

Regional and Local Public Economics International Cases

Mengwei LIN

mengwei.lin@ub.edu

I thank Dirk Foremny, Zelda Bratti, and Candan Erdemli for useful materials compiled in previous years.

Erik Sarrazin and Julia McGee contributed to the German and Canadian cases, respectively.

Spring 2025

Recap: Roadmap of the Course

I. Theory

1. **Income Decentralization:** taxation (8 lectures) with Andreu
 2. Government Levels and Functions & **Expenditure Decentralization** (4 lectures)
 3. **Intergovernmental Grants** (4 lectures)
-

II. Cases and Policies

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

III. International Fiscal Federalism (1 lecture) with Andreu

Basics of the Unit: International Cases

Four lectures on “**International Cases**”, discussing the following countries:

- Spain, Canada, China, and Germany—WHY THEM?

Cases will be structured in the following way:

1. A sketch of the system: taxation decentralization, expenditure decentralization & grants
 - Descriptive, application of the theory part
2. (optional) Issues most discussed in these countries nowadays

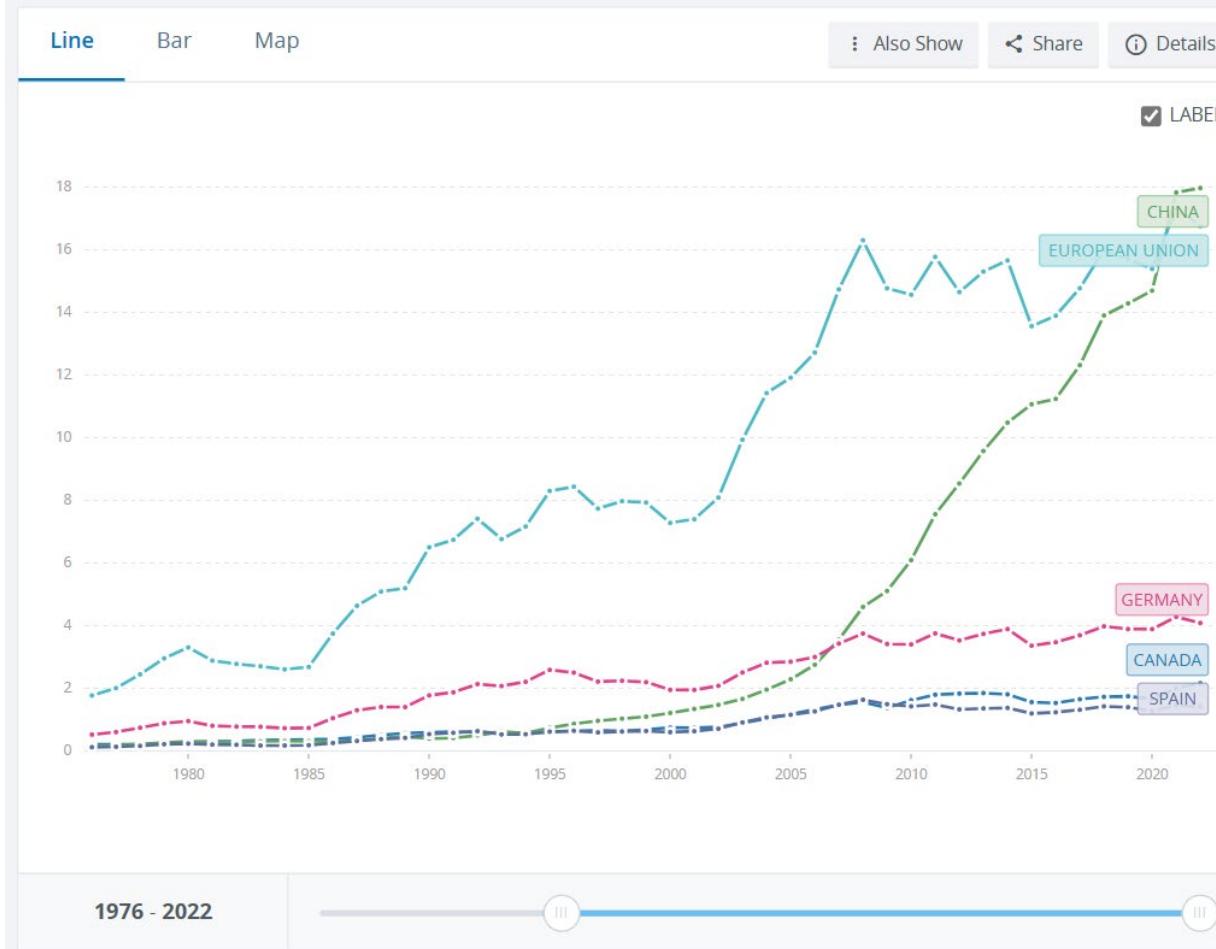
- (1) how to quickly sketch the public finance system of a country and
 - (2) how to perform international comparisons accordingly.

International Comparison

GDP (current US\$) - Canada, China, Spain, Germany, European Union

World Bank national accounts data, and OECD National Accounts data files.

License : CC BY-4.0 [①](#)



GDP per capita (current US\$) - Canada, China, Germany, Spain

World Bank national accounts data, and OECD National Accounts data files.

License : CC BY-4.0 [①](#)



International Comparison

GDP growth (annual %) - Canada, China, Germany, Spain

World Bank national accounts data, and OECD National Accounts data files.

License : CC BY-4.0 [i](#)



Main References of this unit

1. OECD/UCLG (2022) 2022 Country Profiles of the World Observatory on Subnational Government Finance and Investment.
2. Tremblay, J. F. (2023). The Forum of Federations Handbook of Fiscal Federalism (p. 483). *Springer Nature*.
3. Lan, X. (2024). How China Works. *Springer Books*.
4. European Union. Division of Powers. <https://portal.cor.europa.eu/divisionpowers/Pages/default.aspx>.

International Cases

Lecture 1 How Spain Works

April 25, 2024

Reading for this lecture: "Spain" by Julio López-Laborda, Jorge Martínez-Vázquez, and Carlos Monasterio-Escudero

In *The Forum of Federations Handbook of Fiscal Federalism*, edited by Jean-François Tremblay

Goals Today

- 1. Get to know the Spanish system**
- 2. Learn to sketch the system of a country**
 - Fact basis for international comparison
- 3. Learn to connect theoretical discussions to real cases**
 - Fundamental skill for an applied economist/analyst/policy consultant

Today's Agenda

1. General introduction to Spain's fiscal decentralization
2. A sketch of the system
 1. Income decentralization: common and charter regimes
 2. Expenditure decentralization
 3. Inter-governmental grants
3. Taxation Decentralization and Mobility

Government structure in Spain

Three-level SNG

1. Autonomous communities (regions)
2. Provinces
3. Municipalities

MUNICIPAL LEVEL	INTERMEDIATE LEVEL	REGIONAL LEVEL	TOTAL NUMBER OF SNGs (2021)
8 131 municipalities (<i>municipios</i>) + 2 Autonomous Cities (<i>ciudades autónomas</i>)	50 provinces (<i>provincias</i>)	17 autonomous communities (<i>comunidades autónomas</i>)	
Average municipal size: 5 824 inh.			
8 133	50	17	8 200



Fiscal structure by levels of government, 1995 to 2016

Table 4 Composition of non-financial public expenditures and revenues by level of government, 1995–2016 (Percent)^a

Stylized facts	Year	Central Government ^b		Autonomous Governments		Local Governments	
		Expenditures	Revenues ^c	Expenditures	Revenues ^c	Expenditures	Revenues ^c
1. Taxation centralized	1995	67.34	82.95	21.54	7.09	11.11	9.96
2. Fiscal Gaps largest at	2002	54.86	76.43	32.36	13.69	12.78	9.87
Regional/Autonomous	2009	50.65	71.77	35.82	17.87	13.53	10.36
level	2012	59.29	69.74	30.48	19.49	10.22	10.77
	2016	56.59	72.19	32.11	16.74	11.30	11.08

Notes ^aNon-financial expenditures exclude interest and repayment of public sector debt, and acquisition of financial assets. Non-financial revenues exclude revenues from public sector debt and from the sale of financial assets

^bIncluding the Social Security system

^cTaxes are allocated to the level of government that has discretion to set the tax rate

Source OECD Fiscal Decentralization Database

Fiscal structure by levels of government, 2020 (a diff source)

■ SUBNATIONAL, STATE AND LOCAL GOVERNMENT REVENUE BY CATEGORY

2020	DOLLARS PPP / INHABITANT			% GDP			% GENERAL GOVERNMENT			% SUBNATIONAL, STATE AND LOCAL GOVERNMENT		
	SNG	State	Local	SNG	State	Local	SNG	State	Local	SNG	State	Local
-												
Total revenue	9 528	6 982	2 545	24.9%	18.2%	6.6%	59.9%	43.9%	16%	100%	100%	100%
Tax revenue	3 577	2 336	1 241	9.3%	6.1%	3.2%	40.8%	26.7%	14.2%	37.5%	33.5%	48.8%
Grants and subsidies	5 249	4 200	1 050	13.7%	11%	2.7%	-	-	-	55.1%	60.2%	41.2%
Tariffs and fees	650	420	230	1.7%	1.1%	0.6%	-	-	-	6.8%	6%	9%
Income from assets	29	14	15	0.1%	0%	0%	-	-	-	0.3%	0.2%	0.6%
Other revenues	23	13	10	0.1%	0%	0%	-	-	-	0.2%	0.2%	0.4%

■ SUBNATIONAL, STATE AND LOCAL GOVERNMENT EXPENDITURE BY ECONOMIC CLASSIFICATION

2020	DOLLARS PPP / INHABITANT			% GDP			% GENERAL GOVERNMENT			% SUBNATIONAL, STATE AND LOCAL GOVERNMENT		
	SNG	State	Local	SNG	State	Local	SNG	State	Local	SNG	State	Local
-												
Total expenditure	9 511	7 066	2 445	24.8%	18.4%	6.4%	47.3%	35.2%	12.2%	100%	100%	100%
Inc. current expenditure	8 557	6 366	2 190	22.3%	16.6%	5.7%	46.7%	34.8%	12%	90%	90.1%	89.6%
Compensation of employees	3 827	2 970	857	10%	7.8%	2.2%	79.7%	61.9%	17.9%	40.2%	42.03%	35%
Intermediate consumption	1 909	1 162	447	5%	3%	2%	84.8%	51.6%	33.2%	20%	16.5%	30.1%
Social expenditure	1 266	1 218	48	3.3%	3.2%	0.1%	14.1%	13.6%	0.5%	13.3%	17.2%	1.9%
Subsidies and current transfers	1 398	877	521	3.7%	2.3%	1.3%	99.3%	62.3%	37%	14.7%	12.4%	21.3%
Financial charges	142	126	16	0.4%	0.3%	0%	16.5%	14.6%	1.9%	1.5%	1.2%	0.7%
Others	14	13	2	0.04%	0.03%	0%	48.3%	42.3%	6.1%	0.2%	0.2%	0.1%
Incl. capital expenditure	954	699	255	2.5%	1.8%	0.7%	53.3%	39.1%	14.3%	10%	9.9%	10.4%
Capital transfers	272	246	26	0.7%	0.6%	0.1%	35.2%	31.9%	3.3%	3%	3.5%	1.1%
Direct investment (or GFCF)	683	453	230	1.8%	1.2%	0.6%	67.1%	44.6%	22.6%	7.2%	6.4%	9.4%

Fiscal structure by levels of government

The very significant decentralization thrust of the past 40 years has benefited the intermediate level of government, the **Autonomous Communities**.

- Over the last several decades the **Autonomous Communities have emerged as the fastest growing level of government**
- these expenditures mainly focused on **health and the education**, the two largest components of the total public expenditures after pensions.

Autonomous Governments	Expenditures	Revenues ^c
	21.54	7.09
	32.36	13.69
	35.82	17.87
	30.48	19.49
	32.11	16.74

Today's Agenda

1. General introduction to Spain's fiscal decentralization
2. **A sketch of the system**
 1. Income decentralization: common and charter regimes
 2. Expenditure decentralization
 3. Inter-governmental grants
3. Taxation Decentralization and Mobility

2.1 Decentralization of Taxation in Spain: Asymmetries

Asymmetry of decentralization in Spain:

- 1) the **Foral (Charter) regime** only for the **Basque Country and Navarra**, and
- 2) the **Common regime** applied to the **other fifteen regions**.
 - The primary difference
 - Chartered regime: w/ the authority to raise taxes locally,
 - Common regime: limited local taxing authority, though increasing over the years.

1) Taxation under the common regime

- 1. Autonomous (Own) Taxes:** 100 % Collection by AC and some regulatory power
- 2. Assigned (Ceded) Taxes:** Collected by the central government then **transferred to ACs**
 - Starting in 1997, several degrees of discretion were granted to the regional governments vis-à-vis some of the ceded taxes, allowing the Autonomous Communities to set the tax rate and establish tax credits and allowances.
 - Thus, progressively, some ceded taxes became own taxes for the regional governments.

1) Taxation under the common regime

Autonomous (Own) Taxes: 100 % Collection and some regulatory power

1. Tax on Transfers of Assets and Documented Legal Acts, the Inheritance and Donations Tax, Taxes on Gambling, and Fees related to transferred services.
2. Tax on Retail Sales of Certain Hydrocarbons and the Special Tax on Certain Means of Transport.

Assigned (Ceded) Taxes: Collected by the central government then **transferred to ACs**

1. Transfer of 50 % of the net revenue from the **Value Added Tax**.
2. Transfer of 58 % of the net revenue from the **Special Taxes** on Beer, Wine and Fermented Beverages, Intermediate Products, Alcohol and Derived Beverages, Hydrocarbons, and Tobacco Products.
3. Transfer of 100 % of the net revenue from the **Tax on Electricity**
4. * **Personal Income Tax (PIT - IRPF):** 50 % collected to CG, 50% to AC; collected and distributed by the State Tax Administration Agency (AEAT).
 - ACs can decide minimums, marginal tax rates, income brackets. It must be progressive.

Institutional Framework: LOFCA and CPFF

Basic Principles: The **LOFCA** (Autonomous Communities Financing Act, or *Ley Orgánica de Financiación de las Comunidades Autónomas*) establishes the rules, principles, and mechanisms for the distribution of financial resources, tax powers, and responsibilities between the central government and AC's.

- The law was passed in 1980, and there have been reforms in 1997, 2001, and 2009.

Specific implementation issues & disputes: settled within the “Fiscal and Financial Policy Council” (*Consejo de Política Fiscal y Financiera, CPFF*), a consultative intergovernmental body, composed of the ministers of finance and public administrations of the CG and the finance ministers of the AC's.

- Assess the evolution of the regional finance system **on a regular basis** and recommend any necessary changes.

2) Taxation under the charter/Foral regime

- In essence, the charter regions are financed **exclusively** through tax revenues called “**agreed taxes**” (*tributos convenidos* in Navarre and *tributos concertados* in the Basque Country).
- **wide powers** over agreed taxes
 - in general considerably greater than the powers granted to the Autonomous Regions under the common regime in the case of the ceded taxes.
 - full powers over personal and corporate income taxes.
 - **control over the administration** of the main indirect taxes, the VAT and excise duties, **but no regulatory powers** for the indirect taxes.

The “basic financing model”: negative transfers

- Necessary to support the overall public spending of the central government. (**negative transfers**)
 - called the “quota” (*cupo*) for Basque Country and the “contribution” (*aportación*) for Navarra
- The **amount** of this negative transfer is based on a complex **formula**.
 - In short, the share in the cost of central government goods and services (the so-called “non-assumed expenditures”, *cargas no asumidas*) attributable to each charter region is based on an “imputation index”, which is basically **a relative income function** (vis-à-vis the entire national economy).
 - The imputation index is 1.6% for Navarra (i.e., 1.6% of the central government's non-devolved expenditure) and 6.24% for the Basque Country.

