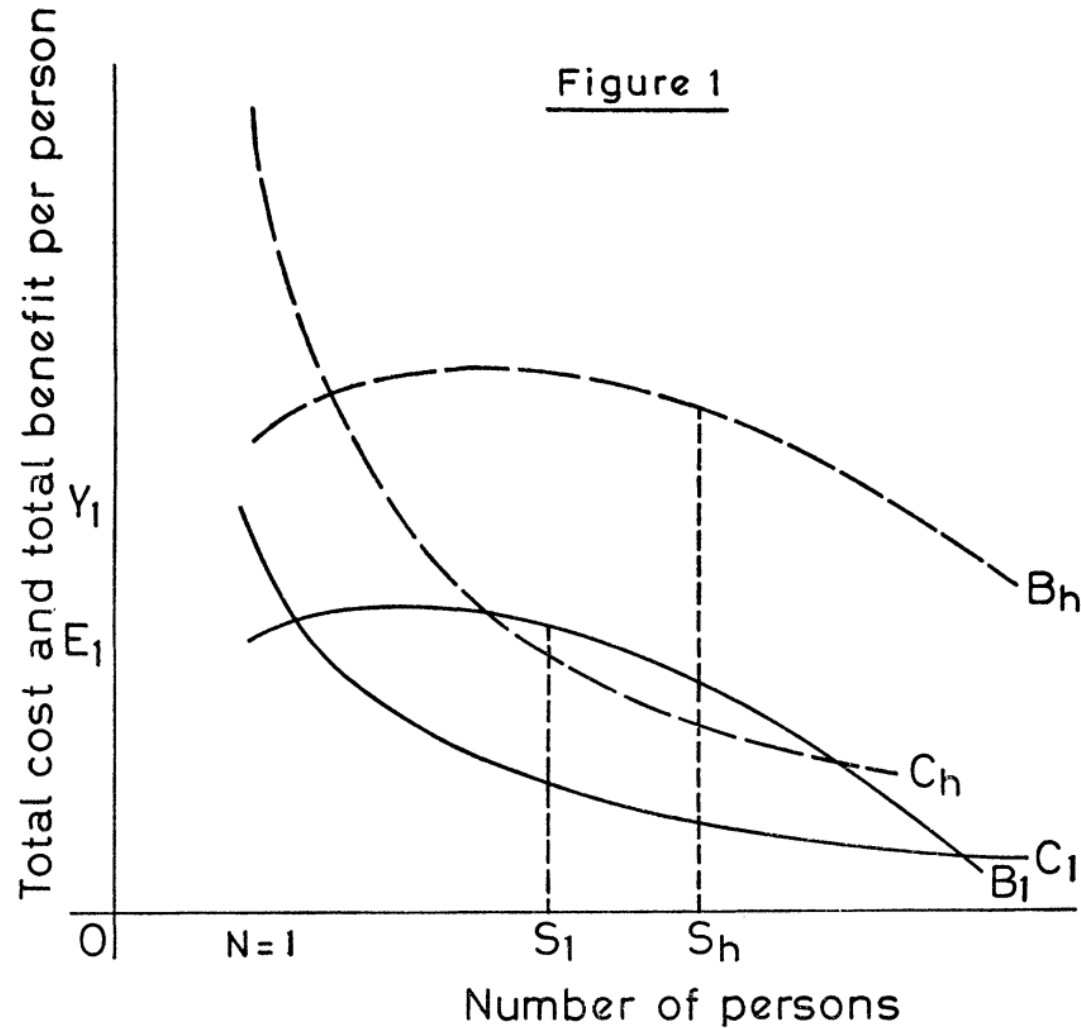
the “club” utility function: $U^i \left[(X_1^i, N_1^i), \dots, (X_j^i, N_j^i), \dots \right]$ and

the “club” production function: $F^i \left[(X_1^i, N_1^i), \dots, (X_j^i, N_j^i), \dots \right]$,

where i = individual, j = good, r = numeraire good, X = level of consumption, N = “club size”

