

Public procurement

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Where we are

Date	Topic	Chapters ¹	Lecturer
February 21, 2018	Introduction	1, 2	Miroslav Palanský
February 28, 2018	Economic rationale for the government	3, 4, 5	Miroslav Palanský
March 7, 2018	Public goods, cost-benefit analysis	6, 11	Miroslav Palanský
March 14, 2018	Public choice theory, political economy	7, 8	Miroslav Palanský
March 21, 2018	Externalities and the environment	9	Miroslav Palanský
March 28, 2018	Vicious circles, expenditure programs, decentralization	10, 26, 27	Miroslav Palanský
April 4, 2018	Public procurement <i>Announcement of Home Assignment 1</i>	10	Miroslav Palanský Jiří Skuhrovec
April 11, 2018	The welfare state <i>Deadline for Home Assignment 1</i>	12, 13, 14, 16	Miroslav Palanský
April 18, 2018	Introduction to taxation, tax incidence	17, 18	Petr Janský
April 25, 2018	Optimal taxation, personal income taxation <i>Announcement of Home Assignment 2</i>	19, 20, 22	Miroslav Palanský
May 2, 2018	Corporate income taxation, tax avoidance and evasion <i>Deadline for Home Assignment 2</i> <i>Partial deadline for Wiki edits</i>	23, 24	Petr Janský
May 9, 2018	Capital taxation, inequality	21, 25	Petr Janský
May 15, 2018	Exam 1: 14:00, room O109	---	---
May 16, 2018	Rector's day - no lecture	---	---
May 18, 2018	<i>Final deadline for Wiki edits</i>	---	---
May / June / September 2018	<i>Final Exams 2, 3, 4 – exact dates TBA</i>	---	---

Today's lecture

Publicly provided goods

Introduction to auction theory

Public procurement in practice
Guest lecture by Jiří Skuhrovec

Publicly provided goods

- ▶ “Publicly provided” means **paid for** by the public sector (i.e. financed using government revenue)
- ▶ Publicly provided goods can be **supplied** in two ways:
 - ▶ by the public sector: government employees
 - ▶ by the private sector: public procurement
- ▶ Public procurement: how to choose the supplier in order to maximize social welfare gain (consumer surplus)?
- ▶ Main issues: the principal-agent problem, finding the cheapest supplier

The principal-agent problem

- ▶ Occurs when one person or entity (the “agent”) makes decisions on behalf of another person or entity (the “principal”), but the agent’s own interests are not the same as those of its principal
- ▶ Our context: politicians are agents and maximize their own private welfare, voters are the principal and maximize social welfare
- ▶ Solution: aligning private interests with the public interests
- ▶ Our context: strict procurement regulation (→ inefficiencies)

Choosing the cheapest supplier

- ▶ Private firms compete to supply publicly provided goods
- ▶ Perfect competition would lead to the maximization of social welfare
- ▶ Limited competition (recall market failures) may lead to high private gains
- ▶ Solution: auction theory

Auctions

- ▶ Many ways to decide who gets what: posted prices, negotiations, lotteries, auctions
- ▶ In public procurement, auctions have many advantages
 - ▶ Often, WTP is not known
 - ▶ Transparency
 - ▶ Flexibility
- ▶ Auction: a non-cooperative Bayesian game (i.e. incomplete information on other players, but with beliefs about the probabilities)
- ▶ The aim is to reveal private values of competing agents and sell to the one with the highest private value
- ▶ Optimal strategy in an auction is to bid your own value

Types of auctions

- ▶ Bidding process: sealed bid vs. open bid
- ▶ Price determination: first price vs. second price

	Open bid	Sealed bid
First price	Dutch (descending price)	FPSB
Second price	English (ascending price)	Vickrey (SPSB)

Valuation of an object

- ▶ **Independent private value**
 - ▶ Your value is independent to others' values
 - ▶ Each bidder only knows their own value
 - ▶ Ex.: Paintings, antiques
- ▶ **Common value**
 - ▶ Actual value of the object is the same for everyone
 - ▶ Bidders have different private information about that value
 - ▶ Ex.: Oil field auctions, network spectrums, lithium (?)

