The redistributive effect and progressivity of taxes revisited

An international comparison across the EU with EUROMOD

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Motivation

Over the last three decades income inequality increased in most of the OECD countries

Over the 1998-2008 period EU countries experienced a modest increase in income inequality

- Inequality of disposable income increased in several EU countries but it narrowed in others

The redistributive role of taxes is of utmost importance in shaping the distribution of disposable income across countries

- According to the changes in the statutory rules we expect the PIT to be less progressive
- SICs increased in some countries but with minimum and maximum caps and thresholds
- From 1990 to 2008, EU-27 + Japan and US: 1,331 PIT reforms, 474 SIC reforms (Artoni et al., 2011)

Relationship inequality - redistribution

More inequality => higher preference for redistribution? (cf. Meltzer & Richard, 1981)

 Or

More inequality => less redistribution? (cf. Moene & Wallerstein, 2001)

These studies hardly focus on taxes.

➢   Topic of this paper

Changes in the Personal Income Tax structure in EU-15 over 1998 - 2008

Top tax rate in PIT

- Decreased in 10 countries, increased in 1 country
- Average: 45.5% → 39.7%

Number of bands decreased

However, the effects on overall progressivity are less obvious then they may at first appear

- Exemptions, deductions, allowances, credits
- Changes in the underlying income distribution (due to socio-demographic and labour market changes) and fiscal drag
- Increasing intertwinement of personal income taxes and social security system

Research questions

Taxes are part of the redistributive process and reduce inequality when they are progressive.

Degree of progressivity differs across countries and tax categories

Here:

1. Is there a link between pre-tax income inequality and redistribution through taxes?

2. Is there a link between of tax progressivity and tax level?

3. How do personal income taxes (PIT) compare to social insurance contributions (SIC) and other direct taxes?

4. Have there been changes over the past decade (1998-2008) in the EU-15? (i.e. revisit Verbist, 2004)

5. What is the contribution of different components of personal income tax system to progressivity?

Data and methodology

- EUROMOD: EU-wide tax-benefit microsimulation model (Sutherland and Figari, 2013).

- Simulation of direct taxes, social insurance contributions and (non-contributory) cash benefits: here focus on tax measures

- Household micro-data
  - 1998: various national surveys and ECHP
  - 2008: mainly SILC data (2007 income – pre crisis)

- Overall Redistributive & Progressivity effect
  - Combination of tax policy and pre-tax income distribution (market income & transfers)

- No (distributionally neutral) counterfactual scenarios
  - Detailed info on tax components

- Focus on EU-15 (comparison over time 1998-2008)

Caveats

Static and descriptive analysis

- Cross-country (Wagstaff et al. 1999) and over time analysis (Piketty and Saez, 2007)

Potential criticisms

- In theory, (cash and in-kind) benefits can be included (as a negative) in the tax rates to estimate the overall redistributive effect of the government intervention
- SICs should not be treated as a pure tax because they finance social benefits (we include employee and self-employed SICs)
- Focus on annual income which is not a perfect measure of permanent income over the lifetime (income taxes appear less progressive from a lifetime perspective, Bengtsson, Bertil and Waldenström,2012).
- No calculation of the excess burden created by behavioural responses due to taxes

