The redistributive effects of Personal Income Tax reforms during the Great Recession in Spain

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Structure presentation

1. Introduction: Spanish PIT relevance, in EU context
2. Main PIT reforms
   1. Before 2008
   2. During the recession period before 2011
3. Results on PIT redistributive effects 2005-2010
4. Changes in PIT - 2011 and 2012
5. Evaluation of distributional effects of the 2011 and 2012 changes in PIT
4. Conclusions

1. Introduction: PIT relevance

❑ Personal Income Tax is a relevant component within the Spanish Tax-Benefit system aiming at disposable income redistribution. PIT reduces approximately an 11-12% the Gini coefficient of **income inequality in 2010**.
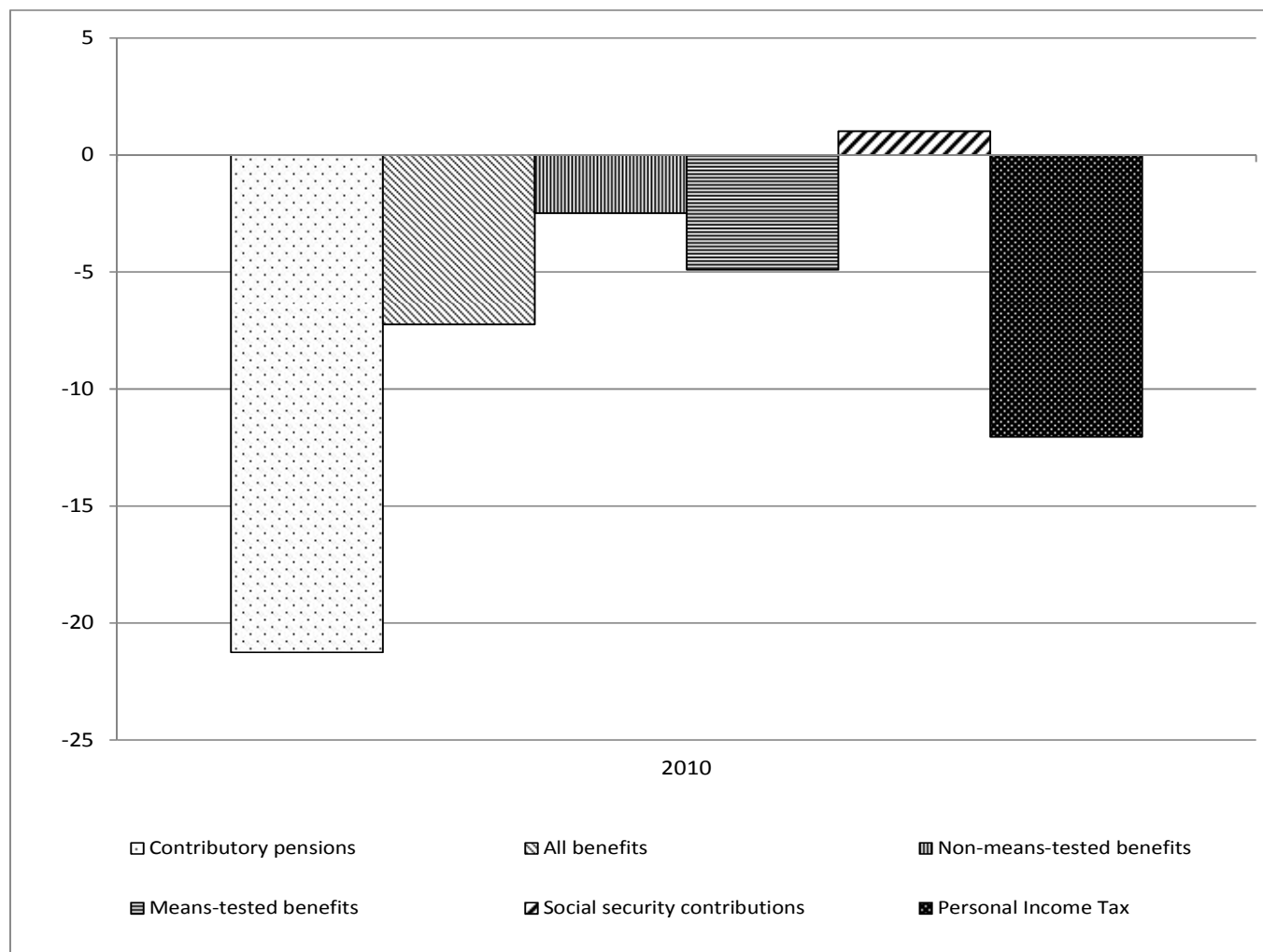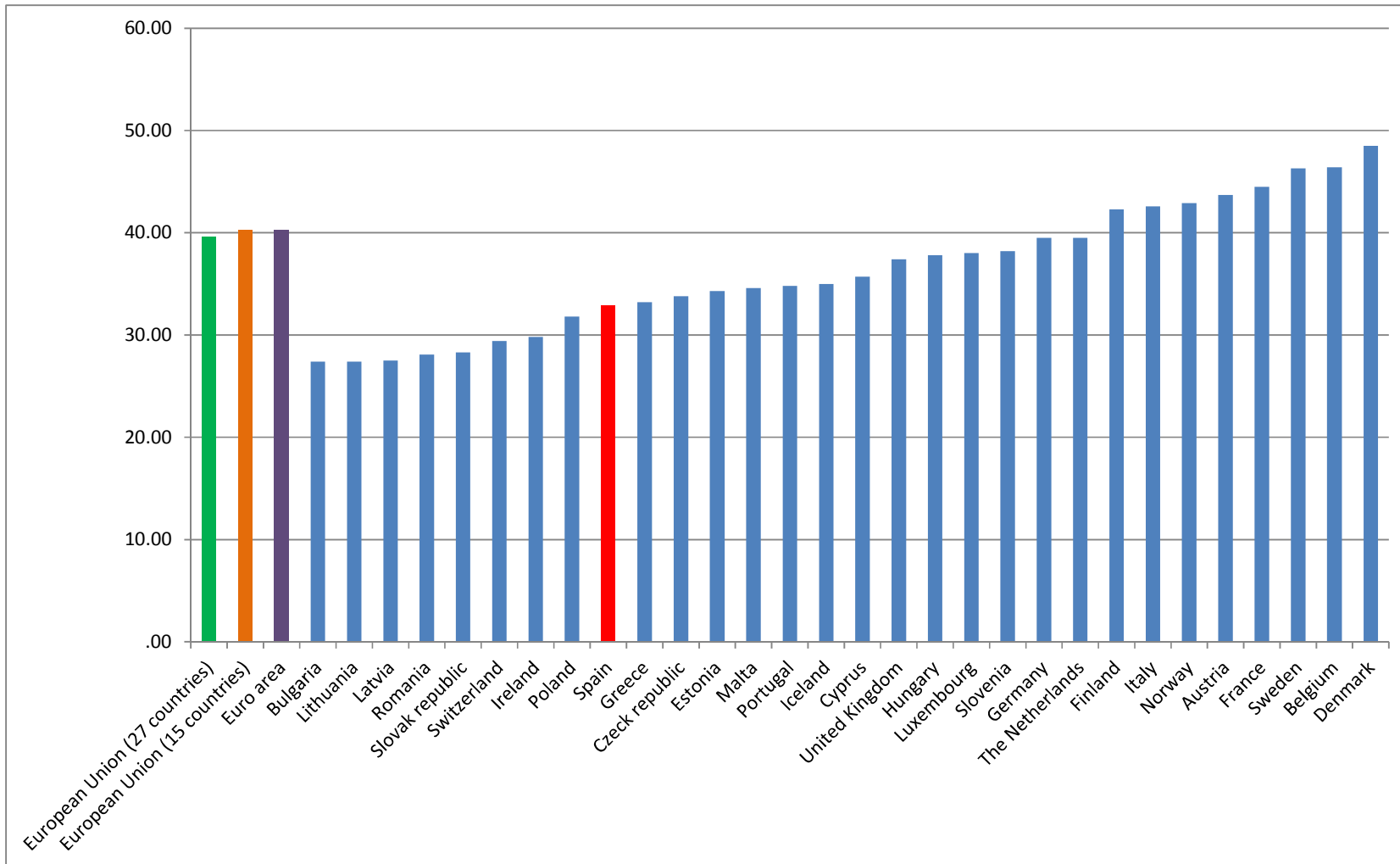
1. Introduction: PIT in context

❏ In comparison with other Tax-Benefit systems, PIT in Spain has a **middle to low** impact on individual income inequality (Fuest et al., 2009 and others)

