

Can fiscal policy mitigate income inequality and poverty?

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In a snapshot

- We evaluate the distributional effects of fiscal policies and their impact on poverty
- Empirical analysis: 20 OECD countries, 1970-2010
- We use several measures of income inequality and take care of potential reverse causality and endogeneity
- Greater fiscal policy activism → lower income inequality
- Govt. spending → strong redistributive effects

Motivation

- Recent surge of interest on high levels of government debt and implications of fiscal consolidation efforts
- Substantial increase of top income shares in the USA and other anglo-saxon countries; almost flat dynamics in continental Europe
- The Great Recession and accompanying fiscal imbalances imply serious constraints on policy actions
- What are the likely consequences on income distribution? Does inequality (and poverty) respond to fiscal stock variables (debt) or flow ones (spending, taxation, deficit/surplus)? What role for large consolidation and expansion episodes?

Literature background - 1

- Inequality tends to vary widely across groups of countries, but it is relatively persistent within countries
- Mixed early evidence: a negative trade-off between growth and inequality (Li et al., 1998), or a positive relationship (Barro, 2000)?
- The Kuznets hypothesis: growth first increases then reduces income inequality

- Overall, relatively scant econometric evidence on how fiscal policies impact on income distribution

Literature background - 2

- The expenditure side of fiscal policy particularly important in reducing income inequality in advanced countries (Bastagli et al., 2012)
- Social security, public spending on healthcare and both direct and indirect taxes are all found to have equalizing effects (Baldacci et al., 2002; Bertola, 2010; Afonso et al., 2010; Muinelo-Gallo and Roca-Sagalés, 2011)
- Agnello and Sousa (2012), Ball et al. (2013): inequality rises with large consolidations, mostly as an effect of spending adjustments

Key methodological issues

- Multiple and often controversial measures of inequality: results are often driven by specific data sources
- What fiscal policy indicators?
- Significant endogeneity and reverse causality issues: tax and spending decisions may respond to some extent to income inequality concerns
- What are the effects of “normal” fiscal stances as opposed to those of large consolidation and expansion episodes?

The panel specification

- ***debt***: gross govt debt/GDP
- ***govt_size***: general govt final consumption expenditure divided by GDP
- ***W***: control variables (log real per capita GDP, both in levels and squared; trade openness; education level; civil liberties; unemployment; inflation; population growth rate; nominal long-term interest rate)