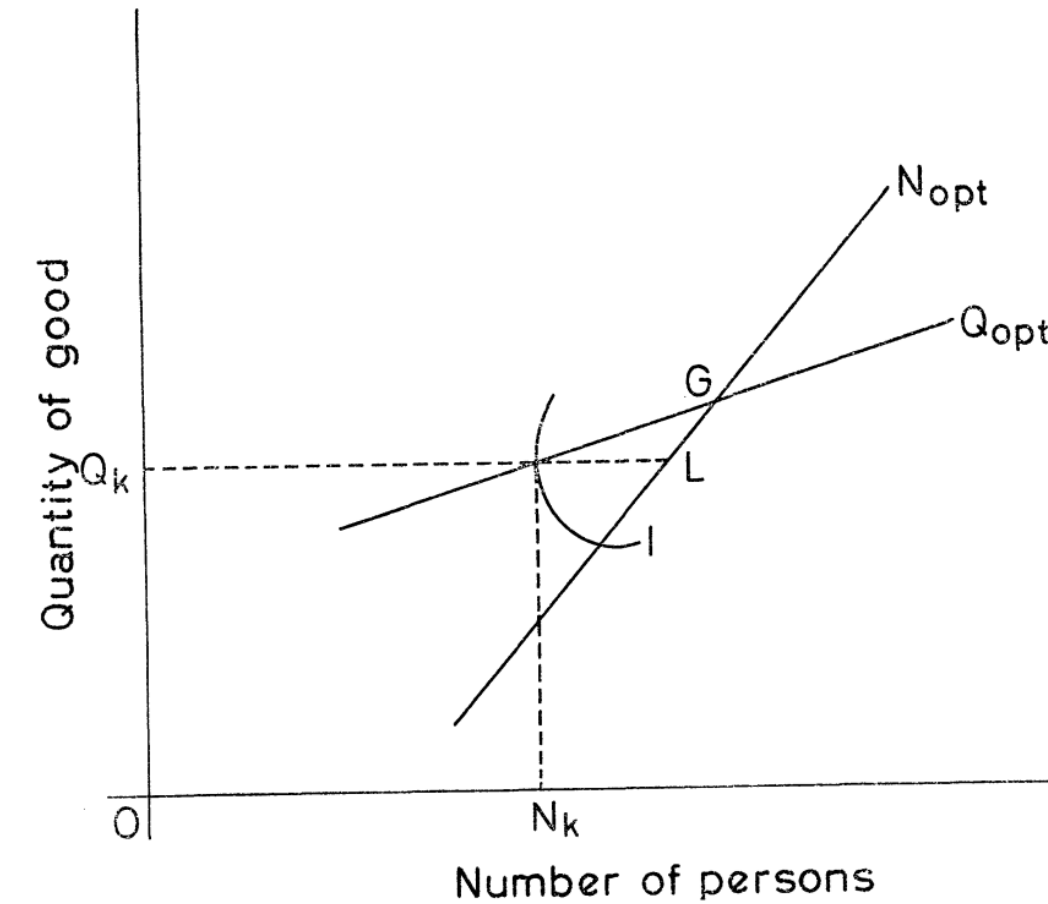
$$\text{EQ: } 1) \frac{u_j^i}{u_r^i} = \frac{f_j^i}{f_r^i}, \text{ and } 2) \frac{u_{N_j}^i}{u_r^i} = \frac{f_{N_j}^i}{f_r^i} \rightarrow \frac{u_j^i}{f_r^i} = \frac{u_r^i}{f_r^i} = \frac{u_{N_j}^i}{f_{N_j}^i} \cdot \left(z_j^i = \frac{\partial Z^i}{\partial X_j^i}, z_{N_j}^i = \frac{\partial Z^i}{\partial N_j^i} \right)$$

Model 2: An Economic Theory of Clubs (Buchanan, 1965)



Model 2: An Economic Theory of Clubs (Buchanan, 1965)

Figure 3



Congestion Costs: Krueger (1999) QJE paper

Involving a cohort of kindergartners in 1985/86 (about 11,600 children) in Tennessee, where the average class size in regular classes in 1985/86 was about 22.3.

Randomly assigning students to one of three treatments:

- 1) small classes with 13-17 children,
- 2) regular classes with 22-25 children and a part-time teacher's aide, (the reference group)
- 3) regular classes with a full-time teacher's aide.

Comparing students' performance afterwards (see table)

Explanatory Variable	K
Small class	13.90** (2.41)
Regular/aide class	0.31 (2.31)
Intercept	918.04** (1.64)
No. Obs.	5,786

Core Element 4: Mobility

Tiebout's Model (Tiebout, 1956)

Under certain circumstances, **people will move** to localities that provide the most preferable public goods for them, (thus revealing their preferences and) **reaching a Pareto-efficient equilibrium.**

Another perspective: competitions among localities → market-like equilibrium through mobility

What are the “certain circumstances”?

Model 3: Tiebout's Model—a Sketch

Assumptions

1. Perfect mobility for people and tax base (no moving costs)
2. Perfect information on communities' provision of public goods
3. Large number of communities (enough to find the one that perfectly meets one's demands)
4. No economies of scale in public good production
5. No mobility restrictions (e.g., due to employment opportunities)
6. No externalities among communities
7. Communities below optimal size seek to attract new residents and vice versa.

