Public Economics Lectures
Introduction

Ignacio Ortuño

UC3M
Fall 2015

Introduction

This introduction is based on

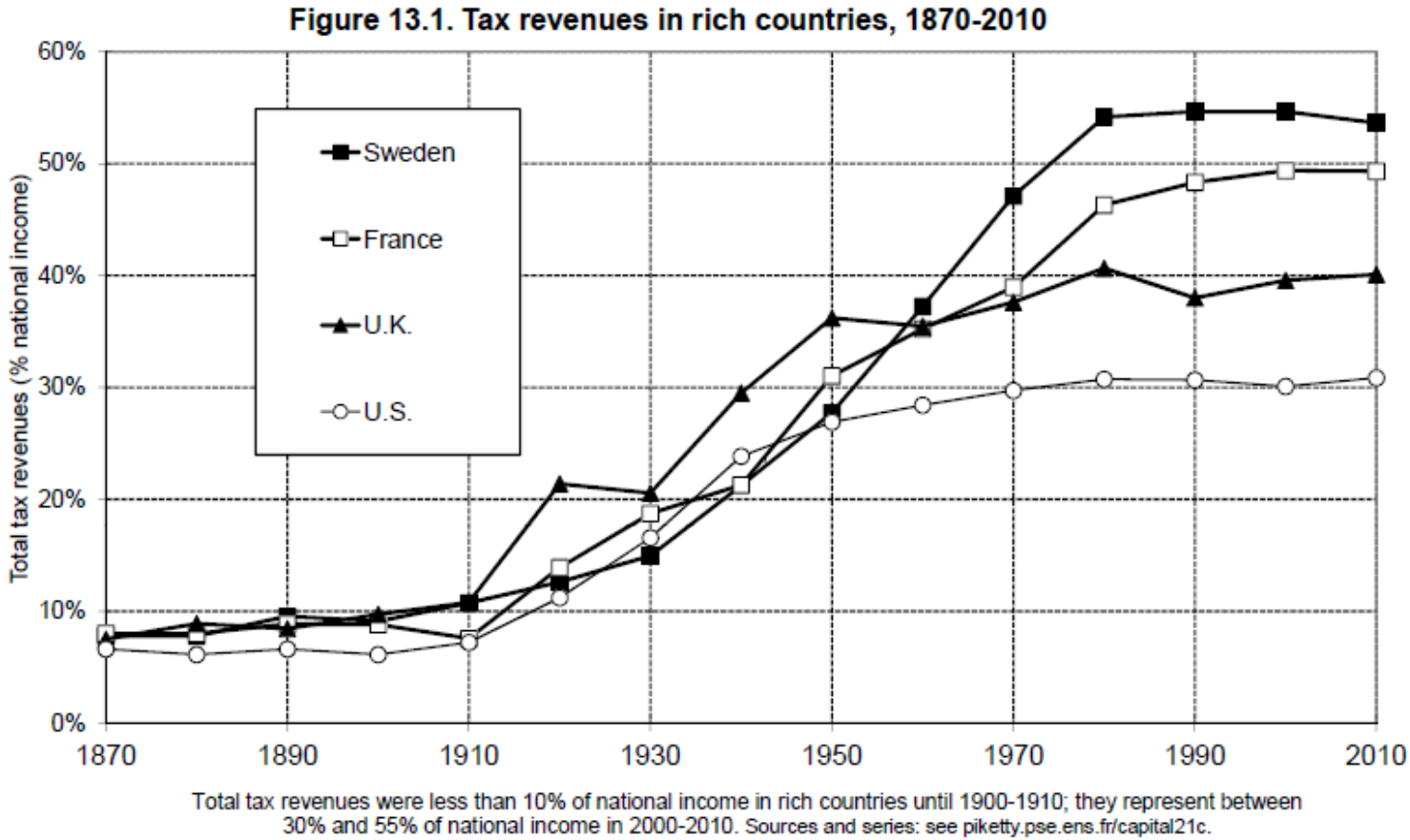
"Graduate Public Economics. Introduction and Road Map" by Emmanuel Saez
http://eml.berkeley.edu//~saez/course/course.html
and on

"Public Economics Lectures" by Raj Chetty
http://www.rajchetty.com/index.php/lecture-videos

What is Public Economics?