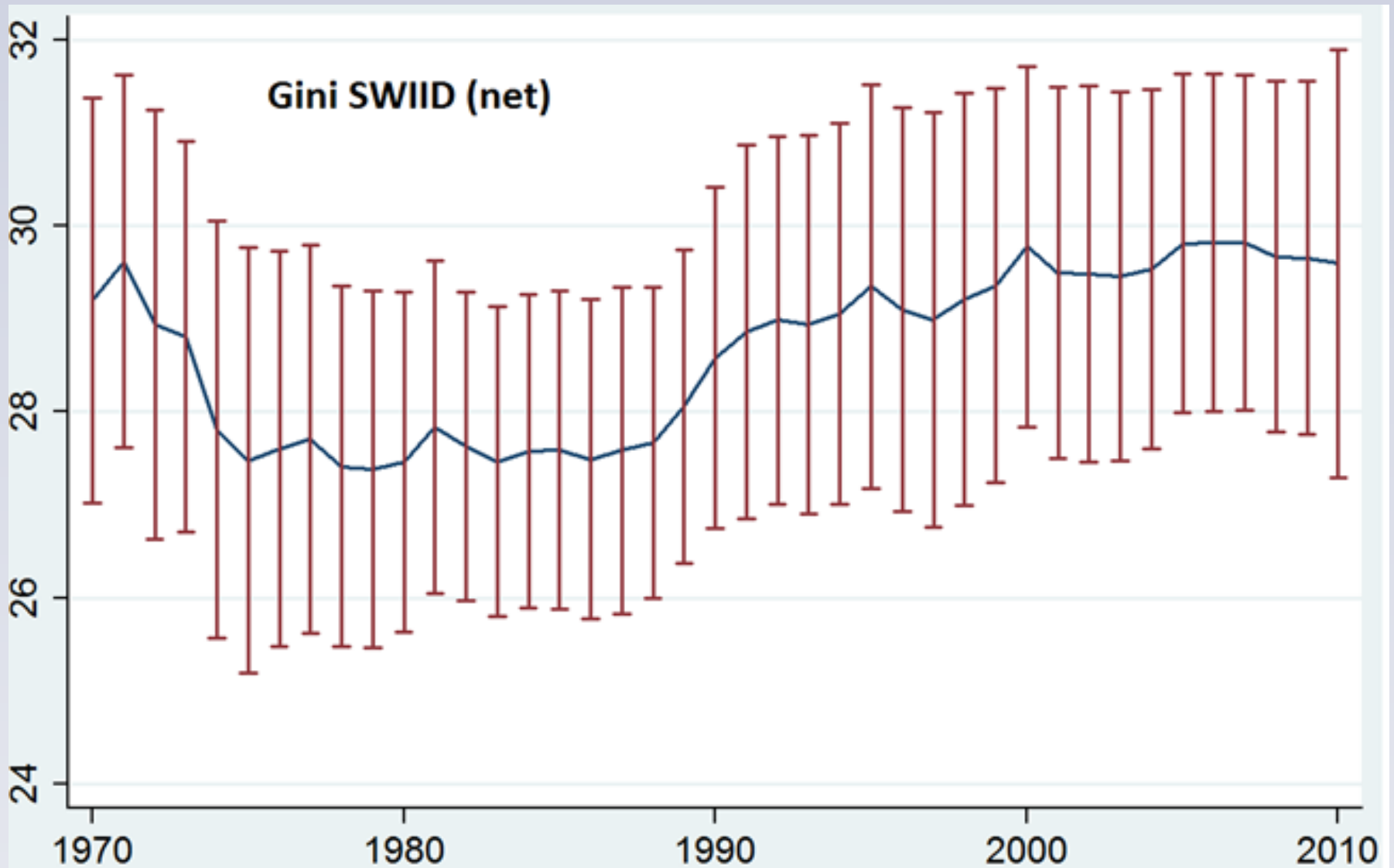
The modelling strategy

- Alternatively, random and fixed effects
- Lagged RHS variables, to account for possible reverse causality ($x = 2$)
- GMM, to account for endogeneity
- We assume that inequality may respond to GDP level, whereas it can only affect GDP growth (Barro, 2008)