❏ The main difference of Spanish PIT seems to be its **dimension** (low mean effective tax rates) while PIT progressivity seems similar (just slightly lower) to that in other countries (in comparison with results in OECD, 2011)
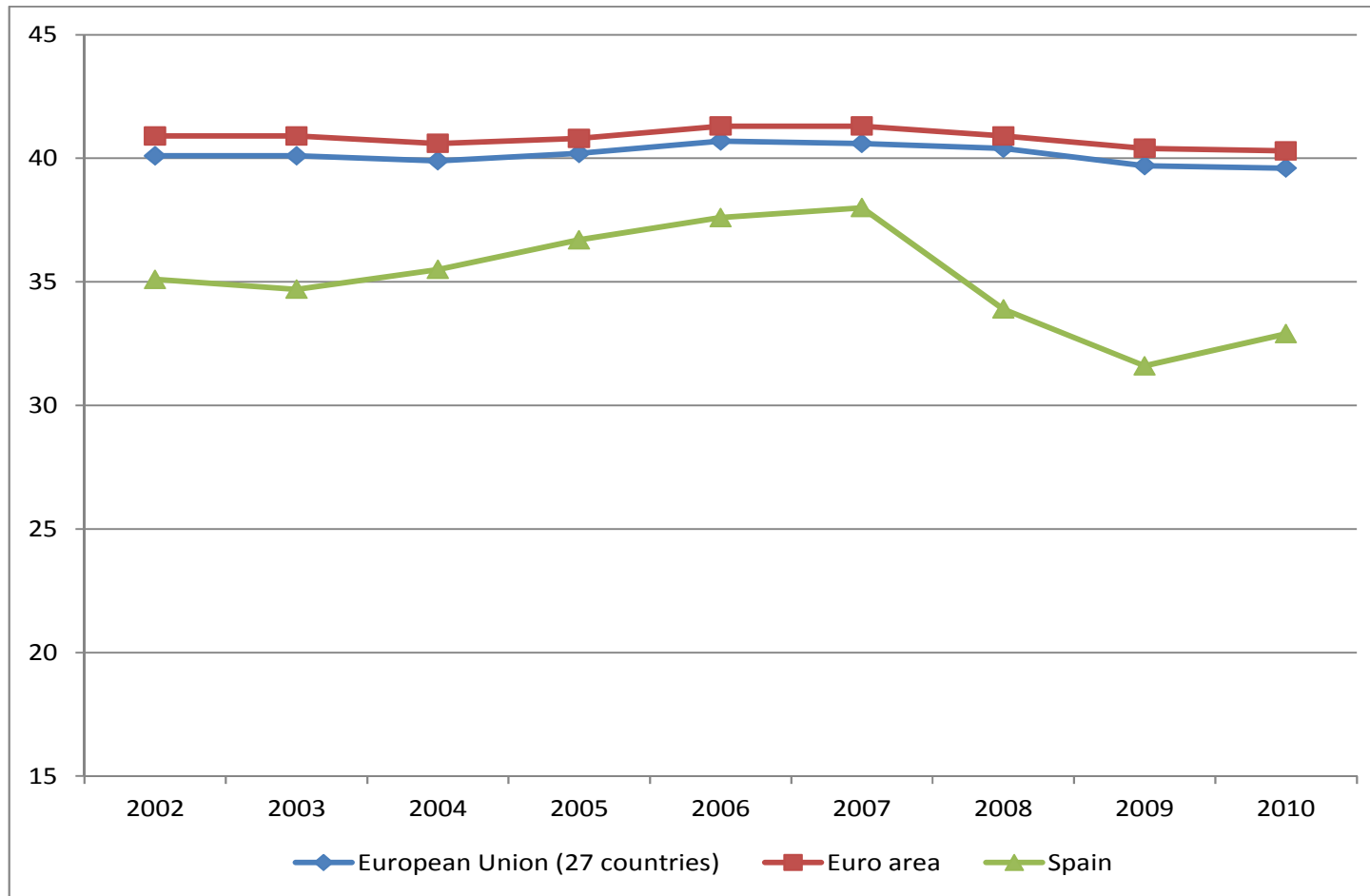
1. Introduction: Spanish Tax Receipts

❏ Tax receipts in Spain in % GDP in international context 2010 (total tax receipts and SSC)

Source: EUROSTAT.
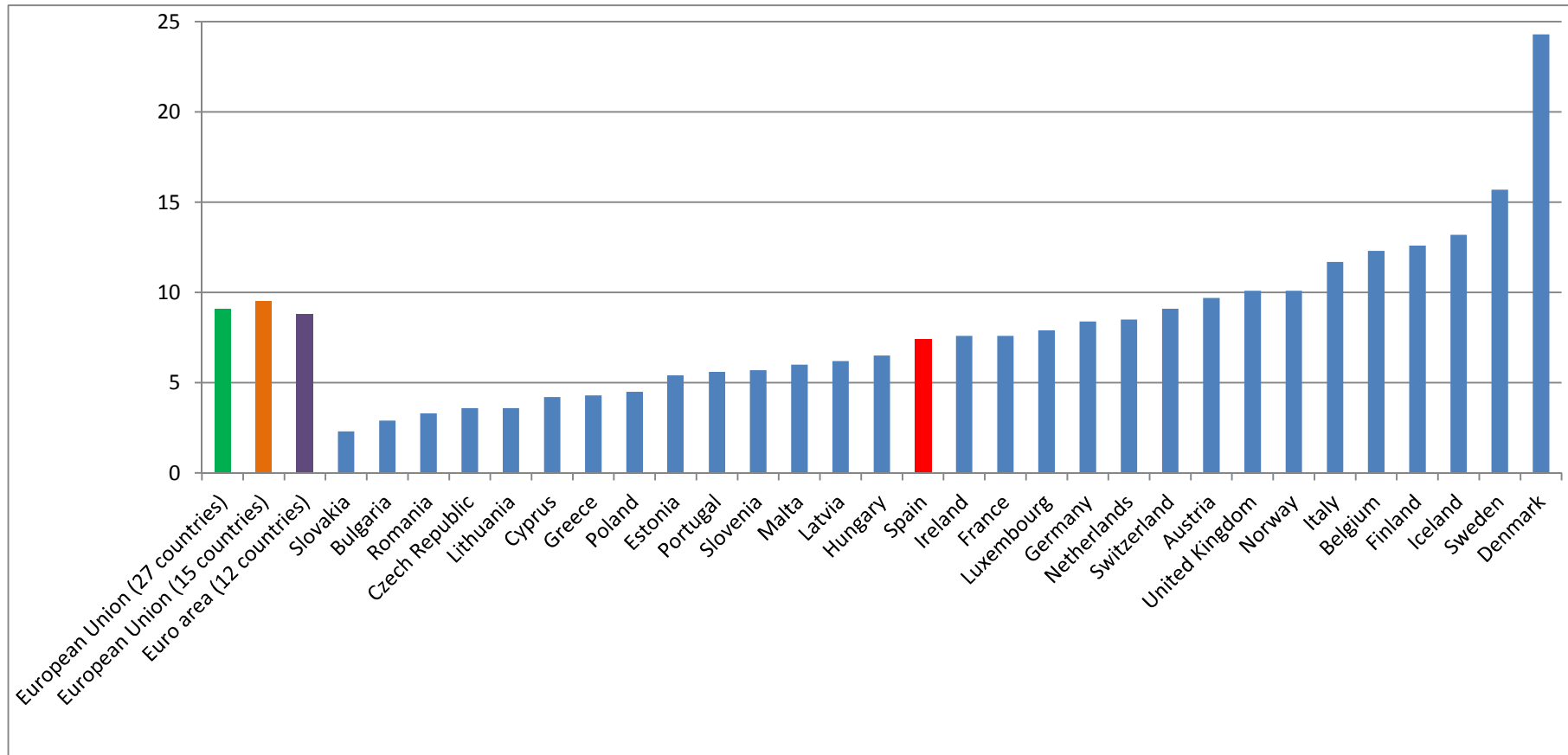
1. Introduction: evolution Spanish Tax Receipts

❑ Tax receipts in Spain in % GDP international context 2002-2010 (total tax receipts and social security contributions)

Source: EUROSTAT.

1. Introduction: Spanish PIT Receipts

❑ PIT tax receipts in Spain in % GDP in international context 2010 (total PIT receipts including holding gains)

Source: EUROSTAT.