- Public economics = Study of the role of the government in the economy
  Government is instrumental in most aspects of economic life:
  1) Government in charge of huge regulatory structure
  2) Taxes: modern governments collect 30-50% of National Income in taxes
  3) Expenditures: tax revenue funds traditional public goods (infrastructure, public order and safety, defense), and welfare state (education, retirement benefits, health care, income support)
  4) Macro-economic stabilization through central bank (interest rate, inflation control), fiscal stimulus, bailout policies

Introduction



Source: Piketty (2014)

Two General Rules for Government Intervention

- Failure of 1st Welfare Theorem: Government intervention can help if there are market or individual failures
- Fallacy of the 2nd Welfare Theorem: Distortionary Government intervention is required to reduce economic inequality

Role 1: 1st Welfare Theorem Failure

1st Welfare Theorem: If (1) no externalities, (2) perfect competition, (3) perfect information, (4) agents are rational, then private market equilibrium is Pareto efficient Government intervention may be desirable if:

- Externalities require government interventions (Pigouvian taxes/subsidies, public good provision)
- Imperfect or Asymmetric Information (e.g., adverse selection may call for mandatory insurance)
- Agents are not rational (= individual failures analyzed in behavioral economics, eld in huge expansion): e.g., myopic or hyperbolic agents may not save enough for retirement

Role 2: 2nd Welfare Theorem Fallacy

Even with no market failures, free market might generate substantial inequality. Inequality is an issue because of people care about their relative situation.

2nd Welfare Theorem: Any Pareto Efficient outcome can be reached by (1) Suitable redistribution of initial endowments [individualized lump-sum taxes based on indiv. characteristics and not behavior], (2) Then letting markets work freely
$\rightarrow$No conflict between efficiency and equity [1st best taxation]

Redistribution of initial endowments is not feasible (information pb) $\rightarrow$ govt needs to use distortionary taxes and transfers
$\rightarrow$Trade-off between efficiency and equity [2nd best taxation]

Illustration of 2nd Welfare Theorem Fallacy

Suppose economy is populated 50% with disabled people unable to work (hence they earn \$0) and 50% with able people who can work and earn \$100

- **Free market outcome**: disabled have \$0, able have \$100
- **2nd welfare theorem:** govt is able to tell apart the disabled from the able [even if the able do not work]

$\longrightarrow$ can tax the able by \$50 [regardless of whether they work or not] to give \$50 to each disabled person $\longrightarrow$ the able keep working [otherwise they'd have zero income and still have to pay \$50]

- **Real world**: govt can't tell apart disabled from non working able

$\longrightarrow$ \$50 tax on workers + \$50 transfer on non workers destroys all incentives to work $\longrightarrow$govt can no longer do full redistribution$\longrightarrow$ Trade-off between equity and size of the pie

Normative vs. Positive Public Economics

- **Normative Public Economics**: Analysis of How Things Should be (e.g., should the government intervene in health insurance market? how high should taxes be?, etc.)
- **Positive Public Economics**: Analysis of How Things Really Are (e.g., Does govt provided health care crowd out private health care insurance? Do higher taxes reduce labor supply?)
- Positive Public Economics is a required 1st step before we can complete Normative Public Economics
- Positive analysis is primarily empirical and Normative analysis is primarily theoretical
- Positive Public Economics overlaps with Labor Economics
- **Political Economy** is a positive analysis of govt outcomes [public choice is political economy from a libertarian view]

Individual Failures vs. Paternalism

In many situations, individuals may not or do not seem to act in their best interests [e.g., many individuals are not able to save for retirement]

Two Polar Views on such situations:

1. Individual Failures [Behavioral Economics View] Individual Failures exist: Self-control problems, Cognitive Limitations
2. Paternalism [Libertarian Chicago View] Individual failures do not exist and govt wants to impose on individuals its own preferences against individuals' will

Key way to distinguish those 2 views: Under Paternalism, individuals should be opposed to govt programs such as Social Security. If individuals understand they have failures, they will tend to support govt programs such as Social Security.