Table 3 Taxes assigned to Autonomous Communities

Tax	Sharing of Collection [Initial % of assignment]		Administration by regional governments		Discretion by regional governments	
	Common regime	Charter regime	Common regime	Charter regime	Common regime	Charter regime
Personal income tax	[50%]	100%	No	Yes	Tax schedule and tax credits	Full
Tax on net wealth	100%	100%	Yes	Yes	Threshold, tax schedule and tax credits	Full
Inheritance and gift tax	100%	100%	Yes	Yes	Allowances, tax schedule, tax credits, administration	Full
Corporate income tax	–	100%	–	Yes	–	Full
Non-Resident income tax	–	100%	–	Yes	–	Full for permanent establishments
Capital transfer tax, taxes on the raising of capital and stamp duties	100%	100%	Yes	Yes	Tax rates and tax credits (with some exceptions), administration	Full (with some exceptions)
Gaming taxes	100%	100%	Yes	Yes	Allowances, taxable base, tax rates, administration	Full (with some exceptions)
Vehicle excise (registration)	100%	100%	Yes	Yes	Tax rates (subject to limitations)	Tax rates (subject to limitations), declaration and payment forms and payment periods

(continued)

Indirect taxes

Table 3 (continued)

Tax	<i>Sharing of Collection [Initial % of assignment]</i>		<i>Administration by regional governments</i>		<i>Discretion by regional governments</i>	
	Common regime	Charter regime	Common regime	Charter regime	Common regime	Charter regime
Value-added tax	[50%]	100%	No	Yes	No	Only on declaration and payment forms and payment periods
Excise duties: alcoholic beverages, tobacco and hydrocarbons	[58%] (100% of the special rate of the Tax on Hydrocarbons)	100%	No	Yes	No	Only on declaration and payment forms and payment periods
Electricity tax	100%	100%	No	Yes	No	Only on declaration and payment forms and payment periods
Tax on insurance premiums	-	100%	-	Yes	-	Only on declaration and payment forms and payment periods

Tax	<i>Sharing of Collection [Initial % of assignment]</i>		<i>Administration by regional governments</i>		<i>Discretion by regional governments</i>	
	Common regime	Charter regime	Common regime	Charter regime	Common regime	Charter regime
Tax on gaming activities ^a	100% electronic, computer or telematic games 100% revenue from increase in tax rate	100%	No	Yes	Tax rates (subject to limitations), when the organizers reside in the Community, applicable only to players residing in the Community	Tax rates (subject to limitations), when the organizers reside in the Community, applicable only to players residing in the Community Declaration and payment forms and payment periods
Environmental taxes: electricity, nuclear fuel, gas, oil and condensate, fluorinated gases	–	100%	–	Yes	–	Only on declaration and payment forms and payment periods
Tax on deposits with credit institutions ^a	100%	100%	–	Yes	No	Only on declaration and payment forms and payment periods
Special tax on coal	–	100%	–	Yes	–	Only on declaration and payment forms and payment periods

Note ^aAlthough the Communities under the common regime have a share in this tax, it does not have (yet) the legal status of ceded tax
Source Authors' elaboration

Today's Agenda

1. General introduction to Spain's fiscal decentralization
2. A sketch of the system
 1. Income decentralization: common and charter regimes
 2. Expenditure decentralization
 3. Inter-governmental grants
3. Taxation Decentralization and Mobility

Responsibilities by level of government (1/3)

1. Central Government

Regulation of the basic conditions that guarantee the equality of all Spaniards

Defence

International representation

Justice

National Police

Civil, criminal, labour and commercial legislation

Customs, foreign trade

Financial system regulation

General planning of the economic activity

General Public Finance

Basic Social Security legislation and economic regime (pensions, unemployment benefits, etc.)

National infrastructure: highways, railroads and hydraulic river works across more than one Autonomous Community; commercial ports and airports

Responsibilities by level of government (2/3)

2. Autonomous Communities

Education, at all levels (primary, high school and colleges)

Health

Agriculture

Industry, energy and mines

Environment

Tourism and domestic trade

Social services

Historical and artistic patrimonial protection and own region's language protection

Housing and territorial arrangement

Regional infrastructures: highways and railroads within the Autonomous Community, sport ports and sport airports

Responsibilities by level of government (3/3)

3. Local Governments

3.1 Municipalities

All municipalities: public lighting, cemeteries, waste collection, public cleaning, drinking water supply, sewer system, access to urban areas, food surfacing, and food and drink control

Municipalities with more than 5,000 inhabitants: public parks, public libraries, market and waste management

Municipalities with more than 20,000 inhabitants: civil defence, social work, fire safety and sport facilities for public use

Municipalities with more than 50,000 inhabitants: urban passenger transport and environment protection

3.2 Provinces

Coordination of municipal services

Legal assistance and managerial support to small size municipalities

Provision of specific services in smaller municipalities

Provision of services of a supra-municipal nature

2.2 Decentralization of Expenditure in Spain

What patterns do you see from this table?

Table 2 Non-financial expenditures by function and level of government in 2016 (Percent)

<i>Function</i>	<i>Central^a</i>	<i>Regional</i>	<i>Local</i>	<i>ALL</i>
General public services	64.40	18.21	17.39	100
Defence	100	0.00	0.00	100
Public order and safety	53.15	22.38	24.47	100
Economic affairs	45.42	31.80	22.78	100
Environmental protection	6.52	21.89	71.59	100
Housing and communal services	1.03	34.97	64.00	100
Health	6.49	92.31	1.20	100
Recreation, culture and religion	17.13	22.81	60.06	100
Education	3.66	91.21	5.13	100
Social protection	90.79	5.80	3.41	100

Note ^aIncluding the social security system

Source Authors' elaboration, based on Ministry of Finance

Today's Agenda

1. General introduction to Spain's fiscal decentralization
2. A sketch of the system
 1. Income decentralization: common and charter regimes
 2. Expenditure decentralization
 3. Inter-governmental grants
3. Taxation Decentralization and Mobility

2.3 Intergovernmental Grants in Spain: Transfers to Regional Govt's

A. General grants

1. Equalization grants (lower: equalization of fundamental public services; upper: full equalization)

Stage 1: calculating the expenditure needs of each Autonomous Community (based on **formula**)

- Distinguishing between fundamental vs non-fundamental public services

Stage 2: calculating the fiscal capacity of each Autonomous Community

Stage 3: calculating the transfers

2. “Convergence Funds” (*Fondos de Convergencia*)

- “Competitiveness Fund” (*Fondo de Competitividad*)
- “Cooperation Fund” (*Fondo de Cooperación*): to stimulate regional convergence

B. Categorical and block grants: “Managed Grants”, “Agreements and Contracts-Programme”, etc.

2.3 Intergovernmental Grants in Spain: Transfers to Local Govt's

A. General grants to municipalities directly from the central government

1. **Large cities (and also Provinces):** "Complementary Fund" (*Fondo Complementario*)
 - Applying to its value in the base year a growth rate equal to the increase in CG taxes.
2. **Medium & small municipalities:** "Sharing in Central Government Revenues" (*Participación en Ingresos del Estado*)
 - Three variables: population (weight of 75%), the inverse of the tax capacity (weight of 12.5%) and fiscal effort (12.5%).
 - The pool of funds is adjusted every year by the rate of growth in central government taxes.

B. Transfers from the ACs and provinces are of lesser importance.

Takeaways: Goals Today

- 1. Get to know the Spanish system**
- 2. Learn to sketch the system of a country**
 - Fact basis for international comparison
- 3. Learn to connect theoretical discussions to real cases**
 - Fundamental skill for an applied economist/analyst/policy consultant

International Cases

Lecture 1.5 How Spain Works

April 29, 2024

(Optional) Reading for this lecture: David R. Agrawal, Dirk Foremny; Relocation of the Rich: Migration in Response to Top Tax Rate Changes from Spanish Reforms. *The Review of Economics and Statistics* 2019; 101 (2): 214–232. doi: https://doi.org/10.1162/rest_a_00764

Today's Agenda

1. General introduction to Spain's fiscal decentralization
2. A sketch of the system
 1. Income decentralization: common and charter regimes
 2. Expenditure decentralization
 3. Inter-governmental grants
3. **Taxation Decentralization and Mobility**

Taxation and Mobility in Spain (Agrtawal and Foremny, 2019)

Relocation of the Rich: Migration in response to top tax rate changes from Spanish reforms

Research Question

How do changes in income tax rates affect the migration behavior
of high-income individuals in Spain?

Main findings of the paper:

1. There is significant mobility in response to income tax changes.
2. In revenue terms, the **behavioral effects** induced by tax rate changes are **smaller** than the **mechanical effect** resulting from a higher or lower tax rate.
3. Although the migration response is significant, the **taxable income responses are likely small**—the elasticity of the tax base is well below unit elastic (tax base not very sensitive to tax rate change).

Relocation of the rich (Agrtawal and Foremny, 2019)

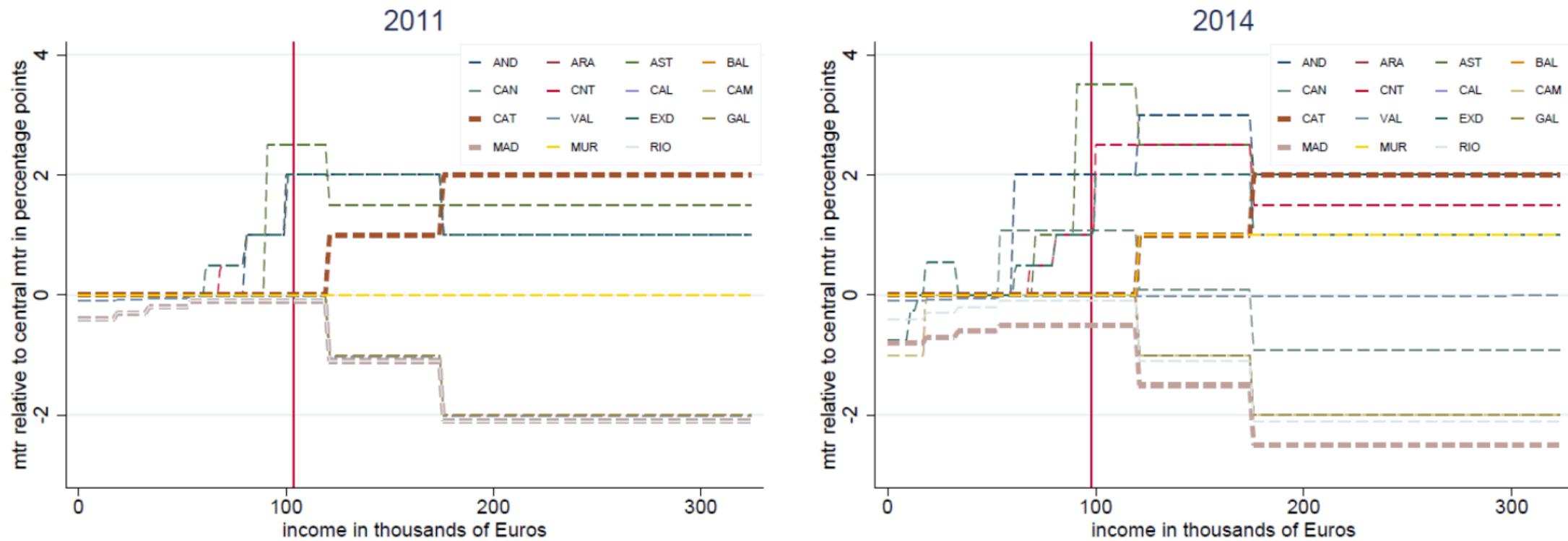
Background and Policy Change

- In the early 2000s, all Autonomous Communities in Spain had the same top marginal tax rate.
- A major Spanish tax reform and fiscal decentralization in 2011: Spanish regions began **changing their top marginal tax rates**.
 - a main response to battle the increasing inequality
- In 2014, top marginal tax rates diverged across regions by as much as 4.5 percentage points.
 - For an individual earning 300,000 Euros, this amounts to a tax differential of 10,000 Euros.

The mobility response—especially of high-income taxpayers—is critical to understanding whether increasing progressivity at the regional level is a feasible policy response to increasing inequality.

The Reform (AC mtr's relative to the central mtr)

Figure 2: Tax Rate Changes Relative to Central Government Tax Rate (2011 & 2014)



The graph shows the **deviation** in the marginal tax rates for each region relative to what the tax rate would be if the region just copied the central government's tax rate in that same year.

- the deviations in 2011 immediately following the reform; the deviations in 2014.
- The vertical line shows the income cutoff for the top 1% in each year.

Data and outcome variables

Data

- **Individual Social Security data**
 - A 4% random sample of the population of Spain (Navarre and Basque Country not included in the data) **from 2005 to 2014.**

Variable

- **(log) population stock ratio:** number of individuals in the top 1 % in region d relative to region o .
- **(log) net-of-tax rate differential** between each of the region pairs.

Empirical Analysis

Aggregate (region-level) Analysis

Regressing the population stock ratios on the net-of-tax differentials. (destination, origin, and year fixed effects)

- **Result:** higher individual income taxes reduce the stock of top-taxpayers
- The stock elasticity is approximately 0.85

Individual-level Analysis: conditional on moving, are individuals more likely to select low-tax regions?

- A one percent increase in the net-of-tax rate for a region relative to others increases the probability of moving to that region by 1.7 percentage points

Aggregate analysis

Table 1: Aggregate Analysis: Effect on Stock Ratios

	Average Tax Rate				Marginal Tax Rate			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
$\ln[(1 - atr_{d,t})/(1 - atr_{o,t})]$	0.917*	1.116**	1.129**	0.878*	0.652**	0.656**	0.669**	0.556**
	(0.537)	(0.545)	(0.549)	(0.500)	(0.288)	(0.300)	(0.303)	(0.267)
Origin FE?	Y	Y	Y	Y	Y	Y	Y	Y
Destination FE?	Y	Y	Y	Y	Y	Y	Y	Y
Year FE?	Y	Y	Y	Y	Y	Y	Y	Y
Government Spending?	Y	Y	Y	Y	Y	Y	Y	Y
Demographic, Economic, & Amenity Controls?	N	Y	Y	Y	N	Y	Y	Y
Robustness Check		Control for Top Income Ratio	Adjust Stock Ratio for Churn in Income Distribu- tion				Control for Top Income Ratio	Adjust Stock Ratio for Churn in Income Distribu- tion
Number of Observations	1050	1050	1050	1050	1050	1050	1050	1050

The dependent variable is the log of the stock ratio, which is the number of individuals in the top 1% in region d relative to region o . The log of net of tax rate differential is the ratio of the net of tax rate in region d relative to region o and uses the average tax rate in the first four columns and marginal tax rate in the last four columns. The expected sign is positive. The last two columns in each set address potential taxable income responses by controlling for income in the top 1% and by adjusting the stock for the number of people that transition out of the top 1% relative to the prior year. The estimates represent the elasticity of the ratio. Standard errors allow for three-way clustering (state pair, origin-year, destination year). *** p<0.01, ** p<0.05, * p<0.1

Individual-level analysis

A one percent increase in the net of tax rate raises the probability of choosing a given destination by 0.59 percentage points.

This is a substantial increase in the probability of moving to a region, which if random would be

1/15 (0.06).