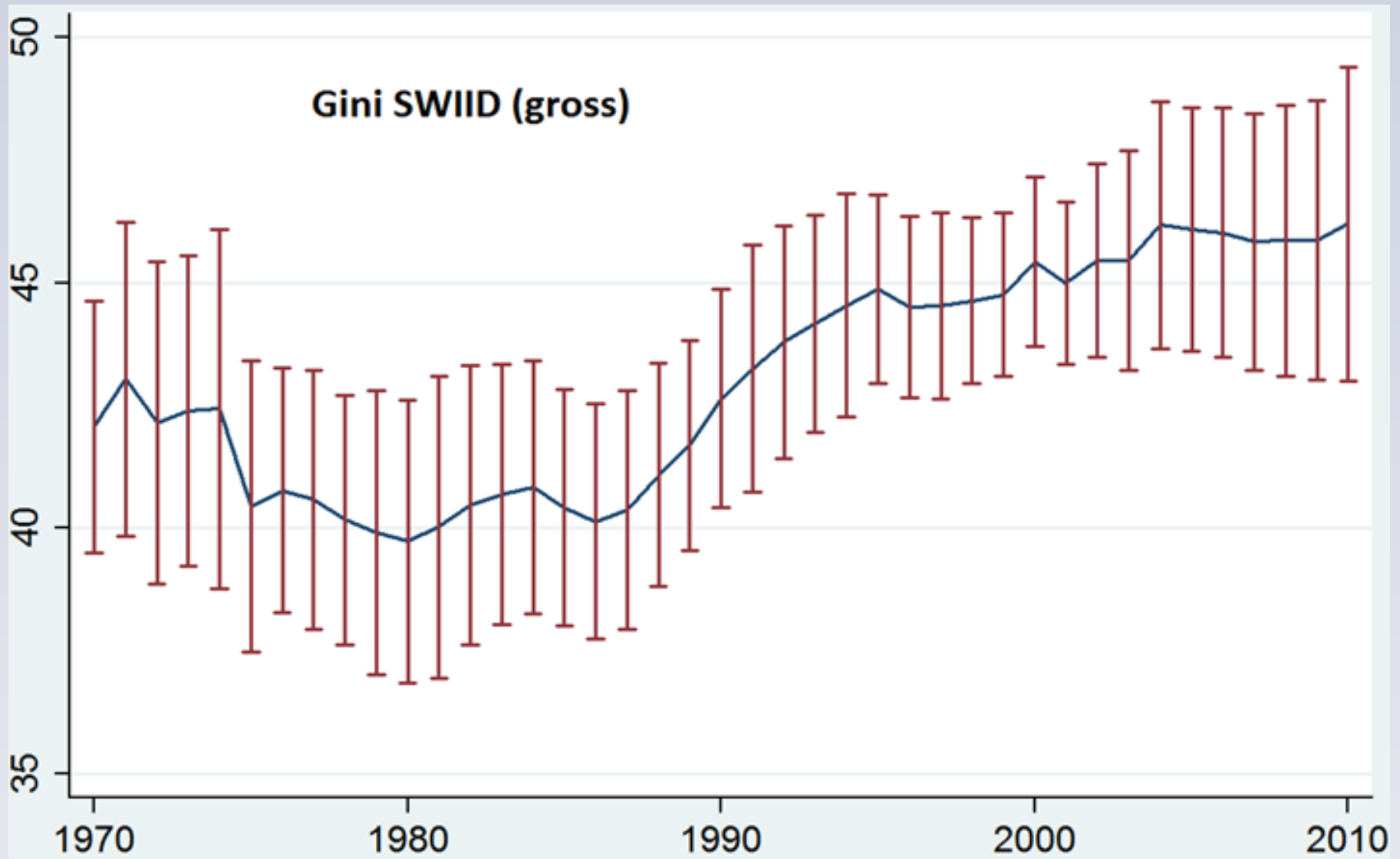
Measuring inequality

- Well-known measurement and availability shortcomings
- Therefore, we employ alternative Gini indices:
 1. UN-WIDER, **net** income
 2. Standardized World Income Inequality Database (SWIID), **net** income
 3. Atkinson and Morelli dataset (AM), **net** income
 4. Texas Inequality database, **gross** income
 5. Standardized World Income Inequality Database (SWIID), **gross** income
- We also use top 1% and 10% income shares from the World Top Incomes Database (WTID) and from AM (2011)
- Poverty: percentage of households living below 60% of the median equivalised disposable income of the country (AM, 2011)