Motivation 1: Practical Relevance (Raj Chetty)

- Interest in improving economic welfare $\longrightarrow$ interest in public economics
- Almost every economic intervention occurs through government policy (i.e. involves public economics) via two channels:
  - Price intervention: taxes, welfare, social insurance, public goods
  - Regulation: min wages, FDA regulations (25% of products consumed), zoning, labor laws, min education laws, environment
- Government directly employs one sixth of U.S. workforce

Motivation 1: Practical Relevance (Raj Chetty)

- Stakes are extremely large because of broad scope of policies
  - Ex. Tax reforms immediately affect millions
- Contentious debate on the appropriate role of government in society
  - Romney: replacing Medicare with decentralized private insurance will improve health outcomes and reduce costs
  - Obama: Romney's proposal will worsen health outcomes and raise costs
- Only one of these views can be correct
  - Injecting science into these debates has great practical value

Motivation 2: Academic Interest (Raj Chetty)

- Public economics is typically the end point for many other subfields
- Macro, development, labor, and corporate finance questions often ultimately motivated by a public economics question
  - Ex 1: Macro studies on costs of business cycles and intertemporal models of household behavior
  - Ex 2: Labor studies on employment effects of the minimum wage
- Natural to combine public finance with another field
- Understanding public finance can help ensure that you work on relevant topics

Motivation 3: Methodology (Raj Chetty)

- Public economics is at the frontier of a methodological transformation in applied microeconomics
- Data-driven approach to answering important policy questions
  - Combines a broad set of skills: applied theory, applied econometrics, simulation methods
  - Useful skill set for many applied fields in economics

Theme 1: Connecting Theory to Data (Raj Chetty)

- Modern public economics tightly integrates theory with empirical evidence to derive quantitative predictions about policy
  - What is the optimal income tax rate?
  - What is the optimal unemployment benefit level?
- Traditional approach: theoretical models and numerical simulations
  - Theory often makes weak predictions: optimal tax rate between 0 and 100%
  - Numerical simulations rely on strong assumptions
- Recent work derives robust formulas that can be implemented using well-identified empirical estimates

Theme 2: Quasi-Experimental Empirical Methods (Raj Chetty)

- Research in public economics exploits a variety of quasi-experimental research designs to identify parameters of interest
    - Event studies, regression discontinuity, synthetic control

Theme 3: "Big Data" (Raj Chetty)

- Compelling implementation of quasi-experimental methods requires a lot of data
- Recent availability of very large datasets has transformed research in applied microeconomics
  - Scanner data on consumer purchases
  - Tax and social security records
  - School district databases

United States Tax Data (Raj Chetty)

- 7 billion tax records covering full pop. from 1996 to today
- Includes a rich set of information on individuals
  - Earnings from W-2's (covers non-filers)
  - Employer ID
  - College attendance
  - Retirement savings, charitable contributions
  - Housing and mortgage interest
  - Geographical location
  - Birth, death, marriage, children, family structure
- Analogous corporate databank contains information for 5 million firms per year, linked to workers

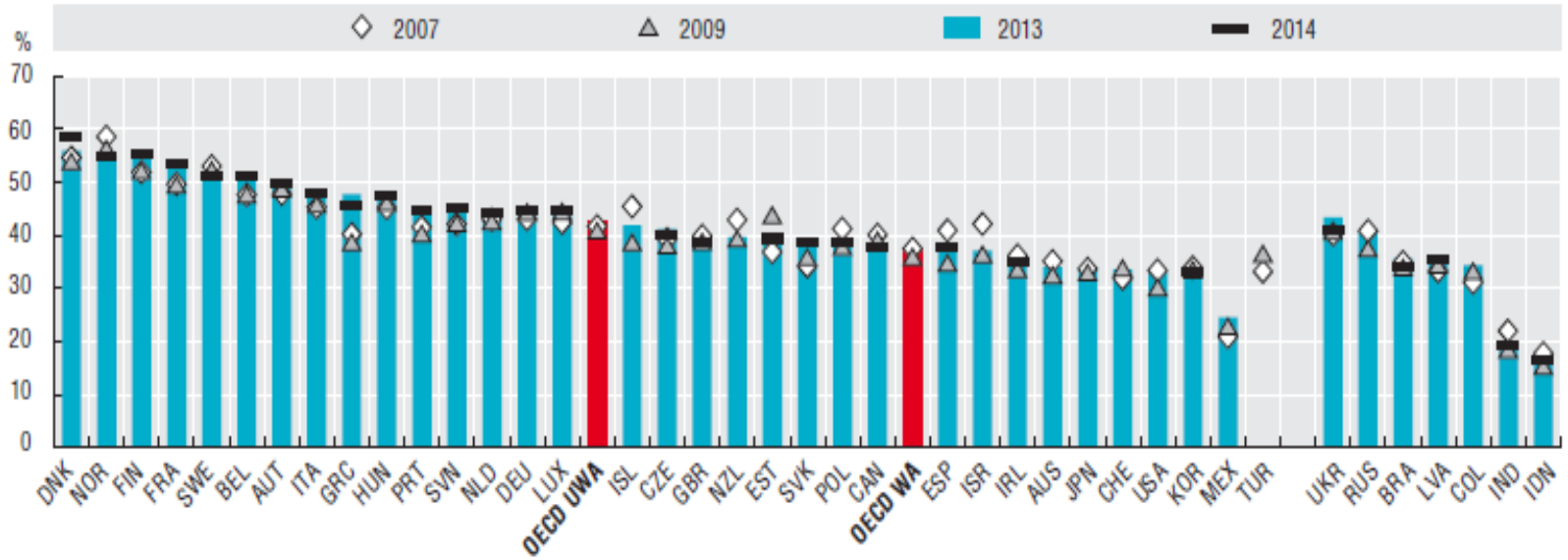
Theme 4: Behavioral Models (Raj Chetty)

