HELLENIC REPUBLIC
Ministry of Finance
Council of Economic Advisors

The Tax Structure of an Economy in Crisis: Greece 2009-2019

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Motivation

- Between 2009 and 2013, 23.9% GDP reduction and 17.9 ppts increase in unemployment rate
- Slow recovery since then, with GDP and employment still lagging behind their 2009 levels
- Four major structural PIT reforms between 2009 and 2019, which increased taxes on labour even in the aftermath of the economic crisis
- Research questions:
    - Fiscal effects
    - Distributional effects
    - Gainers and losers
    - Work incentives

Outline

1. Overview of income tax reforms
2. Methodology and data
3. Results
4. Summary and ideas for next steps

Overview of personal income tax reforms (1/2)

	2009 system	2010 reform	2011 reform	2013 reform	2016 reform
personal income tax bands	5	9	8	2-4 depending on the income source	4
maximum tax rate	40% (for annual incomes over €75,000)	45% (for annual incomes over €100,000)	no change	33%-42% depending on the income source	45% (for annual incomes over €40,000)
zero tax bracket	€12,000 for employees and pensioners; €10,500 for all others	€12,000 for all	€9,000 for persons aged below 30/ above 65; €5,000 for all others	abolished (turned into tax credit)	n/a
increase in zero tax bracket due to children	1st child: €1,000 2nd child: €2,000 3rd child: €10,000	1st child: €1,500 2nd child: €3,000 3rd child: €11,500	1st child: €2,000 2nd child: €4,000 3rd child: €7,000	abolished	n/a
increase in zero tax bracket due to disability	€2,400	no change	no change	turned into tax credit	no change
tax allowances (TA) / tax credits (TC)	spending on private insurance, installation of eco-friendly energy systems: eligible for TA social insurance contributions (SIC): fully deducted from taxable income	spending on private insurance, installation of eco-friendly energy systems: eligible for TC SIC: no change	TCs: 50% reduced TAs: abolished SIC for self-employed: provided as a 10% TC	most TCs: abolished; introduction of employment & pensions income TC SIC: fully deducted from taxable income	changes in employment & pensions income TC SIC: no change

Overview of personal income tax reforms (2/2)

	2009 system	2010 reform	2011 reform	2013 reform	2016 reform
solidarity contribution	n/a	paid by individuals with annual taxable incomes above €12,000	no change	no change	reformed
self-employed & liberal professions' contribution	n/a	€300 per year	€500 per year (in 2011) €650 per year (in 2012)	no change	no change
pensioners' solidarity contributions	n/a	main pensions exceeding €1,400 per month taxed from 3% to 14%	reformed & also applied to supplementary pensions	no change	no change

Methodology and data (1/3)

- Greek component of EUROMOD
- SILC microdata: gross incomes, labour market status and other characteristics of individuals and households
- Three SILC waves (SILC 2010 for 2010 reform, SILC 2012 for 2011 and 2013 reforms, SILC 2016 for 2016 reform) and hypothetical data (EURMOD's Hypothetical Household Tool, HHoT)
- Rules for the most relevant income taxes, contributions and benefits -> individual and household's tax liabilities, benefit entitlements and disposable incomes

Methodology and data (2/3)

- Analysis based on constructing a series of counterfactual scenarios
- For each reform t = 2010, 2011, 2013, 2016 we compare two scenarios:
  - Baseline scenario: market incomes & tax-benefit policies as in year t
  - Counterfactual scenario: PIT rules as in year t-1, rest as in year t
- The counterfactual can be interpreted as what would have happened if the PIT reform had not been implemented, all other things unchanged
- The comparison can be interpreted as the intended morning-after effect of each PIT reform alone

Methodology and data (3/3)

