Public budgets

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February 25, 2019, Public Finance

Table: Course schedule

Week	Date (2020)	Topic	Chapters[1]	Lecturer
1	Feb 18	Economic rationale for the government	1, 2, 3, 4, 5	Miroslav Palanský
2	Feb 25	Public budgets	10, 26, 27	Natalia Li
3	Mar 3	Inequality		Marek Šedivý
4	Mar 10	Pensions		Ondřej Schneider
5	Mar 17	Health care	12	Ondřej Schneider
6	Mar 24	Public choice theory	7, 8	Miroslav Palanský
7	Mar 31	Cost-benefit analysis	6, 10, 11	Petr Janský
8	Apr 7	Taxation, tax incidence	17, 18	Miroslav Palanský
9	Apr 14	Tax evasion	23, 24	Petr Janský
10	Apr 21	Corporate taxation	21, 25	Petr Janský
11	Apr 28	Optimal taxation, personal income taxation	19, 20, 22	Miroslav Palanský
12	May 5	Externalities	9	Miroslav Palanský
13	May 12	Public procurement		Miroslav Palanský

[1] These chapter numbers refer to the course textbook (Stiglitz, Economics of the Public Sector, third edition).

Today's lecture

Public Budget Theory
- Market Failures
- Functions of a Government

Equity vs. Efficiency

Government Intervention

Budget structure

Decentralization
- Revenues
- Expenditures

What is the public budget?

- Public = people, Budget = money
- Government budget is a document which represents the record of the revenues and expenditures of a government during a given period of time.

Two main elements of public budget:

1. Revenue - taxes, non-tax receipts
2. Expenditure - operational and capital

Why do we need the government to spend our money?

- In an attempt to address market failures
  1. Failure of competition
  2. Incomplete markets
  3. Imperfect information
  4. Public goods
  5. Externalities
  6. Inequality, vicious circles
  7. Unemployment and other macroeconomic disturbances

Remember, three functions of a government - stabilization, allocation, distribution.

Public Budgets and Allocation

When the market fails to provide optimal allocation

1. Public goods
2. Externalities
3. Monopoly
4. Imperfect information, or Consumer's ignorance

Khan and Hildreth (2002)

Public Budgets and Distribution

Or rather re-distribution

- taxation systems
- subsidies
- social benefits

Public Budgets and Stabilisation

Macroeconomic function of public budget

- Fiscal stability - debt management, monetary policy
- Unemployment
- Economic growth

Is government intervention efficient?

Income effect

- grants, benefits, direct payments

Substitution effect

- partial subsidies

Distribution Consequences

1. Crowding out effect
2. Income and substitution effects
3. Who is the ultimate beneficiary?
   - it really depends
4. Equity-efficiency trade-offs

1a) Free distribution

- Unlimited eligibility
- Common for public goods, merit goods, sometimes goods with high positive externalities
- Income effect only (no substitution effect) $\rightarrow$ no effect on efficiency
- Problem: potential overconsumption
- Examples: healthcare, national defense, education
- Discussed examples: public transport, basic income

1b) Distribution at below cost of production

- Most commonly used distribution method of publicly provided goods
- Both income and substitution effect $\rightarrow$ important implications for policy design: substitution effect causes inefficiency (but for externalities)
- The government may want to encourage the use of a certain (publicly provided) good instead of other goods
- Examples: public transport, highways, healthcare, education

1c) Distribution at cost / at market price

- Common in case of natural monopolies
- Designed not to have negative effects on efficiency
- Example: electricity

2a) Subsidies to (taxes on) producers

- Subsidy to a producer $\rightarrow$ positive impact on customer through lower price
- Often in combination with regulation to ensure the intended subsidy incidence
- Examples: agriculture, employment subsidy; taxing commercial use of coal

2b) Subsidies to (taxes on) consumers

- Encouraging or discouraging the consumption of privately provided goods
- Examples: trains in Czechia and Slovakia; excise taxes on alcohol or tobacco

2c) Direct government distribution

- Private contractors supply goods which are then distributed by the government
- Public procurement

2d) Regulation

- Using the legal system to prevent consumption or production of some goods
- Examples: smoking in bars, hard drugs; the use of freon in production (Montreal protocol of 1987)

Government Intervention?

- The question for a government is "How do we fix market failures?"