Measuring the redistributive effect of taxes

Redistributive effect

$$RE = G_X - G_{X-T} = \Pi^{RS} - R$$

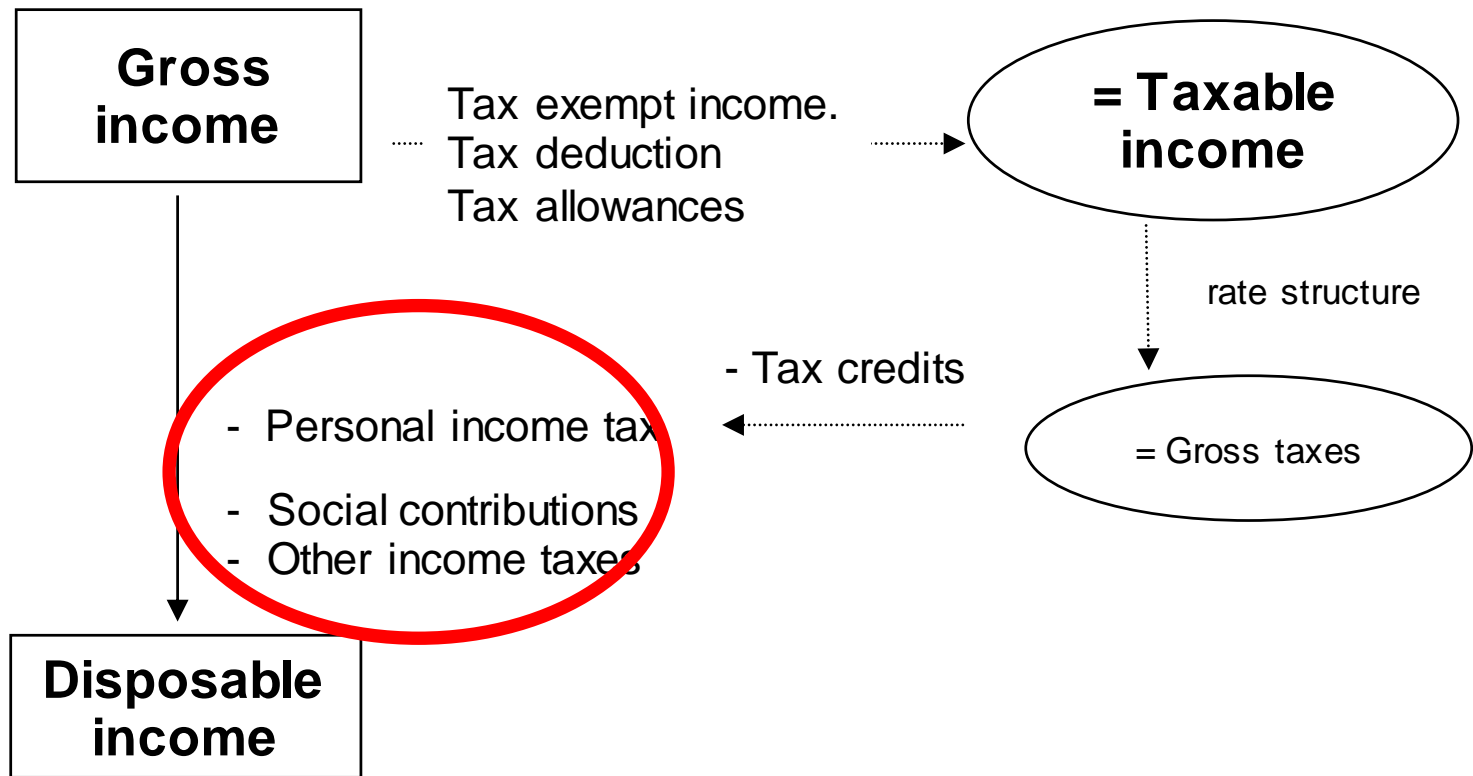$$\Pi^{RS} = G_X - C_{X-T} = \frac{t}{1-t}\Pi_T^K$$

- RE is the result of a vertical equity effect (RS) and a reranking effect (R)
- RS is a function of progressivity and of the tax level