- Fiscal effects: changes in revenue
- Distributional effects:
  - Changes in at-risk-of-poverty rates FGT(0) by age, tenure status and labour status
  - Changes in Gini, S80/S20, Reynolds-Smolensky, Kakwani
- Gainers and losers:
  - Gainers and losers (5% of more of disposable income) by income decile
  - Changes in disposable income by income decile for several hypothetical households
- Work incentives:
  - Changes in Marginal Effective Tax Rates $METR_i = 1 - \left(\frac{Y_{HH}^1 - Y_{HH}^0}{E_i^1 - E_i^0}\right)$
  - Changes in Participation Tax Rates: $PTR_i = 1 - \left(\frac{HDI_{wi} - HDI_{nwi}}{E_{wi}}\right)$

Results: fiscal effects

- **Intended changes in tax revenue (million EUR)**

	2010 PIT reform	2011 PIT reform	2013 PIT reform	2016 PIT reform
Personal income tax	-543	2,664	976	374
Solidarity contribution	984	27	0	38
Self-employed contribution	211	97	0	0
Pensioners' solidarity contribution	132	447	0	0
Total	782	3,245	985	412

Results: distributional effects (1/2)

- **Poverty effects of PIT reforms (changes in percentage points)**

	2010 reform	2011 reform	2013 reform	2016 reform
all	0.1	0.4	0.8	-0.1
gender				
men	0.1	0.4	0.8	-0.1
women	0.1	0.4	0.8	-0.1
age				
0-15	0.0	0.4	1.1	-0.2
16-29	0.3	0.4	0.9	0.1
30-44	0.0	0.4	1.3	-0.2
45-64	0.1	0.5	1.0	-0.1
65+	0.0	0.1	-0.2	0.0
tenure				
rent / mortgage	0.0	0.2	0.7	-0.1
owned outright	0.1	0.5	0.9	-0.1
household head is				
unemployed	0.0	0.0	0.7	0.2
employee (public sector incl. banking)	0.1	0.3	0.0	0.5
employee (private sector excl. banking)	0.2	0.4	0.1	0.2
liberal profession	0.0	0.0	1.6	0.0
self-employed	0.0	0.4	4.7	-1.1
farmer	0.0	0.1	2.3	-1.0
pensioner	0.0	0.6	-0.5	0.1
other	0.0	0.1	0.2	0.0

Results: distributional effects (2/2)