Options for intervention:

1. Public production, e.g. NHS in the UK
2. Private production incentivised by subsidies or taxes on consumers of producers
3. Public Private Partnership (PPP)

Public Private Partnership

- OECD definition - long term contractual arrangements between the government and a private partner whereby the latter delivers and funds public services using a capital asset, sharing the associated risks
- The most common form of PPP is the "Design-Build-Finance-Maintain-Operate" (DBFMO) contract.
- In the EU since the 1990s - 1 749 PPPs worth a total of 336 billion euro.
- Most commonly - infrastructure (transport infrastructure, ICT)

Summary: expenditure programs

- Public production vs. private production
- Income effect and substitution effect: efficiency concerns
- Incidence: equity concerns

Budget Structure

Debt: The amount borrowed by government through bonds to individuals, firms, or foreign governments. Debt is a **stock**
Deficit: government's spending + interest payments on debt minus government revenues in a given year. A negative deficit is called a surplus. Deficit is a **flow**
Evolution of debt from year to year:

$$\text{Debt}_{t+1} = \text{Debt}_t + \text{Deficit}_t = \text{Debt}_t \cdot (1 + r_t) + \text{Spending}_t - \text{Revenue}_t$$

with r_t interest paid on government debt

Budget Structure

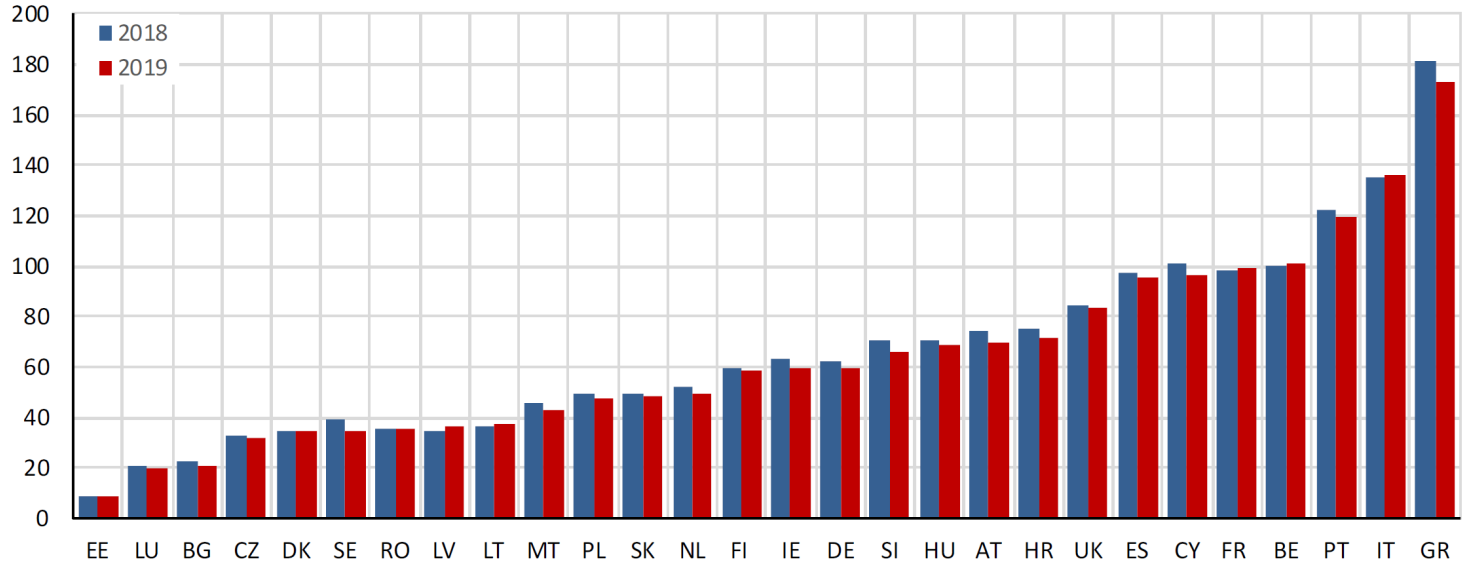
Primary Deficit = Spending - Revenue

- US example
  - In 2020: US Federal debt (held outside govt) is $17Tr around 80% of GDP ($21Tr), US deficit is large 4.5% ($1Tr) of GDP
  - US government owns assets worth about 80% of GDP
- Czech Republic
  - Estimated budget surplus 0.3 percent of GDP in 2019
  - Debt-to-GDP ratio - 31.2% of GDP
- Across the EU, general government debt-to-GDP - 80.5% in 2018

Debt-to-GDP ratio in the EU

Graph 2.3.3: General Government Debt in EU Countries

in % of GDP



Note: Data of the United Kingdom are for the financial year (1 April of year T to 31 March of year T+1). Data for 2019 of Belgium, France and Slovakia from the IMF Database.