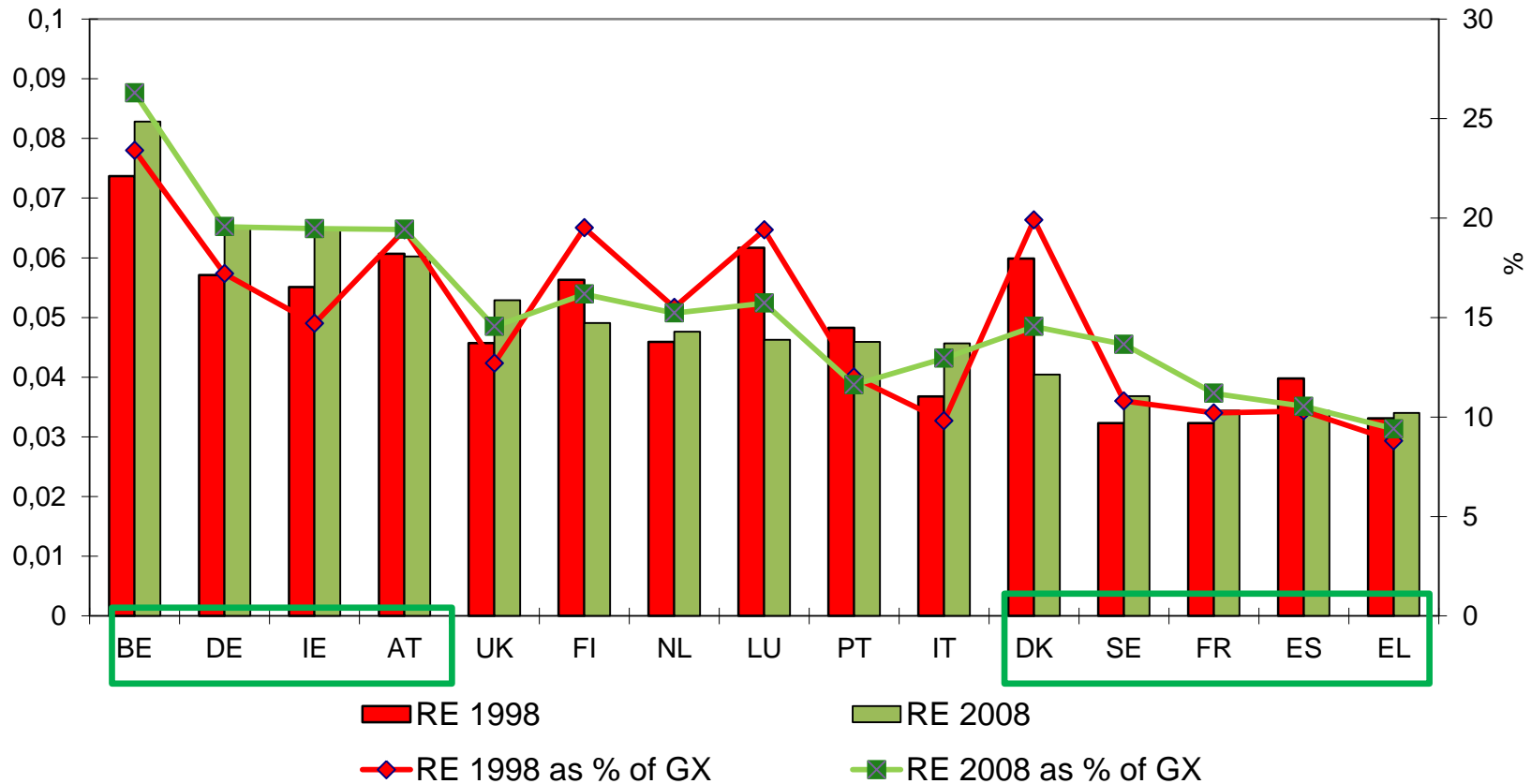Progressivity (and its decomposition over PIT components)