Table 2: Individual Analysis: Average Tax Rates

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
$\ln(1 - atr_{i,t,j})$	0.588 (0.420)	0.714** (0.343)	0.894*** (0.336)	0.712** (0.337)	0.767** (0.336)	0.714** (0.343)	0.904*** (0.332)
place of origin		-0.797*** (0.061)	-0.765*** (0.060)	-0.797*** (0.061)	-0.796*** (0.061)	-0.796*** (0.061)	-0.766*** (0.060)
place of birth		0.207*** (0.022)	0.206*** (0.021)	0.207*** (0.022)	0.207*** (0.022)	0.207*** (0.022)	0.206*** (0.021)
place of first work		0.185*** (0.020)	0.177*** (0.020)	0.186*** (0.020)	0.186*** (0.020)	0.185*** (0.019)	0.177*** (0.020)
work place		0.288*** (0.018)	0.261*** (0.021)	0.288*** (0.018)	0.287*** (0.018)	0.287*** (0.018)	0.261*** (0.021)
ln(distance)		-0.075*** (0.009)	-0.072*** (0.009)	-0.075*** (0.009)	-0.075*** (0.009)	-0.075*** (0.009)	-0.072*** (0.009)
individual dummies	Y	Y	Y	Y	Y	Y	Y
j by year dummies	Y	Y	Y	Y	Y	Y	Y
j by education	N	N	Y	N	N	N	Y
j by age	N	N	N	Y	Y	N	Y
j by age squared	N	N	N	N	Y	N	Y
j by male	N	N	N	N	N	Y	Y
controls	N	Y	Y	Y	Y	Y	Y
observations	13,395	13,395	13,395	13,395	13,395	13,395	13,395
number of moves	893	893	893	893	893	893	893
R^2	0.122	0.278	0.302	0.279	0.280	0.279	0.304

In all specifications, the estimating sample uses pre- and post-reform moves in the top 1% of the income distribution. Each move has fifteen observations: one for each possible alternative region. The dependent variable equals one if the region is selected. This table uses the *person-specific* average tax rate as the independent variable. All standard errors are clustered two-ways: region-year clusters and move (i, t) clusters. *** p<0.01, ** p<0.05, * p<0.1

Further resources

- A recent study: Agrawal, Foremny, and Martínez-Toledano (2024)

- The Barcelona Institute of Economics (IEB)
 - Financing Maps (Spain)
 - Annual “**IEB’s Report on Fiscal Federalism and Public Finance**” (2023 version)

Wealth Tax Mobility and Tax Coordination

David R. Agrawal

Dirk Foremny

Clara Martínez-Toledano

AMERICAN ECONOMIC JOURNAL: APPLIED ECONOMICS (FORTHCOMING)

Abstract

We study the effects of decentralized wealth taxation on mobility and the effectiveness of tax coordination at mitigating tax competition. We exploit the reintroduction of the Spanish wealth tax, after which all regions except Madrid levied positive tax rates. We find the mobility responses to wealth taxes are within the range of prior estimates with respect to income taxes. However, wealth tax mobility responses generate losses to personal income tax revenues that are six times larger than the direct losses to wealth taxes. Madrid could achieve higher total regional revenues by agreeing to a harmonized positive tax rate.

Takeaways: Goals Today

- 1. Get to know the Spanish system**
- 2. Learn to sketch the system of a country**
 - Fact basis for international comparison
- 3. Learn to connect theoretical discussions to real cases**
 - Fundamental skill for an applied economist/analyst/policy consultant

International Cases

Lecture 2 How Canada Works

April 29 & May 6, 2024

Reading for this lecture: “Canada” by Jean-François Tremblay

In *The Forum of Federations Handbook of Fiscal Federalism*, edited by Jean-François Tremblay

I thank Julia McGee for the helpful discussions.

Goals Today

- 1. Get to know the Canadian system**
- 2. Learn to sketch the system & Do our first international comparison**
- 3. Learn to connect theoretical discussions to real cases**
 - Fundamental skill for an applied economist/analyst/policy consultant

Today's Agenda

1. General introduction to Canada and its fiscal decentralization
2. A sketch of the system
 1. Income decentralization
 2. Expenditure decentralization
 3. Inter-governmental grants: CHT, CST and Equalization ***

Canada

POPULATION AND GEOGRAPHY

Area: 9 879 750 km² (2018)

Population: 38.005 million inhabitants (2020),
an increase of 0.9% per year (2015-2020)

Density: 4 inhabitants / km² (2020)

Urban population: 81.6% of national population
(2020)

Urban population growth: 1.2% (2020 vs 2019)

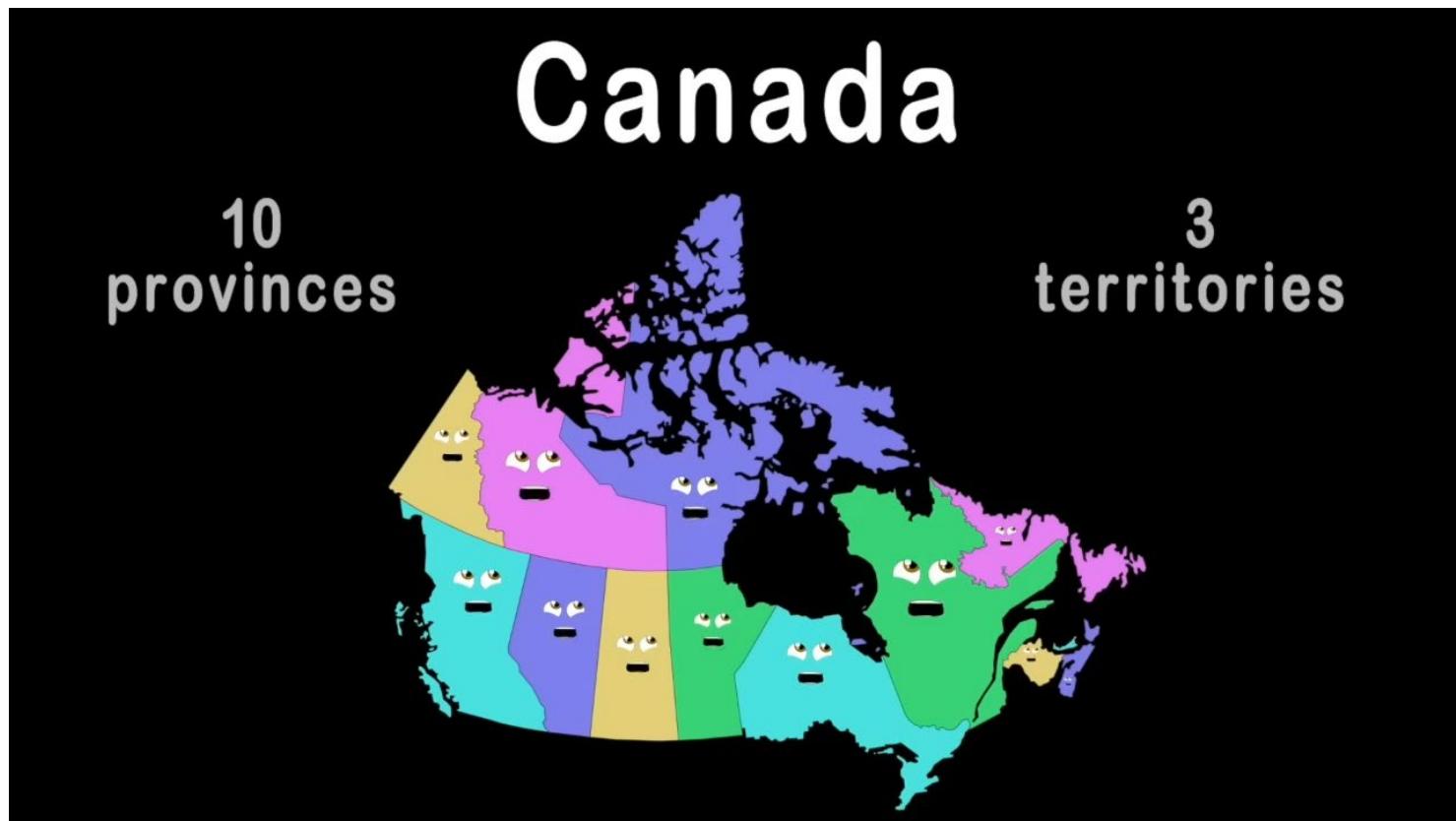
Capital city: Ottawa (Ottawa-Gatineau
metropolitan area: 3.8% of national population,
2020)

ECONOMIC DATA

GDP: 1 771.5 billion (current PPP international
dollars), i.e. 46 611 dollars per inhabitant (2020)

Real GDP growth: -5.2% (2020 vs 2019)

Unemployment rate: 7.5% (2021)



Canada's levels of government

Two-level SNG structure

1. Provinces
2. Municipalities

TERRITORIAL ORGANISATION

MUNICIPAL LEVEL	INTERMEDIATE LEVEL	PROVINCIAL LEVEL
3 905 municipalities*		10 provinces and 3 territories
Average municipal size: 9 741 inhabitants		
3 905		13



Overview of the Canadian economy

The economy is dominated by **service industries** and is highly open to **international trade**.

- Approximately 32% of domestic production was exported in 2019; roughly 3/4 of exports are heading to the US

There are also sizeable **natural resource** and **manufacturing** sectors, with **geographical differences**.

- Natural resources, especially oil and gas, are mainly located in **western provinces**.
 - A considerable share of total exports consists of primary commodities.
- The manufacturing sector is concentrated in the central provinces of **Quebec and Ontario**.

→ important implications for fiscal federalism and different aspects of economic efficiency.

Canada's Fiscal Decentralization

The federal government was initially intended to play a relatively dominant role in a fiscally centralized federation under the Constitution Act of 1867.

With the development of the welfare state in the post World-War II period, **the role of provincial governments has expanded considerably.**

1. Provincial governments now responsible for over half of direct public expenditures

- enjoying extensive autonomy in designing programs and regulations in key areas of social and economic policy
- funding a substantial share of their expenditures through their own taxes

2. Various mechanisms to promote policy harmonization and cooperation

Today's Agenda

1. General introduction to Canada and its fiscal decentralization
2. **A sketch of the system**
 1. Income decentralization
 2. Expenditure decentralization
 3. Inter-governmental grants: CHT, CST and Equalization ***

1. Overview of SNG income

Taxation: 50%; Grants: 30.5%

Provinces/Territories

- taxes > grants

Municipalities

- grants > taxes

■ SUBNATIONAL, STATE AND LOCAL GOVERNMENT REVENUE BY CATEGORY

2020	DOLLARS PPP / INHABITANT			% GDP			% GENERAL GOVERNMENT			% SUBNATIONAL, STATE AND LOCAL GOVERNMENT		
	SNG	State	Local	SNG	State	Local	SNG	State	Local	SNG	State	Local
Total revenue	16109	11506	4603	33.5%	23.9%	9.6%	78.8%	56.3%	22.5%	100.0%	100.0%	100.0%
Tax revenue	8098	6383	1715	16.8%	13.3%	3.6%	55.9%	44.1%	11.8%	50.3%	55.5%	37.3%
Grants and subsidies	4915	2737	2178	10.2%	5.7%	4.5%	-	-	-	30.5%	23.8%	47.3%
Tariffs and fees	2057	1435	621	4.3%	3.0%	1.3%	-	-	-	12.8%	12.5%	13.5%
Income from assets	771	682	89	1.6%	1.4%	0.2%	-	-	-	4.8%	5.9%	1.9%
Other revenues	270	270	0.00	0.6%	0.6%	0.0%	-	-	-	1.7%	2.3%	0.0%

1. Income decentralization: power! power!

- Provinces have access to virtually all tax bases, including some not available to the federal government
- The federal government levies many of the same taxes, with the major exceptions of resource and property taxes.

Table 3 Allocation of main taxation powers

	<i>Tax base</i>	<i>Tax rate</i>	<i>Collection and administration</i>
Personal income tax	Federal	Federal and provincial	Federal and provincial
Corporate income tax	Federal	Federal and provincial	Federal and provincial
Consumption taxes	Federal and provincial	Federal and provincial	Federal and provincial
Property tax	Provincial	Provincial and local	Provincial and local
Resource taxes	Provincial	Provincial	Provincial
User fees	Federal, provincial and local	Federal, provincial and local	Federal, provincial and local

1. Income decentralization

Table 4 Share of revenues (%) by source and level of government, 2019

	<i>Federal</i>	<i>Provincial/Territorial</i>	<i>Municipal</i>
Incomes taxes	61.7	38.3	0.0
Consumption taxes	33.0	65.7	1.3
Property tax	0.0	15.0	85.0
Taxes on international trade	100.0	0.0	0.0
Social contributions	64.3	35.7	0.0

Source Finance Canada (2020a), *Fiscal Reference Tables*

2. Expenditure Decentralization: the list

Table 1 Legislative responsibilities and effective allocation of functions

<i>Function</i>	<i>Legislative responsibility</i>	<i>Effective allocation of function</i>
Defence	Federal	Federal
Foreign affairs	Federal	Federal
Regulation of trade and commerce	Federal	Federal
Banking, currency and bankruptcy	Federal	Federal
Criminal law	Federal	Federal
Unemployment insurance	Federal	Federal
Navigation and shipping	Federal	Federal
Patents and copyrights	Federal	Federal
Postal services	Federal	Federal
Sea coast and fisheries	Federal	Federal
Indigenous people	Federal	Federal and provincial
Immigration	Federal and provincial	Federal and provincial
Agriculture	Federal and provincial	Federal and provincial
Pensions	Federal and provincial	Federal and provincial
Health care	Provincial	Provincial
Administration of justice	Provincial	Provincial
Civil and property rights	Provincial	Provincial
Natural resources	Provincial	Provincial
Municipal institutions	Provincial	Provincial
Education	Provincial	Provincial and local
Social welfare	Provincial	Provincial and local
Local services	Provincial	Local

Source Canadian Constitution, Sections 91 to 95, and Broadway (2007)

2. Expenditure Decentralization: statistics

Natural questions to ask:

1. Optimal jurisdiction size for the provision of education and health is province?
 - Economies of scale
 - Externalities
 - Mobility
 - ...

Table 2 Share of expenditures (%) by functions and level of government, 2019

	<i>Federal</i>	<i>Provincial/territorial</i>	<i>Municipal</i>
Defence	100.0	0.0	0.0
Public order and safety	32.4	31.8	35.8
Economic affairs	27.6	53.3	19.1
Environmental protection	28.8	24.0	47.2
Housing and community amenities	22.0	26.9	51.1
Health	21.4	77.4	1.1
Recreation, culture and religion	29.5	25.3	45.2
Education	8.3	91.7	0.0
Social protection	58.3	36.1	5.6

Source Statistics Canada, Table: 10-10-0024-01. Expenditure functions are grouped according to the Canadian Classification of Functions of Government

Discussion: International Comparison (1)

International Comparison: Spain and Canada

Compare and contrast the Canadian case with the Spanish one. Focus on the **expenditure** responsibilities devolved to SNGs.

What are the similarities and differences? Why are they similar/different?

- Now **discuss** in groups of two or three.
- Write down similarities and differences you can find.
- Try to come up with primary explanations. You can refer to other statistics here or online resources.

Today's Agenda

1. General introduction to Canada and its fiscal decentralization
2. A sketch of the system
 1. Income decentralization
 2. Expenditure decentralization
3. **Inter-governmental grants: CHT, CST and Equalization *****

3. Intergovernmental grants: VFGs

- The federal government collected 40% of total own-source revenues of all government levels in 2019 while the shares of regional and local governments were approximately 47% and 13%, respectively.
- Decentralization is even more pronounced on the expenditure side. The direct expenditures of all SNGs represented 73% of the total.
- **VFGs (grants)**: approximately **20% of own revenue** at the regional level & **44%** at the local level.