1. Introduction: evolution Spanish Tax Receipts
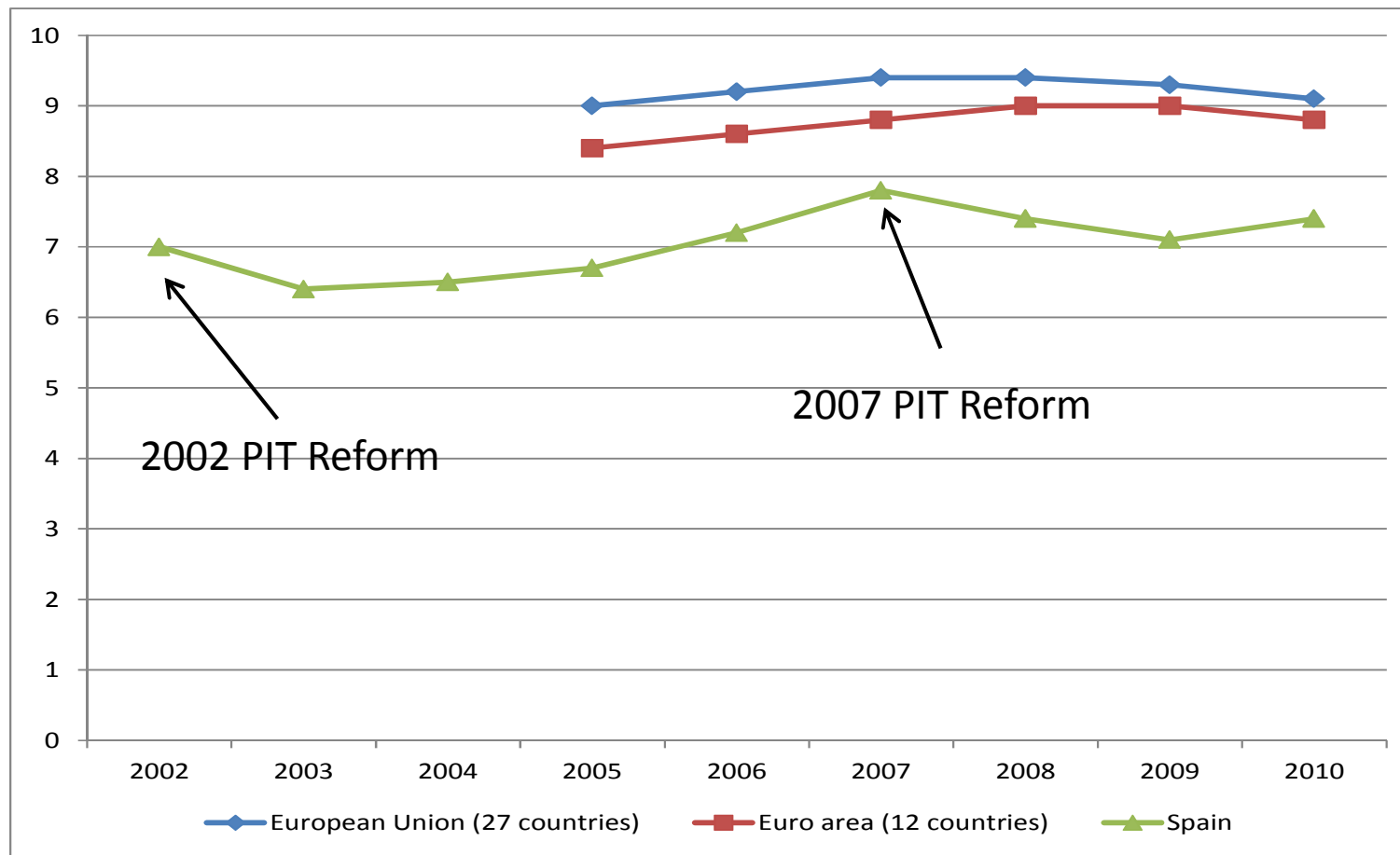
❑ PIT tax receipts in Spain in % GDP in international context 2002-2010 (total PIT receipts including holding gains)

Source: EUROSTAT.

1. Introduction: main PIT reforms before 2008

- ❑ **1998 Reform**:
  - ✓ introduction of **tax allowances**, individual and children.
  - ✓ **reduction of tax brackets** from 8 to 6, **fall in highest marginal tax rate** (from 56% to 45%) and **increase in lowest** (from 18 to 20%) and intermediate ones
  - ✓ capital income 20% flat tax

  Reform cost: approx. 19% revenue (Levy and Mercader-Prats. 1999)

  Reduction in redistributive impact of PIT on disposable income: small increase disposable income inequality, decreases income in first two deciles (Levy and Mercader-Prats. ,1998)

1. Introduction: main PIT reforms before 2008

❑ **2002 Reform**:
- ✓ **reduction in tax brackets**: from 6 to 5 and fall in lowest marginal tax rate (15%)
- ✓ **increase in tax exemptions** and more detail in terms of family characteristics (disability and old-age parents care)
- ✓ **capital income tax rate falls** for some particular cases to 18%

Reform cost: approx. 15% revenue (Castañer et al. 2004)

Reduction in redistributive impact of PIT on disposable income: 9% (Castañer et al. 2004)

1. Introduction: main PIT reforms before 2008

❑ **2007 Reform**:
  - ✓ reduction of tax brackets from 5 to 4 and reduction of highest marginal tax rate to 43% and increase in lowest to 24%
  - ✓ change of child allowances to child tax credits
  - ✓ capital income 18% flat tax

  Reform cost: approx. 6% revenue (Díaz de Sarralde et al., 2006)

  Reduction in redistributive impact of PIT on disposable income: small, somewhat increase in progressivity and reduction in revenue, Sanz et al. (2008)

1. Introduction: PIT trends

❑ Trends since 1990s until the beginning of the crisis in 2008 a variety of reforms in 1998, 2002 and 2007 have meant **reductions in number of tax brackets** and **fall in high marginal tax rates** (similar to OECD countries, OECD 2011)

❑ Thus, **benefits** (mainly old age contributory pensions) have had the **largest impact in equalizing disposable income**.

Redistributive impact of Tax-Benefit policies in Spain 2005-2010

% reduction in the Gini coefficient attributed to each disposable income component

Legend:
- ☐ Contributory pensions
- ◪ All benefits
- ▥ Non-means-tested benefits
- ▤ Means-tested benefits
- ◪ Social security contributions
- ■ Personal Income Tax
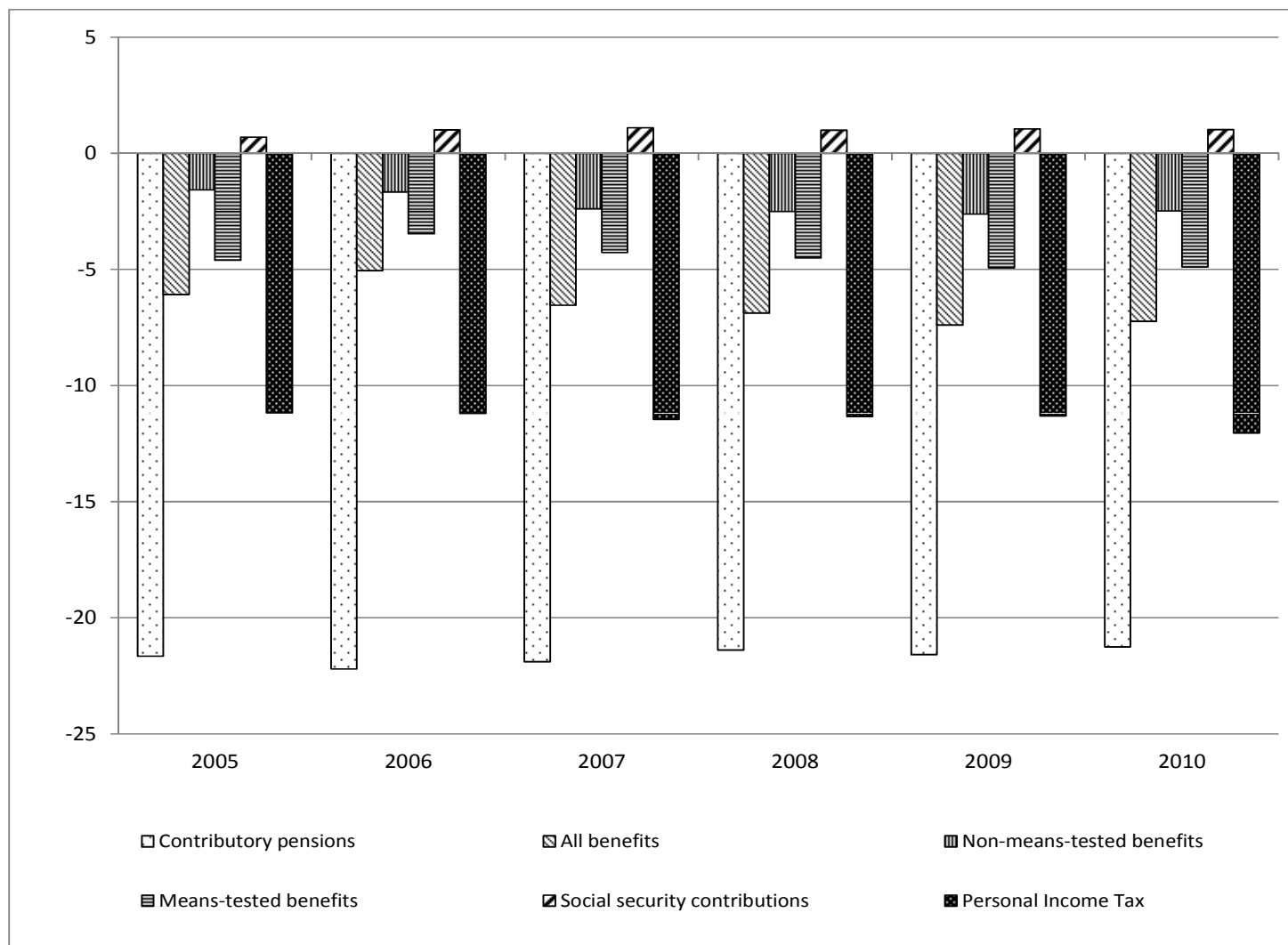
Source: EUROMOD 5.37. For years 2005 to 2007 incomes correspond to policy year. In 2008 and 2009 incomes are those in 2007 (ECV 2008) grossed up using upgrading factors.