$$\Pi_T^K = C_T - G_X$$

Inequality reduction through direct taxes in EU-15
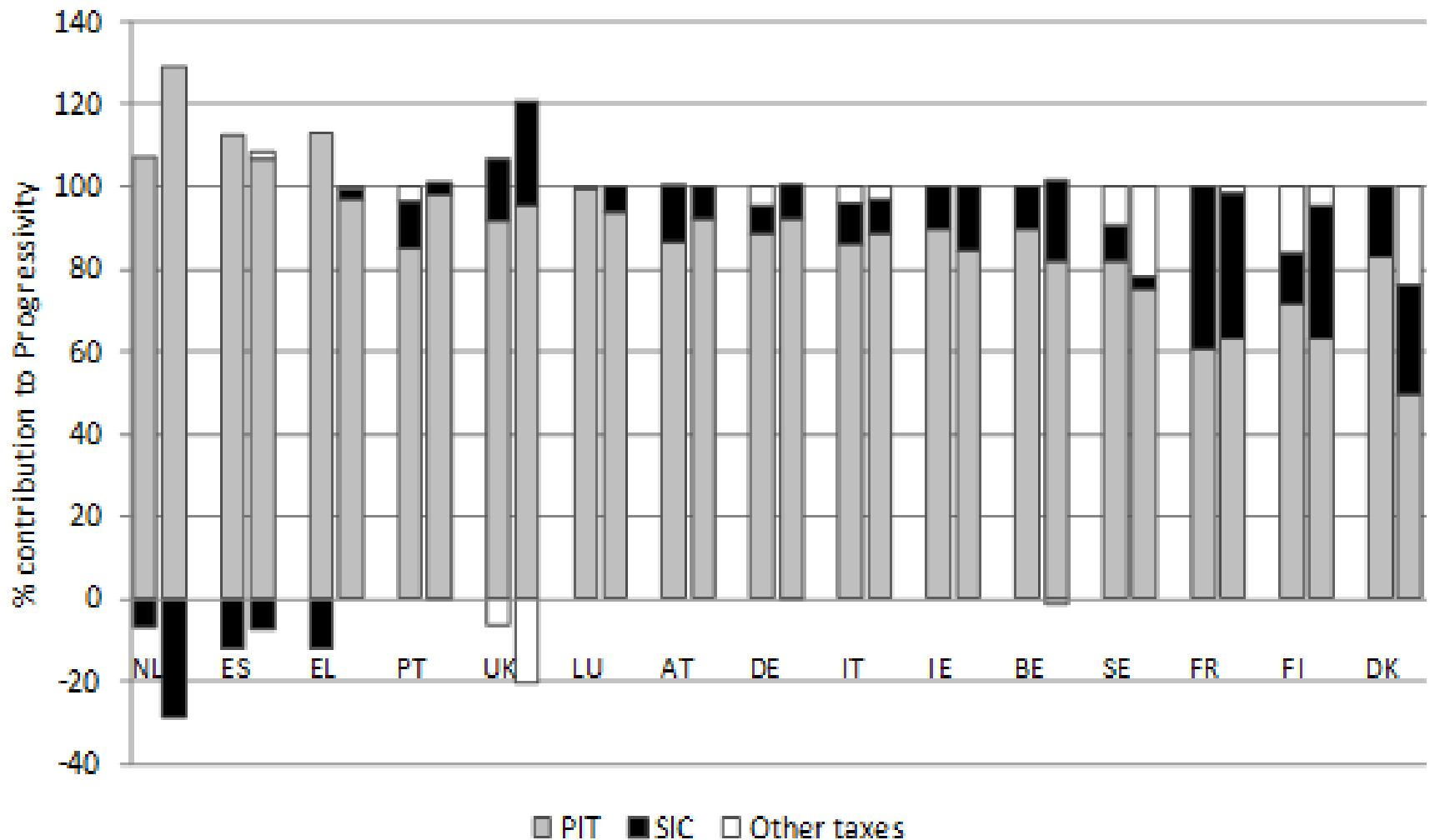## From gross to disposable income

Redistribution (RE) through taxes in EU-15, 1998-2008

Note: Countries are ranked according to % redistribution in 2008

Share of type of taxes in inequality reduction, 1998 - 2008

Share of type of taxes in inequality reduction

Personal income taxes:

- in all countries positive contribution to redistribution
- in most countries major contribution to redistribution: more than 80%. Exception: Nordics, France
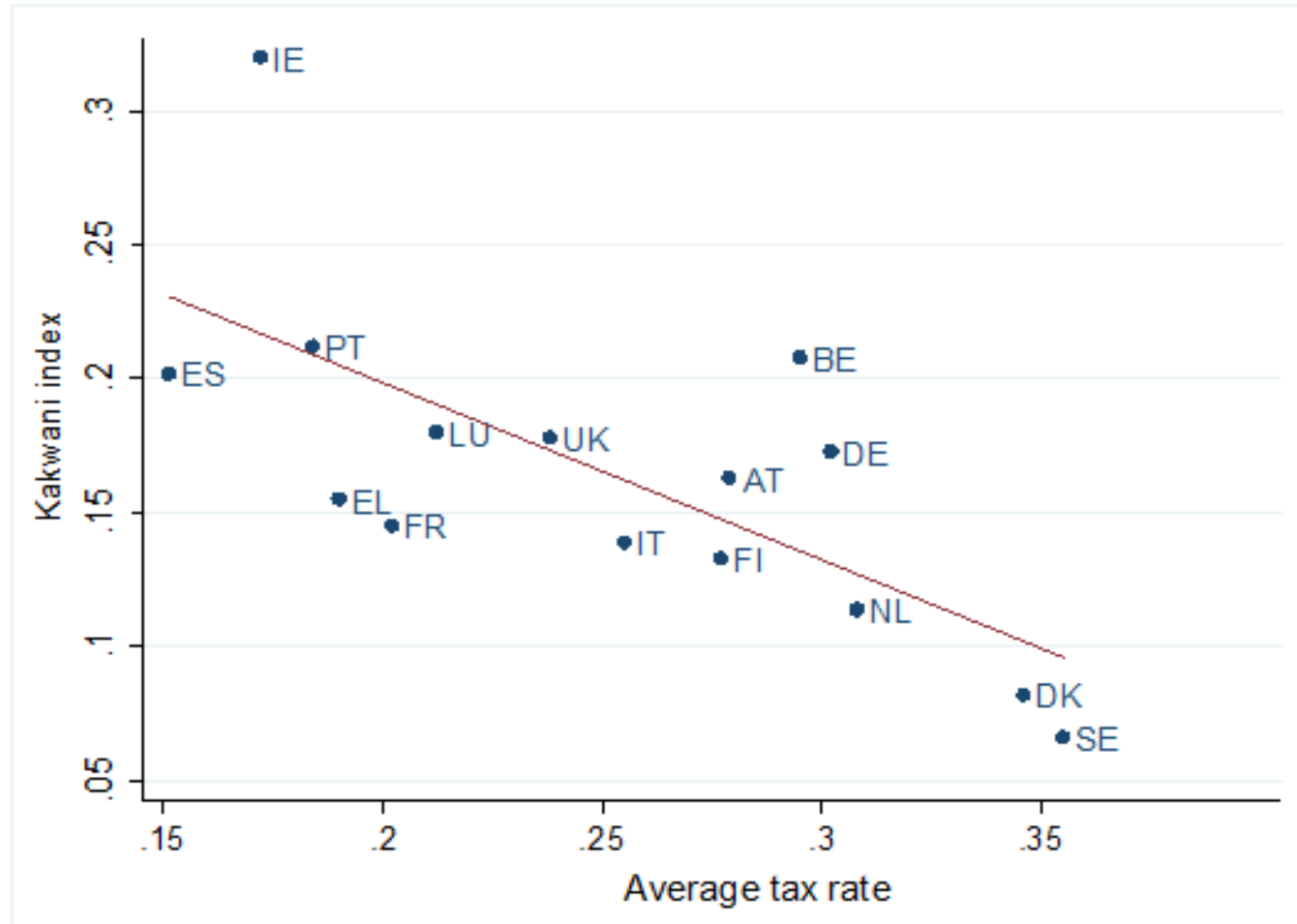
Other taxes