- **Inequality effects of PIT reforms (% change)**

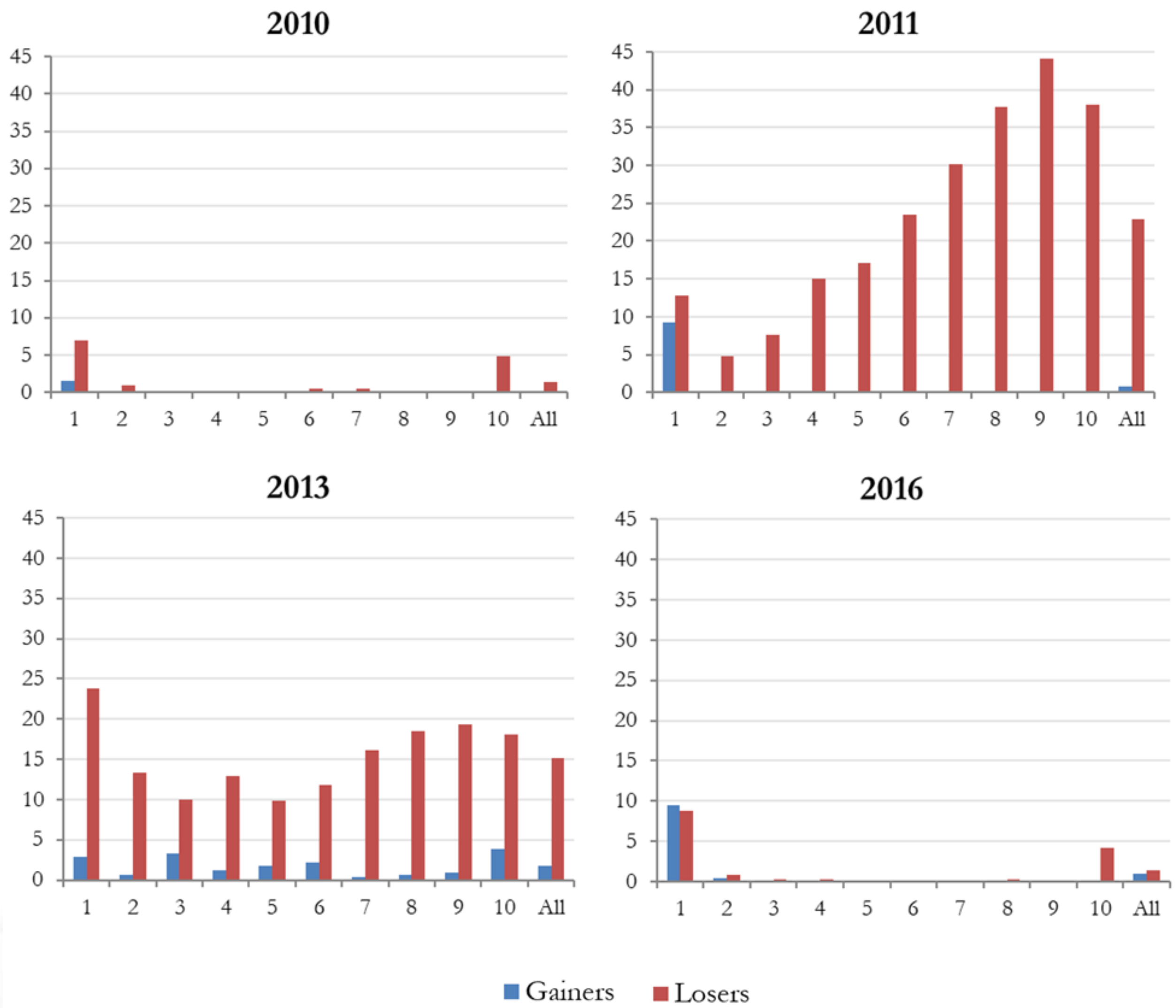
	2010 PIT reform	2011 PIT reform	2013 PIT reform	2016 PIT reform
Gini index	-1.0	-1.5	0.9	-1.0
S80/S20 income quintile share ratio	-1.1	-3.5	1.5	-1.7

- **Progressivity and redistributive effect of PIT reforms (% change)**

	2010 PIT reform	2011 PIT reform	2013 PIT reform	2016 PIT reform
Reynolds-Smolensky	12.0	18.2	-4.2	11.2
Kakwani index	-0.7	-23.4	-17.4	3.7
Net average tax rate	13.1	55.4	19.0	6.0