- Recent work in public economics draws on insights from psychology and economics literature
    - Strong evidence that individuals fail to optimize
- Raises new policy questions
- Suggests new policy instruments
    - E.g. information, social incentives

Background Facts: Size and Growth of Government

- Government expenditures = 1/3 GDP in the U.S.
- Higher than 50% of GDP in some European countries
- Decentralization is a key feature of U.S. govt
  - One third of spending (10% of GDP) is done at state-local level (e.g. schools)
  - Two thirds (20% of GDP) is federal

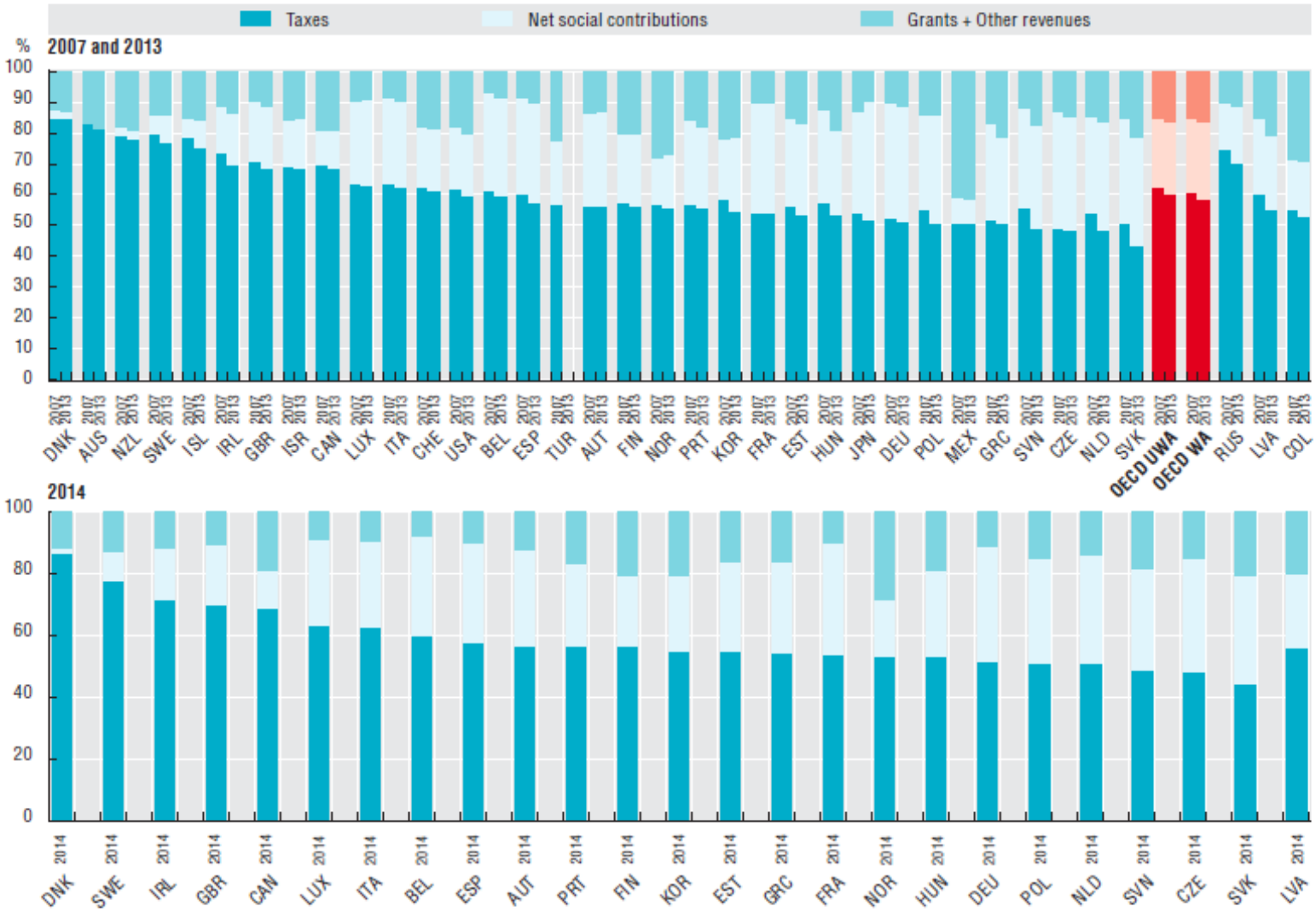
2.17. General government revenues as a percentage of GDP, 2007, 2009, 2013 and 2014