- Important in Nordics
- Regressive in UK (Council Tax)

Social insurance contributions:

- Important in France, somewhat in BE, DK, FI, UK
- Regressive in Spain, Greece and Netherlands

Total taxes: Kakwani index and average tax rate in the EU-15 countries, 2008

Pearson rank correlation coefficient: -0.70, significant al the 0.01 level. Total taxes include personal income taxes (national, regional and local), social insurance contributions and other direct taxes. Overall population considered. Authors' analysis based on EUROMOD

Relationship inequality - redistribution

More inequality => higher preference for redistribution? (cf. Meltzer & Richard, 1981)

 Or

More inequality => less redistribution? (cf. Moene & Wallerstein, 2001)

➢ Here: evidence for negative association: RE as % $Gini_{pre}$ is negatively correlated with $Gini_{pre}$

➢ Progressivity and tax level are rather substitutes than complements

Progressivity of Personal Income taxes: the contribution of different components
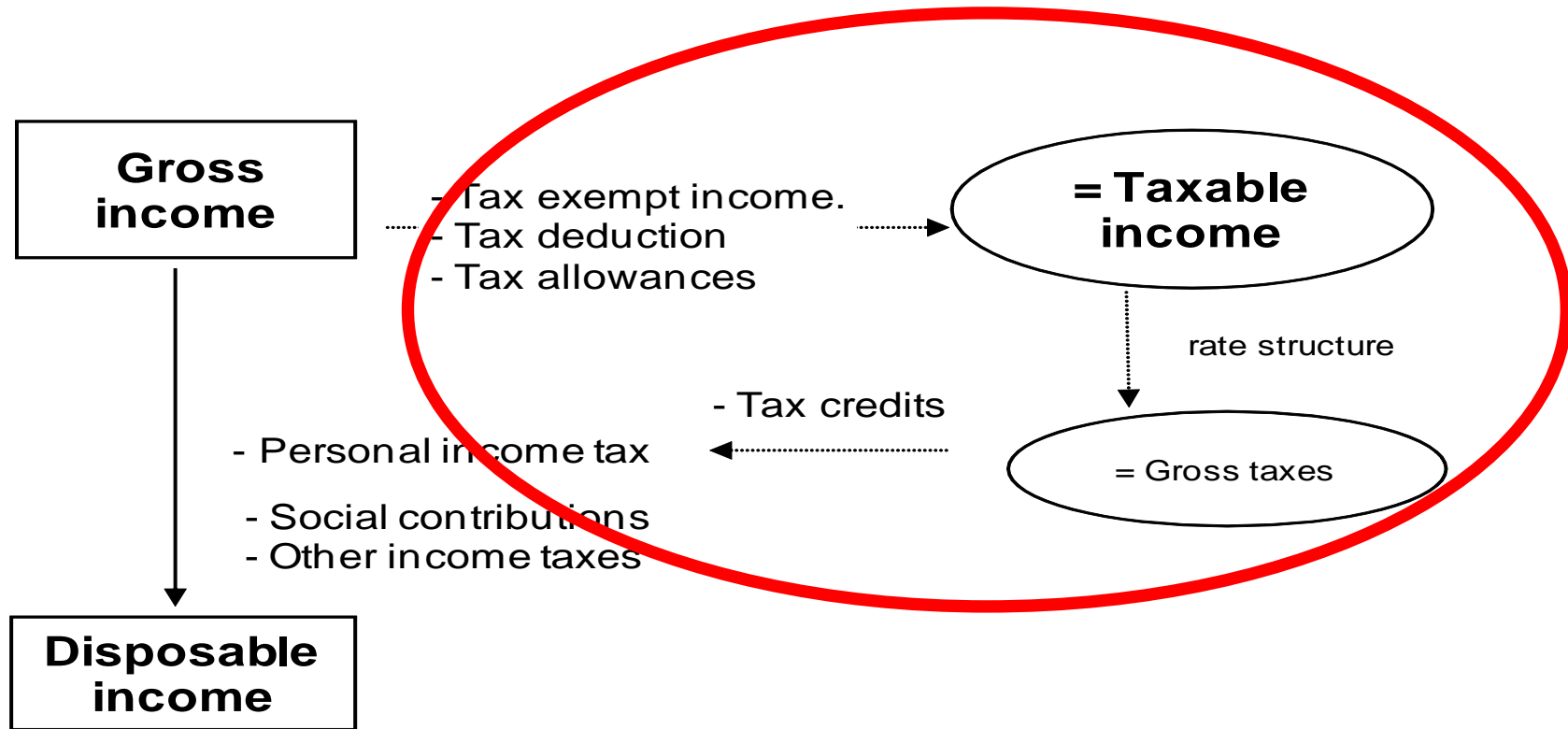
Classification problematic in a cross-country perspective due to potential equivalence between zero-rate bracket, basic allowance and tax credit