Table 5 Fiscal decentralization and vertical fiscal gaps, 2019

	<i>Federal</i>	<i>Provincial/territorial</i>	<i>Local</i>
Own-source revenues	343,302	402,644	111,557
Transfers from other governments	1,131	98,549	87,775
Total revenues	344,433	501,193	199,332
Direct expenditures	234,592	436,364	193,347
Share of transfers in total revenues (%)		19.7	44.0

Note Numbers in first four rows are expressed in millions of current Canadian dollars

Source Finance Canada (2020a), *Fiscal Reference Tables*

3. Intergovernmental grants

Official Sources: Canada's Department of Finance

- **Federal transfers to provinces and territories**

Table 6 Major federal transfers as percentages of provincial governments' revenues, 2019–2020

	<i>Canada Health Transfer</i>	<i>Canada Social Transfer</i>	<i>Equalization</i>	<i>All major federal transfers</i>
Newfoundland and Labrador	5.9	2.1	0.0	8.0
Prince Edward Island	7.8	2.8	19.5	30.1
Nova Scotia	9.5	3.4	18.3	31.2
New Brunswick	8.4	3.1	20.5	31.9
Quebec	7.8	2.8	11.2	21.7
Ontario	10.0	3.6	0.0	13.6
Manitoba	8.3	3.0	12.8	24.1
Saskatchewan	8.5	3.1	0.0	11.5
Alberta	10.1	3.7	0.0	13.8
British Columbia	9.3	3.4	0.0	12.7
All provinces	9.1	3.3	4.5	16.8

Source Finance Canada (2020a), *Fiscal Reference Tables*, and Finance Canada (2020b), *Federal Support to Provinces and Territories*

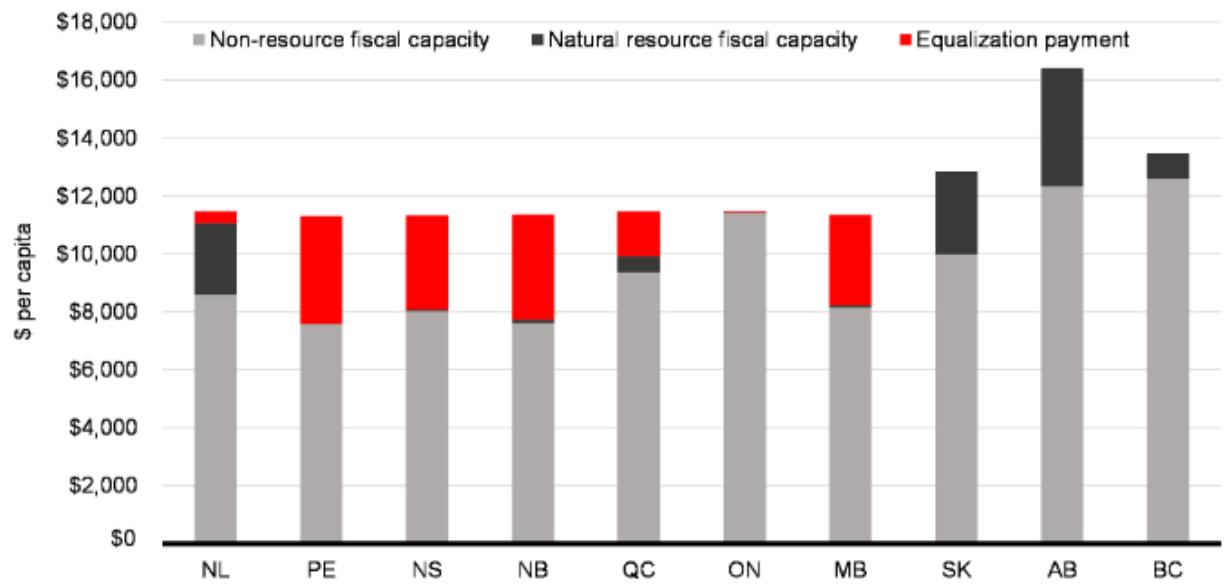
3. Intergovernmental grants: Horizontal Imbalances & Equalization

The equalization transfer system constitutes the main **general-purpose** transfer program.

The federal government should provide transfers to support regional governments for reasonably “comparable levels of public services” at reasonably comparable levels of taxation.

- achieved by providing transfers to provincial governments with fiscal capacities below the national average.

Chart 1
Equalization 2024-25*



* The Equalization formula operates with a 2-year data lag and a 3-year weighted moving average. Note: small variations in post-Equalization fiscal capacity of receiving provinces reflect the partial exclusion of natural resource revenues in the formula.

Source: Finance Canada

Equalization

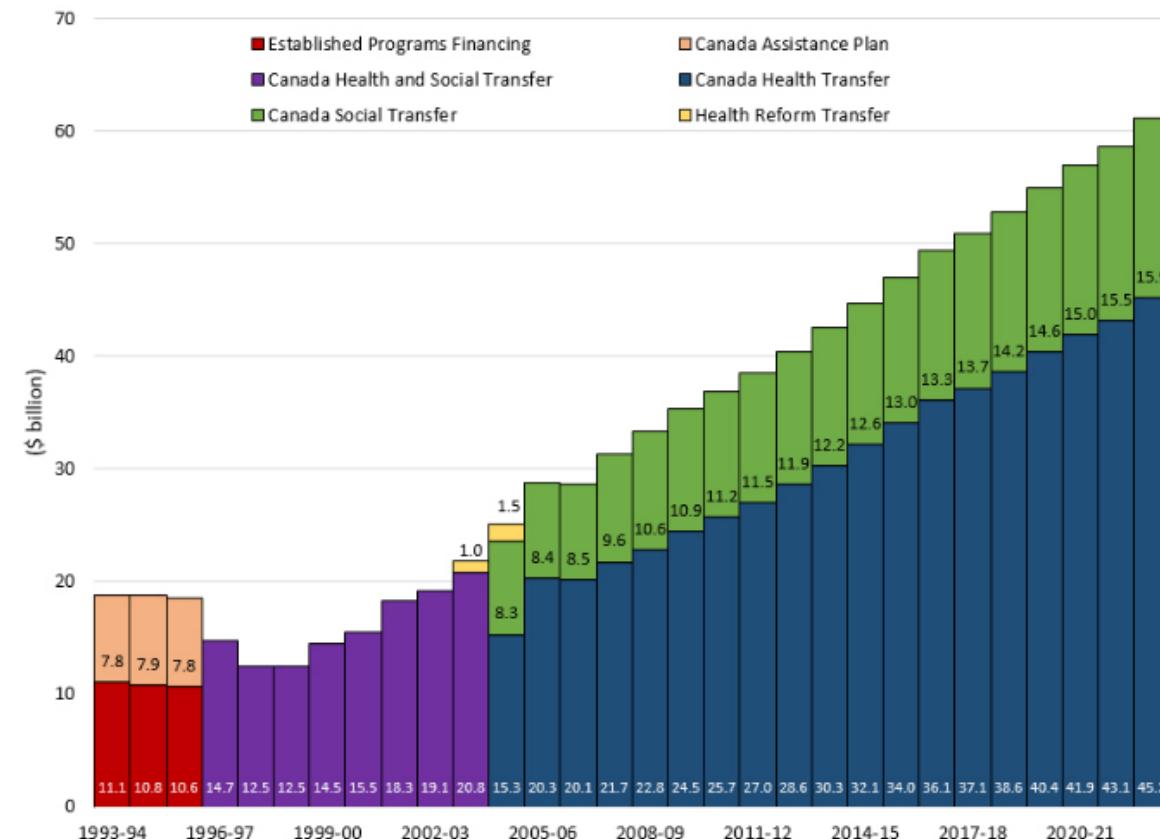
- The allocation of Equalization payments is based on a measure of fiscal capacity,
 - the revenues a province could raise if it were to tax at the national average rate.
 - Equalization supports provinces that have a lower-than-average fiscal capacity.
 - Provincial spending decisions and overall fiscal results **do not** affect Equalization.
- Equalization reduces, but **does not eliminate**, fiscal disparities.
 - the fiscal capacities of non-receiving provinces remain above the national average

3. Intergovernmental grants: categorical/block grants—CHT & CST

Canada Health Transfer (CHT) & Canada Social Transfer (CST)

- determined as part of the budgetary process of the federal government
- **Conditions on uses:** to be spent on health care, post-secondary education, social assistance and social services, early childhood development and child care
- Calculated based on a **formula**
 - E.g., annual $\Delta\% \text{ CHT} = 3\text{yr moving average of } \Delta\% \text{ GDP}$
 - ! Discussion: applicability of different formulas & projects

Total Health and Social Cash Transfers



Takeaways: Goals Today

- 1. Get to know the Canadian system (govt levels & functions, fiscal decentralization)**
 - With a focus on grants—both equalization (general) & CHT and CST (categorical(blocks)
- 2. Do our first international comparison**
 - Comparing statistics & characterizing the features of fiscal decentralization of different countries
- 3. Learn to connect theoretical discussions to real cases**
 1. Horizontal imbalances and equalization grants & incentives
 2. Applicability of allocation methods of grants

International Cases

Lecture 3 How China Works

May 5, 2025

Reading for this lecture: **Chapter 2:** “Finance, Taxation, and Government Behavior”

How China Works, by LAN Xiaohuan & translated by Gary Topp

Goals Today

1. **Get to know the Chinese system** (with authentic information...)
2. **Learn to perform international comparisons**
 - Especially when the two countries are substantially different
3. **Learn to connect theoretical discussions to real cases**
 - Fundamental skill for an applied economist/analyst/policy consultant

Kick in: International “Contrast & Comparison”



Population distribution of China in unit of Canadas



Today's Agenda

1. General introduction to China, its government, and the economy
2. A sketch of the system
 1. Income decentralization
 2. Expenditure decentralization
 3. Inter-governmental grants
3. Land Finance & SNG debts

China: an overview

POPULATION AND GEOGRAPHY

Area: 9 600 013 km² (2018)

Population: 1 410.929 million inhabitants (2020), an increase of 0.5% per year (2015-2020)

Density: 147 inhabitants / km²

Urban population: 61.4% of national population (2020)

Urban population growth: 2.1% (2020 vs 2019)

Capital city: Beijing (1.3% of national population, 2020)

ECONOMIC DATA

GDP: 24 283.2 billion (current PPP international dollars), i.e. 17 211 dollars per inhabitant (2020)

Real GDP growth: 2.3% (2020 vs 2019)

Unemployment rate: 4.8% (2021)

Foreign direct investment, net inflows (FDI): 212 476 (BoP, current USD millions, 2020)

Gross Fixed Capital Formation (GFCF): 42.9% of GDP (2020)



Now: Administrative divisions of China, 2018

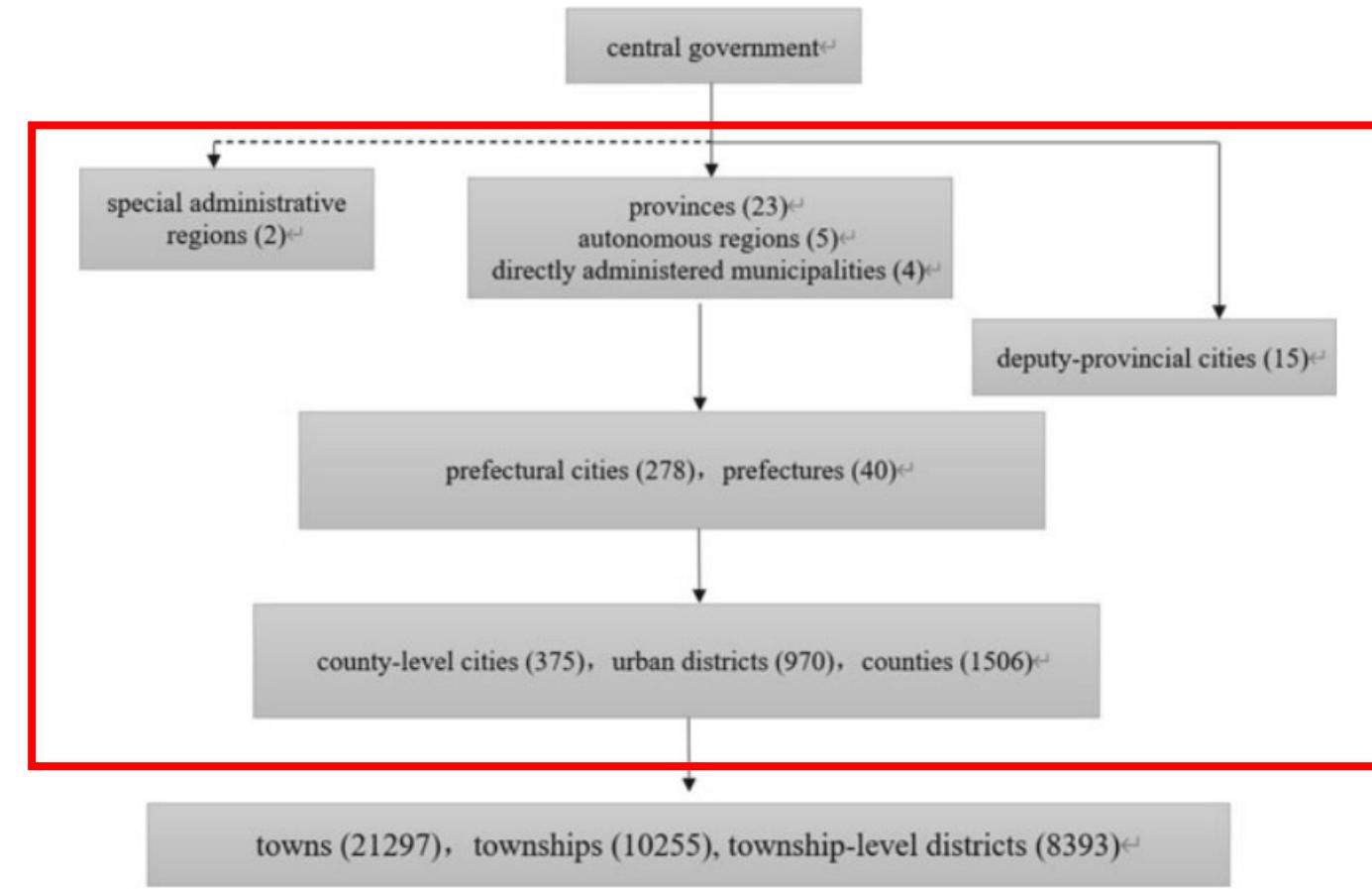
3-level SNG structure

1. Provincial level
2. Prefecture level
3. County level

SNGs since 221 BC, after the warring states

TERRITORIAL ORGANISATION			
MUNICIPAL LEVEL [1]	INTERMEDIATE LEVEL	REGIONAL LEVEL	TOTAL NUMBER OF SNGs (2021)
Counties (县级行政区)	Prefectures (地级行政区)	Provinces (省级行政区)	
2 844	333	31	3 208

Note: These statistics cover mainland China only, without the special administrative regions of Hong Kong (China), Macau (China), and Chinese Taipei.



Government levels and fiscal structure

Government Structure: A three-Level SNG System

- Central government → 1. **Provinces** → 2. **Prefectures (cities)** → 3. **Counties & Districts** (→ 4. Townships)

Fiscal structure reforms since 2002: **A (nearly) two-level SNG Structure** (Key idea: “**flattening** the hierarchy”)

- Central government → 1. Provinces → 2. **Prefectures (cities) AND Counties & Districts**
 - **Reform 1:** Integrating township finances into county finances (from 2003) 乡财县管
 - **Reform 2:** County public finance depts reporting directly to provinces, bypassing the city 省直管县

Sidenote: China has a long tradition of Government & Development!

- A long-term focused government
- A scholar-governing tradition

Today's Agenda

1. General introduction to China, its government, and the economy

2. A sketch of the system

1. Income decentralization

2. Expenditure decentralization

3. Inter-governmental grants

3. Large VFGs: SNG debts & Land Finance

2.1 Government Income: overview of the tax system

18 different taxes in China

1. Goods and services taxes (4)

- VAT, Excise Tax, Vehicle Purchase Tax and Customs Duty.

2. Income taxes (2)

- Enterprise Income Tax and Personal Income Tax.

3. Property and behavior taxes (12)

- Real Estate Tax, Urban and Township Land Use Tax, Farmland Occupation Tax, Resource Tax, Urban Maintenance and Construction Tax, Tobacco Tax, Environmental Protection Tax, ...