Conclusion: Pareto-efficient Equilibrium

People distribute themselves across communities based on their demands for public services; each individual receives her desired level of public services and **cannot be made better off** by further moving.

Model 3: Tiebout's model—an example

Setup

- 1) A community decides to build a new public park, which results in a \$100 per home annual increase in property taxes.
- 2) There are two types of people in the world: those who prefer public parks (perhaps couples with children, and senior citizens) and those who do not care for or oppose the parks.

Results: Based on Tiebout's model, we would expect **demand for housing** in this community:

- 1) ↑ -- for those who **like parks**, the.
- 2) ↓ -- for those who **do not care** for, or oppose, the park.

The latter group might express its preferences by moving away → clustering of similar consumers

Core Elements in Fiscal Federalism

Core elements for thinking about **(de)centralization** :

1. Diversity of demands within the national community
2. Economies of scale
3. Inter-jurisdictional externalities
4. Inter-jurisdictional mobility
5. **Administrative and compliance costs**

and

6. Information structure (imperfection and asymmetries of information)
7. Cost of collective decision-making, political pressure

Further Extension: More public goods and **Clustering**

Determining jurisdiction size (n) is an optimization problem:

$$\max_n \text{Benefits}(n) - \text{Costs}(n)$$

Are these functions identical for different public goods and services? Or should they be different, like:

$$\max_n \text{Benefits}_1(n) - \text{Costs}_1(n)$$

$$\max_n \text{Benefits}_2(n) - \text{Costs}_2(n)$$

...

Optimization of government size → **different optimal sizes for each public good or service.**