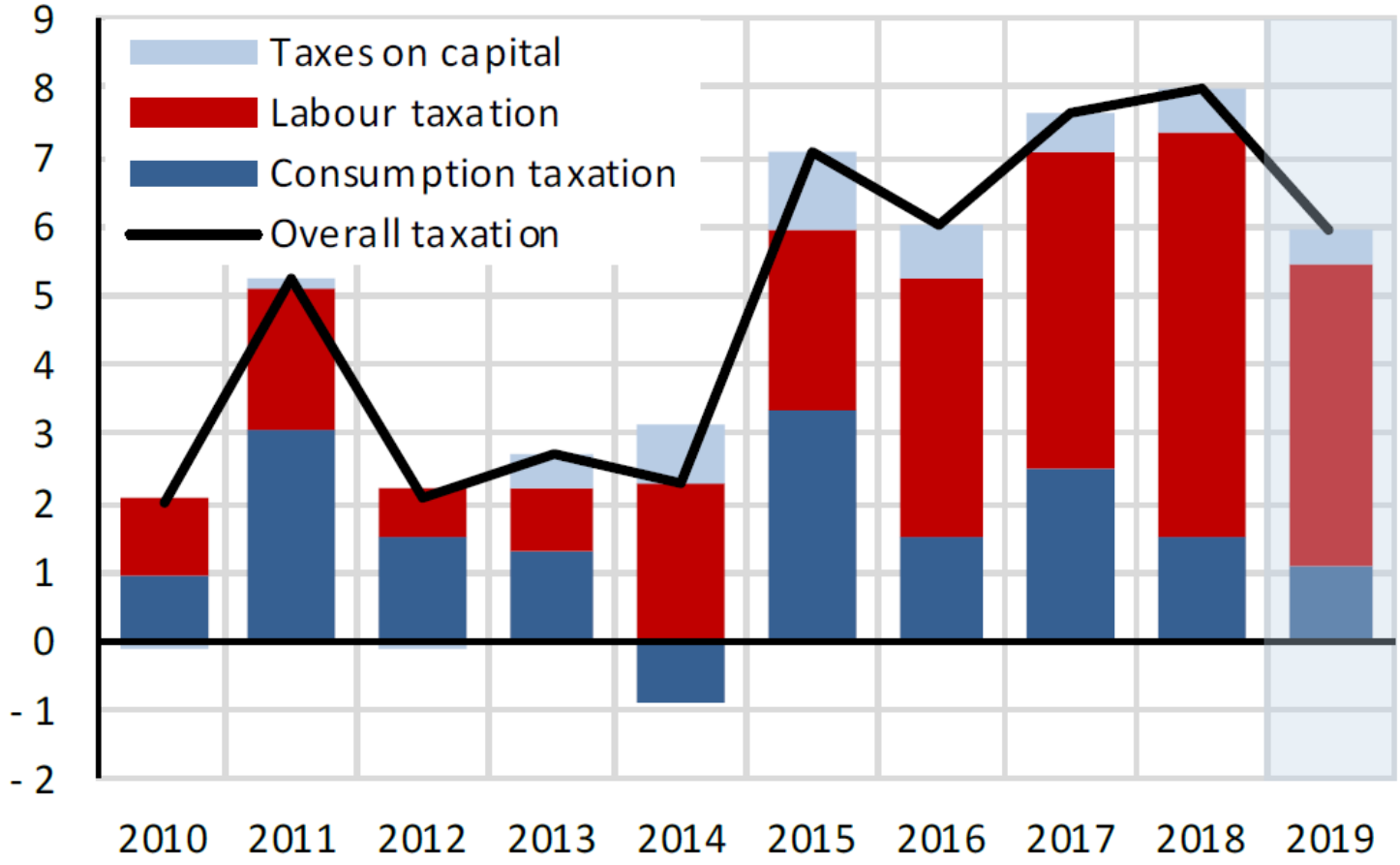
Source: Eurostat (2019b), IMF (2019).

Source: Ministry of Finance of the Czech Republic (2019)