Sources: OECD National Accounts Statistics (database). Data for the other major economies of Brazil, India, Indonesia and Ukraine are from the IMF Economic Outlook (April 2015).

StatLink http://dx.doi.org/10.1787/888933248215

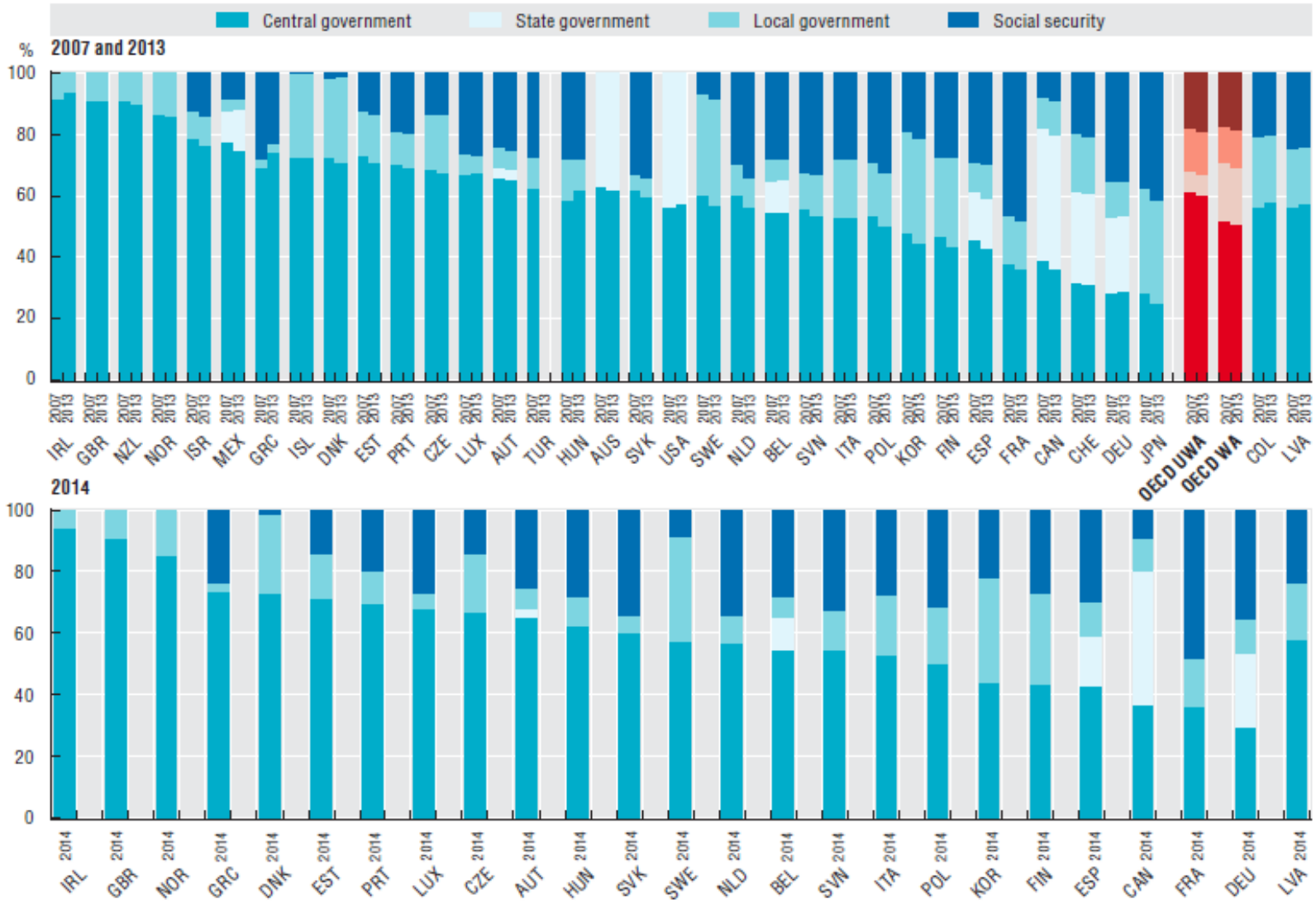
2.20. Structure of general government revenues, 2007, 2013 and 2014



Source: OECD National Accounts Statistics (database).