Model 4: Model 1 with different public goods

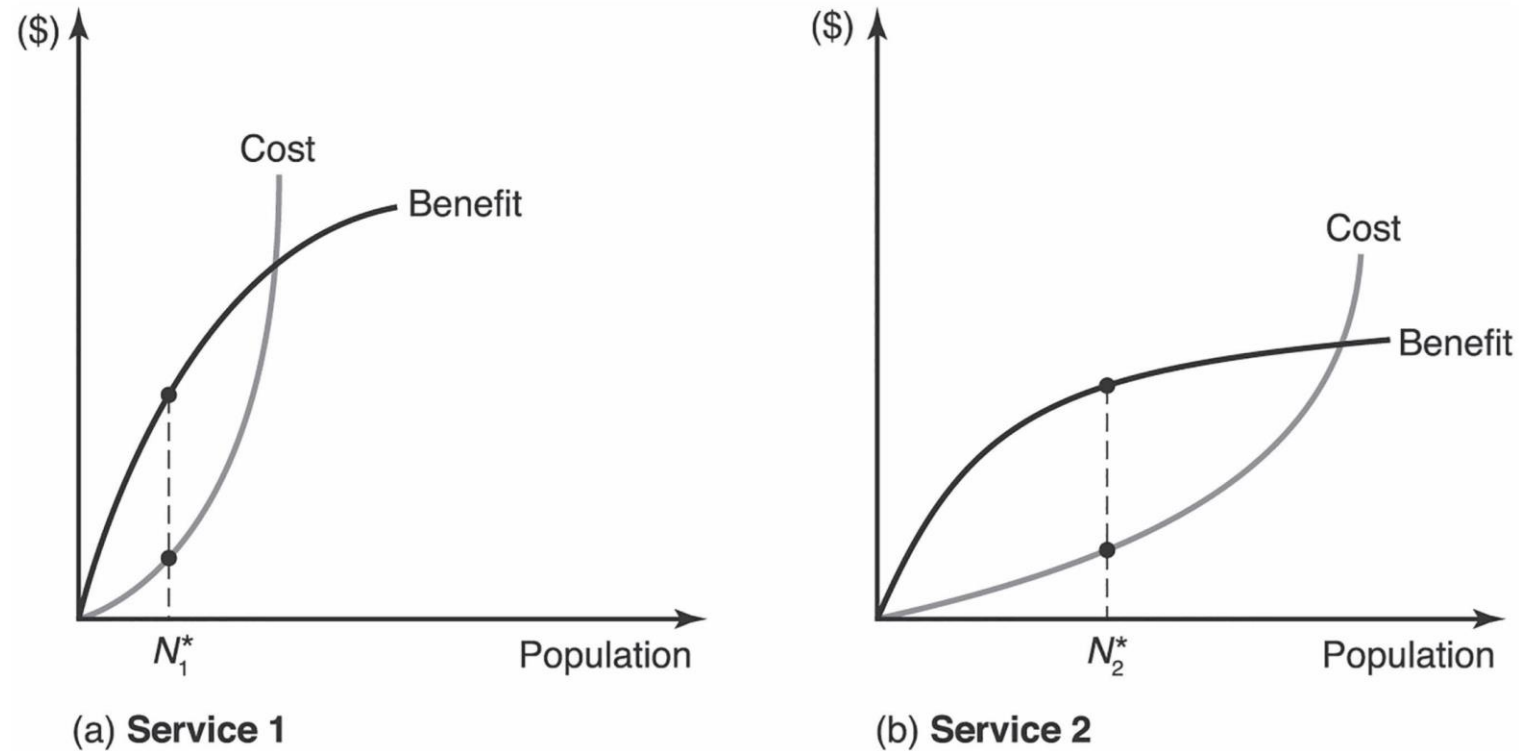


Figure 6.2 Optimal jurisdiction size for different services

Core Element 5: Administrative and compliance costs

Every individual would belong to **many** different subnational governments, each managing a public service!

Such a structure may not be optimal, considering:

- **Administrative costs:** compensation paid to elected and appointed officials and staff and the overhead (buildings, supplies, utilities) accumulated in support of those officials.
- **Compliance costs:** citizen costs of becoming informed on issues and candidate positions and the potential cash and time costs of registering an opinion (by participating in hearings or voting, for instance).

The existence of **fewer** subnational governments may reduce these costs.

Model 4: clustering of jurisdictions

Oates (1972):

Clustering together goods with similar optimal sizes into single government units



Reducing # government layers

and # separate governments in each layer



Reducing administrative costs

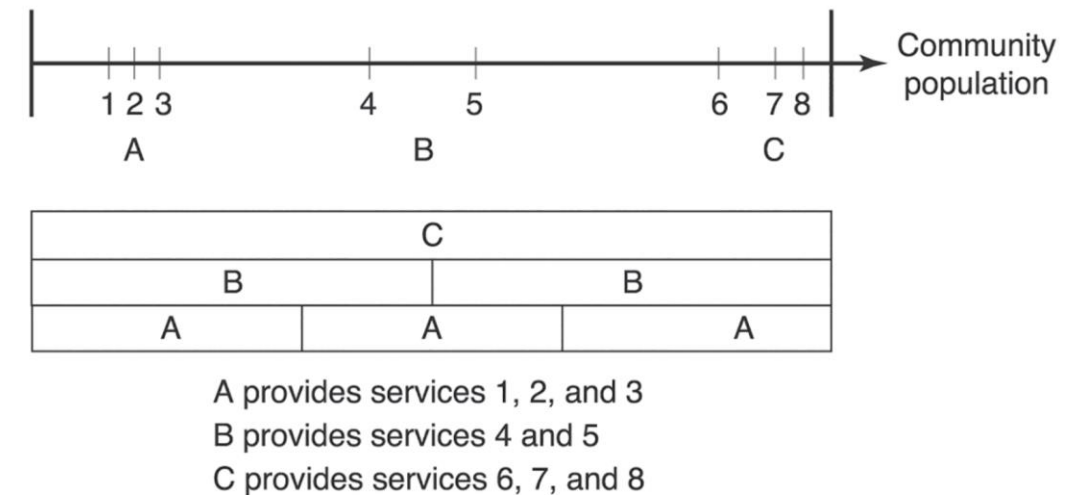


Figure 6.3 Clustering of jurisdictions by size

Core Elements in Fiscal Federalism

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and

6. Information structure (imperfection and asymmetries of information)
7. Cost of collective decision-making, political pressure

Some last points: elements 6 and 7

6. Information structure

- The more decentralized such information is, the more advantaged local jurisdictions will be.
- But if higher-level authorities are better at acquiring and processing information, ...
 - A situation that we should definitely consider now.

7. Political factors

So far

Core elements for thinking about **(de)centralization**:

1. Diversity of demands within the national community
2. Economies of scale
3. Inter-jurisdictional externalities
4. Inter-jurisdictional mobility
5. Administrative and compliance costs
6. ...

Modeling optimal level of decentralization/jurisdiction size:

Oates, Buchanan, Tiebout, Clustering

Summary of the Unit

A quiz to help you learn

Regional and Local Public Finance, Unit 2

Government: Levels and Functions

Mengwei LIN

mengwei.lin@ub.edu

Department of Economics, Universitat de Barcelona
and
Public Policies, Barcelona Institute of Economics (IEB)

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