Czech State Budget - Revenue

Graph 2.2.1: General Government Tax Revenue

growth in %, contributions in pp

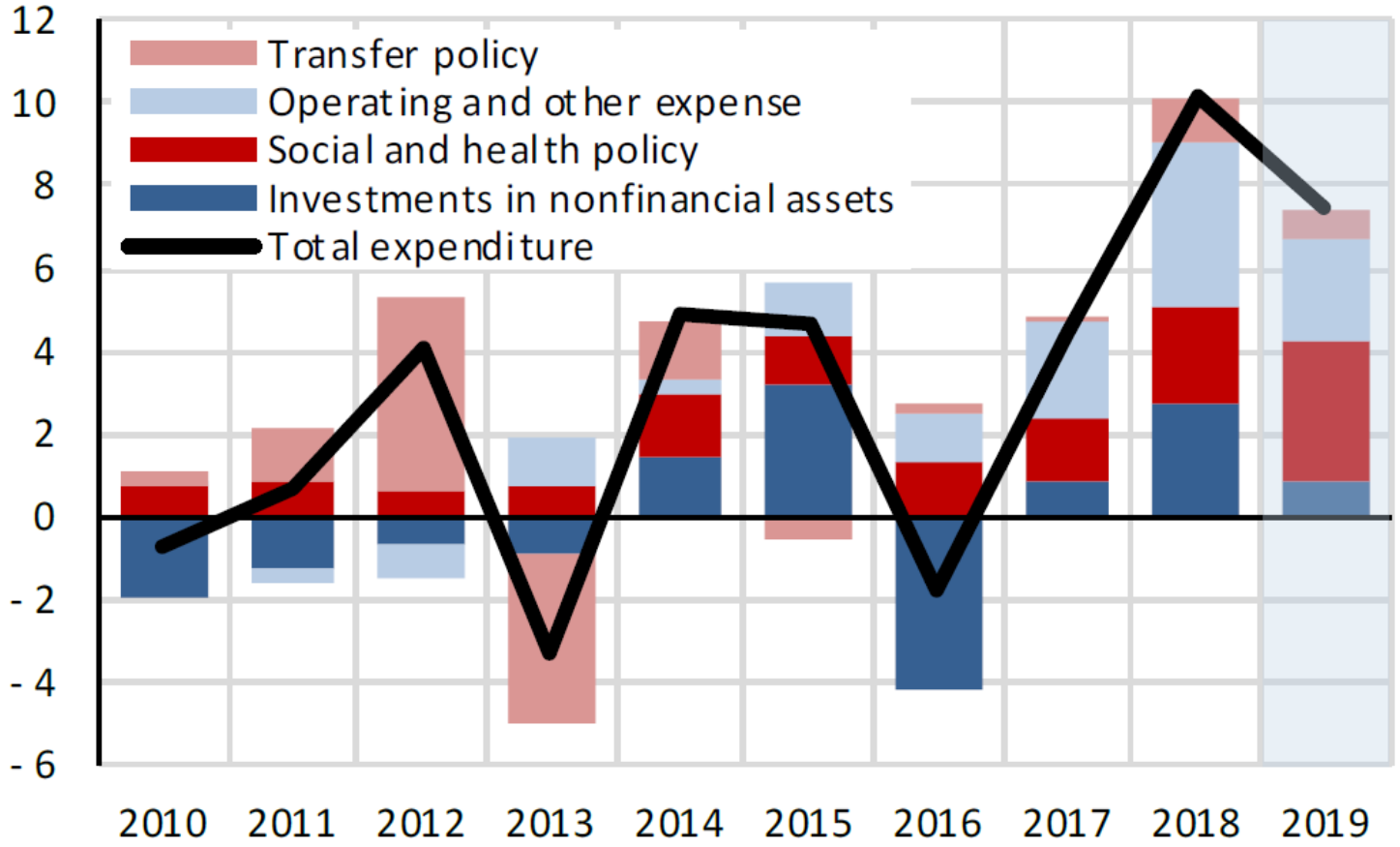


Source: CZSO (2019a, 2019b). Year 2019 MF CR.

