Tax changes and inequality in Latin America over the last decades

Bruno Martorano

Maastricht Graduate School of Governance

UNU-MERIT (Maastricht University)

G-24 Special Workshop on Growth and Reducing Inequality

September 5-6, 2017 - Geneva, Switzerland

Introduction

The role of tax policy and in particular its effectiveness to influence inequality in developing countries is one of the most debated topics in economics (Bird and Zolt, 2013).

Two alternative views:

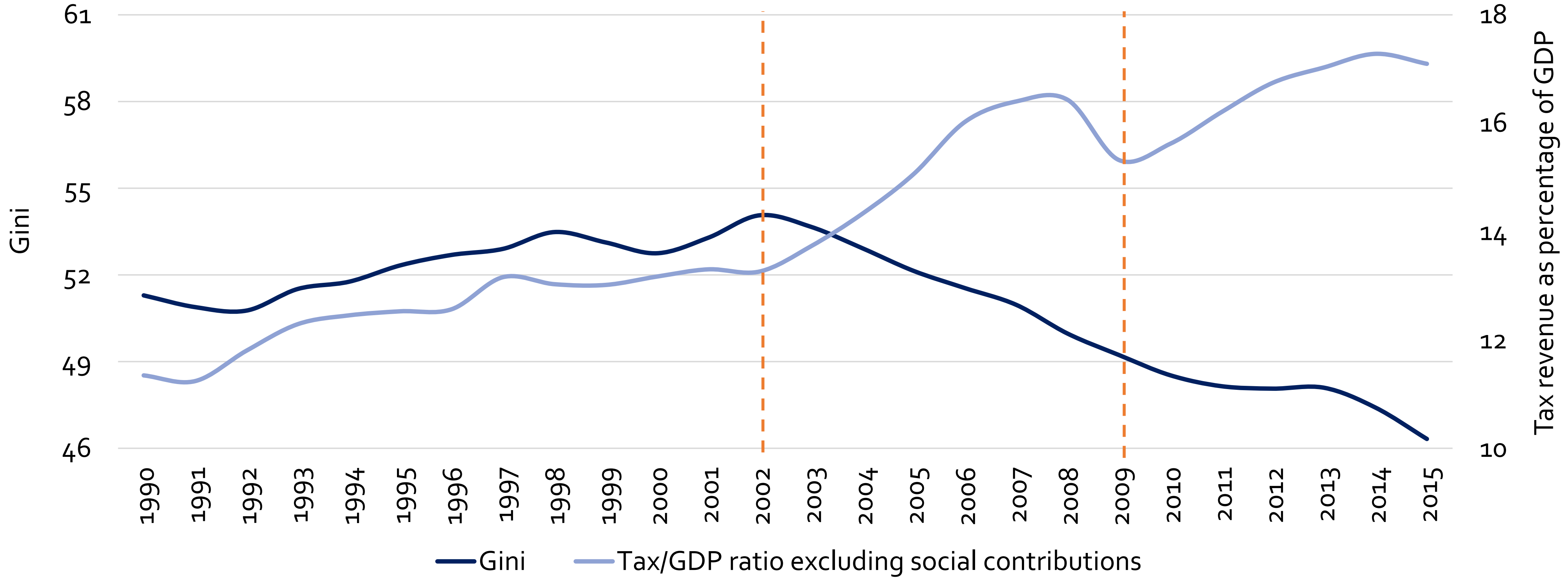
(i) taxation could promote equality (1950s – 1960s)

(ii) tax system should assure efficiency and horizontal equity (1970s – 1990s).

LA have suffered from the influence of the above mentioned alternative views (Cornia, Gómez-Sabaíni and Martorano 2011).

In 1980s and in the 1990s, tax changes promoted a shift towards regressive tax policies (and especially VAT) increasing the tax burden on the poorest families

Since the early 2000s, LA has recorded a sizeable increase in tax revenue. Over the same period, inequality decreased



Source: Inequality data are from the IDLA and SEDLAC database; the tax/GDP ratio is from the GRD 2017.

Aims and contributions of my recent research

the aim of my research is to investigate empirically whether the recent changes of taxation observed in the region have contributed to the reduction of inequality recorded in LA during in the last decade

1. It contributes to the interesting and rich literature reporting evidence on the impact of taxation on inequality.

2. Analyse the contribution of different types of taxes and the impact of taxation on different parts of the distribution is tested.

3. My research also contributes to the political economy discussion providing useful lessons and policy implications for other middle income countries.

Factors promoting the increase in tax revenue in LA

- … the positive economic performance in the 2000s contributed to generate more and better jobs, a new middle class that in turn promoted an **expansion of tax base**
- … the revenue capacity of countries exporting oil and non-oil commodities was affected by the changes in external conditions.
- LA governments implemented important **administrative reforms** in order to improve the efficiency of tax collection e.g. Semi-Autonomous Revenue Authority (SARA)

… Some examples of reform

- Consistent with the reforms in the 1990s, most countries kept on expanding their income-tax base introducing significant measures to cover both labour and capital income (ECLAC 2013).