1. Introduction: aim of the paper

❑ **HOWEVER**: since Great Recession (2008) the need for **fiscal consolidation** has led regional and central governments to undertake significant reforms of PIT increasing brackets and marginal effective tax rates

❑ **AIM:** Measure the **redistributive effects of PIT in the period 2005-2010** and **evaluate the redistributive effects of 2011 and 2012** changes to PIT, including both state and regional policies

2. Main reforms to PIT during the recession before 2011

2008 – mainly PIT reducing reforms

- **New 400 euro annual tax credit:** In order to foster economic activity the Spanish government created a new tax credit in the Personal Income Tax taxing incomes gained during 2008. All taxpayers with income from work, unemployment, pensions or self-employment benefitted from a 400 euro tax credit.

- **New main residence rent tax credit:** In order to foster home rent in 2008 there is a new tax credit for taxpayers with tax base below 24,020 euro who live in rented housing. Tax credit base is expenditures on rent. If taxpayer's tax base is 12,000 euro or less the tax credit base limit is 9,015 euro. If tax base between 12,000.01 and 24,020 euro the limit is (9,015 euro – 0.75 (tax base -12,000 euro)).

- **Fiscal drag adjustment:** Tax schedules' income brackets are increased by a 2% in order to account for inflation (avoiding at least part of the fiscal drag).

- **Some regions reduce slightly their marginal income tax rates:** Comunidad de Madrid and La Rioja change their tax Schedule reducing marginal tax rates.

2. Main reforms to PIT during the recession before 2011

2010 – mainly PIT increasing reforms

- **Reform of the 400 euro annual tax credit:** In 2008 In order to foster economic activity the Spanish government created a new tax credit of 400 euro for all taxpayers with income from work, unemployment, pensions or self-employment. In 2010 this tax credit is reformed and only taxpayers with tax base below 12,000 euro that obtain income from work, unemployment, pensions or self-employment may benefit from this tax credit. The tax credit has two different values depending on the tax base level:

Tax base limit (euro per year)	Tax credit
8,000	400 euro
8,001-12,000	400-0.1(tax base − 8,000)

- **New tax schedule for capital income:** Capital incomes since 2007 were taxed at an 18%. The rate changed in 2010 to a slightly progressive schedule: a 19% for tax bases equal or below 6,000 euro and a 21% for those over.

3. Methodology: PIT distributive effects

❑ Use of EUROMOD v5.37 as a microsimulation tool to calculate household disposable income in the period 2005-2010

❑ Income data come from National SILC 2006, 2007, 2008: *Encuesta de Condiciones de Vida* (2005, 2006 and 2007 incomes), the Spanish version of EU-SILC provided by the Spanish Statistical Office (detailed splitting of some variables). Data on incomes is updated from 2007 onwards using upgrading factors

❑ We simulate the redistributive effect of PIT by calculating the **reduction in GINI (S-Gini with ethical parameter v=2)** generated by the income tax when policies are implemented in order: 1)contributory pension benefits, 2)other benefits, 3)social contributions, 4)income tax. We also calculate PIT **progressivity** using **Kakwani index** (concentration coefficient of PIT minus the Gini coefficient of pre-tax income, if index positive (maximum value of 1) the tax is "progressive") and PIT **dimension** using **mean effective tax rates** (all income tax paid by the household divided by the household's pre-tax income, averaged over all households)

MAIN RESULTS

1) Redistributive effects of PIT 2005-2010

2) Distributional effects: 2011 and 2012 PIT reforms

Redistributive impact of PIT in Spain 2005-2010

Gini coefficient before and after income tax (eq. hh. income – Mod. OECD scale)
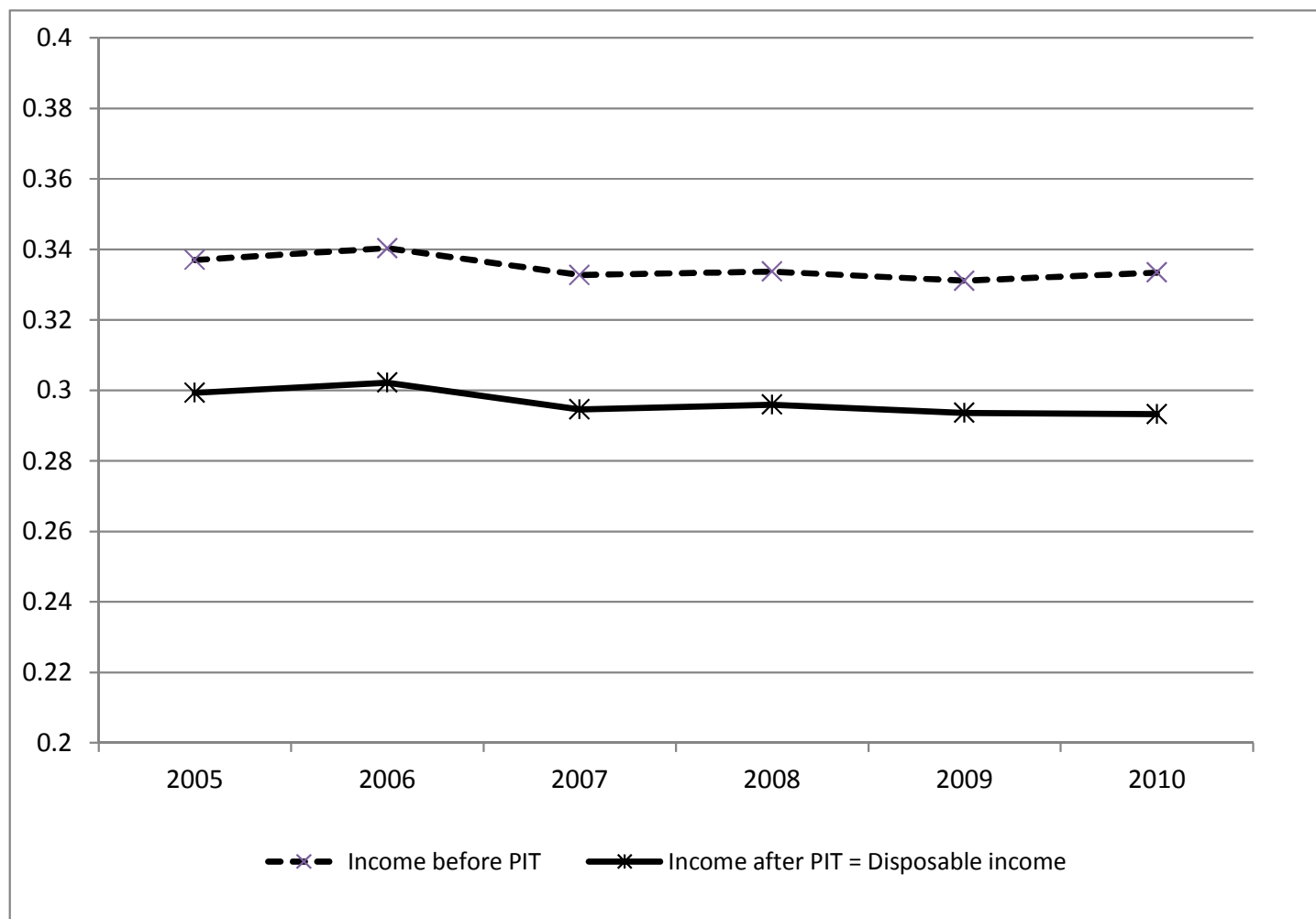
Legend: - -✕- - Income before PIT   ——✳—— Income after PIT = Disposable income

Source: EUROMOD 5.37. For years 2005 to 2007 incomes correspond to policy year. In 2008 , 2009 and 2010 incomes are those in 2007 (ECV 2008) grossed up using upgrading factors.

