**Macroeconomics II**

**Lecture 19**

Growth and distribution, the pension system
and the role of the Welfare State

**Theoretical Lecture 19**

**Economic growth, Social Security and the Welfare State**

Income distribution

Social Security and Pensions

Pay-as-you-go or capitalization systems
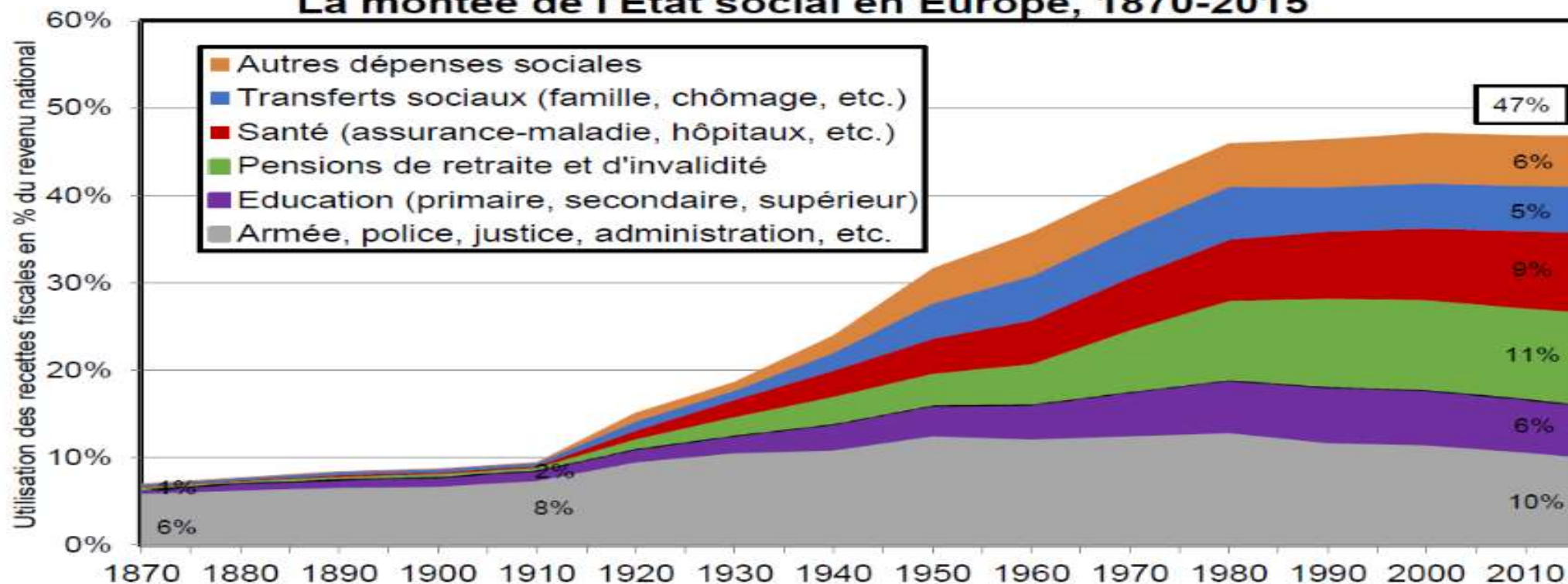
European Union and Portugal: data on inequality and wages
The role of social infrastructures on economic decisions