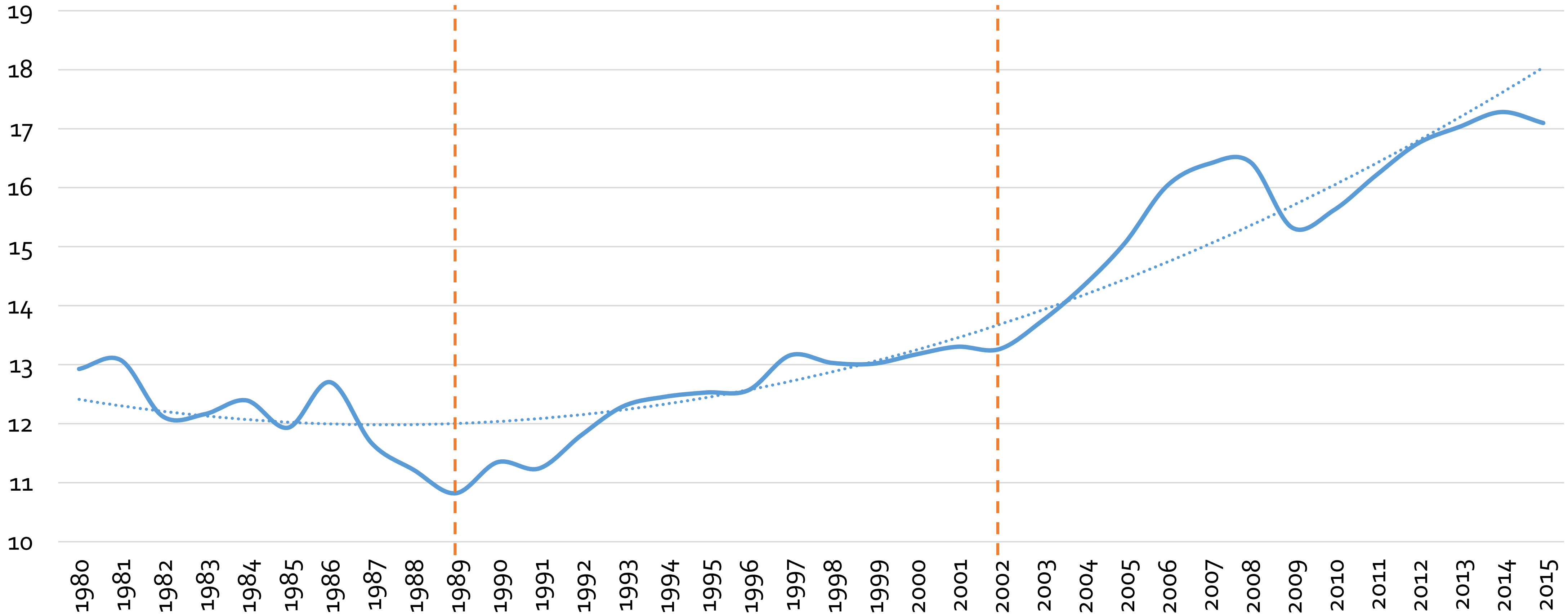
- The 2007 Uruguayan Tax Reform introduced a progressive taxation on labour income consisting of six rates ranging from 0 to 30% and a flat rate on capital income of 12%.

- Ecuador government introduced a tax reform in 2008 aiming explicitly at increasing the progressivity of PIT.

- In 2009, the Peruvian government introduced a progressive taxation on labour income with rates ranging from 0 to 30% with a tax rate of 6.25% on 80% of capital income.

- More recently, other countries such as Chile, Colombia and Mexico introduced tax reforms by increasing tax rates and by cutting exemptions (ECLAC 2015).

… tax revenue (as % of GDP) started to recover in the 1990s. Yet, the most interesting changes are related to the 2000s.



Source: Author's elaboration on the 2015 Government Revenue Dataset

…important changes were also recorded in terms of the composition of taxation

	Taxes on income, profits, and capital gains	Taxes on property	Taxes on sales	Other taxes
1990	28	3	33	34
2002	26	3	41	28
2015	33	2	39	25
Variation for 1990–2002	−2	0	8	−6
Variation for 2002–2015	+7	−1	−2	−3

Source: Author's elaboration on the 2015 Government Revenue Dataset

Regression analysis: Empirical Framework

$$Gini_{it} = \alpha_0 + \alpha_1 tax\ policy_{it} + \alpha_2 Z_{it} + \eta_i + u_{it} \quad i = 1, 2, \ldots, N;\ t = 2, 3, \ldots, T \qquad (1),$$

Information for 18 Latin American countries over the period 1990-2015.

The dependent variable is extracted from the Income Distribution in Latin America (IDLA) Dataset and SEDLAC

Taxation data are extracted from the new 2017 edition of the Government Revenue Dataset

IV estimator

Regression results: dependent variable Gini index

	IV-Baseline (1990 – 2015)
Tax/GDP	-0.844***
GDP per capita	-0.380**
REER	-0.018**
Debt/GDP	0.028***
Terms of trade	-0.004
FDIs	0.179**
Public social spending	0.199**
Variation of years of education	1.485
Constant	61.981***
Country dummies	yes
Observations	339
R-squared	0.755

Regression results: dependent variable Gini index

	IV-Baseline (1990 – 2015)	IV (1990-2001)	IV (2002-2015)
Tax/GDP	-0.844***	-0.460	-1.343***
GDP per capita	-0.380**	0.396	-0.629***
REER	-0.018**	0.022	-0.017
Debt/GDP	0.028***	0.091***	-0.019
Terms of trade	-0.004	0.019	0.005
FDIs	0.179**	0.205***	0.041
Public social spending	0.199**	-0.009	-0.675**
Variation of years of education	1.485	2.048**	-0.327
Constant	61.981***	40.003***	73.843***
Country dummies	yes	yes	yes
Observations	339	123	216
R-squared	0.755	0.922	0.752

Some additional results

- the increasing contribution of direct taxes with respect to indirect taxes promoted the progressivity of the tax system and contributed to the reduction of inequality.

- Taxation influences the distribution mainly by reducing the distance between the middle class and the upper class

- … the effect is limited at the top of the distribution.