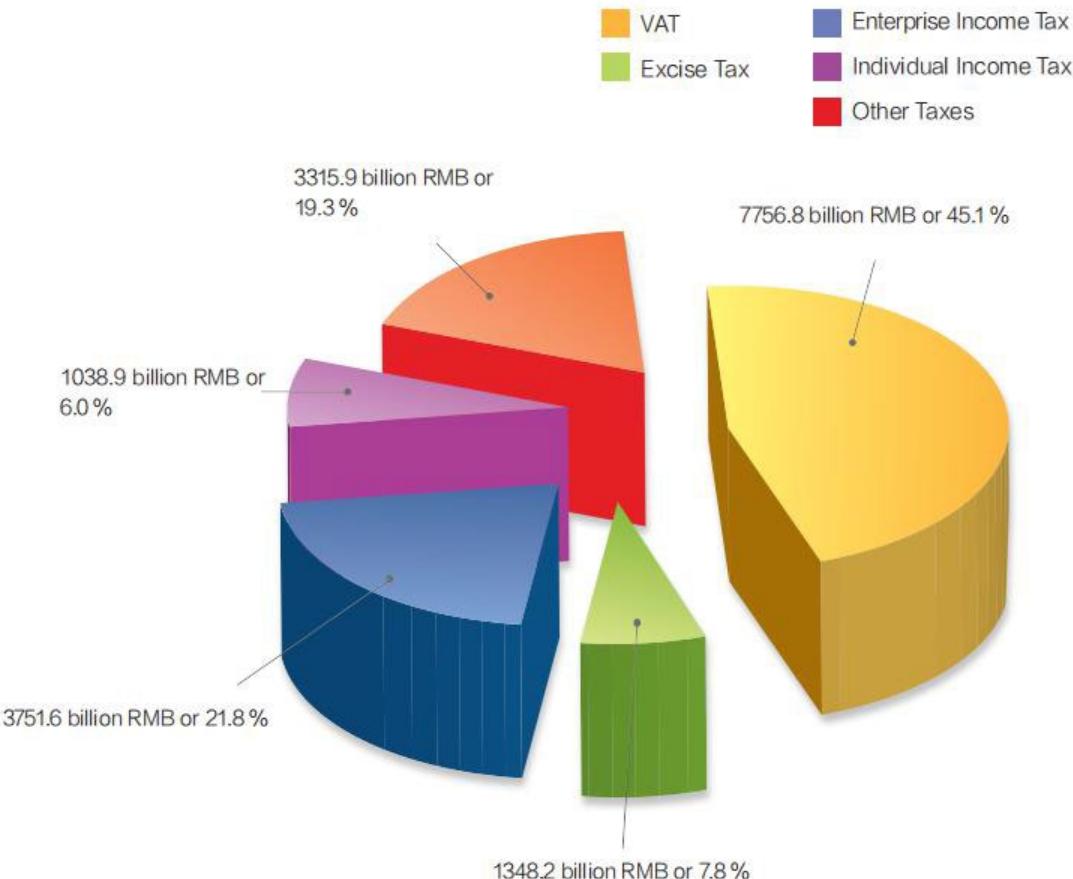


Figure 8 Tax Revenue by Tax Type in 2019

Detailed info: 18 Taxes and rates (in English)

Source: *Taxation Administration, PRC*

2.1 Income Decentralization (key year 1994)

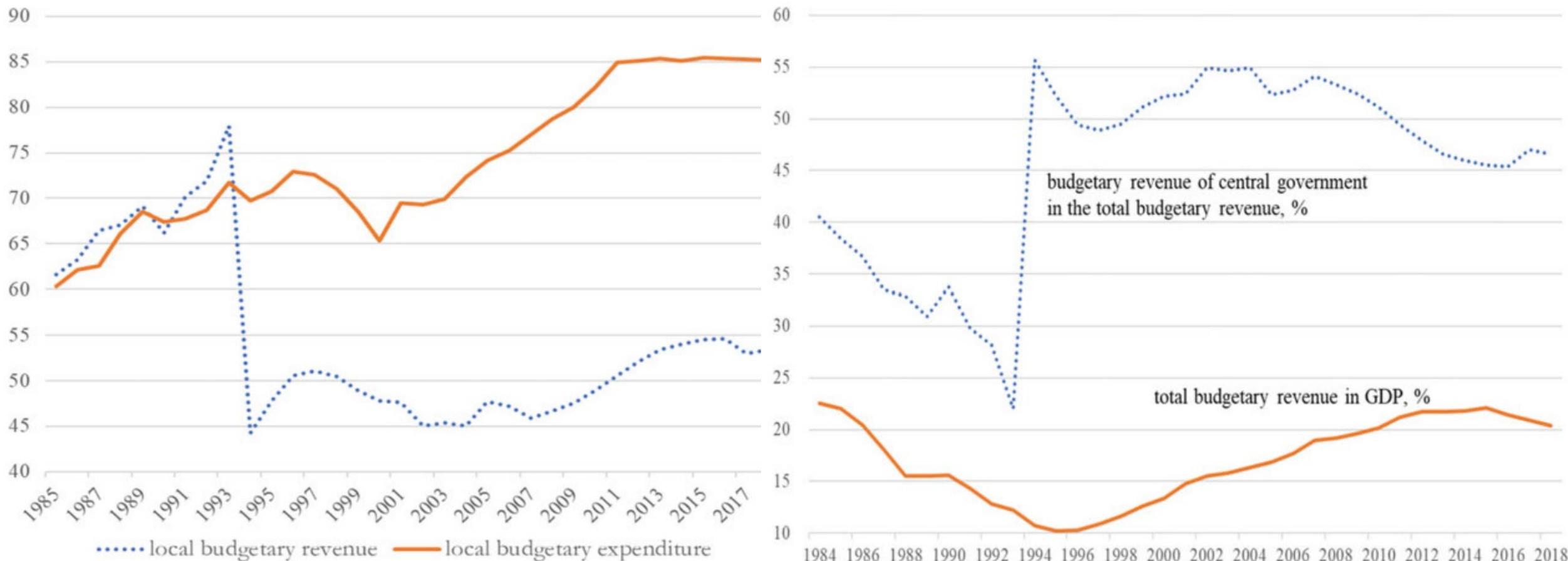


Fig. 2.1 Percentage of local budget in the national budget (*Source* WIND)

Fig. 2.2 Declining percentages of budgetary revenues (*Source* WIND)

Further Reading: “Tax Sharing Reform and the Resistance of Local Governments” p. 55, Lan (2024)

2.1 Income decentralization: Tax sharing reform in 1994

The current system (since 1994 tax sharing reform)—**3 categories** in terms of revenue allocation:

1. Central government taxes

- customs duties, ...

2. Regional/local government taxes

- business taxes, property and behavior taxes, ...

3. Shared taxes (\rightarrow A. tax administration—who collects; B. intergovernmental grants)

- value added tax (CG:SNG = 3:1), income taxes, natural resource tax, ...

Decision making: Tax rates and other regulations are published as a **unified Tax Law** at the national level.

- Regional governments: some discretion in implementing and administering tax laws,
 - usually in the form of **tax incentives or rebates**, particularly when it comes to local taxes.

2.1 Income decentralization: Tax administration in China

Two separate tax agencies from 1994 to 2018 (to keep central and SNG taxes independently managed)

- Central: governed by the Ministry of Finance
- Provincial (and below): provincial tax bureau being responsible

Problems:

1. # tax workers almost doubled, ↑↑ administrative cost of tax management
2. companies needed to deal with both! ↑↑ compliance cost

Reform:

In 2018, after 24 years, the dual tax bureaus were **gradually consolidated into one bureau.**

2.1 International Comparison: Spain, Canada, and China

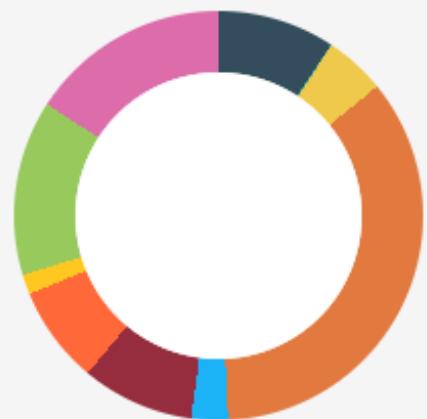
See In-class Handout, page 1

2.2 SNG Expenditure: an overview

2020	DOLLARS PPP / INHABITANT	% GDP	% GENERAL GOVERNMENT
Total expenditure by economic function	4 270	24.8%	-
1. General public services	395	2.3%	73.5%
2. Defence	4	0.0%	1.8%
3. Security and public order	204	1.2%	86.8%
4. Economic affairs/transports	1 501	8.7%	89.2%
5. Environmental protection	123	0.7%	96.6%
6. Housing and community amenities	380	2.2%	99.2%
7. Health	329	1.9%	66.2%
8. Recreation, culture and religion	68	0.4%	94.1%
9. Education	591	3.4%	95.2%
10. Social protection	676	3.9%	44.5%

SNG expenditure by functional classification as a % of SNG expenditure

- General public service : 9,24%
- Defence : 0,09%
- Public order and safety : 4,77%
- Economic affairs / Transport : 35,15% (highlighted)
- Environmental protection : 2,88%
- Housing and community amenities : 8,89%
- Health : 7,71%
- Recreation, culture and religion : 1,59%
- Education : 13,84% (highlighted)
- Social protection : 15,83% (highlighted)



2.2 International Comparison: Spain, Canada, and China

See In-class Handout, page 2

2.2 Expenditure decentralization: responsibilities

A series of **on-going reforms** since 2016

- Key idea: **lessening the financial burden on SNGs (why so?)**
 - CG sharing or financing some expenditure responsibilities originally shouldered only by SNGs
- Content: Detailing the assignment of responsibilities in key areas between CG and provincial govts.
 - Basic public services (2018), health (2018), education (2019), transportation (2019), culture (2020), environmental protection (2020), science and technology, natural resources (2021), intellectual property rights (2023),

Followed by another series reforms by provincial governments since 2018

- Reducing the financial burden on prefectures (cities).

2.2 Expenditure decentralization: an example

Basic public health services: central and local governments share the expenditure responsibility.

The central government formulates basic national standards for per capita funding for basic public health services, and should gradually increase them in accordance with economic and social development.

- 1st category (12 provincial-level units): Inner Mongolia, Guangxi, Chongqing, Sichuan, ..., Ningxia and Xinjiang—**CG = 80%** of the expenditure responsibility on basic public health services;
- 2nd category (10 provinces): Hebei, Shanxi, Jilin, ..., Hunan and Hainan—**CG 60%**;
- 3rd category (3 provinces): Liaoning, Fujian and Shandong—**CG 50%**;
- 4th category (4 provincial-level units & 5 cities) —**CG 30%**;
- 5th category: Beijing and Shanghai—**CG 10%**.

Expenditure decentralization in the form of **matching grants**, specifying the share of spending financed by the grant.

2.3 Intergovernmental grants: importance and overview

Basic Facts

1. The **great Vertical Fiscal Gaps** were created since the introduction of the 1994 “Tax Sharing Reform”
2. During the period of high-speed economic growth, approx. from the 1990s to 2012, governments were inhibited from raising funds through **either** debts or loans.
 - **The prohibition on issuing bonds was released in 2014 for provincial-level governments.**

→ **Intergovernmental grants** are crucial for SNGs in general.

China's Framework of Intergovernmental Grants:

1. General Grants (including “Shared Fiscal Responsibilities Grants”, see 2.3)
2. Specific Grants

2.3 Intergovernmental Grants: statistics and examples

In 2023

- General grants: 8514.5 billion CNY ($\approx \text{€} 1092 \text{ bn}$; Spain's GDP 2023: $\text{€} 1462 \text{ bn}$)
- Specific grants: 804.1 billion CNY ($\approx \text{€} 103 \text{ bn}$)

A few examples of “Specific grants” (usually block/categorical grants)

- **Poverty alleviation funds (2016-2020)**: 530.5 billion CNY ($\approx \text{€} 68 \text{ billion}$).
- Air pollution prevention and control fund (2023): $\text{€} 4.23 \text{ bn}$.
- Water pollution prevention and control fund (2023): $\text{€} 3.30 \text{ bn}$.
- Special funds for industrial foundation reconstruction and high-quality development of manufacturing industry (2020-2022): $\text{€} 5.16 \text{ bn}$.

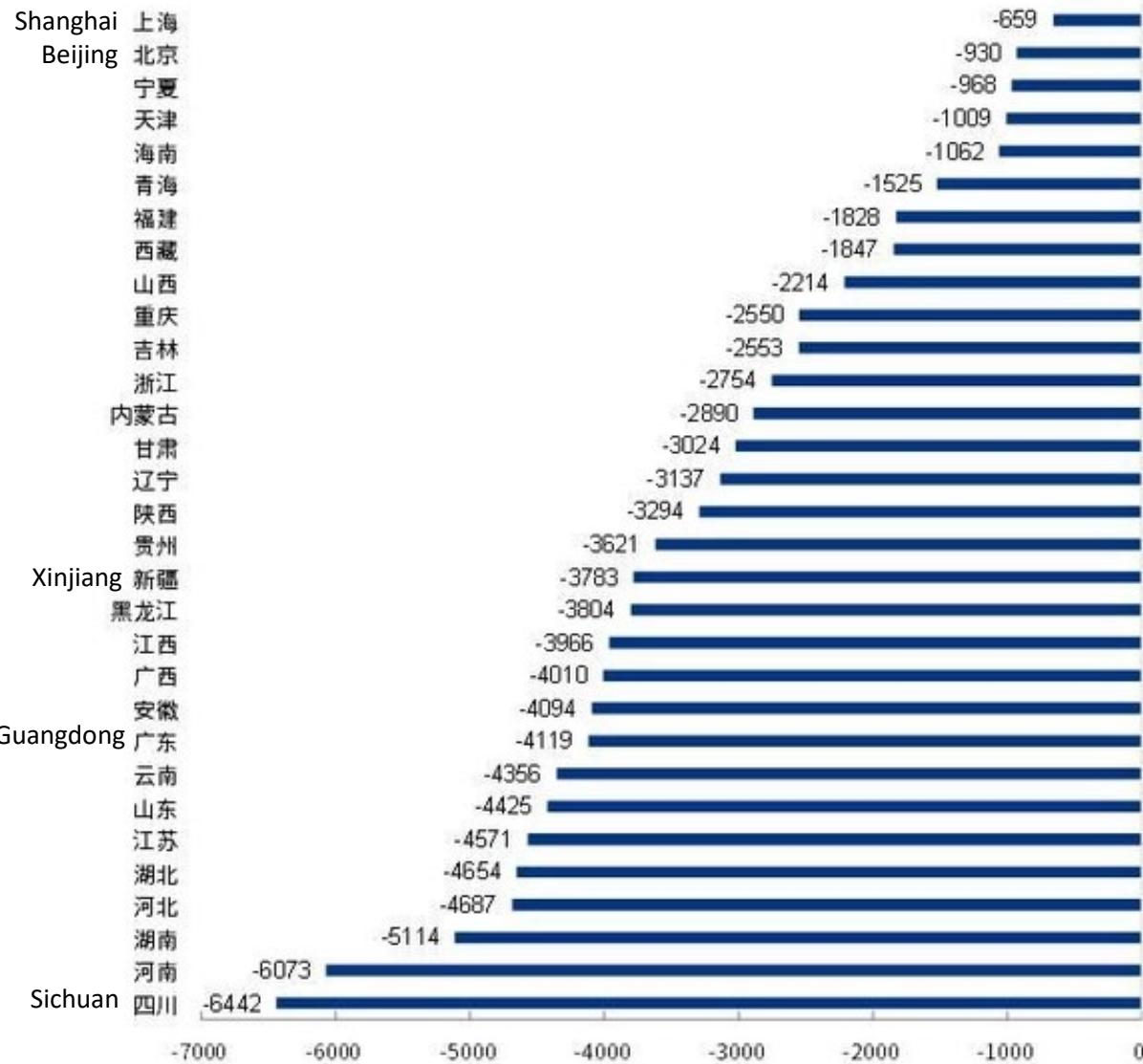
Sources: 《国务院关于财政转移支付情况的报告》 《关于2023年中央和地方预算执行情况与2024年中央和地方预算草案的报告》