**Readings:**

Louçã and Ash (2017), *Sombras*, chap 11

# Social welfare in Europe since 1870



La montée de l'Etat social en Europe, 1870-2015
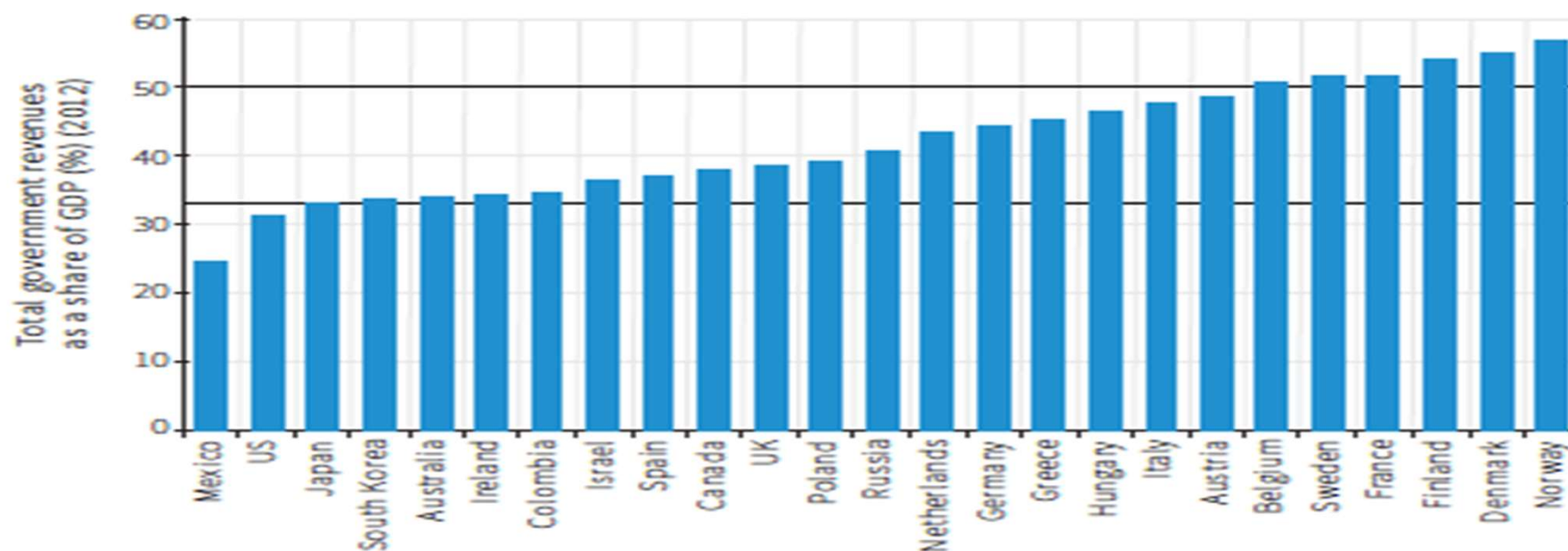
# The size of government: does it matter?



**Figure 1.13** *The size of government as measured by total tax revenue as a fraction of GDP (2012).*

Source: OECD (2015), General government revenue indicator.

# PORTUGAL  a short history of the Social Security system

### a. the origins

1910 Republican Revolution
1919 (social insurance, bismarkian influence)
1926 Revolution, corporative regime

"Estado-Novo" (1926): Constitution 1933, Estatuto Trabalho Nacional 1933
1935 Welfare Institutions Act (creation, Salazar´s corporative regime)

### b. development and transformations:  the milestones

1962 Reform of the Welfare System (Salazar´s corporative regime)
1969 Social State ("Estado Social") (Marcelo Caetano)
1974 Democratic Revolution
1984 New Social Welfare Law, (Parliament PS + PSD)
1986 Accession EEC
1993 legal reform (PSD, absolute majority in Parliament)
2000 legal reform (PS, gained election 1995, minority, White Paper Com 1996/98)
2002 legal reform (PSD + CDS government)
2007 legal reform (PS, absolute majority)

# recent trends

Welfare States are under great financial stress, that constraints the sustainability of the SS system (accumulating deficits, with prospects of worsening);

Causes in the specific case of Portugal:

* reduced economic growth, change in the structure of employment (desindustrialization and rise of the employment on services, that is, non-tradeable goods);

* Welfare State more "mature" (larger career of contribution records, to whom is due, because of that, higher old age pensions);

* demographic ageing (that is, more retired who receives transfers from the SS system);

* higher wages (bigger revenues of the SS system, but also higher old age pensions)

# two kinds of pension systems

**PAYG**: *pay as you go*) social security system ("*repartição*" in PT)

the workers pay a part of their wages to the SS system (the "TSU"); the SS system transfers <u>all this amount</u> to the old people (retired), according to specific rules, <u>not necessarily related</u> to the amount the retired have previously paid during working life (there are "social pensions");

that is: the workers (young people) transfer this amount to the retired (old people), intergenerational transfers.