Uruguay

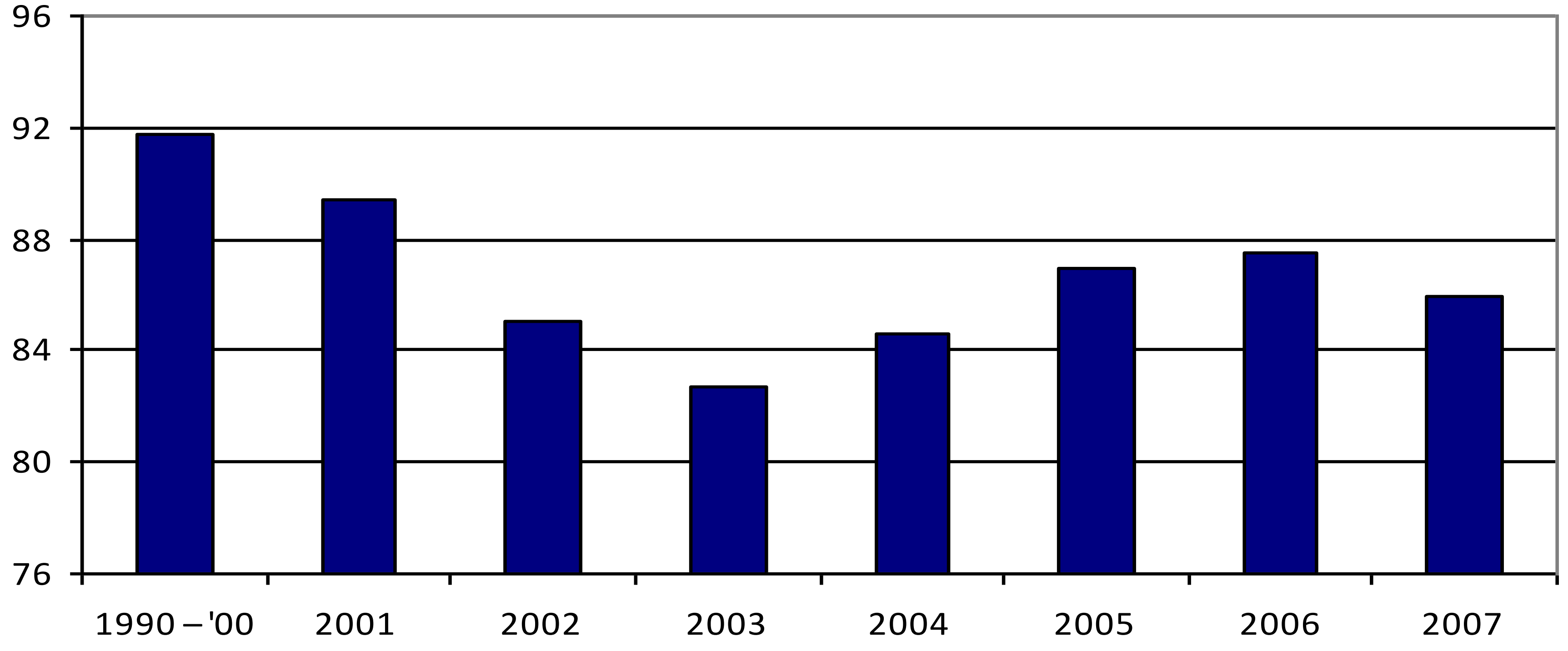
- As Bolivia and Paraguay, Uruguay is an emblematic example of the failure of neoliberal tax reform.
- The 1974 reform introduced the VAT and abolished the personal income tax.
- Yet, Uruguay is also the country that better symbolizes the Great Tax Transformation. In 2007, the government introduced one of the most innovative and interesting reform

Factors which led to the introduction of the 2007 tax reform

- Economic, social and political changes
- A Weak Fiscal Position generated by expenditure rigidities (e.g. wages/pensions spending and interest payments on the public debt)
- Public investment became the residual “adjustment variable” in total public spending showing a pro cyclical behaviour
- Continuous tax adjustments (tax spiral), deviating the tax policy away from its role of instrument for the integration and development strategy.

…Despite this tax proliferation, 2/3 of them account for less than 1 percent of the revenue collected

Contribution of VAT, IMESI, IRIC and IP on Total Tax Revenue between 1990 and 2007



The Uruguayan Tax Reform of 2007

Three goals:

a) Equality

b) Efficiency

c) Macroeconomic stability

Three pillars:

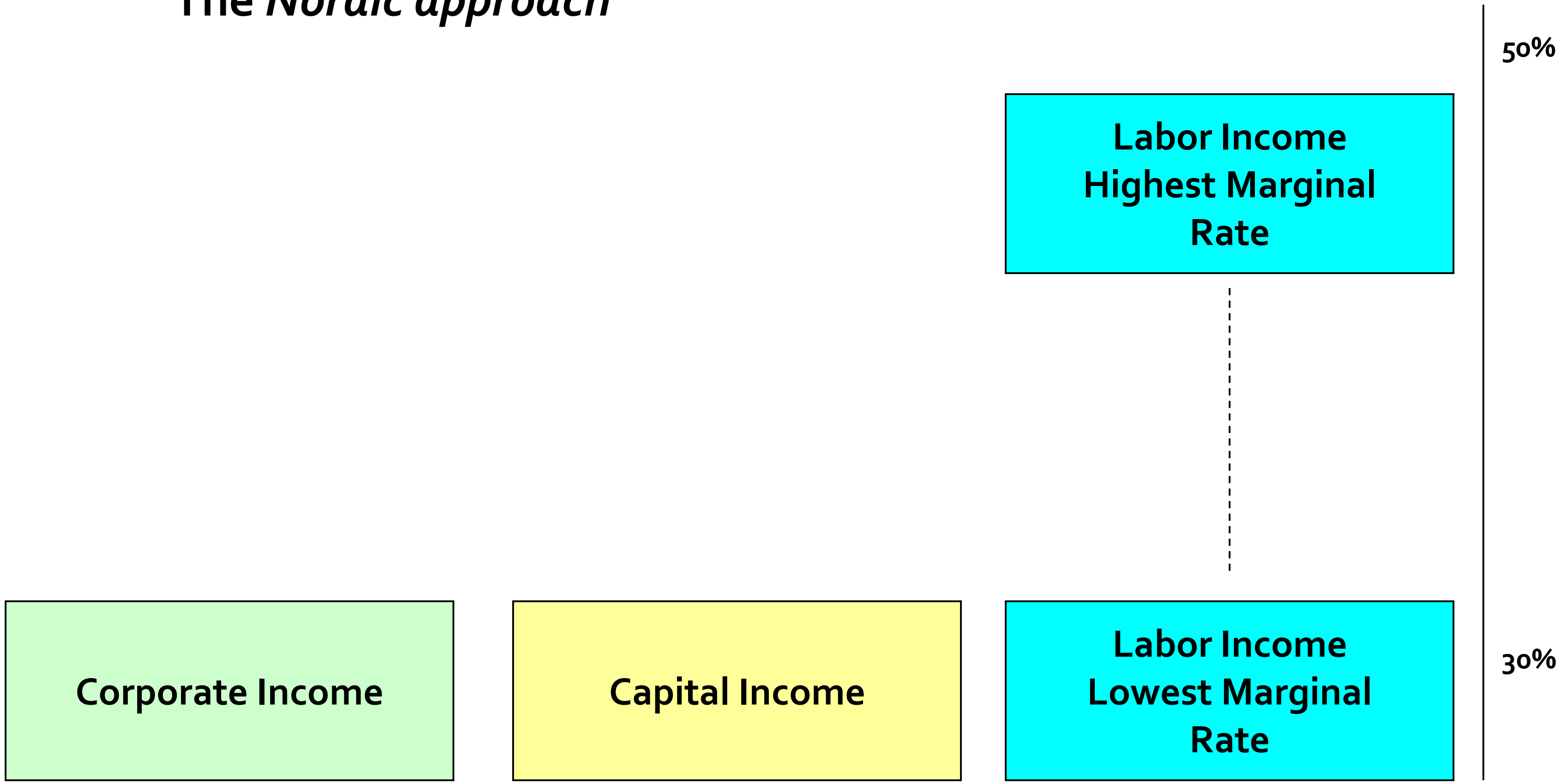
1) simplification

2) rationalization

3) fiscal responsibility

Dual Income Taxation

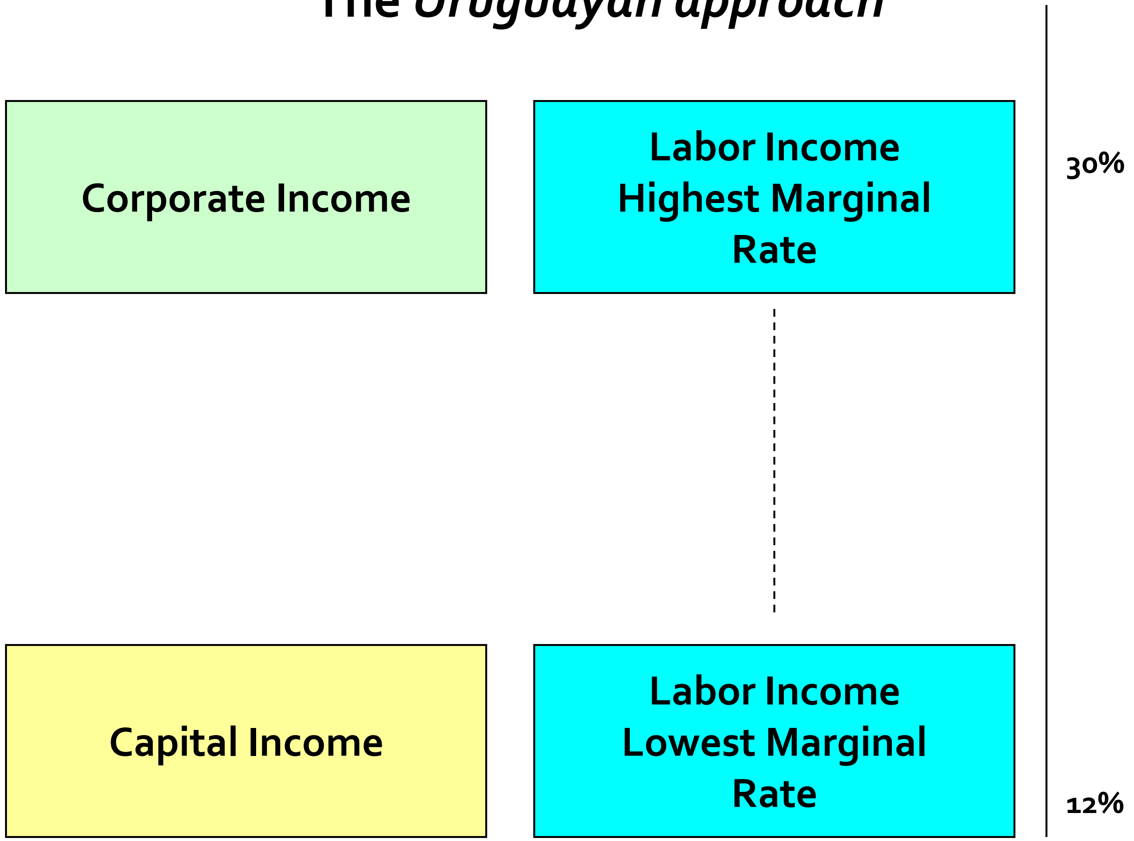
The *Nordic approach*