Today's Agenda

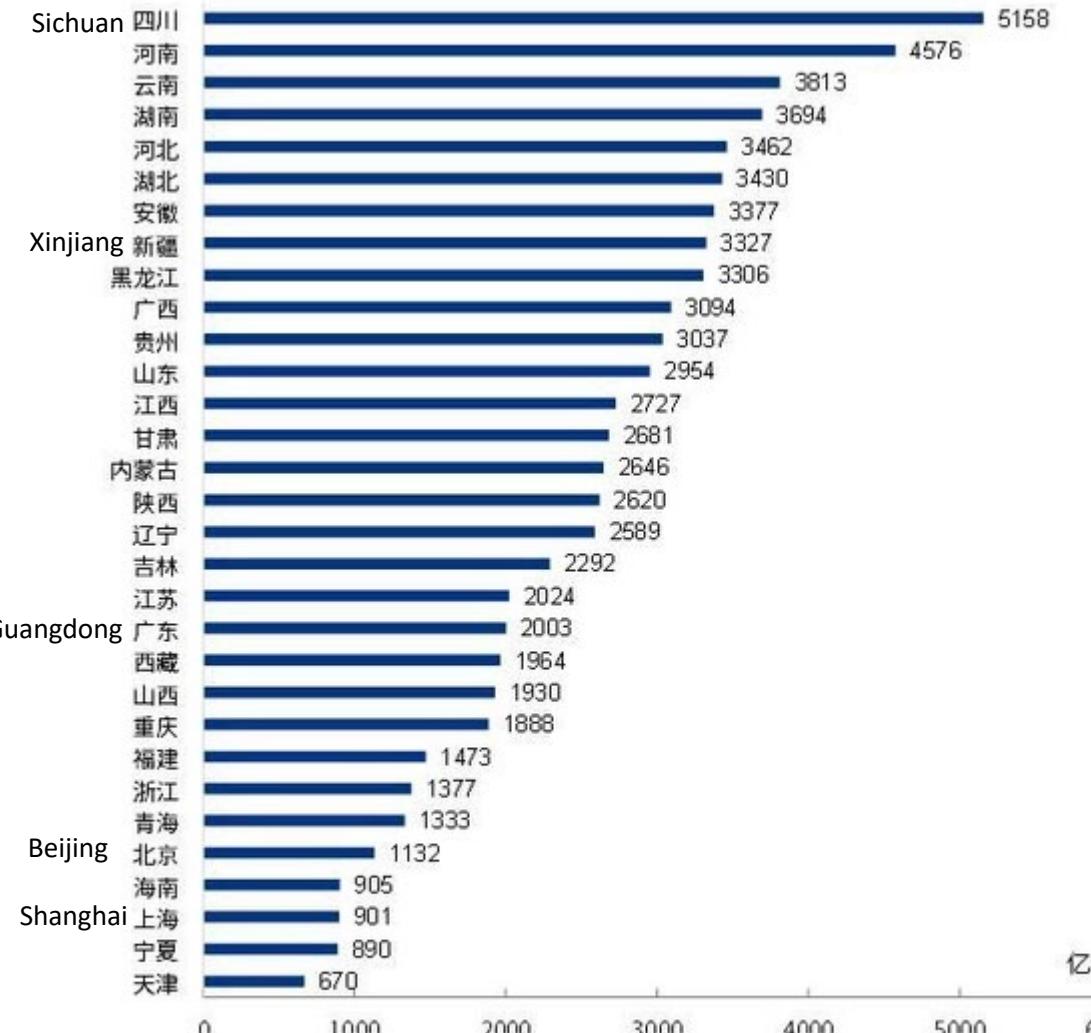
1. General introduction to China, its government, and the economy
2. A sketch of the system
 1. Income decentralization
 2. Expenditure decentralization
 3. Inter-governmental grants
- 3. From transfers to Land Finance & SNG debts**

Provincial-level SNG (absolute) fiscal gaps, 2021

= revenue (excl. grants) - expenditure



Tax revenue rebates and grants, 2021

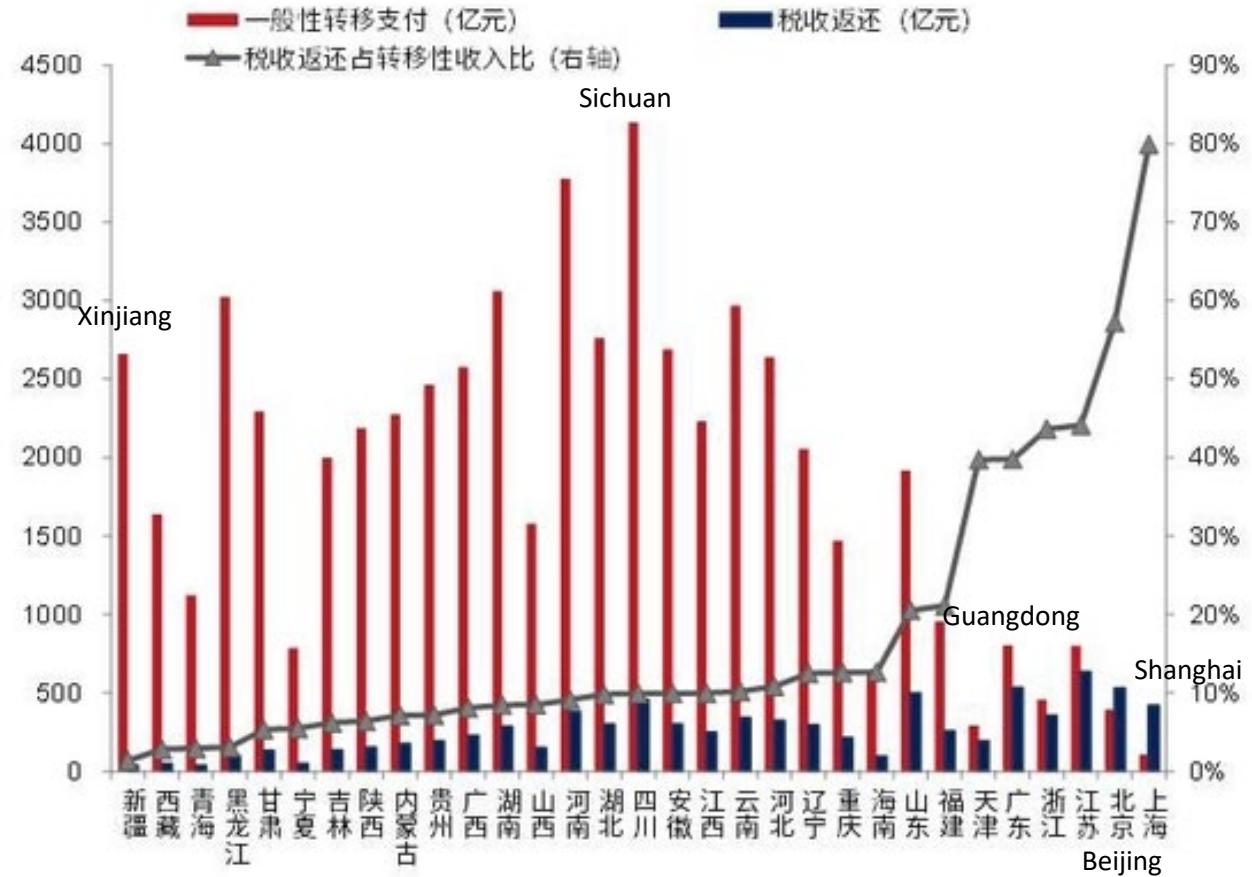


资料来源：《中国财政年鉴》、粤开证券研究院

资料来源：wind、粤开证券研究院

粤开志恒宏观

More developed regions rely more on **tax rebate (blue bars)**
 Less developed regions rely more on **general grants (red bars)**



资料来源：《中国财政年鉴》、《中国税务年鉴》、粤开证券研究院 粤开志恒宏观

3.1 Land Finance: the second budget

Many times, intergovernmental grants are NOT enough...

→ “**Land finance**” is another key element in understanding not just the Chinese fiscal system, but also the economy and its interplay with the government, in the past three decades.

- Urban lands are **state-owned**, and lands are **valuable** for commerce, construction, and residence

“(Local governments) also use land to obtain loans or other types of financing. Land, therefore, moves from simply being a secondary form of local government revenue, to playing a critical role in capital markets.” (Lan, 2024)

3.1 The logic of land finance

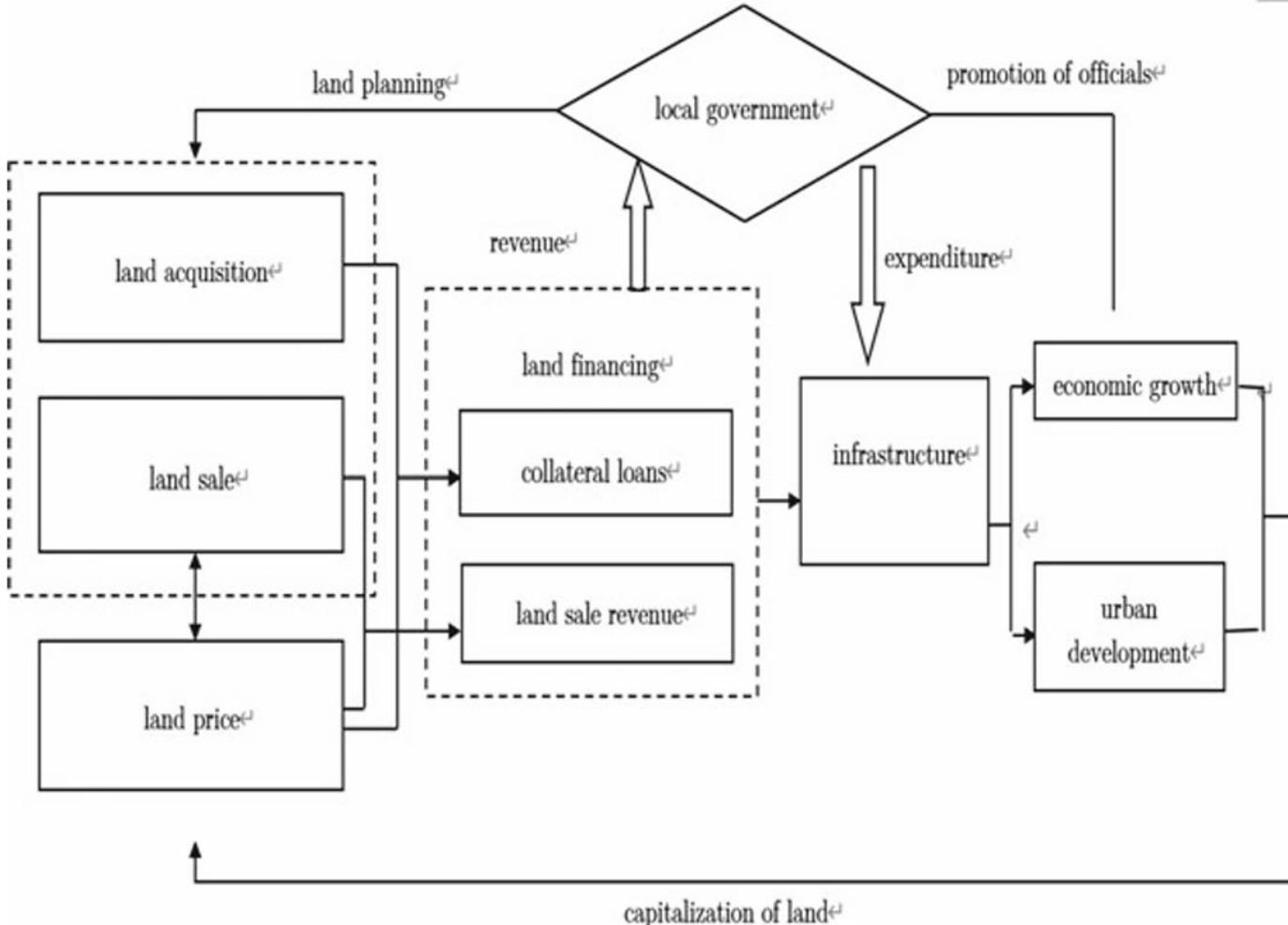


Fig. 3.1 Land finance of local government (*Source* Zheng et al. [郑思齐等 2014])

3.1 The (unintended) Consequences of Land Finance 1

Results: “VFG → Land finance” can start long chains of effects, not only in economic areas, e.g.,

- ... → housing markets → resource misallocation/wealth (not income) inequality
- ... → housing markets developed by international corporations (e.g., Hong Kong SAR before reunification) → international flow of capital → wealth redistribution across countries

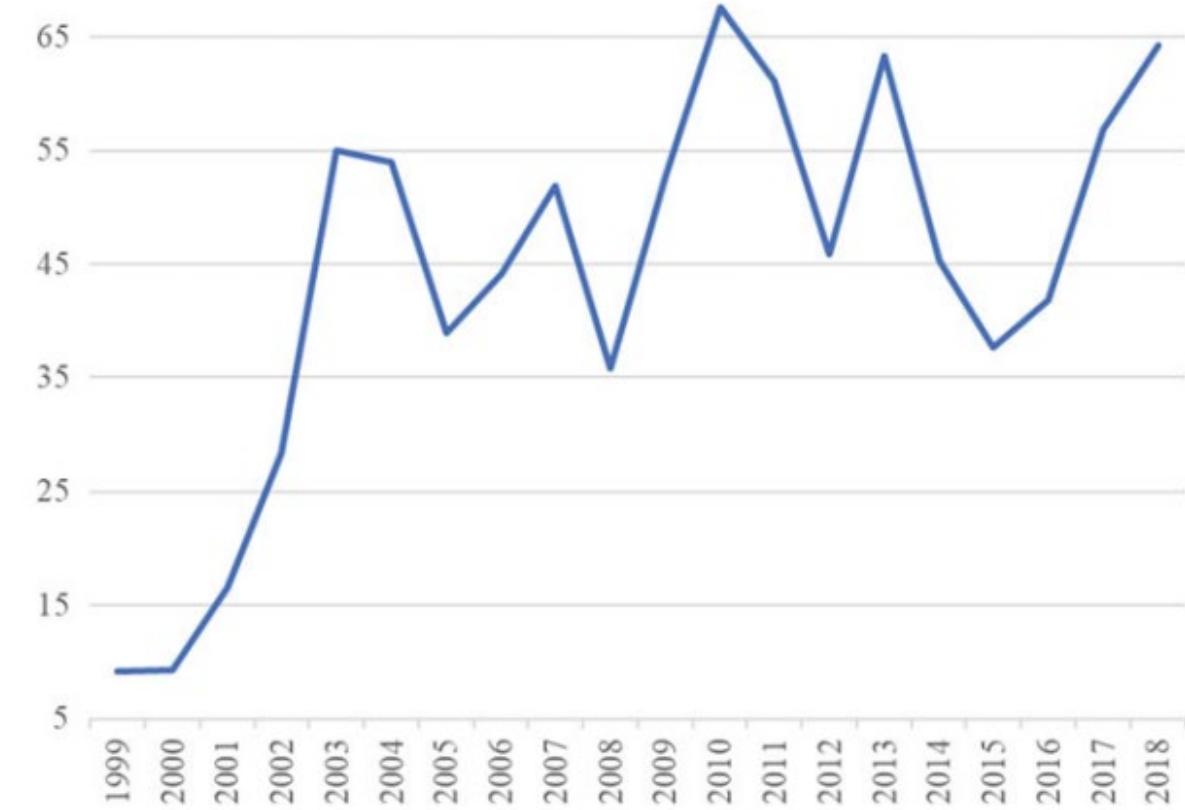


Fig. 2.4 Transfer fee of state-owned land, as a percentage of local budgetary revenue (*Source* China Land and Resources Statistical Yearbooks)

3.1 Consequences of Land Finance 2: different lands, different fates

... → increase supply of (low-cost) **industrial land** → attract investment → manufacturing sector ↑ → tax generation

... → restrict the supply of **commercial and residential land** → **housing prices** ↑ → ...