**Fully Funded** social security system ("*capitalização*" in PT)
·the workers pay a part of their wages to the SS system, that accumulates financial funds, capitalized in the financial markets;
·SS system pays old-age pension to the retired population <u>according</u> to the amount they had previously contributed to the system and capitalised; no intergenerational transfers

# Impact of the productivity and ageing factors

Take the GDP per capita:

$$Y/N = Y/L \cdot L/N$$ where N is total population, L is working population

If P* is the population in working age (15 to 66 years), then

$$Y/N = Y/L \cdot L/P^* \cdot P^*/N$$

or GDP per capita is **average labour productivity** times **employment rate** times
~~the **proportion of working age in total population**~~

Therefore, if the employment rate is **constant** (for simplicity, but not true), then the **growth of GDPpc** is the **sum** of the **growth of the productivity of labour** and **of the weight of the working age population in the total population**:

$$r(Y/N) = r(Y/L) + r(P*/N)$$

and if there is **ageing** (or a reduction of the weight of working age population in total population), then **the labour productivity should grow more than x% to get a GDP per capita growth of x%**

# Consider a PAYG system

revenues of the SS system in year t
**Revenues = wt . Lt . bt**  (contributions paid by the workers and firms to the SS system)

expenditure of the SS system in year t
**Expenditure = Pt . Nrt**  (pensions paid by the SS system to the retired)

For balanced Social Security accounts in year t
**wt . Lt . bt  = Pt . Nrt**

In which:

**wt**  average wage in year t

**Lt**  number of workers in year t

**bt**  workers´ and firms' total rate of contribution to Social Security ("TSU" in PT)

**Pt**  average old-age pension in year t

**Nrt**  number of pensionists in year t

**Then, in a balanced PAYG system**

$$wt \cdot Lt \cdot bt = Pt \cdot Nrt$$
or
$$Pt = wt \cdot (Lt / Nrt) \cdot bt$$

**Assuming** that in an economy there are conditions for the real wages to grow **at the same rate** as labour productivity (then keeping functional income distribution invariant), if in that economy there is a process of demographic ageing, and assuming that **bt**, the contribution of workers to Social Security, remains unchanged, **the condition required to keep average pension constant is that the labour productivity (and wage) should rise** (or other forms or financing should be reinforced).

# How should the pension system evolve?

From **wt . Lt . bt = Pt . Nrt**

Supposing that **bt** is **constant**, we have, if divided by **NT**, total population:

$$r(wt) + r(Lt/NT) = r(Pt) + r(Nrt/NT)$$

So, the **growth of the average labour productivity and the wage should be larger than the growth rate of the pensions,** in order to compensate for the ageing (**Nrt/NT**) and the slower decrease of labour to the total population (**Lt/NT**):

$$r(wt) = r(Y/L) = r(Pt) + r(Nrt/NT) - r(Lt/NT)$$

# GDP per capita and the pensions

Following the same argument and replacing **r(wt)** for **r(Y/L)**, we have:

$$r(Yt/Lt) + r(Lt/NT) = r(Pt) + r(Nrt/NT)$$

Or

$$r(Yt/NT) = r(Pt) + r(Nrt/NT)$$

The **growth of GDP per capita** should be enough to accommodate the **increase of pensions and the growth of the proportions of retired workers in the total population**, or ageing.

# If the income of the pensions system is also financed by the Public Budget through taxes

Then we have an extended model:

**$(w_t L_t b_t) (1+PB_t) = P_t . N_{rt}$**   **$PB_t$** being the rate of increase of the income of the pension system as provided by the Budget through taxes (TVA, or IVA in Portugal), or budgetary contributions defined by law, at year t. In that case:

$$P_t = w_t (L_t/N_{rt}) b_t (1+PB_t)$$

and the value of the pension also depends on the budgetary contribution, and

$$r(w_t) + r(1+PB_t) = r(P_t) + r(N_{rt}/N_T) - r(L_t/N_T)$$

so, the **growth of the wages and/or the public financing** are required to **compensate for the growth of pensions, ageing and the (slower) change of the part of active population in the total population.**

**two final questions:**

what is the **role of social infrastructures** on explaining differences among countries on their rates of economic growth?