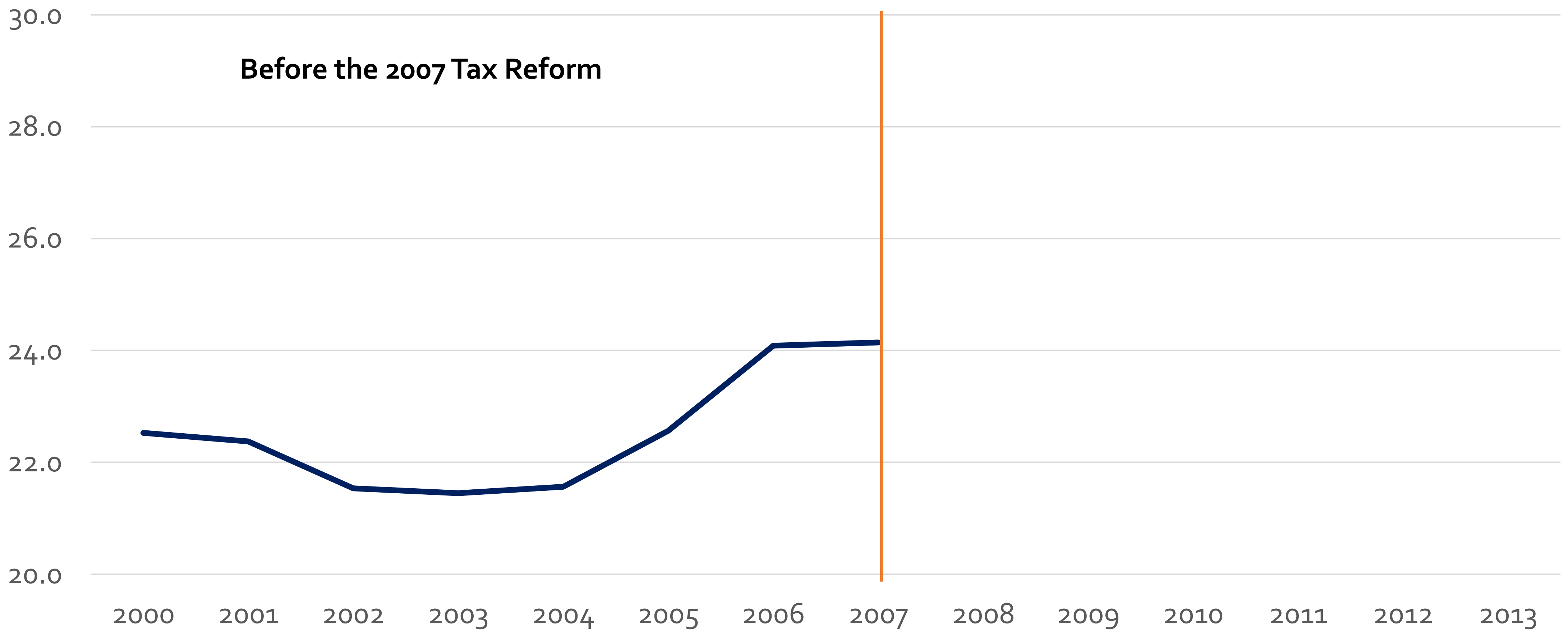
Dual Income Taxation

The *Uruguayan approach*

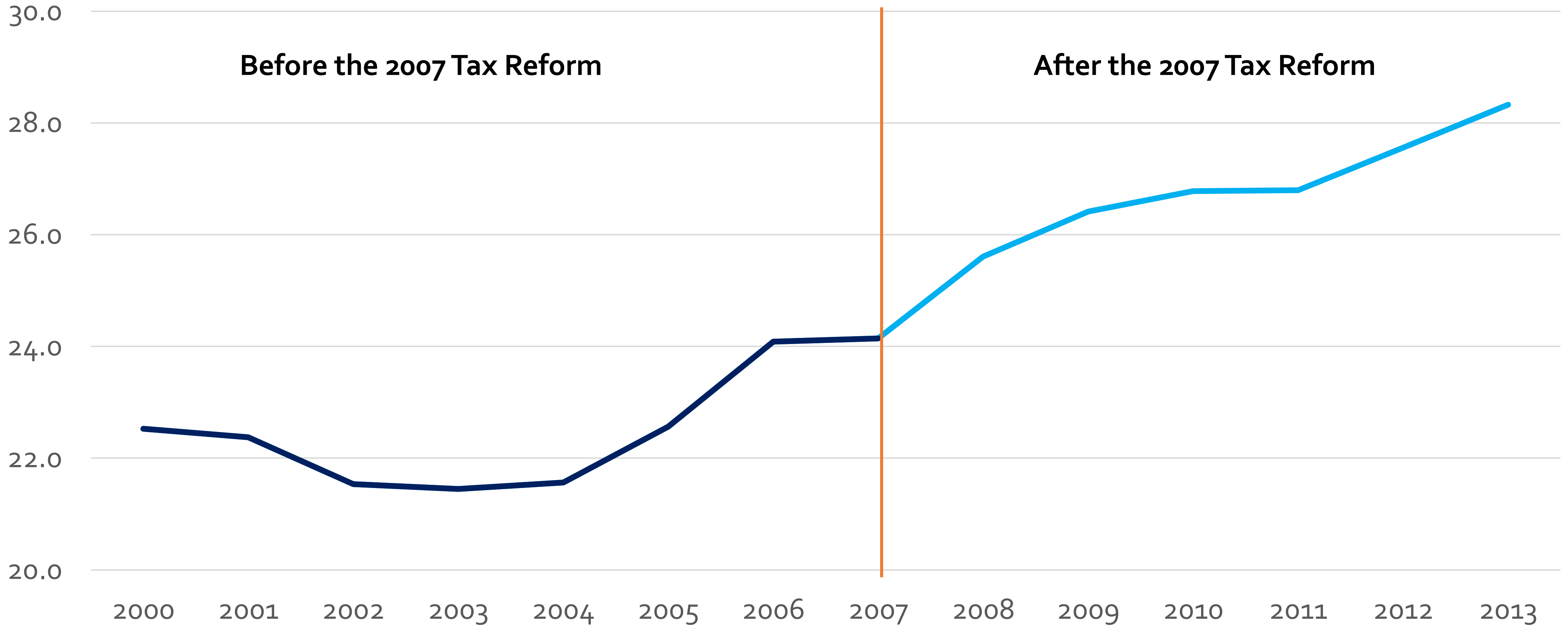
To limit the possibility of arbitrage between corporate and personal income tax rate