Czech State Budget - Expenditure

Graph 2.2.3: General Government Expenditure

growth in %, contributions in pp

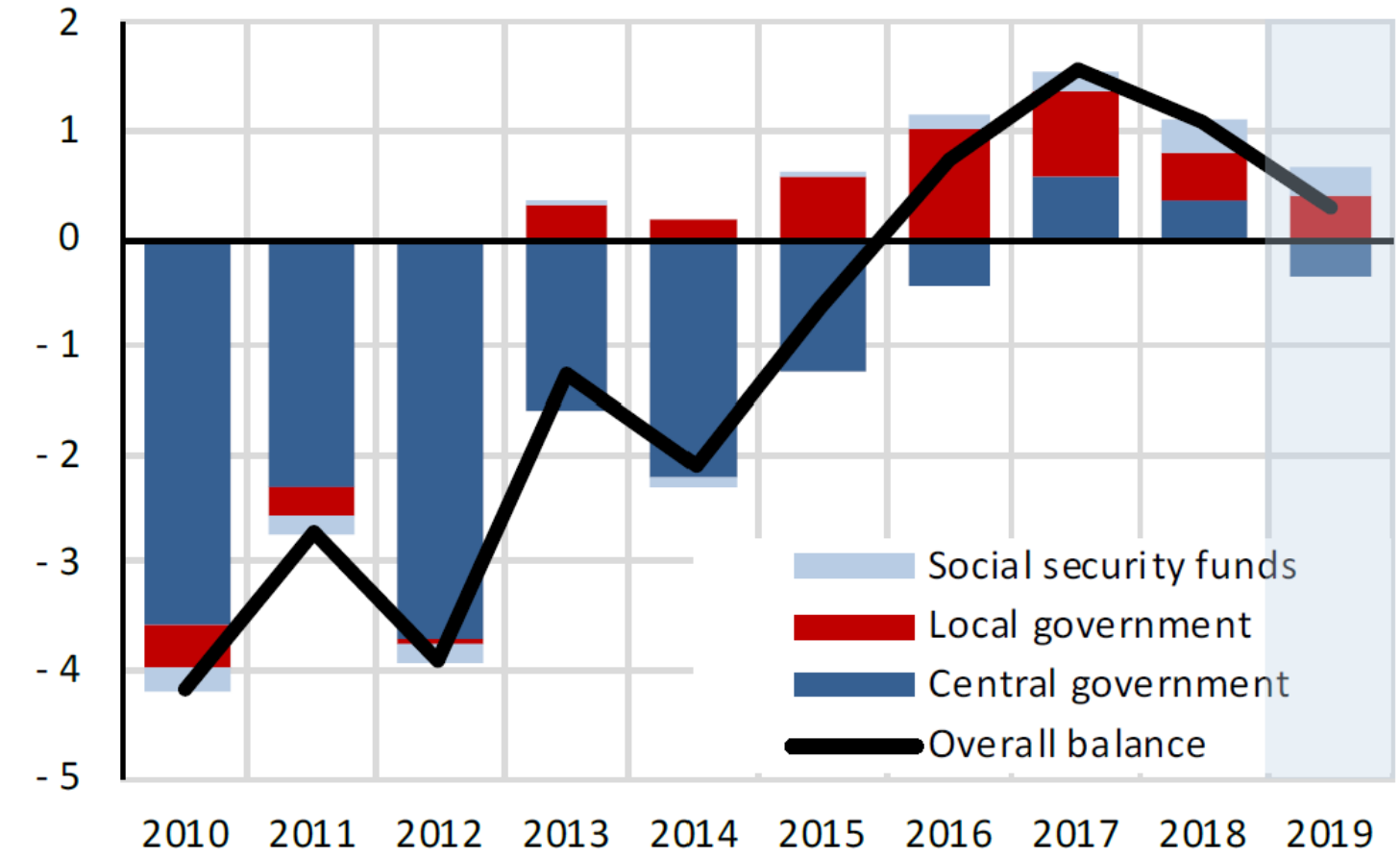


Source: CZSO (2019a, 2019b). Year 2019 MF CR.