Redistributive impact of PIT in Spain 2005-2010

Percentage reduction in Gini coefficient after income tax (eq. hh. income – Mod. OECD scale)
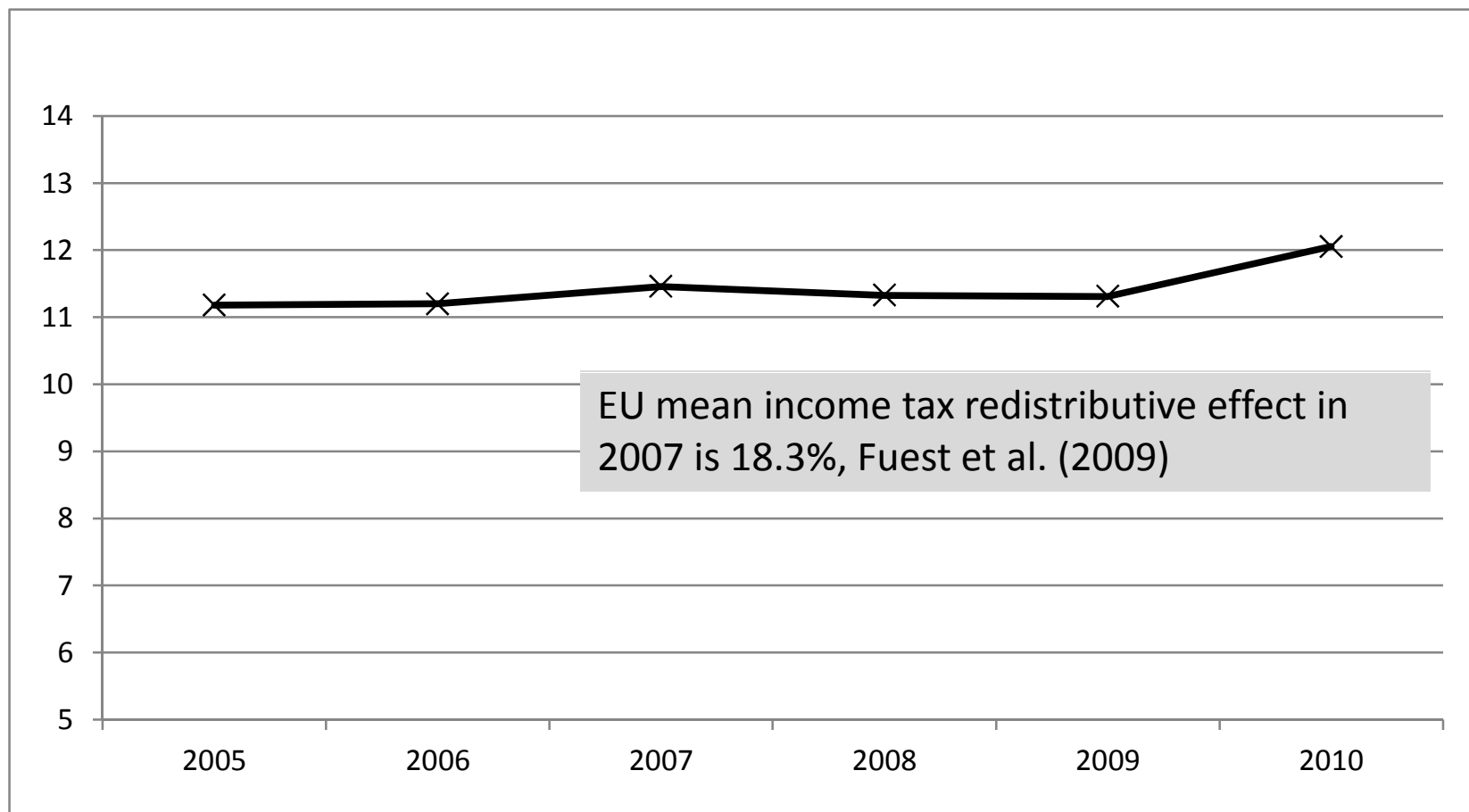
EU mean income tax redistributive effect in 2007 is 18.3%, Fuest et al. (2009)

Source: EUROMOD 5.37. For years 2005 to 2007 incomes correspond to policy year. In 2008 , 2009 and 2010 incomes are those in 2007 (ECV 2008) grossed up using upgrading factors.

PIT in Spain 2005-2010: Dimension
Mean effective tax rate x 100 (eq. hh. income – Mod. OECD scale)

OECD(2011) PIT dimension in 2004 in Denmark is over 30%, in Germany is 20%.

- - ✕ - - All population ——— Individuals in hh. head 16-64

Source: EUROMOD 5.37. For years 2005 to 2007 incomes correspond to policy year. In 2008 , 2009 and 2010 incomes are those in 2007 (ECV 2008) grossed up using upgrading factors.
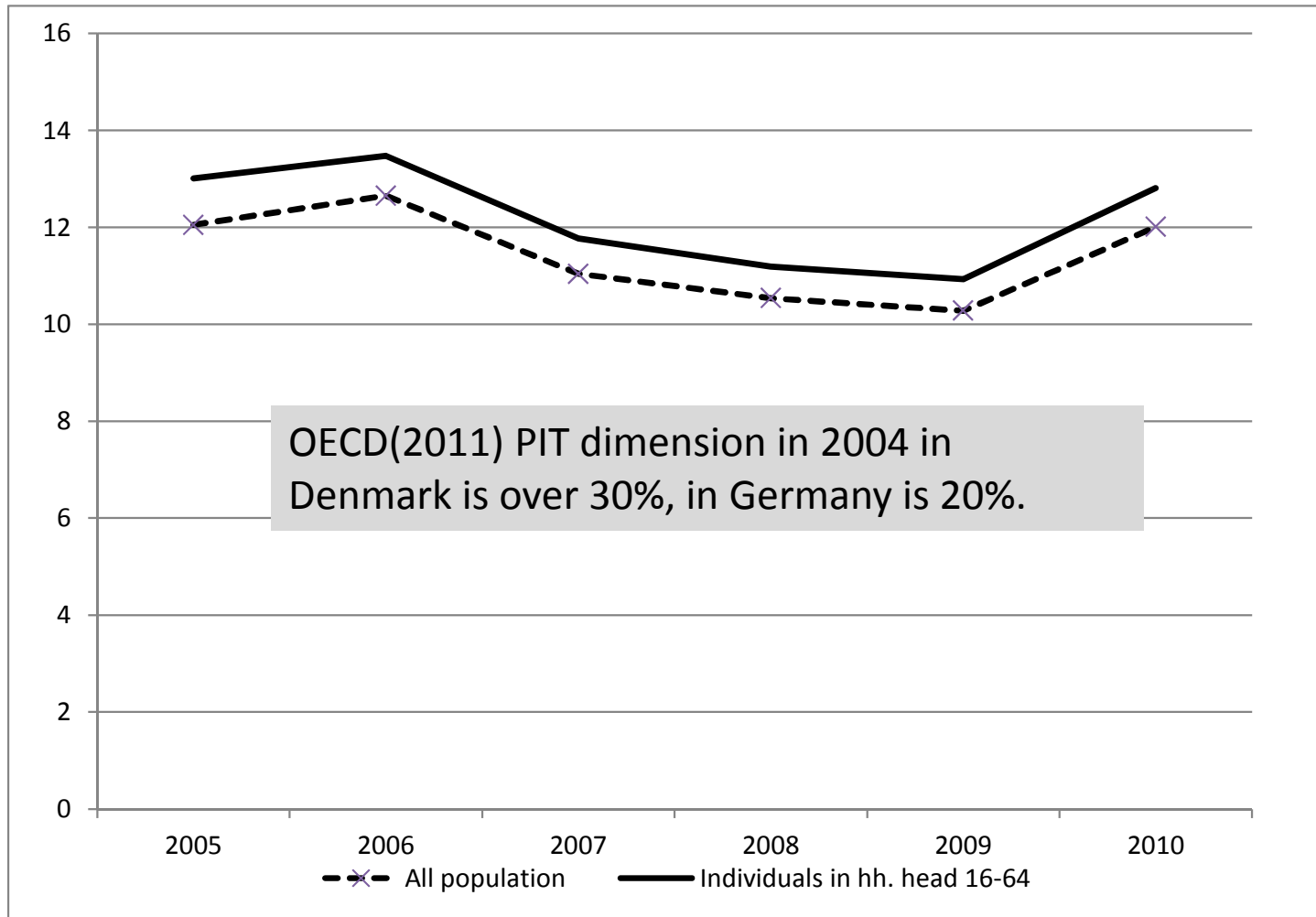
PIT in Spain 2005-2010: Progressivity
Kakwani index x 100 (eq. hh. income – Mod. OECD scale)

OECD(2011) Progressivity using Kakwani in 2004 in UK is just over 10%, in Denmark is approx. 12%, in The Netherlands is 30%, in Germany is 20%.

- ✗ - All population —— Individuals in hh. head 16-64

Source: EUROMOD 5.37. For years 2005 to 2007 incomes correspond to policy year. In 2008 , 2009 and 2010 incomes are those in 2007 (ECV 2008) grossed up using upgrading factors.
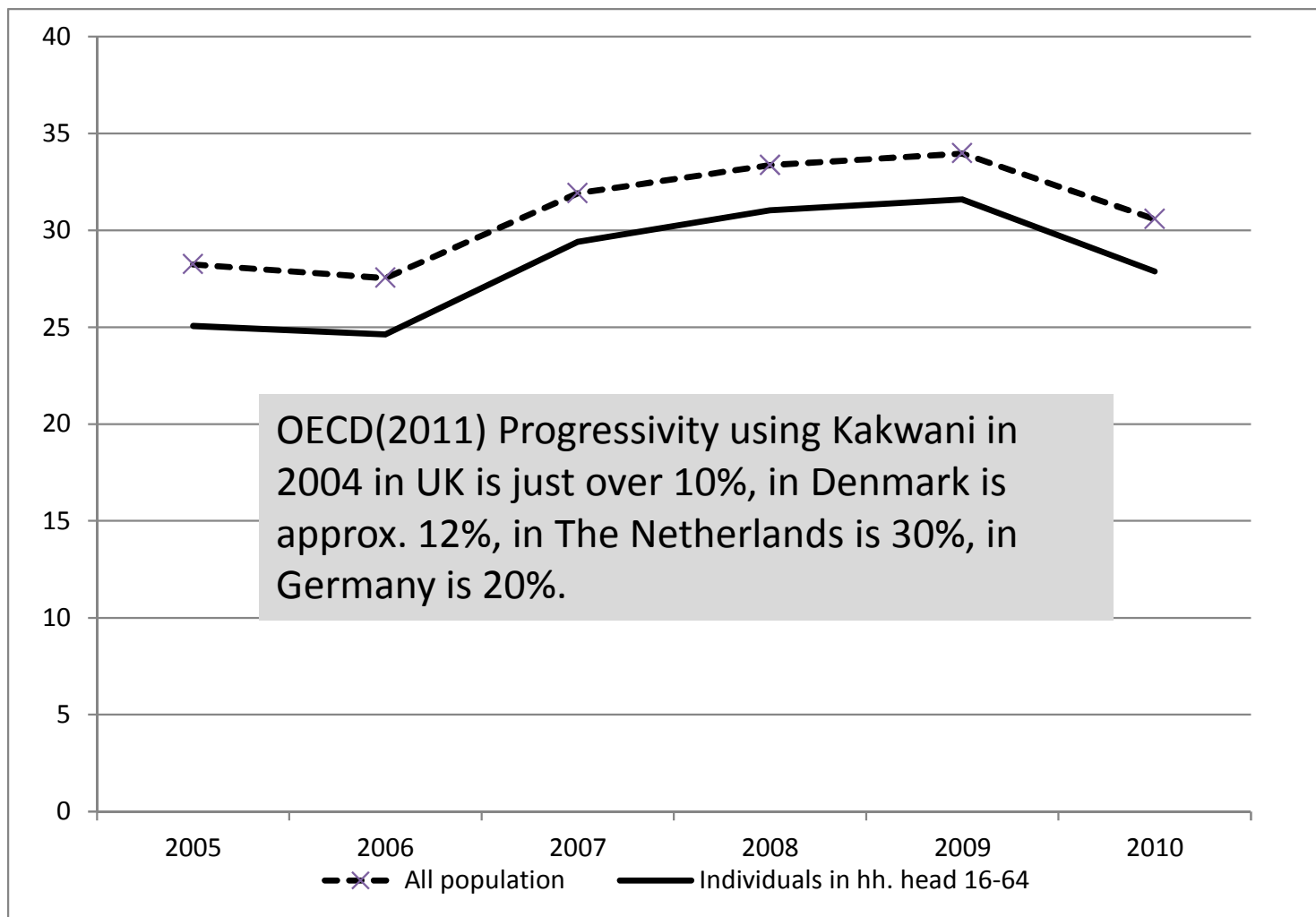
Main results – PIT distributive effects 2005-2010