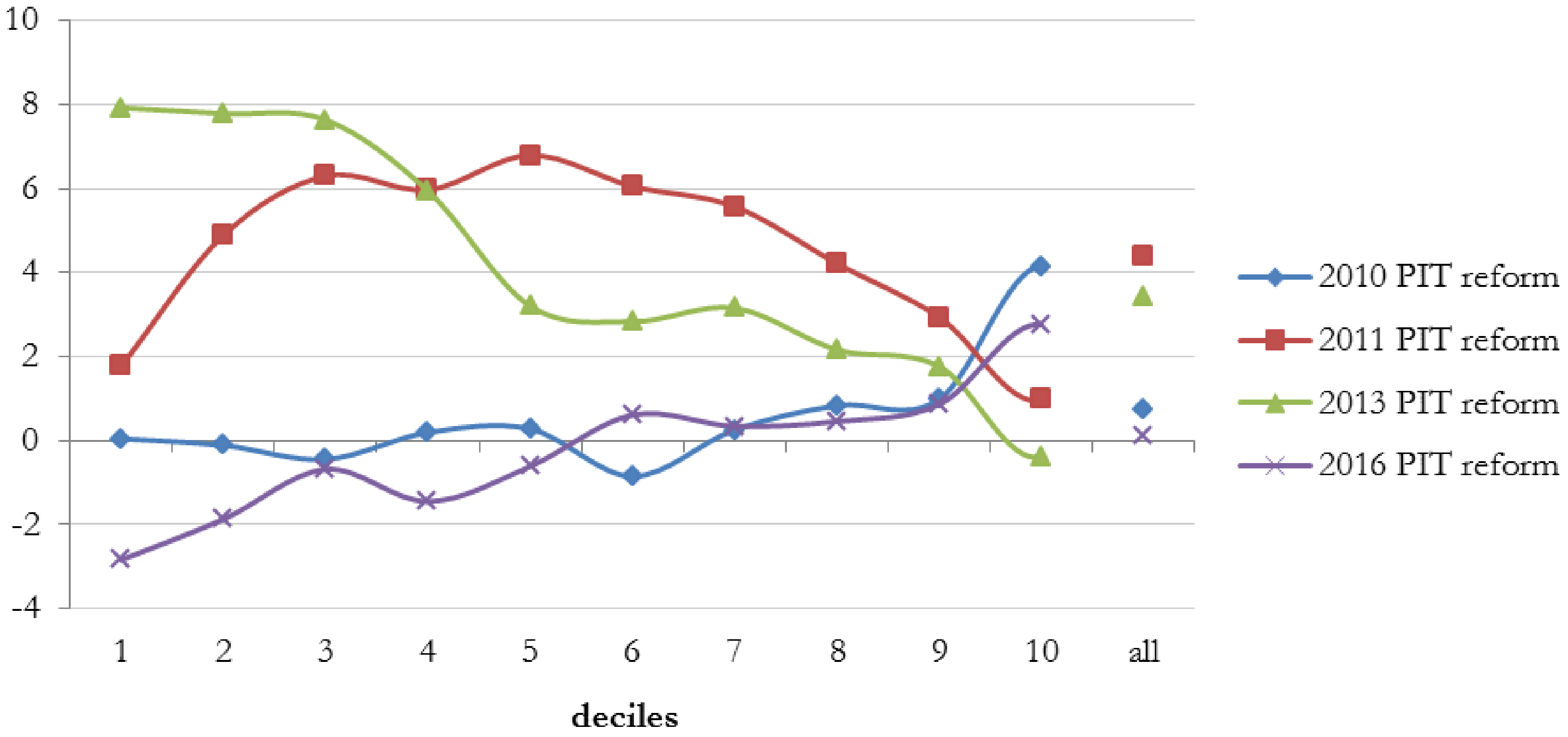
Results: gainers and losers

- **Households gaining or losing 5% of disposable income or more by income decile**