Czech State Budget - Balance

Graph 2.2.5: General Government Balance

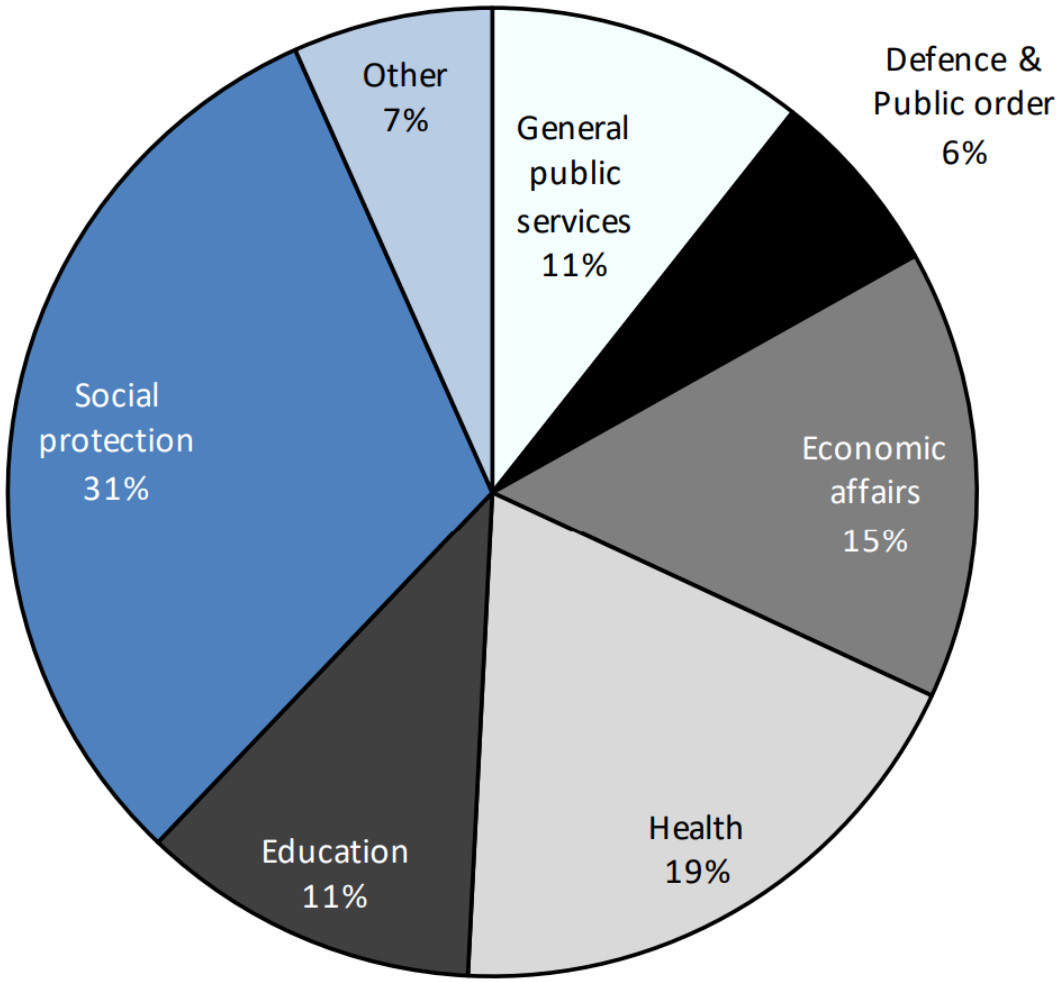
in % of GDP



Source: CZSO (2019a, 2019b). Year 2019 MF CR.

Czech State Budget

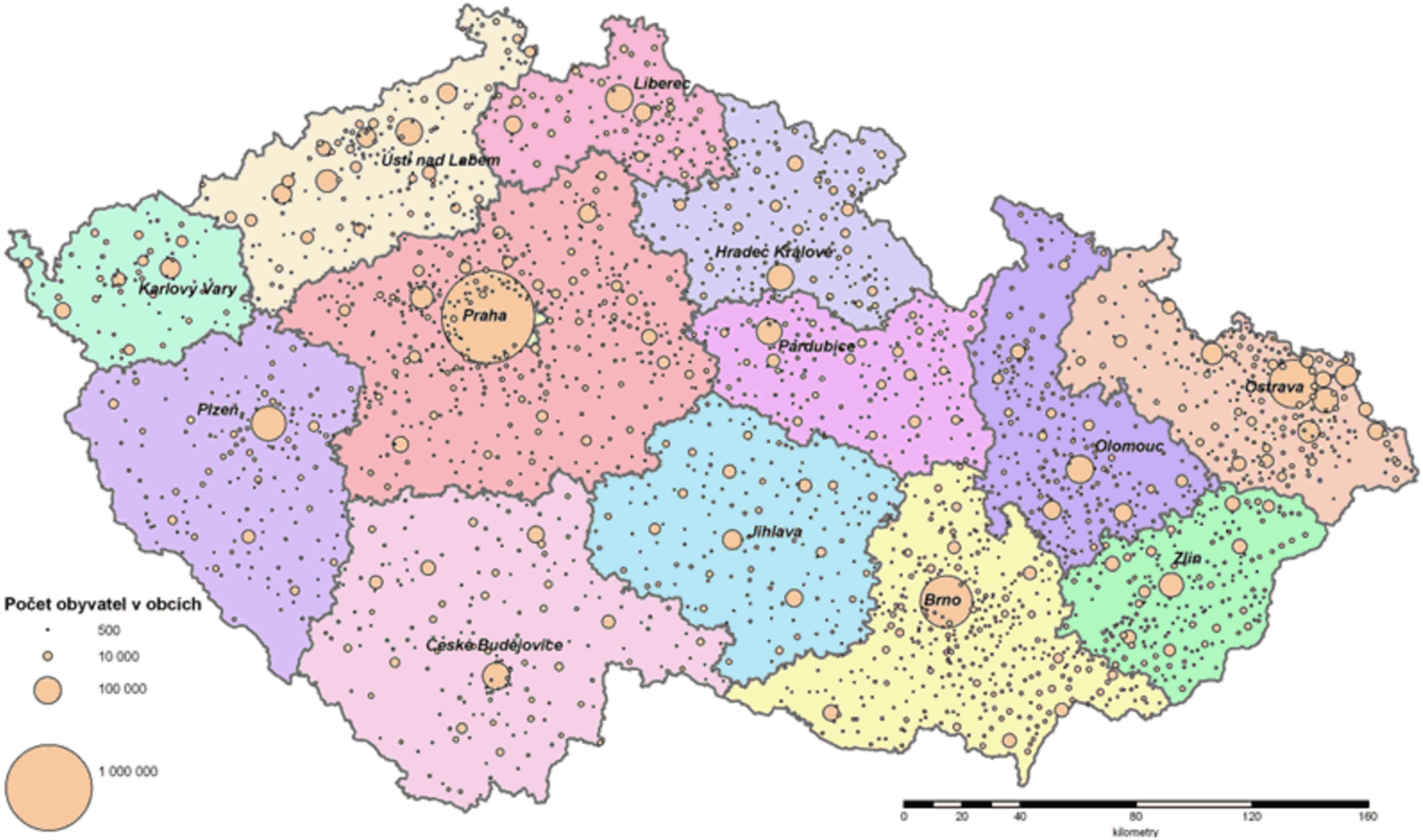
D: Expenditure by function (2016)