Examples of tax components in EU-15

Tariff structure

- Rates and bands

Exemptions

- Means-tested benefits, Child benefits, Study allowances

Allowances

- Personal, Family and age related tax-relief

Deductions

- SICs, Medical expenses, Pension contributions, Mortgage interest tax relief, Childcare costs

Credits (wastable or non-wastable)

- Family tax-relief, replacement incomes
- Tax credit not integrated in the tax system (e.g UK) are considered part of the benefit system

Share of components of personal income taxes in progressivity, 2008
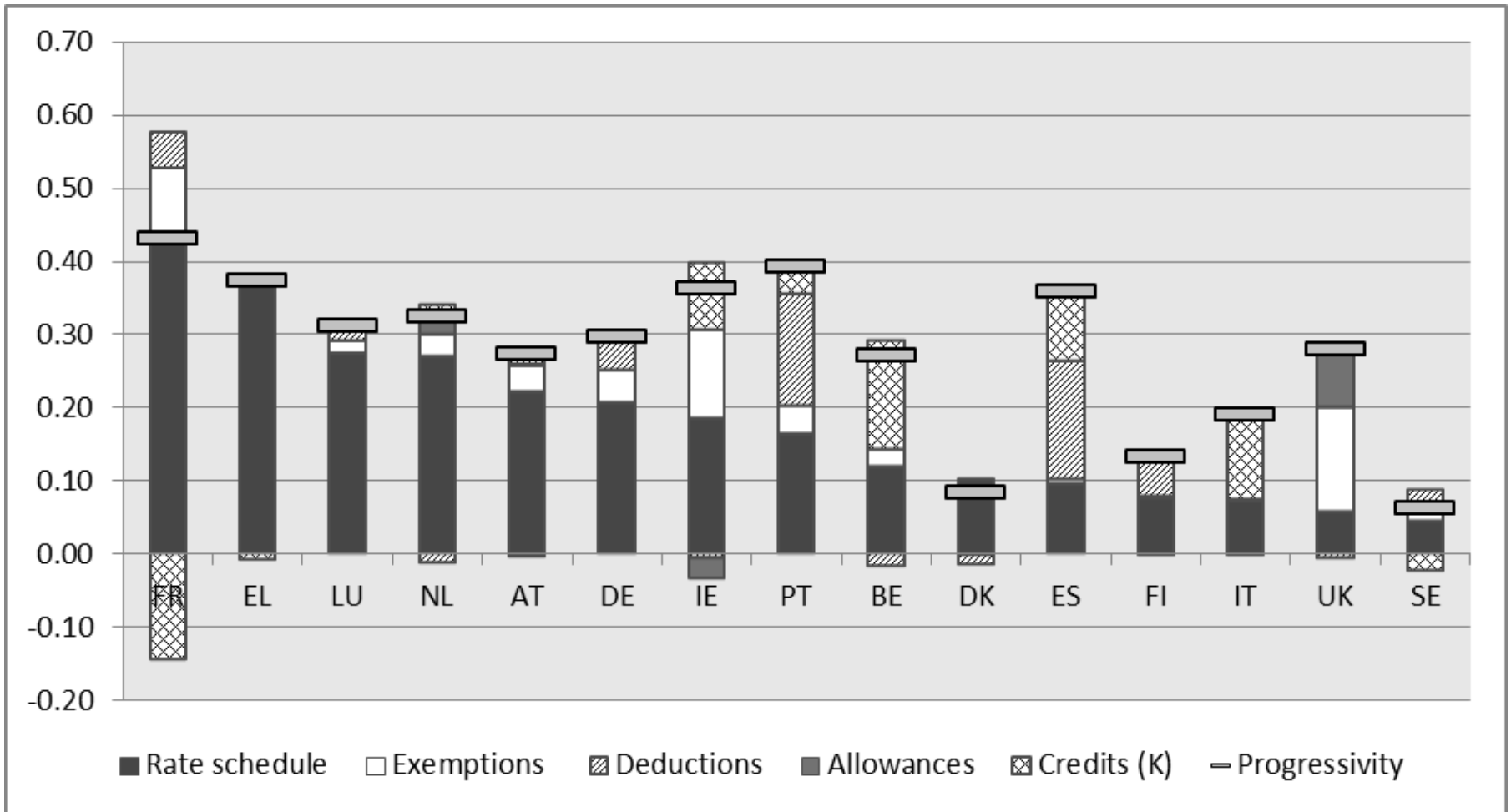
3 groups of countries