- downstream industries ↑ & tax ↑
- consumption & saving decisions (→ aggregate demand);
- parenting decision (→ demographic structure)

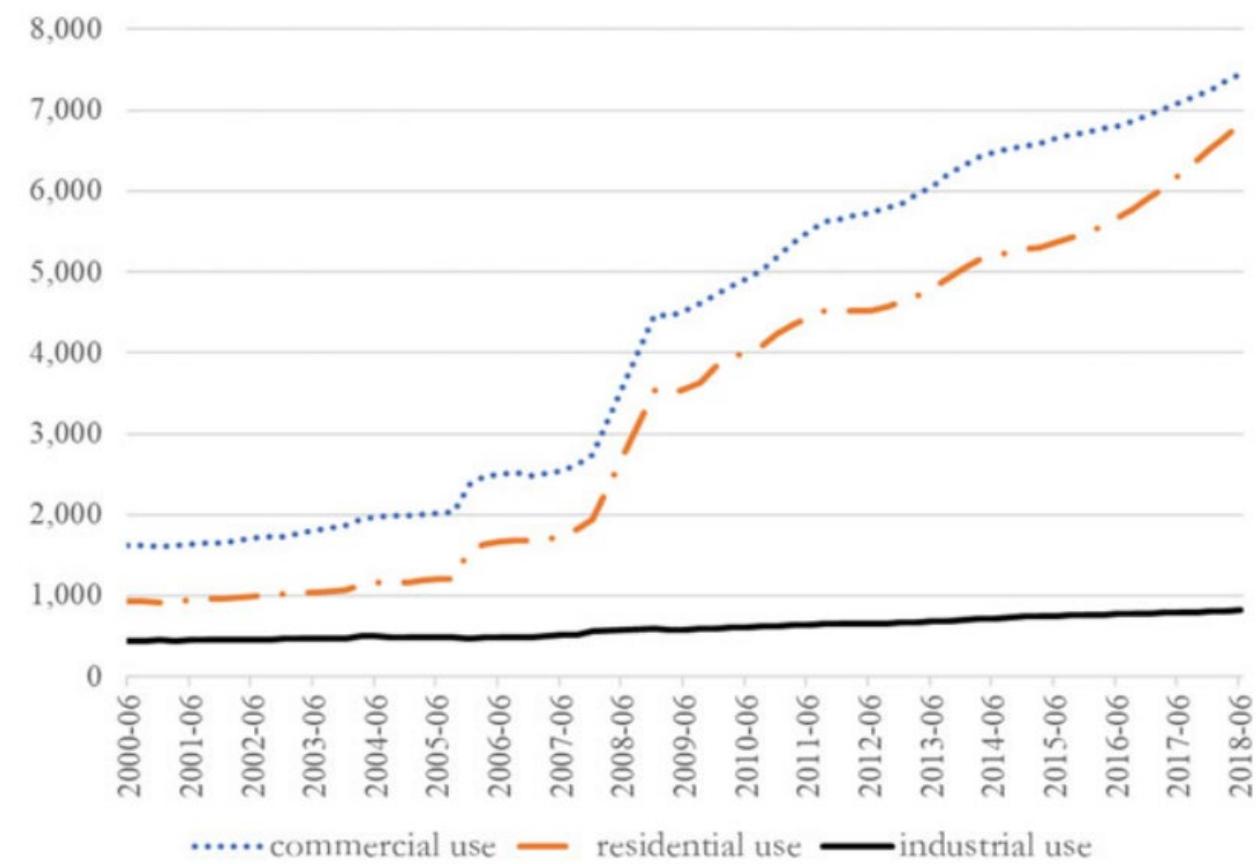


Fig. 2.5 Quarterly average price of land in 100 main cities, yuan/square meter
(Source WIND)

3.1 Land Finance: How to find the way out?

1. Lowering the housing prices (cutting the chains in the middle!)

1. Loosening the restricted supply for commercial and residential land?
2. The Singaporean model—govt buys houses & provides public housing?

2. Closing the fiscal gaps (killing the chains from the beginning!)

1. by finding new revenue sources and/or balancing expenditure responsibilities
 - “Equity finance” (govt investment) instead of land finance?
 - Another tax reform?
2. ...

Each solution above comes with some potential issues.

3.2 Current issues: (local) government debts & loans

Many times, intergovernmental grants are not enough... especially for local development

Due to the prohibition of loans obtained and bonds issued (directly) by SNGs (before 2015),

- “[I]f a local government wanted to borrow money, it had to **set up a special company**. Most of these companies are wholly state-owned and are referred to, by media and economists, as *Local Government Financing Vehicles (LGFVs, 地方政府融资平台)*.” (Lan, 2024)

Analysis of SNG debts

1. [A general intro](#)
2. China's situation: Chapter 3 “Government Investment, Financing and Debt”, in Lan (2024)

3.2 Current issues: (local) government debts & loans

SNG debt and land finance are intertwined when

1. Using future land income to borrow, and then
2. Using borrowed money to finance development and push up land price
 1. As long as land price goes up and quantity sold do not drop, the loop can continue.
3. On and on and on...

What if: land price drops when economy slows down and demand decreases?

! The loop breaks and SNG cannot repay the debts!

An ongoing heated topic in China: Preventing and resolving local government debt risks

Takeaways today

- The case of China demonstrates how **fiscal decentralization** plays out under **non-Western development contexts**
 - interesting intl comparison, where you see not only differences, but, more importantly, **similarities!**
- **China's fiscal system is highly decentralized**
 - The **1994 tax-sharing reform** led to substantial VFGs.
 - To fill the fiscal gap, China relies on **intergovernmental grants** (general + specific) and tax rebates.
 - **Land finance** and **SNG debts** have helped finance local development, yet also created huge risks.

Further (authentic!) information

1. Real-life documents: Economy & Government—the five year plans

- [The 14th Five-Year Plan of the People's Republic of China—Fostering High-Quality Development](#)
- [Explainer: What is China's five-year plan?](#) and [Why China's five-year plan matters to the world](#)

2. Books on the Chinese System & Economy, and on cultural differences

- A book on the Chinese policy system: [Red Swan: How Unorthodox Policy-Making Facilitated China's Rise, by SEBASTIAN HEILMANN](#)
- A book on the Chinese Economic Development: [Demystifying the Chinese Economy, by Justin Yifu Lin](#)
- A book on cultural/mindset differences: [The Geography of Thought: How Asians and Westerners Think Differently...and Why, by Richard Nisbett](#)

Further (authentic!) information

2. Fiscal system and decentralization

- Lan, X. (2024). *How China Works*. Springer Books.
 - This is a book that I recommend a lot! An honest insider's view from an economist.
- Lin, J. Y., & Liu, Z. (2000). *Fiscal Decentralization and Economic Growth in China*. Economic Development and Cultural Change, 49(1), 1–21. <https://doi.org/10.1086/452488>.

International Cases

Lecture 4 How Germany Works

May 9, 2024

Reading for this lecture: “Fiscal Federalism in Germany” by Yannick Bury and Lars P. Feld

In *The Forum of Federations Handbook of Fiscal Federalism*, edited by Jean-François Tremblay

I thank Erik Sarrazin for helpful discussions and useful resources.

Goals Today

- 1. Get to know the German system**
- 2. Learn to sketch the system & Using **tools** to perform international comparisons**
- 3. Learn to connect theoretical discussions to real cases**
 - Fundamental skill for an applied economist/analyst/policy consultant

Today's Agenda

1. General introduction to Germany and its fiscal decentralization
2. A sketch of the system
 1. Income decentralization
 2. Expenditure decentralization
 3. Inter-governmental grants
3. Hot Issue: the debt brake

Germany: an overview

POPULATION AND GEOGRAPHY

Area: 357 588 km² (2020)

Population: 83.237 million inhabitants (2021), an increase of 0.2% per year (2015-2020)

Density: 233 inhabitants / km²

Urban population: 79.8% of national population (2020)

Urban population growth: 0.3% (2020 vs 2019)

Capital city: Berlin (4.4% of national population, 2021)

ECONOMIC DATA

GDP: 4 560.1 billion (current PPP international dollars), i.e. 54 792 dollars per inhabitant (2020)

Real GDP growth: -4.6% (2020 vs 2019)

Unemployment rate: 3.5% (2021)

Foreign direct investment, net inflows (FDI): 112 617 (BoP, current USD millions, 2020)

Gross Fixed Capital Formation (GFCF): 21.9% of GDP (2020)

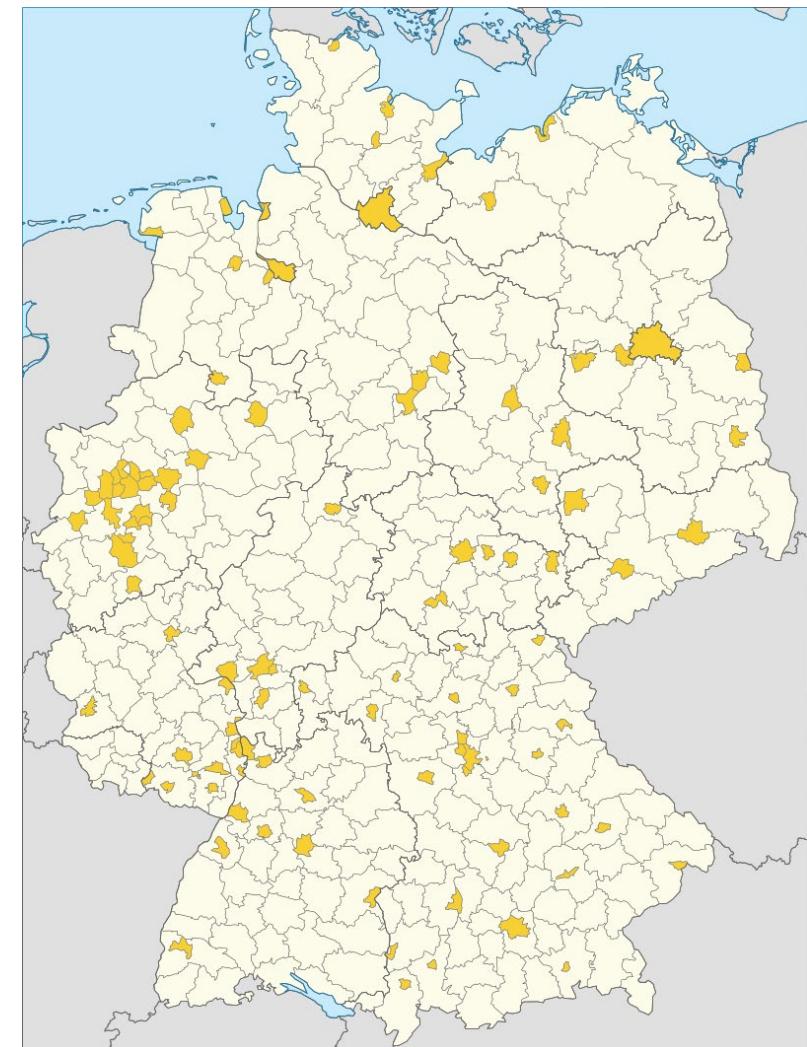


Germany's levels of government

3-level SNG structure

- State
- District
- Municipalities

TERRITORIAL ORGANISATION			
MUNICIPAL LEVEL	INTERMEDIATE LEVEL	STATE LEVEL	TOTAL NUMBER OF SNGs (2021)
10 789 municipalities (Gemeinden)	400 districts (Kreise)	16 states (Länder)	
Average municipal size: 7 715 inh.			
10 789	400	16	11 205



Germany Districts (2016)
Urban districts highlighted

Today's Agenda

1. General introduction to Germany and its fiscal decentralization
2. **A sketch of the system & international comparison**
 1. Income decentralization
 2. Expenditure decentralization
 3. Inter-governmental grants
3. Hot Issue: the debt brake

Using tools to help perform comparison

- Play around by yourself: [Division of Powers: comparison between Spain and Germany](#)

EXPENDITURE BY GOVERNMENT LEVEL AND BY POLICY AREA

Expenditure indicators

In the area of expenditures, the level of discretion is high for both the CCAA and provincial and municipal authorities. In Spain, CCAA governments have extensive competences in many general public services, and very extensive competences in health (92% in 2017), education (91% in 2017) and general public services (44% in 2017). The expenditures of the CCAA in health and education are higher than the other federated states in Europe. The three items listed above dominate the distribution of expenditure in the CCAA budgets.

Source: authors' elaboration on EUROSTAT data. For further details, see [methodology](#).

Provinces and municipalities

Given the share of expenditure at the level of the CCAA governments, the lower levels of government have rather low expenditure shares (below the EU average). The exception in 2017 was general public services (38%), public order and safety (25%), and recreation, culture and religion (60%). As a share of the local budget, the highest goes to general public services (above the EU average, although this is due to the low levels of expenditure at this level of governance in non-federated states).

EXPENDITURE BY GOVERNMENT LEVEL AND BY POLICY AREA

Given the constitutional obligation of the Länder to exercise state powers and discharge state functions, it is not surprising that expenditures as a share of general government expenditures are very high in most categories. The notable exception is health, which is mostly a federal competence, and defence. The responsibilities over education (76% of government expenditures in 2017) and public order and safety (73% in 2017) are very extensive. Given the additional expenditures in the municipalities, it is clear that sub-national authorities have the main responsibility over education in particular, but also have significant responsibility over public safety and general public services.

Source: authors' elaboration on EUROSTAT data. For further details, see [methodology](#).

The distribution of expenditure within the Länder reveals education and general public services, as well as social protection, to be the most significant areas.

Municipalities

In terms of the share of total general government expenditure, municipalities have important roles to play in financing housing (66% in 2017), environmental protection (50% in 2017) and recreation, culture and religion (44% in 2017). Among municipal expenditures, financing social protection and general public services are the most significant.

2.1 Centralization of Taxation

The German fiscal constitution provides almost no competencies to generate revenues for SNGs.

- Tax bases, and rates, with minor exceptions for the latter, are set at the federal level.
- Laenders play an important role in tax-setting decisions on the federal level via the Bundesrat.

Table 6 Tax assignment for various orders of government

	<i>Determination of</i>		<i>Tax collection and administration</i>	<i>Shares in Revenue (%)</i>			
	Base	Rate		Federal	Land	Local	All orders
<i>Federal</i>							
Mineral oil tax	Federal	Federal	Federal	100%	0%	0%	100%
Tobacco tax	Federal	Federal	Federal	100%	0%	0%	100%
Spirits tax	Federal	Federal	Federal	100%	0%	0%	100%
Sparkling wine tax	Federal	Federal	Federal	100%	0%	0%	100%
Intermediate goods tax	Federal	Federal	Federal	100%	0%	0%	100%
Coffee tax	Federal	Federal	Federal	100%	0%	0%	100%
Insurance tax	Federal	Federal	Federal	100%	0%	0%	100%
Electricity tax	Federal	Federal	Federal	100%	0%	0%	100%
Solidarity levy	Federal	Federal	Land	100%	0%	0%	100%
Motor vehicle tax (since 2009 federal)	Federal	Federal	Federal	100%	0%	0%	100%
Air traffic tax	Federal	Federal	Federal	100%	0%	0%	100%

2.1 Decentralization of Taxation: Regional and Local Govts

Table 6 Tax assignment for various orders of government

	<i>Determination of</i>		<i>Tax collection and administration</i>		<i>Shares in Revenue (%)</i>		
	Base	Rate	Federal	Land	Local	All orders	
<i>State or provincial</i>							
Property (wealth) tax	Joint Federal/land	Joint Federal/land	Land	0%	100%	0%	100%
Inheritance tax	Joint Federal/land	Joint Federal/land	Land	0%	100%	0%	100%
Real estate purchase tax	Joint Federal/land	Land	Land	0%	100%	0%	100%
Betting and lottery tax	Joint Federal/land	Joint Federal/land	Land	0%	100%	0%	100%
Fire protection tax	Joint Federal/land	Joint Federal/land	Land	0%	100%	0%	100%
Beer tax	Joint Federal/land	Joint Federal/land	Federal	0%	100%	0%	100%

Table 6 Tax assignment for various orders of government

	<i>Determination of</i>		<i>Tax collection and administration</i>		<i>Shares in Revenue (%)</i>		
	Base	Rate	Federal	Land	Local	All orders	
<i>Local</i>							
Business tax	Joint Federal/land	Local	Land/Local	3,7% (2017)	13,9% (2017)	82,4% (2017)	100%
Real estate taxes	Joint Federal/land (from 2020 land may deviate)	Local	Land/Local	0%	0%	100%	100%
Dog tax	Local	Local	Land/Local	0%	0%	100%	100%
Hunting and fishing tax	Land	Land	Local	0%	0%	100%	100%
Secondary residence tax	Land/Local	Land/Local	Local	0%	0%	100%	100%
Beverage tax	Local	Local	Local	0%	0%	100%	100%

2.1 Decentralization of Taxation: shared taxes

Comparison: How is the German system compared to the Chinese one?