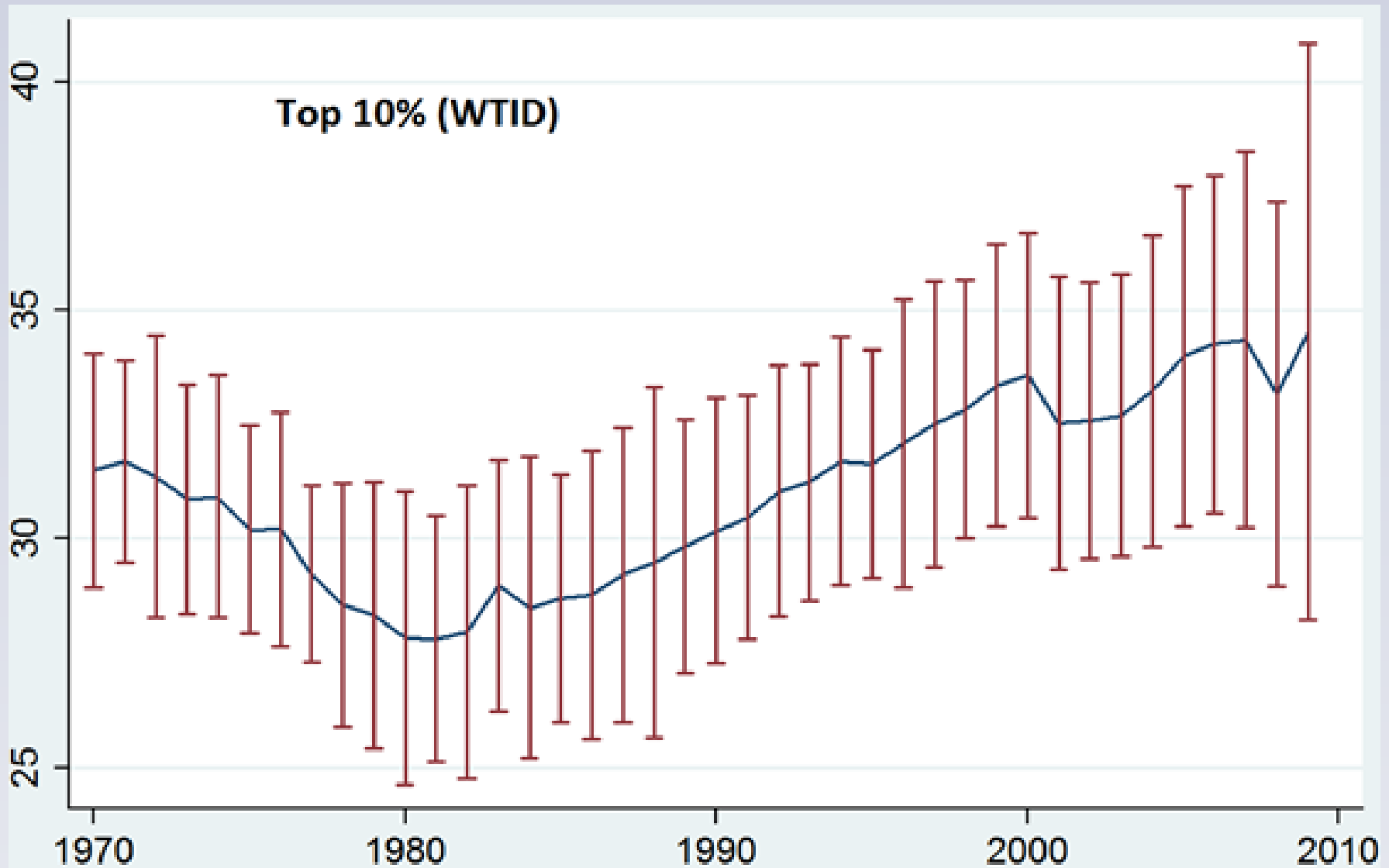
Average inequality over time



Average inequality over time



Average top 10% shares over time



Key findings

- Significant negative relationship between fiscal variables and inequality
- Roughly, a 2 to 6% rise of govt spending reduces Gini by 1%
- Govt debt changes have smaller impact
- Main result holds across estimation frameworks and inequality indices; stronger with those based on net income
- No support for Kuznets hypothesis
- Non-negligible impact on top income shares too
- Poverty significantly reduced by govt consumption
- No special role for large fiscal consolidations and expansions

Net income Gini indices

	RE			FE			GMM		
	<i>gini_UN</i>	<i>gini_SWIID</i>	<i>gini_AM</i>	<i>gini_UN</i>	<i>gini_SWIID</i>	<i>gini_AM</i>	<i>gini_UN</i>	<i>gini_SWIID</i>	<i>gini_AM</i>
<i>govt_size</i> _{<i>t-2</i>}	-0.36*** (-3.78)	-0.26*** (-4.28)	-0.65*** (-7.32)	-0.35* (-1.97)	-0.20 (-1.38)	-0.61*** (-3.55)	-0.91*** (-4.69)	-0.56*** (-4.55)	-0.71*** (-5.19)
<i>public_debt</i> _{<i>t-2</i>}	-0.06*** (-5.76)	-0.03*** (-5.16)	-0.02* (-1.92)	-0.07*** (-4.08)	-0.03** (-2.14)	-0.03 (-1.33)	0.09** (2.47)	0.02 (1.04)	0.06 (1.47)
<i>gdppc</i> _{<i>t-2</i>}	-105.00** (-2.03)	90.70*** (4.87)	-41.90 (-0.76)	-97.30 (-1.35)	84.90** (2.19)	-35.30 (-0.40)	-212.00 (-0.97)	92.30 (1.46)	90.76 (0.67)
<i>gdppc_sq</i> _{<i>t-2</i>}	4.73* (1.89)	-4.68*** (-5.16)	1.98 (0.73)	4.22 (1.25)	-4.38** (-2.32)	1.97 (0.48)	10.80 (0.99)	-4.91 (-1.56)	-4.51 (-0.68)
<i>open</i> _{<i>t-2</i>}	-0.07*** (-4.49)	-0.04*** (-5.68)	-0.02 (-1.43)	-0.08*** (-3.13)	-0.04 (-1.46)	0.02 (0.36)	-0.03 (-0.85)	-0.02 (-1.11)	-0.12** (-2.19)
<i>educ</i> _{<i>t-2</i>}	0.48 (0.41)	-0.86 (-1.51)	-4.02*** (-3.48)	0.83 (0.43)	-0.73 (-0.61)	-2.76 (-1.75)	-8.56 (-1.63)	-0.92 (-0.41)	-9.23*** (-3.40)
<i>liberties</i> _{<i>t-2</i>}	1.06*** (3.47)	0.40** (2.03)	0.51 (1.31)	0.99*** (3.11)	0.42 (0.97)	0.72 (1.24)	0.18 (0.13)	-0.08 (-0.09)	-1.43 (-1.09)
<i>infl</i> _{<i>t-2</i>}	-0.13* (-1.86)	-0.088** (-2.46)	-0.10 (-1.40)	-0.14 (-1.34)	-0.095* (-1.97)	-0.11 (-1.48)	-0.003 (-0.02)	0.10 (1.06)	0.18 (1.29)
<i>unempl</i> _{<i>t-2</i>}	0.16* (1.91)	-0.041 (-0.86)	0.25*** (3.06)	0.12 (0.87)	-0.058 (-0.72)	0.34** (2.85)	0.30 (1.20)	-0.014 (-0.11)	0.07 (0.36)
<i>pop_gr</i> _{<i>t-2</i>}	1.18** (2.47)	0.19 (0.56)	0.98* (1.79)	1.14 (1.72)	0.081 (0.094)	1.10 (1.45)	-0.57 (-0.33)	3.07*** (2.98)	2.99** (2.56)
trend	0.52*** (9.34)	0.25*** (7.50)	0.21*** (4.17)	0.59*** (5.87)	0.24** (2.21)	0.046 (0.27)	0.019 (0.11)	0.28*** (4.23)	0.33*** (3.27)
Constant	607.00** (2.27)	-406.00*** (-4.23)	262.00 (0.92)	580.00 (1.53)	-379.00* (-1.90)	197.00 (0.42)	1090.00 (0.99)	-400.00 (-1.26)	-411.00 (-0.60)
Observations	278	633	312	278	633	312	278	633	312
R-squared ^{\$}	0.18	0.40	0.45	0.65	0.26	0.61			
Hansen J statistic							1.00	1.00	1.00
AR(2) A-B test							0.29	0.69	0.55