StatLink http://dx.doi.org/10.1787/888933248244

2.23. Distribution of general government revenues across levels of government, 2007, 2013 and 2014



Source: OECD National Accounts Statistics (database).

StatLink http://dx.doi.org/10.1787/888933248279

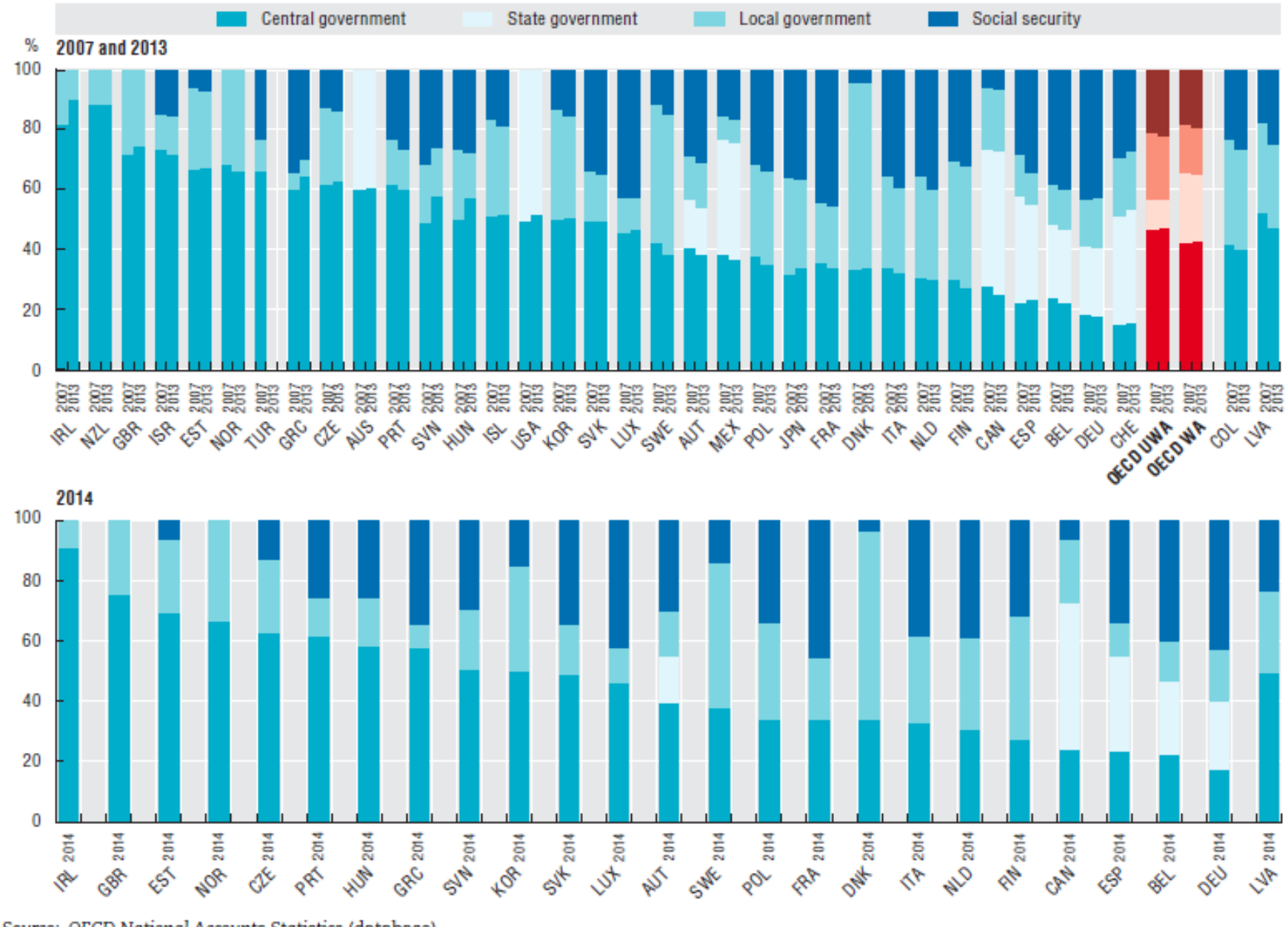
2.31. Structure of general government expenditures by function, 2013