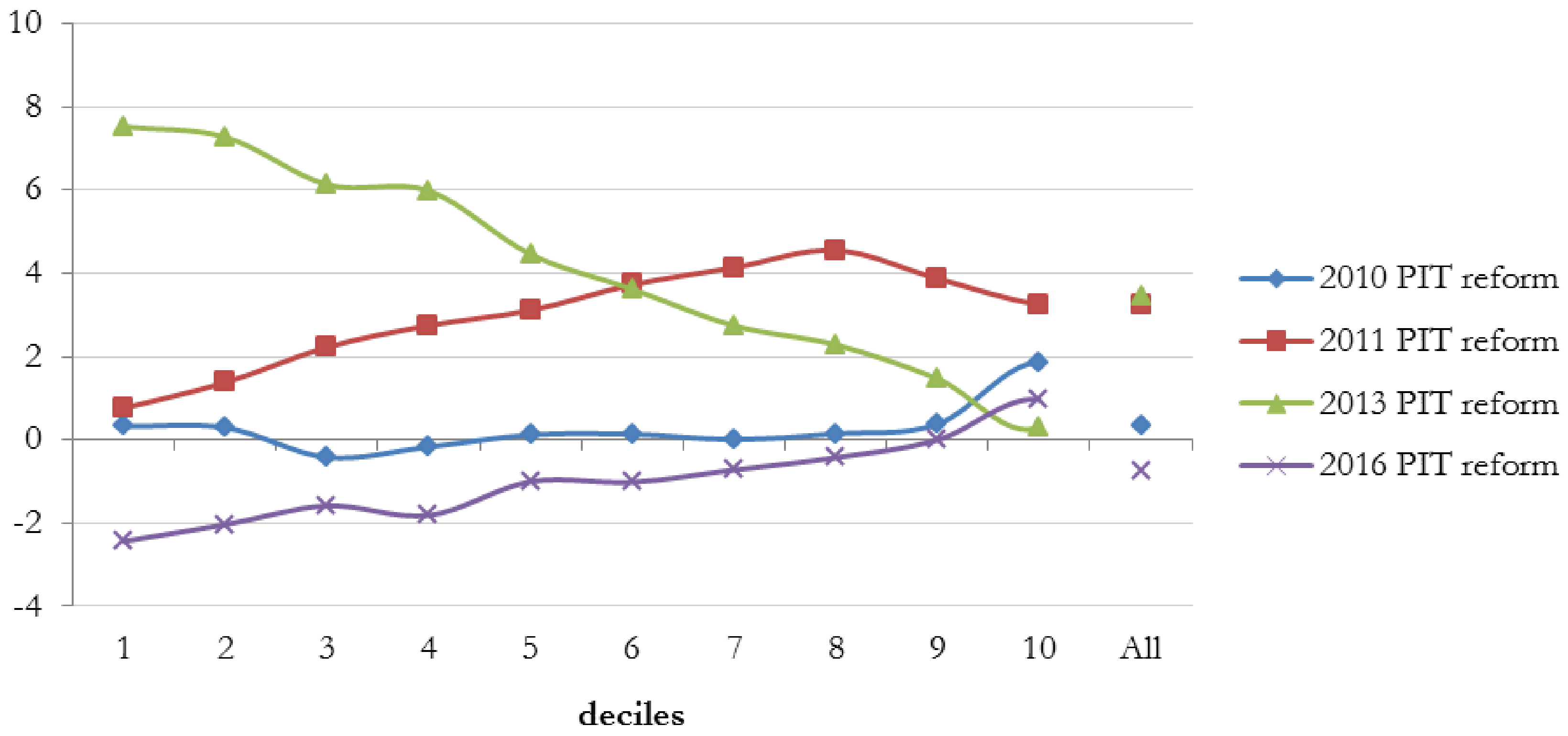
Results: work incentives (1/2)

- Change in mean marginal effective tax rates (in percentage points)