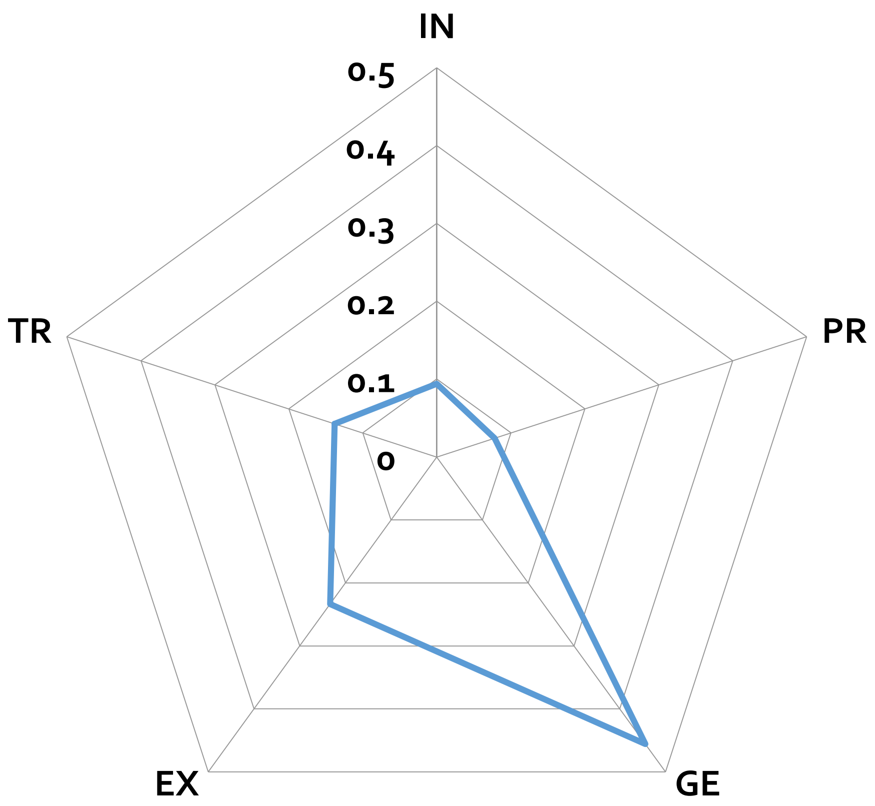
Tax revenue on GDP



Tax revenue on GDP



Tax System before and after the Reform



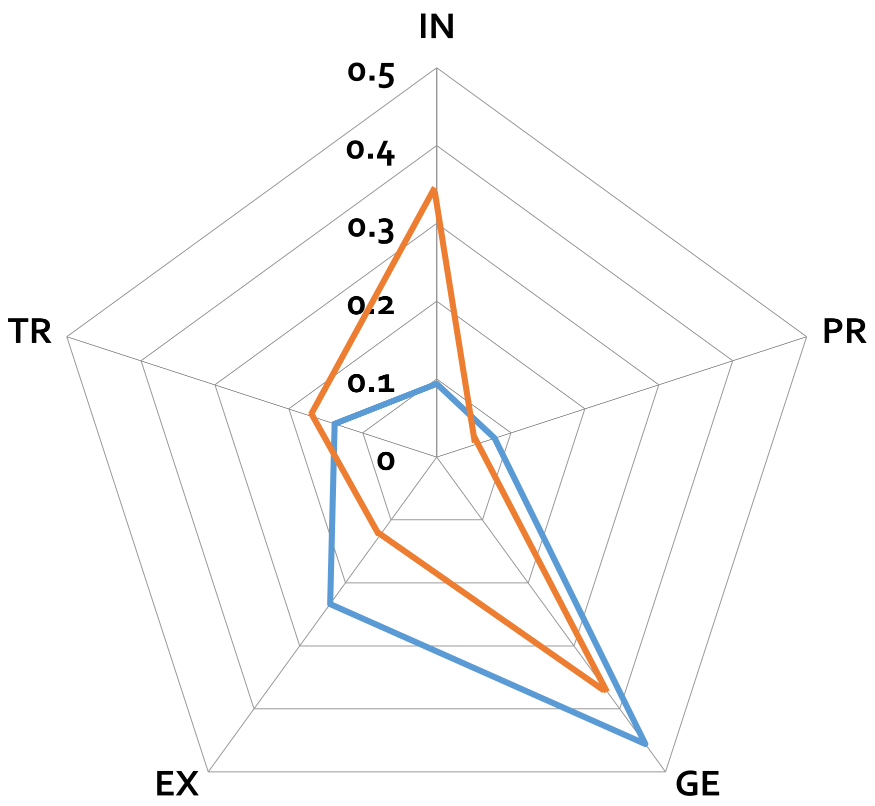
NOTES:

IN: Taxes on income, profits
PR: Tax on property + other
GE: General taxes on g&s
EX: Taxes on specific g&s
TR: Taxes on international trade

Blue: tax composition before the reform

Orange: tax composition after the reform

Tax System before and after the Reform



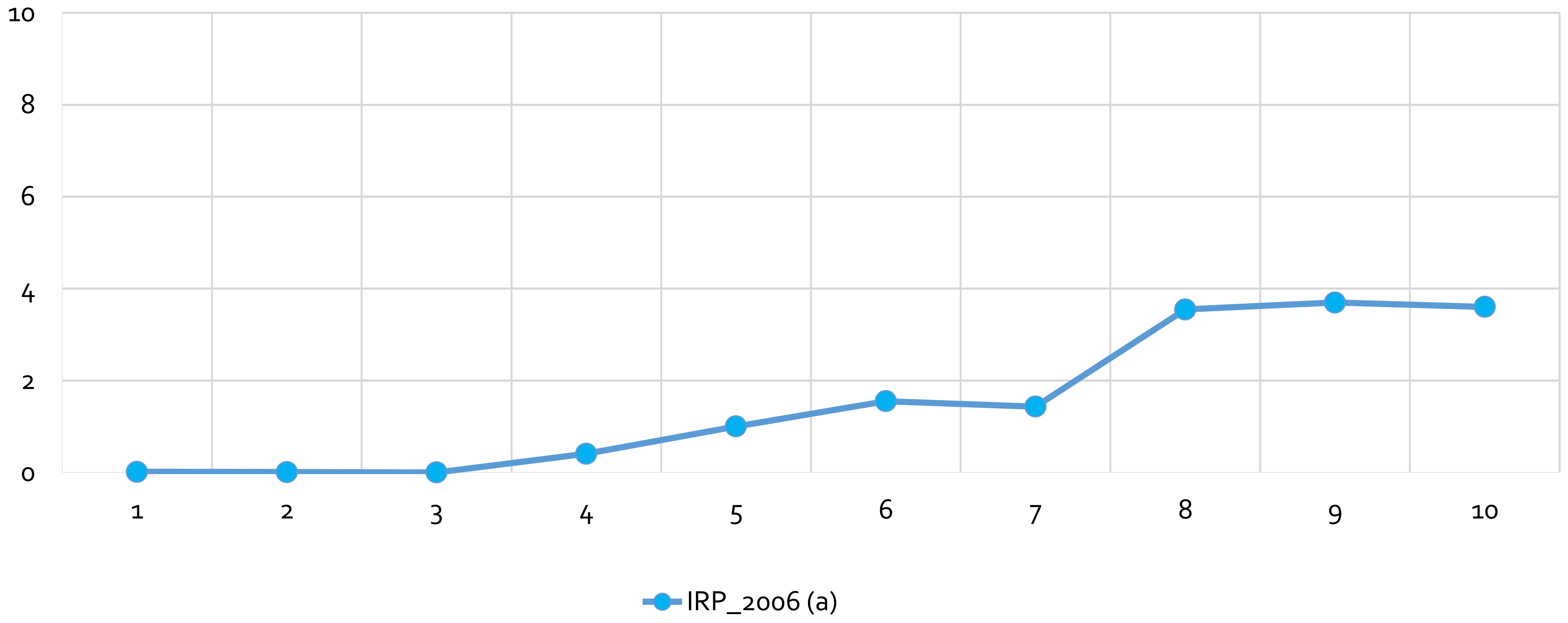
NOTES:

IN: Taxes on income, profits
PR: Tax on property + other
GE: General taxes on g&s
EX: Taxes on specific g&s
TR: Taxes on international trade

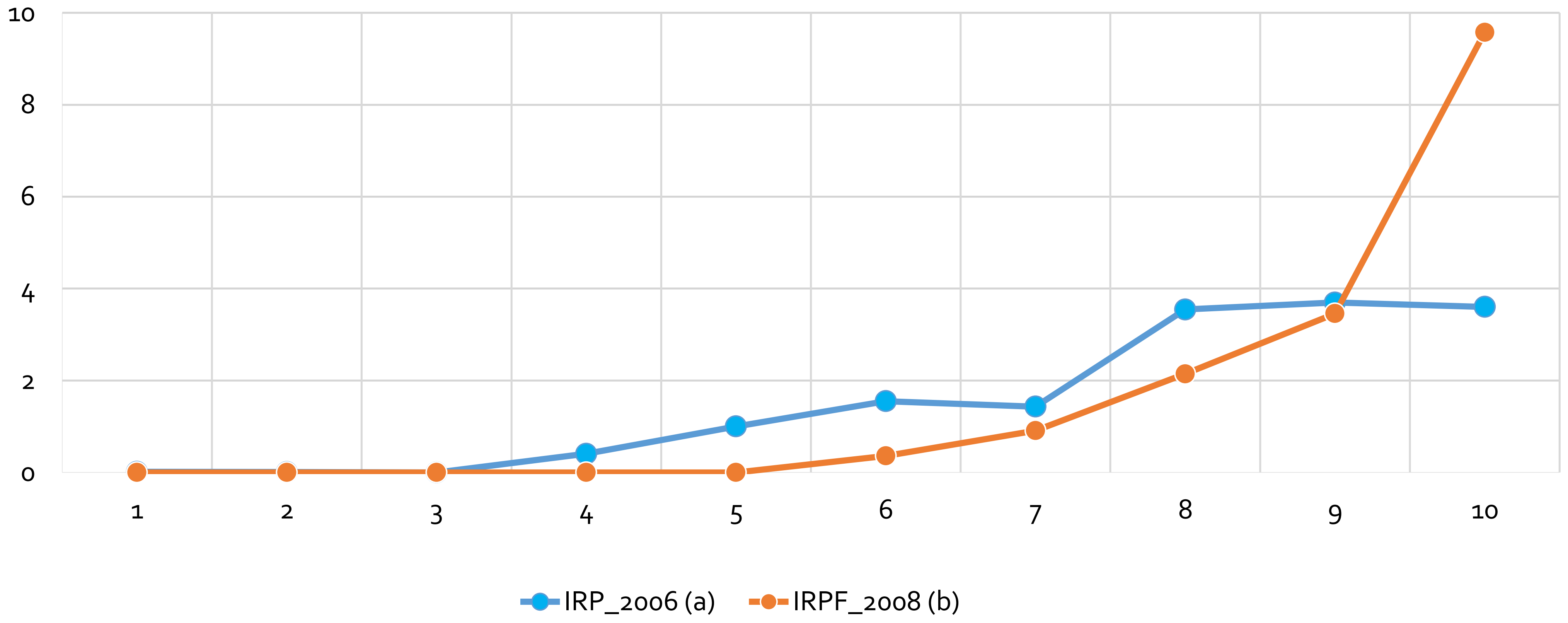
Blue: tax composition before the reform

Orange: tax composition after the reform

Change in Tax Incidence



Change in Tax Incidence



Empirical strategy and main results

- Impact evaluation analysis based on a Difference-in-Differences approach combined with a non experimental technique:

- the new tax on labour income (IRPF) lowered inequality by **2 Gini points.**

- the reform also had **not disincentive effects on labour supply.**

- This result contradicts the existence of a trade-off between equity and efficiency

Conclusions

Recent changes in taxation have influenced inequality in LA during the last decade. Yet, the effectiveness of taxation in promoting equality in LA is still limited by several factors.

1) the inability of governments to mobilise tax revenue to its potential. tax/GDP ratio could still be raised by near 4 points
2) The relative contribution of indirect taxes is still high … the share of taxes on sales on total tax revenue was around 40 per cent
3) the contribution of personal income taxes of taxes on property is low.

… the Uruguayan Tax Reform demonstrates that a successful development strategy could conciliate growth and equality

Many thanks

Regression analysis: Empirical Framework

$$Gini_{it} = \alpha_0 + \alpha_1 tax\ policy_{it} + \alpha_2 Z_{it} + \eta_i + u_{it} \quad i = 1, 2, \ldots, N;\ t = 2, 3, \ldots, T \qquad (1),$$

Information for 18 Latin American countries over the period 1990-2015.

The dependent variable is extracted from the Income Distribution in Latin America (IDLA) Dataset and SEDLAC

Taxation data are extracted from the new 2017 edition of the Government Revenue Dataset

…other control variables

Variable description	Unit of measure	Source
Gini	Index range 0–100	IDLA Dataset and the Socio-Economic Database for Latin America (Martorano and Cornia 2011) and the Caribbean (CEDLAS and World Bank, n.d.)
Tax/GDP	Percentage of GDP	ICTD/ UNU-WIDER Government Revenue Dataset
Gross domestic product (GDP) per capita	Data are in constant 2010 thousands of U.S. dollars	World Development Indicators
Real effective exchange rate (REER)	Index, 2007 = 100	Darvas (2012)
Debt	Percentage of GDP	CEPALSTAT
Terms of trade	Index, 2000 = 100	World Development Indicators
Foreign direct investments (FDIs), net inflows	Percentage of GDP	World Development Indicators
Public social spending	Percentage of GDP	CEPALSTAT and IFPRI
Variation of years of education	Yearly difference	The Socio-Economic Database for Latin America and the Caribbean. In order to assure a good coverage, some missing information were interpolated when there was a clearly trended time series.