	General public services	Defence	Public order and safety	Economic affairs	Environmental protection	Housing and community amenities	Health	Recreation, culture and religion	Education	Social protection
Australia	12.9	3.9	4.7	11.1	2.9	1.7	18.8	2.0	14.4	27.7
Austria	14.2	1.2	2.6	11.1	1.0	0.7	15.6	1.9	9.8	41.9
Belgium	15.5	1.7	3.4	12.2	1.8	0.6	14.6	2.4	11.8	36.1
Czech Republic	11.1	1.8	4.2	14.3	2.5	2.0	17.4	2.7	12.3	31.7
Denmark	13.6	2.3	1.8	6.3	0.7	0.5	15.3	3.2	12.3	43.9
Estonia	10.3	4.7	4.9	12.5	1.7	1.4	13.0	5.4	15.4	30.7
Finland	14.4	2.6	2.4	8.2	0.4	0.7	14.5	2.5	11.2	43.1
France	11.9	3.1	2.9	8.7	1.8	2.4	14.2	2.6	9.6	42.9
Germany	14.3	2.4	3.5	7.5	1.3	0.9	15.8	1.9	9.7	42.6
Greece	16.3	3.6	3.1	25.5	1.4	0.5	8.6	1.1	7.6	32.4
Hungary	20.9	1.0	4.2	13.7	1.8	1.6	10.4	3.7	9.5	33.3
Iceland	19.2	0.0	3.1	10.4	1.3	2.4	16.3	6.9	16.9	23.6
Ireland	16.5	1.0	3.9	7.5	1.6	1.6	17.4	1.8	10.2	38.6
Israel	13.5	14.4	3.9	6.8	1.5	1.1	12.2	3.7	16.3	26.6
Italy	17.5	2.3	3.8	8.2	1.8	1.4	14.1	1.4	8.0	41.3
Japan	10.6	2.1	3.1	10.3	2.8	1.8	17.5	0.9	8.5	42.4
Korea	17.1	7.8	4.0	16.8	2.4	3.0	12.1	2.2	16.3	18.4
Luxembourg	11.5	0.8	2.3	9.5	2.6	1.6	11.9	2.6	12.7	44.4
Netherlands	11.0	2.5	4.2	8.2	3.2	1.1	17.7	3.4	11.8	36.7
Norway	9.7	3.1	2.3	10.6	1.9	1.6	17.0	3.1	11.1	39.7
Poland	13.5	3.9	5.3	9.6	1.8	1.7	10.9	2.5	12.5	38.3
Portugal	17.9	2.1	4.4	6.7	0.8	1.4	13.3	2.0	13.5	37.8
Slovak Republic	13.4	3.1	8.0	7.9	2.2	1.7	18.3	3.1	12.2	30.1
Slovenia	11.3	1.6	3.6	24.2	1.2	1.2	11.6	3.0	10.9	31.4
Spain	15.5	2.1	4.5	10.0	1.9	1.0	13.6	2.6	9.1	39.7
Sweden	14.6	2.8	2.6	8.1	0.6	1.4	13.1	2.0	12.4	42.3
Switzerland	11.7	3.0	4.9	12.3	2.2	0.6	6.5	2.5	17.8	38.6
United Kingdom	12.5	5.0	4.8	6.8	1.8	1.5	16.7	1.7	12.0	37.2
United States	14.3	9.8	5.6	9.2	0.0	1.5	22.3	0.7	16.0	20.7
OECD WA	**13.8**	**5.5**	**4.4**	**9.5**	**1.2**	**1.5**	**17.7**	**1.5**	**12.5**	**32.4**
OECD UWA	**14.0**	**3.3**	**3.9**	**10.8**	**1.7**	**1.4**	**14.5**	**2.6**	**12.1**	**35.7**
Latvia	13.2	2.4	5.2	13.0	1.8	3.3	10.0	4.2	15.7	31.2