- Redistributive effects of PIT in Spain are low in the EU context all along 2005-2010

- The roots of this difference between Spain and EU countries stems from a low mean effective tax rate (dimension) and not from low progressivity. In fact, in progressivity terms the Spanish PIT is over that of other European income tax systems (comparing with OECD 2011 results)

- The 2007 PIT reform did not change the redistributive effect of PIT in Spain (in line with that obtained in other studies that use individual income and not household income, Sanz et al., 2008)

- The changes in PIT introduced in 2010 (reform of 400 euro tax credit and increase in capital income marginal tax rates) have slightly increased PIT's redistributive effect by increasing its dimension (even if progressivity has fallen somewhat)

3. Methodology: evaluating 2011, 2012 PIT reforms

❑ Use of EUROMOD v5.30 as a microsimulation tool to calculate household disposable income in 2010 and after 2011 and 2012 PIT reforms

❑ Income data come from National SILC 2008: *Encuesta de Condiciones de Vida* 2008 (2007 incomes), the Spanish version of EU-SILC provided by the Spanish Statistical Office (detailed splitting of some variables). Data on incomes updated to 2010 with upgrading factors

❑ We simulate the PIT reforms implemented in 2011 and 2012 using **2010 policies as a baseline** for analysis. Therefore, **we compare the results obtained implementing the changes in PIT** (2011 and 2012 simulated policies) **keeping all other policies in 2010 fixed** (benefits, social contributions, etc.)

Personal Income Tax in Spain (2010 – baseline)

❑ PIT 2010:

Income Tax Schedule 2010 (All CCAA but Madrid, La Rioja, Comunidad Valenciana)

Upper Limit (euro per year)	Total Rate	State	Autonomous Com.
17,707.2	24%	12.0%	12.0%
33,007.2	28%	14.0%	14.0%
53,407.2	37%	18.50%	18.50%
over	43%	21.50%	21.50%

Income Tax Schedule 2010 for residents in Comunidad de Madrid and La Rioja

Upper Limit (euro per year)	Total Rate	State	Autonomous Com.
17,707.2	23.60%	12.0%	11.60%
33,007.2	27.70%	14.0%	13.70%
53,407.2	36.80%	18.50%	18.30%
over	42.90%	21.50%	21.40%

Income Tax Schedule 2010 for residents in Comunidad Valenciana

Upper Limit (euro per year)	Total Rate	State	Autonomous Com.
17,707.2	23.90%	12.0%	11.90%
33,007.2	27.92%	14.0%	13.92%
53,407.2	36.95%	18.50%	18.45%
over	42.98%	21.50%	21.48%

Main reforms to PIT during in 2011 and 2012

- ❑ 2011 PIT REFORM
- ✓ **State adds two new high income brackets with higher marginal tax rates** (over 120,000 euro (44%), over 175,000 euro (45%))
- ✓ Some **Regions create new brackets at top with higher marginal rates** (Asturias, Andalucía, Cantabria, Cataluña, Extremadura)

Income Tax Schedule 2011 for residents in Cataluña

Upper Limit (euro per year)	Total Rate	State	Autonomous Com.
17,707.2	24%	12.0%	12%
33,007.2	28%	14.0%	14%
53,407.2	37%	18.5%	18.5%
120,000.2	43%	21.5%	21.5%
175,000.2	46%	22.5%	23.5%
over	49%	23.5%	25.5%

- ❑ 2012 PIT REFORM:
- ✓ **State** introduces a *temporary* **progressive increase in marginal tax rates in all PIT tax brackets**
- ✓ **State** creates a **new bracket for incomes over 300,000 euro**
- ✓ **State** introduces *temporary* **progressive increase on capital incomes marginal tax rates:** 2% for gains up to 6,000 euro, 4% for 6,000 to 24,000 euro and 6% for >24,000 euro

Personal Tax 2012. STATE

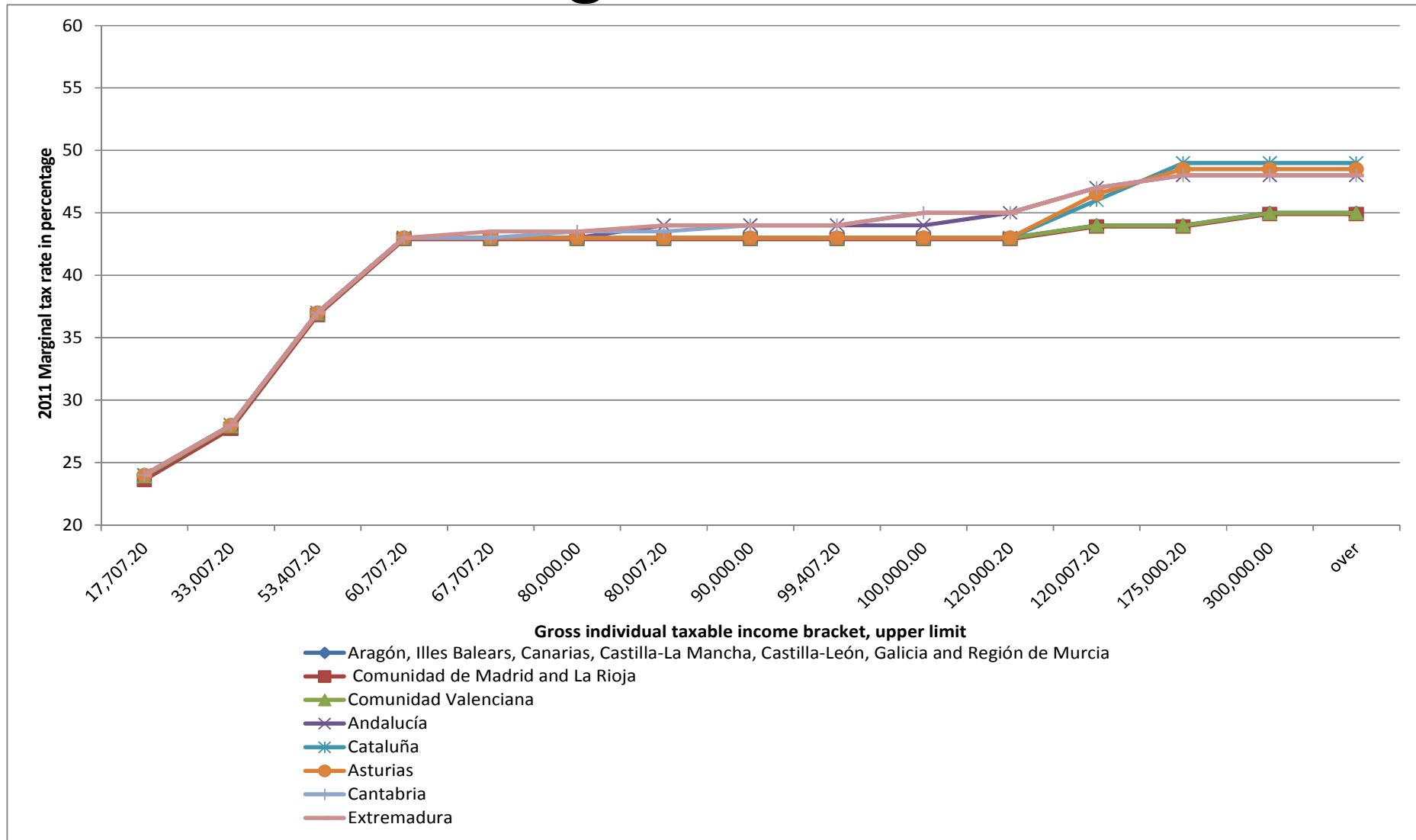| Limits	2010	2012
17707.2	0.12	0.1275
33007.2	0.14	0.16
53407.2	0.185	0.215
120000.2	0.215	0.255
175000.2	0.215	0.275
300000.2	0.215	0.295
OVER	0.215	0.305

Main reforms to PIT during in 2011 and 2012

Is a relevant % of tax payers affected by the reforms?