	1998 - 2008
Tariff structure	Austria, Denmark, France, Germany, Greece, Luxembourg, Netherlands,
Composition taxable income (= effect of tax exemptions, allowances and deductions)	UK, Ireland, Portugal, Finland, Sweden
Mixed structure	Belgium, Italy, Spain

The zero-taxed part

	Baseline			Integrating zero-taxed part in rate effect			Isolating zero-taxed part			
	E+A+D	*Rate effect*	*Credits*	*E+A+D*	*Rate effect*	*Credits*	*E+A+D*	*Zero-taxed part*	*Residual Rate effect*	*Credits*
Ireland	24.3%	50.5%	25.1%	15.3%	122.8%	-38.0%	24.3%	63.1%	50.5%	-38.0%
Italy	-0.7%	37.4%	63.3%	-0.7%	37.4%	63.3%	-0.7%	-	37.4%	63.3%
Sweden	69.3%	68.1%	-37.4%	23.8%	113.6%	-37.4%	28.6%	-2.1%	110.9%	-37.4%
UK	80.0%	20.0%	-	34.8%	65.2%	-	46.5%	25.9%	27.5%	-

Increasing the top tariff with 5 pp

	Kakwani index		% change to baseline	
	Total taxes	Personal Income Taxes	Total taxes	Personal Income Taxes
Ireland	0.329	0.372	2.6%	2.2%
Italy	0.141	0.193	1.5%	1.5%
Sweden	0.069	0.068	5.3%	7.1%
UK	0.188	0.291	5.4%	4.1%

Conclusions

Wide variety of level of *RE* in EU-15

- Importance to go beyond any average pattern across EU

Negative relation between pre-tax inequality and redistribution

- Progressivity and tax level are rather substitutes than complements

PIT components play a different role across countries which needs to be considered in the evaluation of marginal tax reforms

- Empirical evidence can show counterintuitive effects of statutory changes
- Isolating the zero-taxed part also shows wide variety across countries
- Top tariff is not only driver of progressivity

Future research

Extend to Eastern European countries (flat-tax countries)

Focus on specific tax reform occurred in the 1998-2008 period