Empirical strategy – IV estimator

- I use regress the tax/GDP ratio on the average value of the tax/GDP ratio in countries within the same sub-region (similar strategy was applied by Lee and Gordon 2005; Duncan and Sabirianova Peter 2016)

- The choice of this instrument is also explained by the significance of fiscal spill-over effects in policy design across Latin America e.g. VAT; Dual tax system; CCTs

- All tests confirm the validity of this instrument

- Additional robustness checks: (i) using alternative instruments; (ii) applying different estimators; and (iii) using alternative tax definitions

Regression results: dependent variable Gini index

	IV - Baseline	Model 2	Model 3	Model 4	Model 5
Tax/GDP	-0.844***				
Direct Taxes/GDP		-2.802***			
Direct taxes on indirect taxes			-0.820**		
Direct Taxes on total tax revenue				-1.070***	
Taxes on income, profits, and capital gains as share of total tax revenue					-1.864*
Taxes on property as share of total tax revenue					-6.587

Notes: These models include the same set of controls variables included in the baseline specification. Robust standard errors in brackets. *** p<0.01, ** p<0.05, * p<0.1.

Regression results: dependent variable Gini index

	Gini	Palma ratio	95/50 percentile ratios	95/80 percentile ratios	90/10 percentile ratios
Tax/GDP	-0.844***	-0.150***	-0.086***	$\boxed{\text{-0.025***}}$	-0.853***

Notes: These models include the same set of controls variables included in the baseline specification. Robust standard errors in brackets. *** p<0.01, ** p<0.05, * p<0.1.

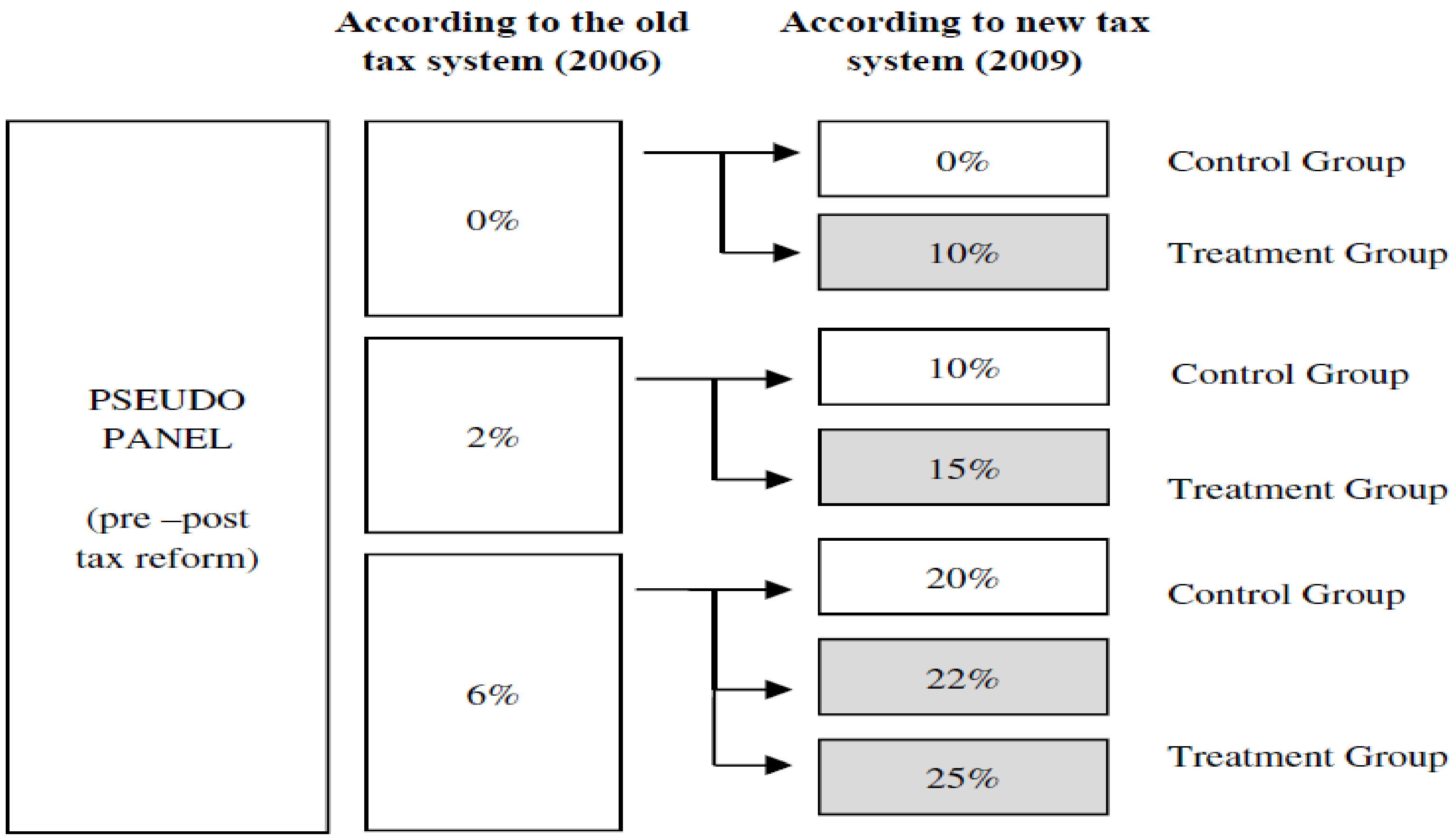
Impact evaluation of the 2007 Uruguayan Tax Reform on labour supply

- The initial assumption is that the repercussions of the 2007 tax reform on workers' economic conditions differ, even though the same workers were in a similar tax situation before the reform.

- Thus, I seek to investigate if the taxpayers who experience greater changes (hereafter the treatment group) reduce their labour supply more than other taxpayers (the control group).

- the pre-reform tax system constituted of only three tax brackets, in contrast to the post-tax reform which has six tax brackets.

Treatment vs control groups in different sub-samples



Source: Author's elaboration.

… Non – experimental technique

- lack of the counterfactual situation → potential bias in our measurements.

- matching estimation technique allows me to match 'quasi-identical' observations in the two groups (treatment and control) reproducing in the same way an experimental background (Blundell and Costa Dias, 2009).

- two main stages: propensity score and matching

- the pseudo-panel structure allows the use of a difference-in-differences (DID) technique to assess the effect of tax-rate changes on labour supply in the two groups.