❑ Using data on Income Tax Registers for 2009 incomes (AEAT) the distribution of tax payers is the following:

Upper Limit (euro per year)	Percentage of positive Tax Returns
17,707.20	56.67
33,007.20	27.81
53,407.20	10.48
120,000.20	4.33
175,000.20	0.39
300,000	0.21
over	0.12

Changes in 2011 will only affect less than 1% of total tax returns so the impact of these changes will be limited. Changes in 2012 are expected to have a larger effect on revenue given that they imply changes in all tax brackets.

State + Regional tax reform 2011: marginal tax rates

2011 Marginal tax rate in percentage (y-axis)

Gross individual taxable income bracket, upper limit (x-axis)

x-axis labels: 17,707.20 · 33,007.20 · 53,407.20 · 60,707.20 · 67,707.20 · 80,000.00 · 80,007.20 · 90,000.00 · 99,407.20 · 100,000.00 · 120,000.20 · 120,007.20 · 175,000.20 · 300,000.00 · over

Legend:
- Aragón, Illes Balears, Canarias, Castilla-La Mancha, Castilla-León, Galicia and Región de Murcia
- Comunidad de Madrid and La Rioja
- Comunidad Valenciana
- Andalucía
- Cataluña
- Asturias
- Cantabria
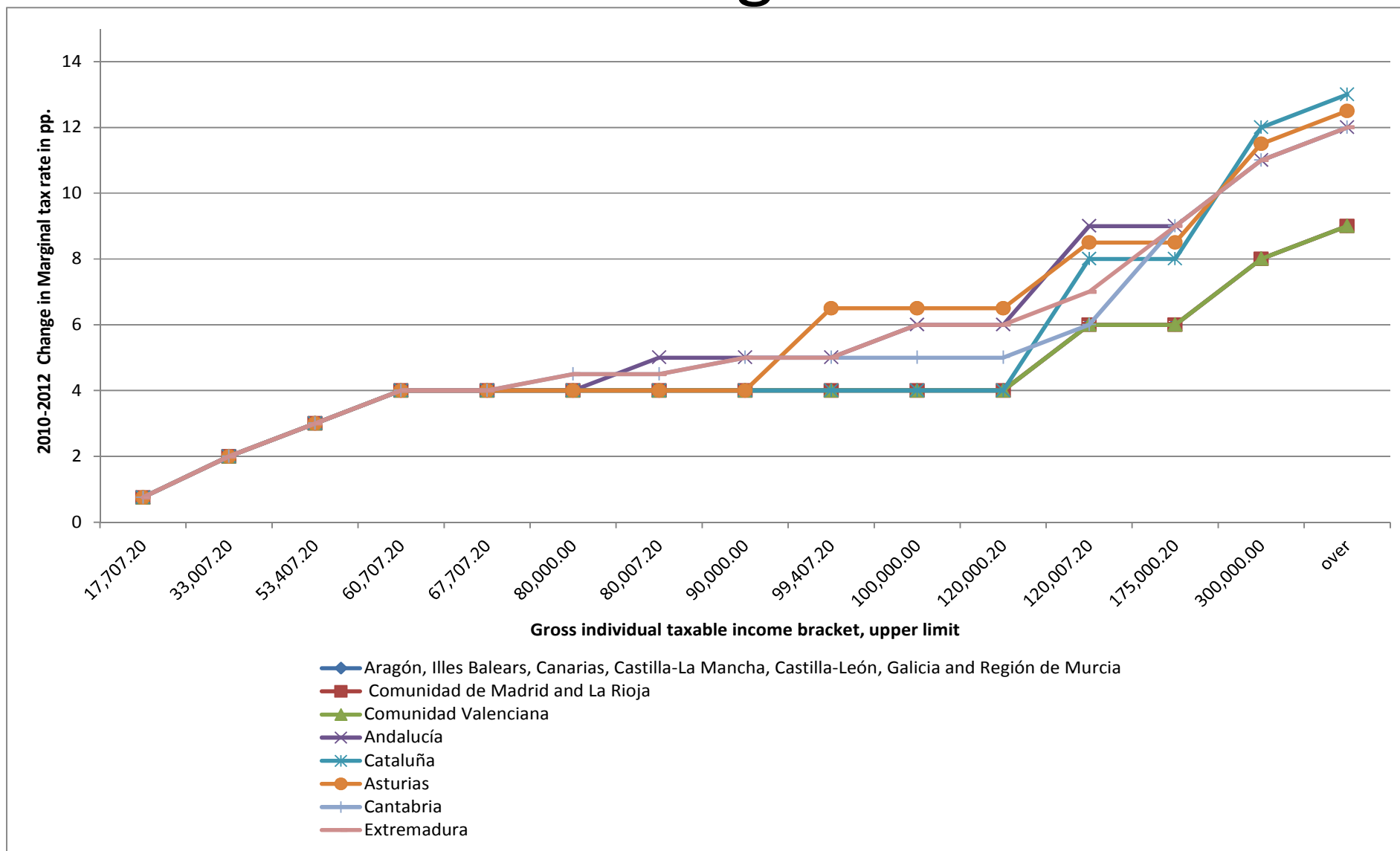- Extremadura