how does social institutions (and also the economic institutions) are **explained** by the working of the society, and **why they differ** among the societies?
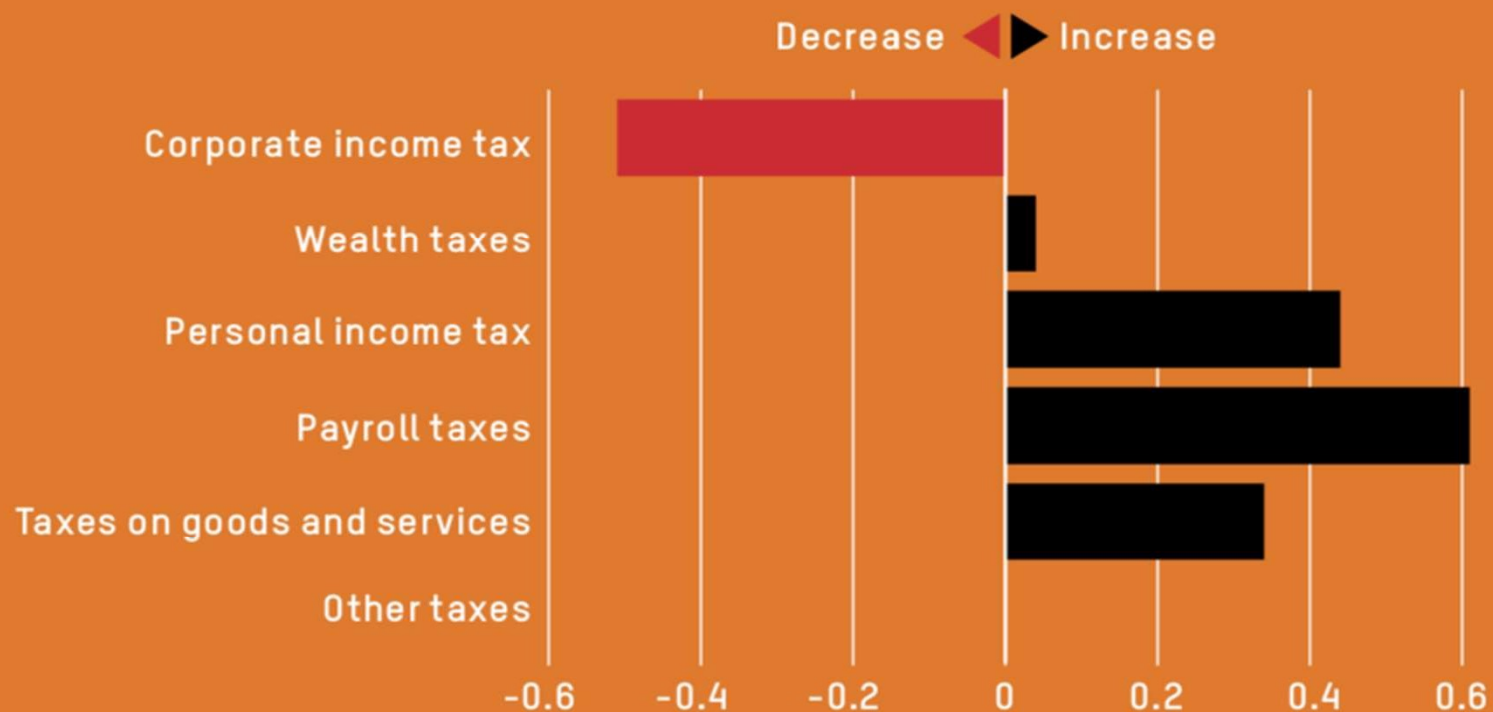
# Institutions

**Douglass North**, born. 1920 (Nobel Prize of Economics in 1993), founded (with Ronald Coase) the International Society for the **New Institutional Economics**

"**Institutions** are the humanly devised constraints that structure political, economic and social interaction. They consist of both informal constraints (sanctions, taboos, customs, traditions, and codes of conduct), and formal rules (constitutions, laws, property rights). Throughout history, institutions have been devised by human beings to create order and reduce uncertainty in exchange. Together with the standard constraints of economics they define the choice set and therefore determine transaction and production costs and hence the profitability and feasibility of engaging in economic activity" (North, D. (1991), Institutions, *Journal of Economic Perspectives*, vol 5, nr 1, pp. 97-112, p. 97)

# Institutions do act



TAX REVENUE CHANGE 2007–2015 (%GDP)[113]

Decrease ◄ ► Increase

Legend:
- Corporations
- Families

Categories:
- Corporate income tax
- Wealth taxes
- Personal income tax
- Payroll taxes
- Taxes on goods and services
- Other taxes

Axis: -0.6  -0.4  -0.2  0  0.2  0.4  0.6

# Tax rate policies may generate inequality



EFFECTIVE TAX RATES[117]

| | Poorest 10% of people | Richest 10% of people |
| --- | --- | --- |
| BRAZIL | 32% | 21% |
| UK | 49% | 34% |