Decentralization

- Today's modern governments operate on multiple levels
- Decentralization = delegating responsibility and power to lower (subnational) levels of government
- Fiscal vs. political decentralization
- Main rationale: closeness of government to the people
- Czechia: national government, regional government, municipal councils

Administrative division: Czechia



Source: http://denik.obce.cz/images/art/6448265$_1$.*gif*

Decentralization

- Two main aspects of the decentralization choice:

1. Revenues (tax assignment) - mostly efficiency concerns
2. Expenditures (budgeting) - mostly equity concerns

- Equity vs. efficiency trade-off

Revenues: tax assignment

- Multilevel government $\rightarrow$ who should tax, where, what and how much?
- More or less consensus in theory:
  - Lower levels of government: benefit taxation of mobile factors (capital, skilled labor), non-benefit taxation of immobile factors (land)
  - Higher levels of government: non-benefit taxation (for redistributive purposes)
- Important issue: inter-/intra-national mobility of factors
- Goals of tax assignment: avoiding tax wars (race to the bottom), exploiting administrative economies of scale, maintaining the principle of fiscal equality

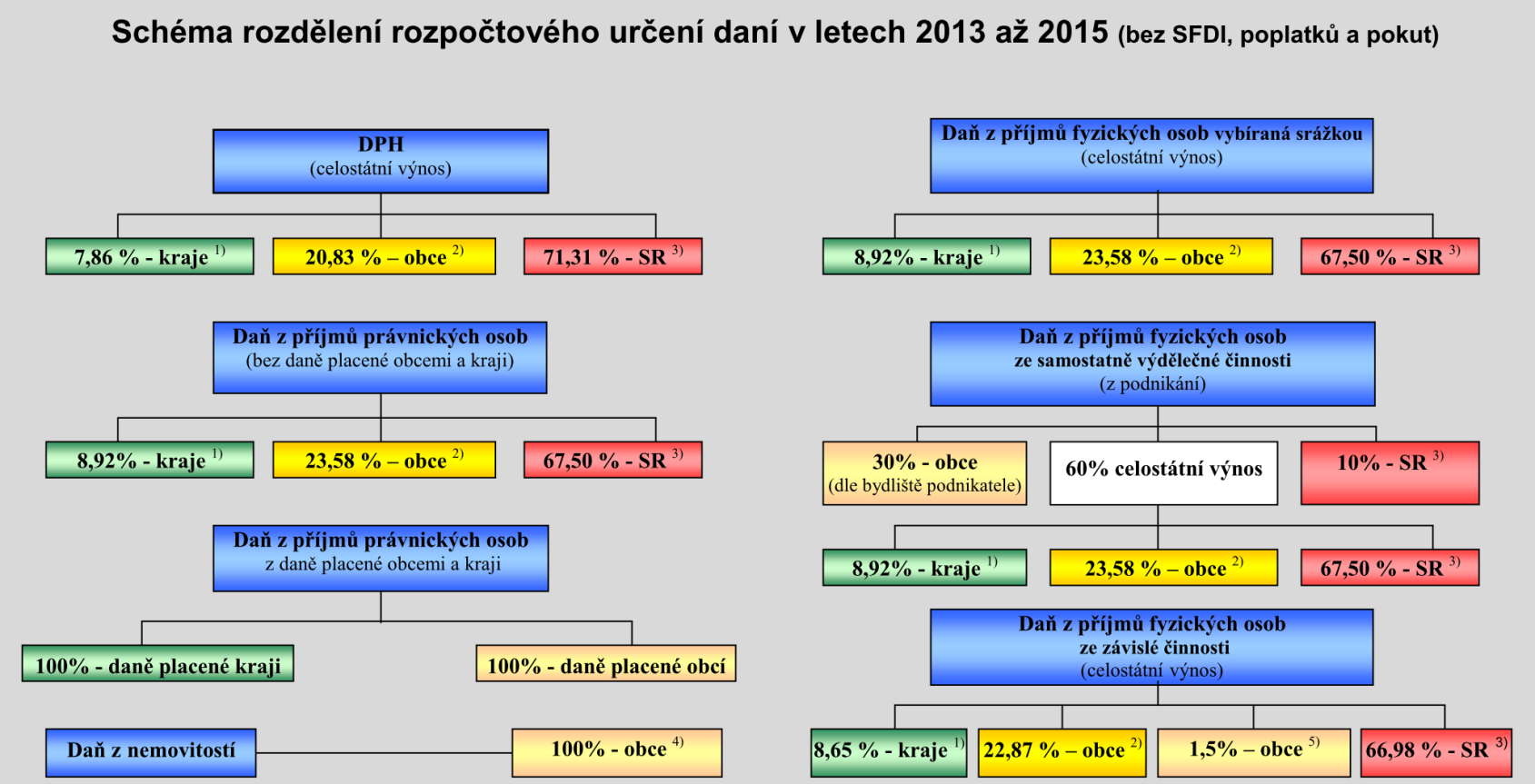
Tiebout hypothesis

- Tiebout (1956): voting with your feet
- Competition among communities ensures efficiency in the supply of local public goods, just as competition among firms ensures efficiency in the supply of private goods
- Limitations: "market failures" (externalities, imperfect competition), tax competition, no redistribution in the long run

Tax assignment in practice

- Lower levels of government: property taxes (land and buildings), fees - not enough
- Higher levels of government: all other taxes $\rightarrow$ redistribution through equalization transfers

Tax assignment: Czechia



Source: Ministry of Finance of the Czech Republic

Expenditures: budgeting

- Multilevel government → Who should spend, where, how much and on what.
- Political decision, equity concerns - there is no one correct answer
- Spending money at the local level:
  - Pros: better understanding of voters' preferences, more oversight, more transparency