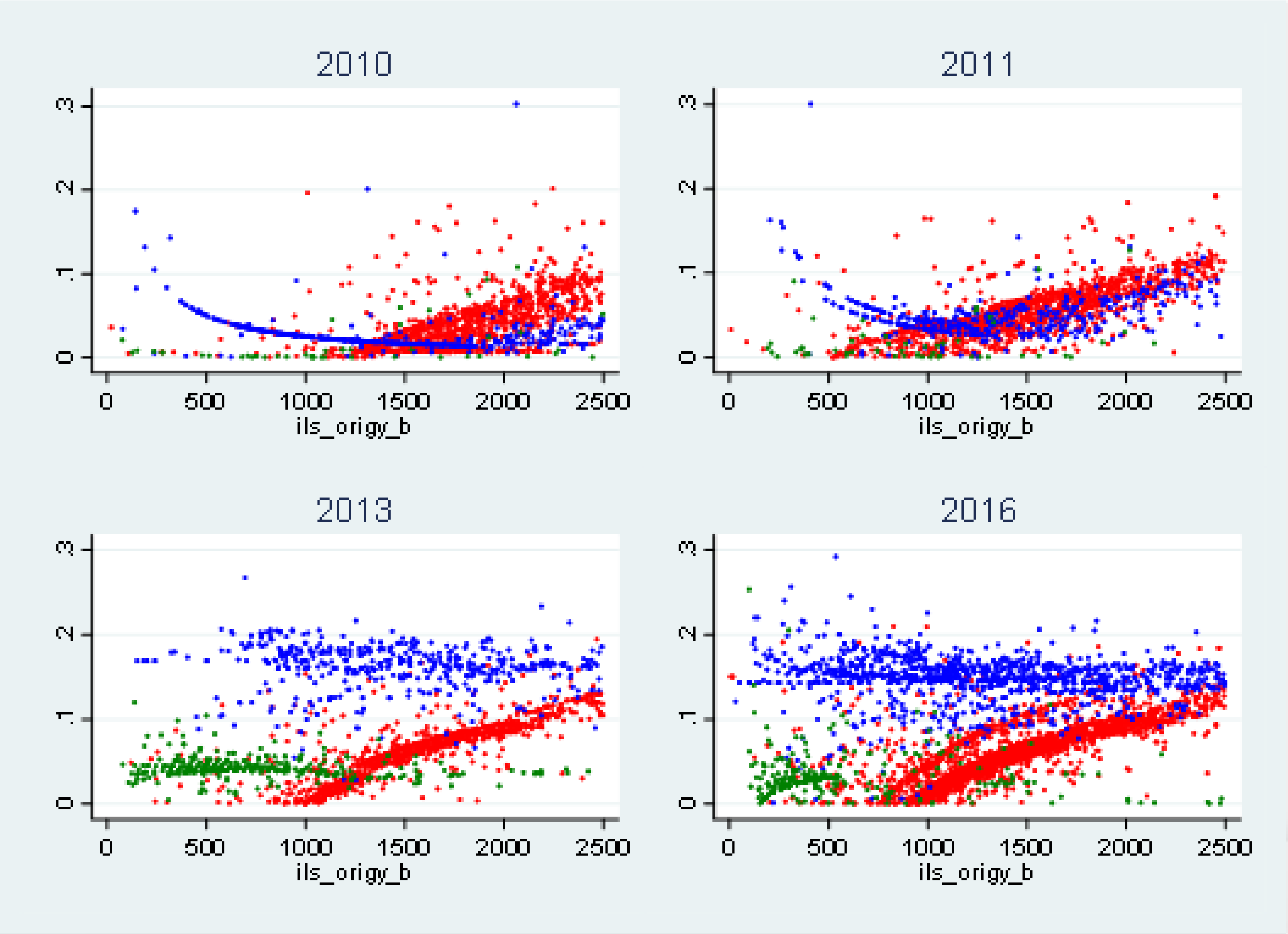
Results: work incentives (2/2)

- Change in mean participation tax rates (in percentage points)



Results: average tax rates

- Average tax rates (income taxes/original income)



- Employees
- Self-employed
- Farmers

Summary (1/2)

- All PIT reforms had a revenue-increasing rationale, especially the one of 2011
- All except the 2013 PIT reform were inequality-reducing, particularly the one of 2011
- At-risk of-poverty increased by the 2011 and especially by the 2013 reform. 2010 and 2016 reforms had small but heterogeneous poverty impact across population groups
- Work incentives generally decreased: in 2010 for the richest deciles, 2011 for the middle part of the distribution, 2013 for poorest deciles; slight general improvement in 2016 for the lowest half of the distribution

Summary (2/2)

- 2011 reform: improved public revenues while strengthening redistribution
  - Tax schedule: made more progressive by including different elements of income under a single harmonized tax base
- 2013 PIT reform: excluded several income sources from the tax base and made them subject to alternative schedules
  - Erosion of the tax base => reduced redistributive power and progressivity of tax system
- Striking discrepancies in the ways in which different household types have been affected by the four PIT reforms
  - Principle of neutrality: severely hampered
  - Biggest losers: households headed by self-employed
- Policy recommendations: rethinking of policies with embedded differential treatments & moving towards more uniform PIT rules

Ideas for next steps

- Real vs intended (fiscal) effects of PIT changes
  - Exploring reasons for discrepancies
  - Calculating the elasticity of taxable income with respect to marginal PIT rate changes
  - Attempting to quantify taxpayers' behavioural responses to tax changes
- Performing a full decomposition analysis (Bargain & Callan, 2010)
  - Disentangling the impact of changes in the underlying income distribution
  - Quantifying the *relative* role of policy changes on inequality/poverty
- Exploring the combined effect of changes in PIT & social insurance contributions

THANK YOU

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