Table 6 Tax assignment for various orders of government

	<i>Determination of</i>		<i>Tax collection and adminis- tration</i>	<i>Shares in Revenue (%)</i>			
	Base	Rate		Federal	Land	Local	All orders
<i>Shared taxes</i>							
Personal income tax	Joint Federal/land	Joint Federal/land	Land	42.50%	42.50%	15%	100%
Flat rate withholding tax	Joint Federal/land	Joint Federal/land	Land	44%	44%	12%	100%
Corporate income tax	Joint Federal/land	Joint Federal/land	Land	50%	50%	0%	100%
VAT	Joint Federal/land	Joint Federal/land	Land	50,2% (2018)	46,6% (2018)	3,2% (2018)	100%

2.2 Expenditure Decentralization: decision-making vs implementation

Reform Act of 2006

- disentanglement of federal and Land responsibilities!

(similar to the recent Chinese reforms?)

Table 3 Legislative responsibility and actual provision of services by different spheres of government

<i>Legislative responsibility (de jure)</i>	<i>Public service</i>	<i>Executive responsibility</i>
Federal/land/local		Federal/land/local
EU	Monetary policy	EU
EU	Customs	EU
Federal	Defense	Federal
Federal	Foreign affairs	Federal
Federal	Citizenship	Federal
Federal	Customs	Federal
Federal	Rail and air transport	Federal
Federal	Post and telecommunication	Federal
Federal	Social security	Federal/Land
Federal	Health including health insurance and local health facilities	Federal/Land/Local
Federal	Social assistance (supplementary welfare)	Federal/Land/Local

Table 3 Legislative responsibility and actual provision of services by different spheres of government

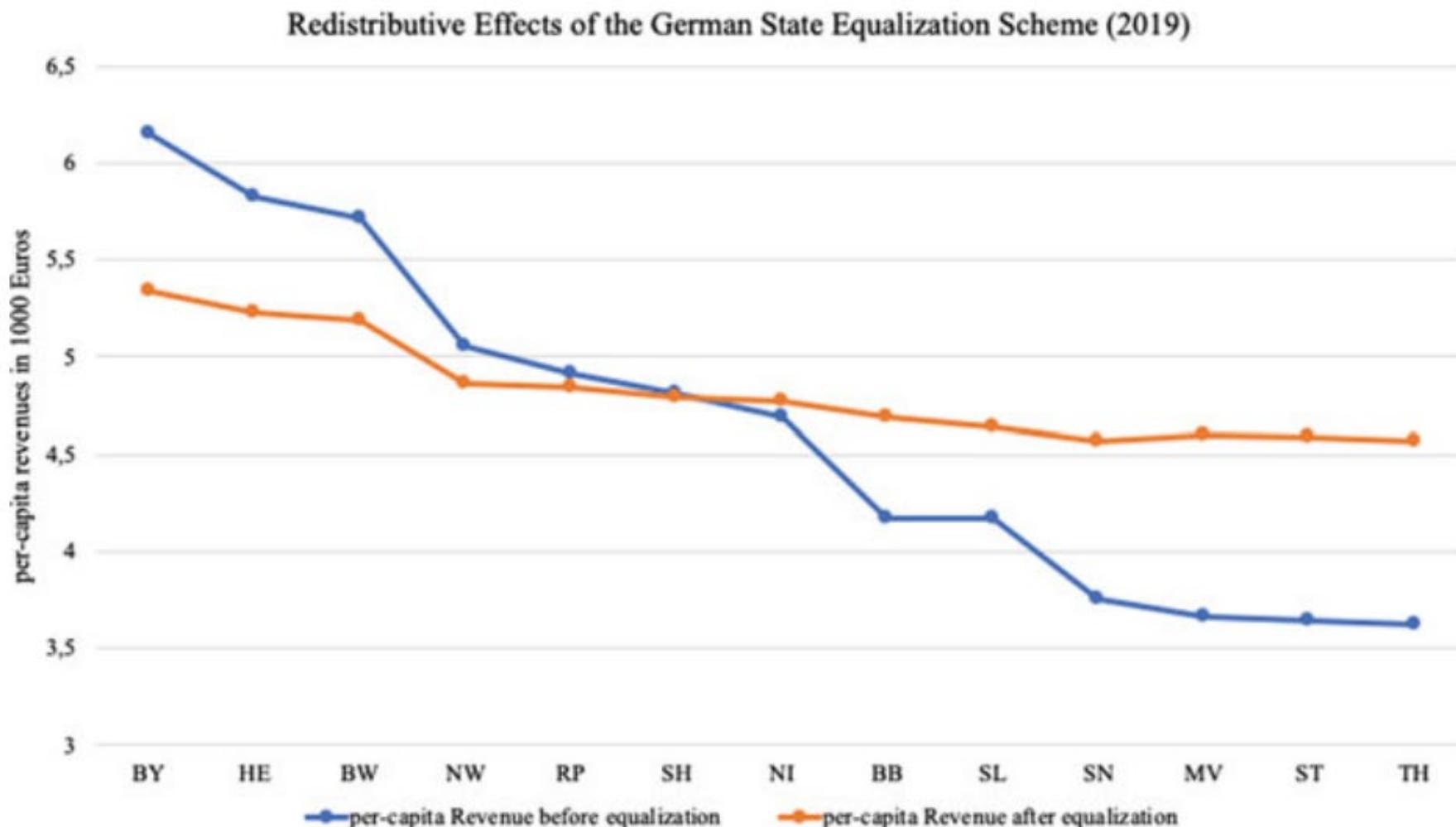
<i>Legislative responsibility (de jure)</i>	<i>Public service</i>	<i>Executive responsibility</i>
Federal	Waste disposal	Local
Federal/land joint task	Regional economic policy	Land
Federal/land joint task	Coastline preservation	Land
Federal/land joint task	Agricultural promotion	Land
Federal/land	Digital school equipment	Federal/Land/Local
Federal/land	Environmental protection	Land
Federal/land	Water supply	Local
Federal/land	Sewerage	Local
Land	Law and order	Land
Land	Culture	Land
Land	Schools and education	Land
Land	Universities	Land
Local	Local roads	Local
Local	Sports and recreation	Local
Local	School construction	Local
Local	Public housing	Local

2.2 Expenditure Decentralization: Statistics

Table 4 Direct expenditures by function and sphere of government

<i>Function</i>	<i>Federal</i>	<i>Land</i>	<i>Local</i>	<i>All</i>
Defence	100%	0%	0%	100%
Debt servicing ^c	58%	35%	7%	100%
General administration	14%	27%	59%	100%
Law and order	13%	57%	30%	100%
Schools	0%	81%	19%	100%
Universities	13%	87%	0%	100%
Promotion of pupils, students	37%	35%	28%	100%
Other education	30%	47%	23%	100%
Science and research	74%	23%	3%	96%
Social security	65%	12%	23%	99%
Health, environment, sports, and recreation	9%	40%	51%	100%
Housing, urban development, regional planning	17%	32%	51%	100%
Local public services I ^a	0%	3%	97%	100%
Subsidies	33%	53%	14%	100%
Traffic and communication	45%	20%	35%	100%
Public enterprises	63%	11%	26%	100%
Total	47%	36%	17%	100%
Local public services II ^b	5%	60%	35%	100%

2.3 Intergovernmental Grants: equalization grants



2.3 Intergovernmental Grants: reform in equalization scheme 2020

The 2020 reform of equalization:

- breaks the principle of horizontality in fiscal relations among the Laender
- **all financial relations are verticalized**
- volume of equalization increased by 4.7 billion USD, completely at the cost of the federal level

Step 1: distribute tax revenues

Step 2: redistribute VAT to the states by means of surcharges and deductions.

(Before: Laender with above-average adjusted per capita revenues contributed to the system, while Laender with below-average adjusted per capita revenues received payments from the system.)

Step 3: vertical transfers from the federal level to states

Today's Agenda

1. General introduction to Germany and its fiscal decentralization
2. A sketch of the system
 1. Income decentralization
 2. Expenditure decentralization
 3. Inter-governmental grants
3. **A Hot Issue: SNG borrowings and the debt brake**

Debts: the result of SNG borrowing

Current debt level → decision on further borrowing → new investment

- The level of existing debt is typically a factor in a government deciding whether, and how much additional, to borrow as that new borrowing may add to debt outstanding.
- Given that governments often fund infrastructure investment at least partially by borrowing, the level of existing debt can influence investment decisions.

So, how much debt is too much? We need to quantify

Further reference on govt debts: Chapter 10: “Capital investment, borrowing, and debt”, *State and Local Public Finance* (5th ed.) by Ronald C. Fisher.

Measuring the Debt Level

Three most often used measures

1. total outstanding debt / of national GDP

- often higher during national recessions when GDP declines
- not a valuable guide to individual SNGs

2. outstanding debt / annual total revenue

- whether the revenue flow to a government is sufficient for the level of debt
- a stock measure

3. interest payments on outstanding debt / annual total revenue

- similar idea but a flow-to-flow measure
- An analogy: (monthly mortgage + property tax payments)/to income: your home affordability

The Debt Level in Germany

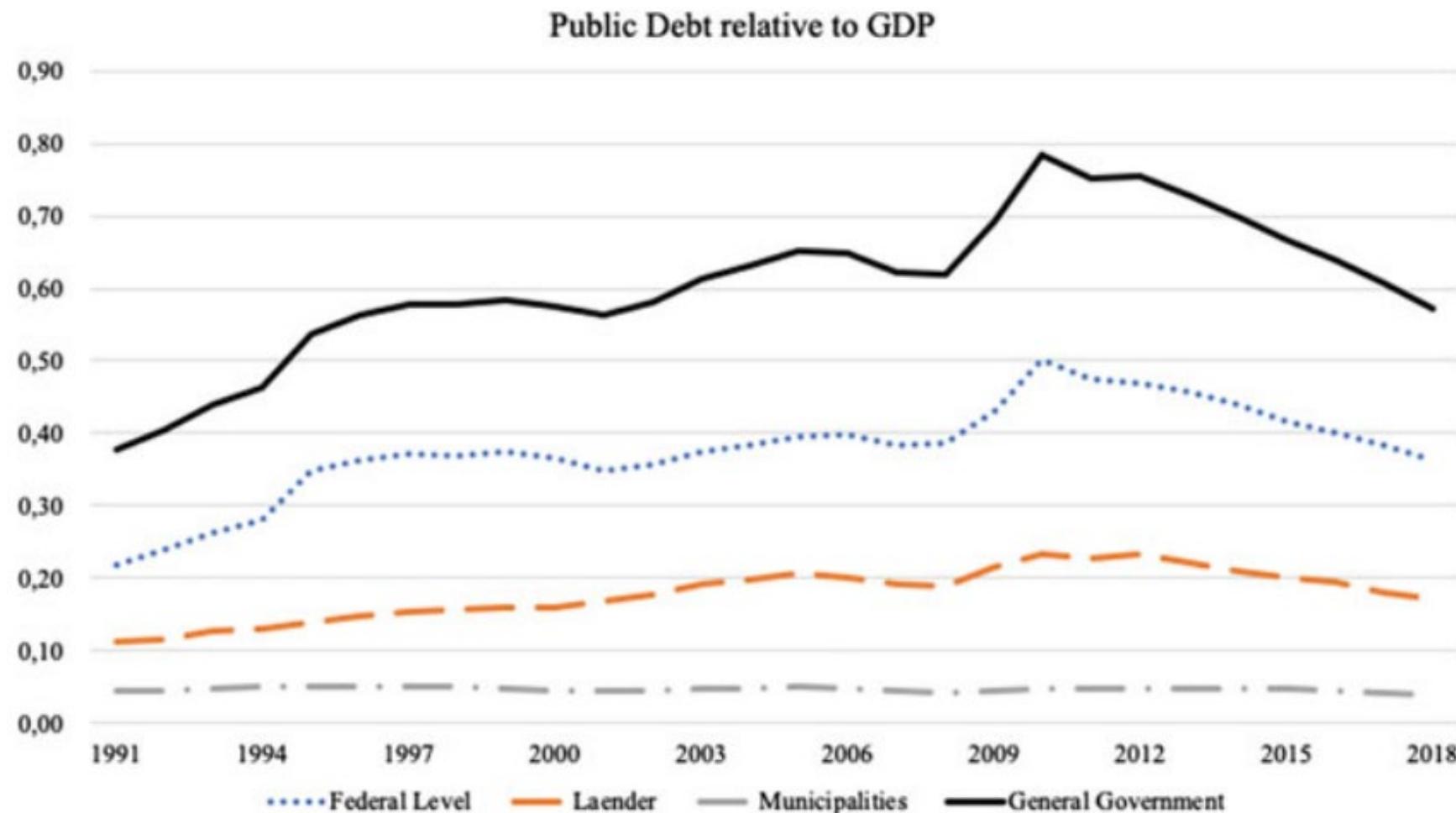


Fig. 1 Public Debt relative to GDP (1991–2018) (*Source* Federal Statistical Office, own calculations)

Debt Brake in Germany

Reform Act in 2006 followed by a second step:

- strengthening of subnational fiscal responsibility in 2009 (widening gap!)
- a **debt brake** for the states was introduced (there is also one for the federal govt)
 - limit states' ability to compensate for the lack of tax autonomy through indebteding themselves.
 - The debt brake mechanism for states is stricter than that for the federal govt
 - The debt brake fully came into effect for states in 2020: generally not allowed to take on new debt to cover their regular expenditures.

Readings:

[*The German Debt Brake – Anchor of Stability or Blocker of Investments?*](#) (December 2023, ifo)

[*Germany's Federal Debt Rule \(Debt Brake\)*](#) (February 2022, Federal Ministry of Finance of Germany)

Effects of debt brakes

- **Common argument against:** The debt brake is responsible for the underinvestment of localities

Municipalities in Germany can set the level of business tax individually. This is almost their only means of influencing the revenue side. However, this has currently led to a race to the bottom, with individual municipalities undercutting each other with more enviable tax rates in order to attract companies, which is counterproductive for the country as a whole. It exacerbates the inequality of living conditions between the regions. Individual municipalities can offer enviable tax rates because they already have a lot of companies that pay a lot of taxes. This sets a cycle in motion. Because taxes are then low, this again attracts new companies. As a result, some regions are becoming stronger and stronger and others weaker and weaker

0:21

- But what if not?
 - I leave this for you to think, future economists!

International Cases—what we have learnt

1. Learned to sketch the system of a country **using a framework**.
 - Learned to compare cases using the same framework established from the theory part (→)
 - Enriched understanding of the theory with real-life facts (←)
2. Gained **some information** about the ongoing debates/discussions all around the world
 1. use the framework to locate the topic & **reason independently!**