  - Cons: lack of expertise, no economies of scale (as opposed to central purchasing bodies)

Equalization transfers

- To achieve a compromise solution of the equity vs. efficency trade-off, governments use equalization transfers.
- Generalization: revenues collected unevenly (and efficiently) and distributed equitably.
- Usual determinants: population, area, number of children in schools, road length, ...

Designing the transfer formula

- Maximum equity would be achieved if we could perfectly track expenditure needs: providing the same level of public services requires different expenditures in different regions.
- Variables included in the formula are only proxies for these needs.
- More variables included $\rightarrow$ more equity (?)
- Less variables included $\rightarrow$ more simplicity and transparency

Equalization formula: Czechia

$$E^i = 0.8 * \frac{GC^i}{\sum_{j=1}^{m} GC^j} + 0.1 * \frac{C_1^i}{\sum_{j=1}^{m} C_1^j} + 0.07 * \frac{C_4^i}{\sum_{j=1}^{m} C_4^j} + 0.03 * \frac{C_7^i}{\sum_{j=1}^{m} C_7^j}$$

- GC ... gradual coefficient based on population
- C_1 ... population
- C_4 ... number of children in elementary schools
- C_7 ... area

Equalization formula: Georgia

$$T = E - R$$

where

$$E^i = \frac{K^i}{\sum_{j=1}^{m} K^j} * G^i * M,$$

where

$$K^i = \underbrace{\frac{\sum_{n=1}^{6} \left(\frac{C_n^i}{\sum_{j=1}^{m} C_n^j} \right)}{6}}_{=A} * \left(\underbrace{SU^i + SC^i + SHM^i + SM^i + ESR^i + AE^i}_{EC} \right)$$

Source: Janský and Palanský (2020)

See you next week!

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References I

- Janský, P. and Palanský, M. (2020). "Fiscal decentralization and equalization transfers in Georgia: evidence from municipality-level data". *Post-Communist Economies*, 32(1) (cited on p. 39).
- Khan, A. and Hildreth, W. B. (2002). *Budget theory in the public sector*. Greenwood Publishing Group (cited on p. 6).
- Ministry of Finance of the Czech Republic (2019). *Fiscal Outlook of the Czech Republic*. Tech. rep. November (cited on pp. 23–26).
- OECD (n.d.). "Budgetary Governance in Practice: Czech Republic Economic context". () (cited on p. 27).
- Tiebout, C. M. (1956). "A Pure Theory of Local Expenditures". *Journal of Political Economy*, 64(5) (cited on p. 32).