Regional and State tax reforms 2010-2011: increases in marginal tax rates
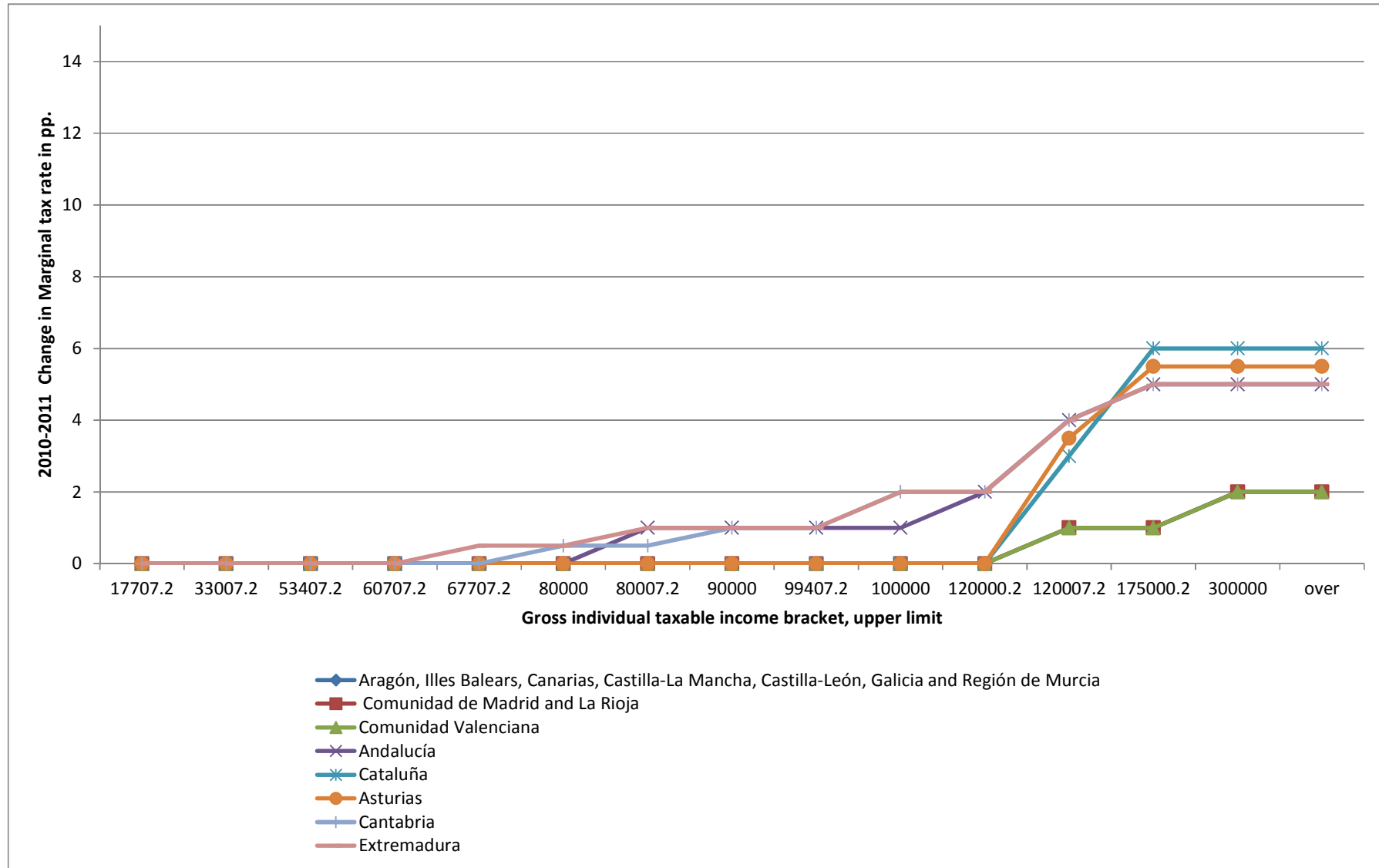
State reform 2012: marginal tax rates
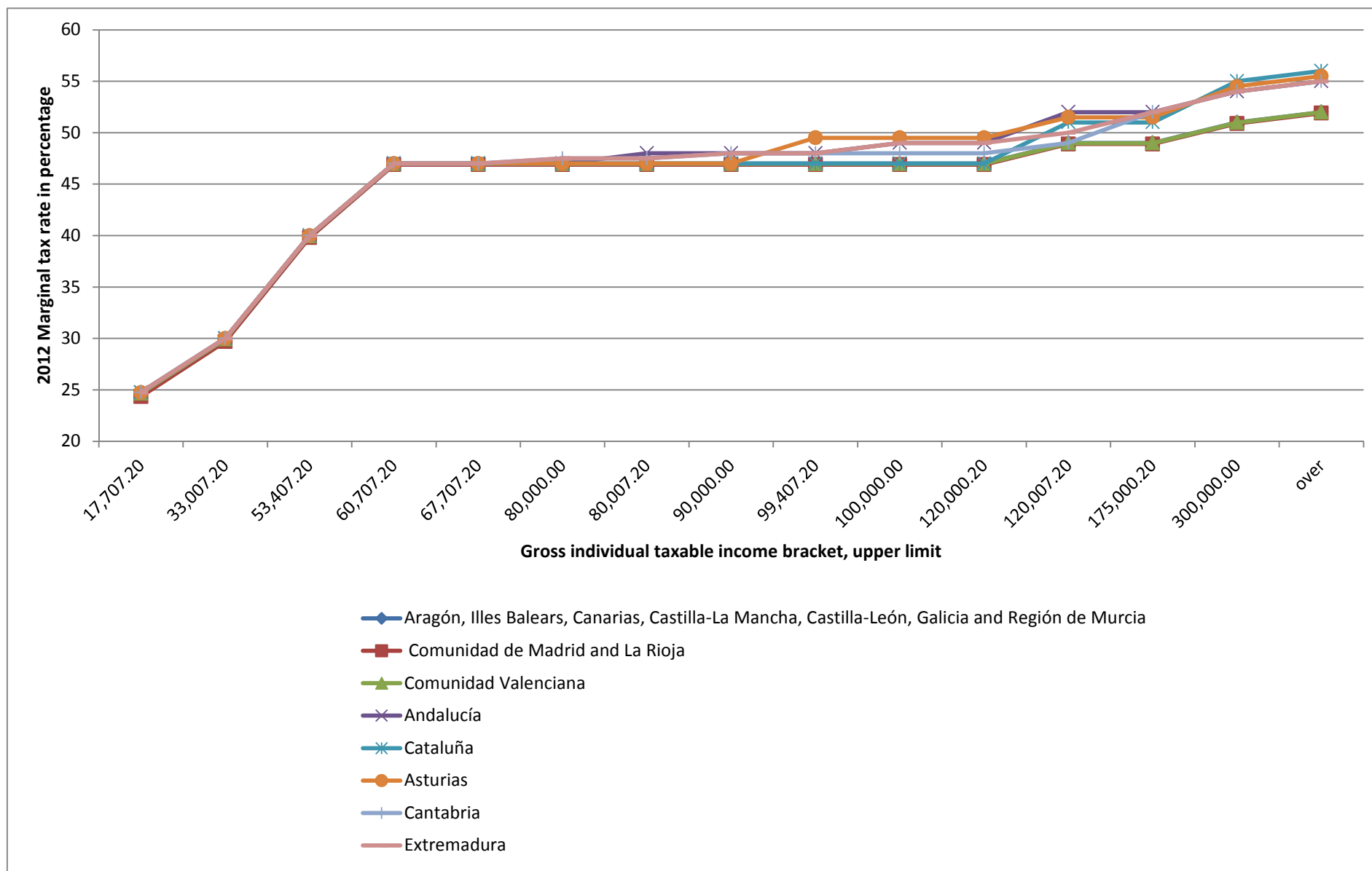
Regional + State reforms 2010-2012: increases in marginal tax rates

Distributional effects of the 2011 and 2012 PIT reforms

Income deciles before PIT	% change in income (before/after PIT) 2010 policies	% change in income (before/after PIT) 2011 policies	% change in income (before/after PIT) 2012 policies	% increase in income reduction due to PIT 2012 compared to PIT 2010
1	3.31	3.32	3.41	2.98
2	1.99	1.99	2.05	3.20
3	2.56	2.57	2.65	3.55
4	4.21	4.22	4.38	3.94
5	6.08	6.09	6.33	4.21
6	8.09	8.11	8.46	4.55
7	9.97	9.99	10.45	4.77
8	12.58	12.60	13.20	4.92
9	15.11	15.13	15.95	5.53
10	21.10	21.12	22.50	6.62

❑ The increases in PIT revenue predicted by EUROMOD are 0.2% in 2011 and 5.6% in 2012

❑ Changes in PIT in 2011 hardly change the effect of PIT on hh. incomes

❑ The PIT in 2012 instead has a relevant impact on hh incomes and reduces incomes of high income groups relatively more than those of low income groups. The increase in relative income reduction is around 3% in the first four deciles and 6% in the highest income decile group. Further, changes in PIT in 2012 push the last two-three deciles income reduction due to PIT upwards

Distributional effects - 2011 and 2012 PIT reforms

Redistribution	2010 baseline	2011 reform	2012 reform
Pre-tax Gini	0.3357	0.3357	0.3357
Post-tax Gini	0.2979	0.2978	0.2949
PIT redistributive effect	0.0378	0.0379	0.0408
PIT redistributive effect in %	11.26	11.29	12.15
PIT dimension - mean effective tax rate, %	12.28	12.30	12.99
PIT progressivity, Kakwani x 100	28.05	28.04	28.42

❑ As expected, looking at changes in deciles, the changes in PIT in 2011 hardly change the redistributive effect of PIT on hh. incomes

❑ The changes PIT in 2012 have increased its redistributive effect from a 11.29% to a 12.15% (Gini index (S-Gini, v=2) reduction due to PIT)

❑ This has come about by the effect of both an increase in PIT dimension on household incomes and an increase in PIT progressivity

Effects on different household types - 2011 and 2012 PIT reforms

Hh characteristics	% change in income (before/after PIT) 2010 policies	% change in income (before/after PIT) 2011 policies	% change in income (before/after PIT) 2012 policies
Head of hh. working age 16-64	9.51	9.52	10.01
Head of hh. not working age >64	4.58	4.58	4.75
Household with children	8.96	8.98	9.46
Household without children	8.30	8.31	8.71

❑ As expected the 2012 reform increased PIT payments mainly for households where the head is working age (over 16 and below 65)

❑ The 2012 reform had a similar impact on households with and without children. The distribution of households with and without children along income deciles is so that households with children are quite equally distributed along the income distribution, 12% of them are in the first decile (equivalent income before PIT) and almost 10% of them are distributed in all other deciles

Losers by deciles - 2012 PIT reform

Income deciles before PIT 2010	Losers 2012	mean loss in euro/year 2012
1	31.21	38.68
2	36.14	53.00
3	49.88	76.51
4	72.56	169.55
5	90.28	306.35
6	97.98	513.61
7	98.85	770.66
8	99.74	1193.01
9	99.93	1989.13
10	99.61	5512.91

❏ Due to the progressive reform of marginal tax rates losers of the reform are most concentrated from the 4th gross income decile upwards

Main results
PIT reforms in 2011 and 2012

- The redistributive effects of PIT in Spain grows slightly due the 2012 State changes (from 11.2% to 12.5%) while staying constant after some state and regional changes undertaken in 2011

- This increase of the redistributive effect of PIT after State changes in 2012 changes is related both to an increase in PIT dimension (mean effective tax rates grow) and an increase in PIT progressivity (the kakwani index of progressivity grows)

- Due to the progressive reform of marginal tax rates losers of the reform are most concentrated from the 4th gross income decile upwards and on individuals living in households whose head is working-age. The reform has not had a differential effect on households with and without children

4. Conclusions: main conclusions

- Redistributive effects of PIT in Spain are low in the EU context all along 2005-2010. The roots of this difference between Spain and EU countries stems from a low mean effective tax rate (dimension)and not from low progressivity

- The changes in PIT introduced in 2010 (reform of 400 euro tax credit and increase in capital income marginal tax rates) have slightly increased PIT's redistributive effect by increasing its dimension (even if progressivity has fallen somewhat)

- The redistributive effects of PIT in Spain grows slightly due the 2012 State changes while staying constant after some state and regional changes undertaken in 2011

- This increase of the redistributive effect of PIT after State changes in 2012 changes is related both to an increase in PIT dimension and an increase in PIT progressivity