Case study: The biggest auction ever

- ▶ Third-generation mobile-phone licence auction, March-April 2000 in the UK
- ▶ Flexibility needed—predictions on profitability were uncertain, WTP unknown
- ▶ 5 licenses to be sold; 4 firms on 2G networks, but 13 bidders for 3G
- ▶ Experts predicted a total price of \$2-5 billion
- ▶ After 150 rounds, 5 bidders were left, total price: \$22.5 billion

Read more in Binmore and Klemperer (2002)

Problems with auctions: Winner's curse

- ▶ Consider a common value first-price auction
- ▶ Each bidder obtains an unbiased estimate of the true value (which is unknown)
- ▶ Your estimate is \$100 million
- ▶ Suppose everybody, including you, bids their estimate and you are the winner
 - ▶ In other words, your estimate was the highest
- ▶ BUT! All estimates were unbiased, so they must be correct on average
 - the true value must be less than \$100 million, you overpaid

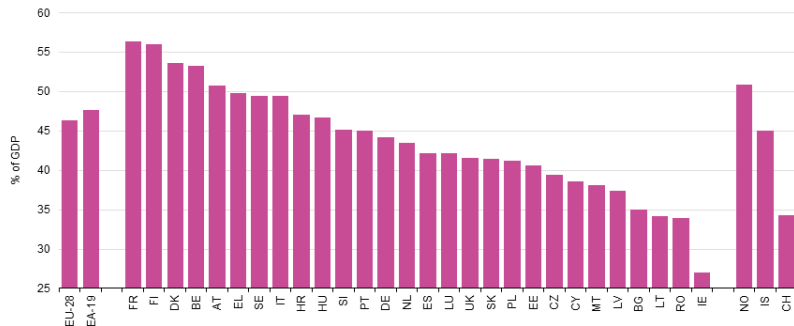
Problems with auctions: Collusion

- ▶ Different ways to mess up auction mechanisms
 1. Two or more bidders might make arrangements not to bid up the auction price
 2. Bidders might agree to compensate each other outside the auction mechanism
 3. Tacit collusion: firms undergo actions that are likely to minimize a response from another firm (see oligopoly)
- ▶ Solution for public procurement: most of these techniques illegal

Summary: auctions

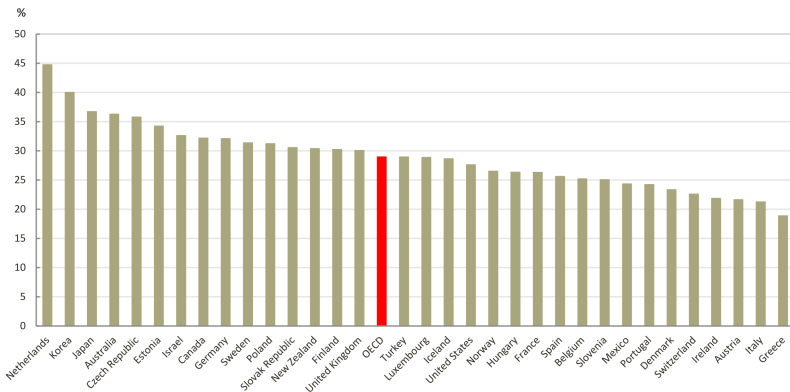
- ▶ One of the most celebrated fields of economics
- ▶ Many innovative auction mechanisms developed, with different success
- ▶ Lottery-type auctions, average-bidder auctions, etc.
- ▶ For more, sign up for Introduction to Auctions (IES webpage)

Government expenditures (% of GDP)



Source: Eurostat

Public procurement (% of gov't expenditures)



Source: OECD

Thank you!

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References

Binmore, K. and Klemperer, P. (2002). The biggest auction ever: the sale of the british 3g telecom licences. *The Economic Journal*, 112(478).

Additional reading

- ▶ Krishna, V. (2009). Auction theory. Academic press.
- ▶ Klemperer, P. (2004). Auctions: theory and practice.