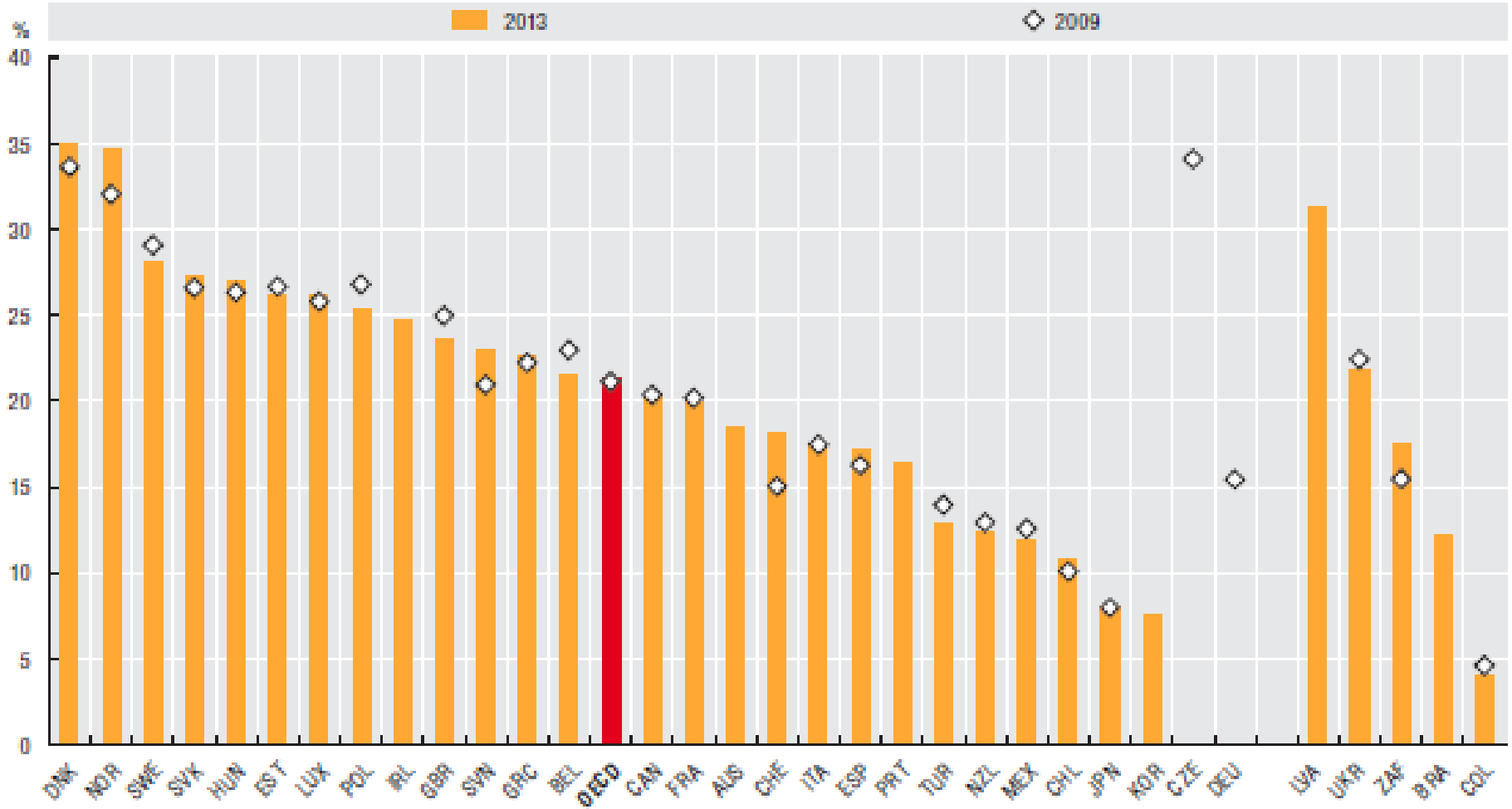
Source: OECD National Accounts Statistics (database); *Eurostat Government Finance Statistics* (database). Data for Australia are based on *Government Finance Statistics* provided by the Australian Bureau of Statistics.

StatLink http://dx.doi.org/10.1787/888933248350

2.41. Distribution of general government expenditures across levels of government, 2007, 2013 and 2014



3.1. Public sector employment as a percentage of total employment, 2009 and 2013



Source: International Labour Organization (ILO), ILOSTAT (database). Data for Italy are from the National Statistical Institute and the Ministry of Finance. Data for Portugal are from the Ministry of Finance. Data for Korea were provided by national authorities.

StatLink http://dx.doi.org/10.1787/888933248603