Gross income Gini indices

	RE		FE		GMM	
	<i>gini_gross_SWIID</i>	<i>gini_gross_Texas</i>	<i>gini_gross_SWIID</i>	<i>gini_gross_Texas</i>	<i>gini_gross_SWIID</i>	<i>gini_gross_Texas</i>
<i>govt_size</i> _{t-2}	0.17 (1.52)	-0.13** (-2.20)	0.099 (0.29)	-0.077 (-0.89)	0.38 (1.45)	-0.44** (-2.18)
<i>public_debt</i> _{t-2}	-0.02** (-2.06)	-0.04*** (-7.13)	-0.02 (-0.66)	-0.04*** (-2.96)	-0.02 (-0.42)	0.03** (2.12)
<i>gdppc</i> _{t-2}	3.45 (0.10)	52.40*** (2.76)	16.00 (0.21)	44.00 (0.94)	-197.00** (-1.99)	-42.70 (-0.64)
<i>gdppc_sq</i> _{t-2}	-0.62 (-0.37)	-2.78*** (-2.97)	-1.20 (-0.31)	-2.30 (-0.98)	9.09* (1.88)	1.93 (0.59)
<i>open</i> _{t-2}	0.02 (1.16)	0.02 (0.95)	0.04 (0.84)	0.02 (0.68)	-0.04 (-1.12)	0.01 (0.47)
<i>educ</i> _{t-2}	0.32 (0.27)	-0.82 (-1.41)	0.20 (0.084)	-0.90 (-1.35)	5.29 (1.10)	2.15 (0.60)
<i>liberties</i> _{t-2}	0.38 (1.03)	0.62*** (2.77)	0.46 (0.61)	0.59 (1.39)	0.61 (0.37)	0.06 (0.06)
<i>infl</i> _{t-2}	-0.13** (-2.09)	-0.04* (-1.73)	-0.13 (-1.56)	-0.05 (-1.32)	-0.19 (-1.42)	-0.11 (-1.41)
<i>unempl</i> _{t-2}	-0.12 (-1.51)	0.06 (1.21)	-0.06 (-0.30)	0.05 (0.76)	-0.64* (-1.65)	0.12 (1.03)
<i>pop_gr</i> _{t-2}	0.02 (0.38)	-0.05 (-0.21)	0.29 (0.21)	-0.14 (-0.50)	2.47 (1.16)	1.96* (1.84)
trend	0.39*** (6.54)	0.27*** (6.88)	0.33** (2.36)	0.24** (2.40)	0.54*** (3.68)	0.08 (1.05)
Constant	60.70 (0.35)	-212.00** (-2.21)	-7.30 (-0.019)	-177.00 (-0.76)	1090.00** (2.15)	270.00 (0.81)
Observations	633	429	633	429	633	429
R-squared	0.28	0.20	0.37	0.52		
Hansen J stat					1.00	1.00
AR(2) A-B test					0.08	0.64

Net income Gini indices, fiscal episodes

	i) consolidation			ii) consolidation			i) expansion		
	<i>gini_UN</i>	<i>gini_SWIID</i>	<i>gini_AM</i>	<i>gini_UN</i>	<i>gini_SWIID</i>	<i>gini_AM</i>	<i>gini_UN</i>	<i>gini_SWIID</i>	<i>gini_AM</i>
<i>govt_size</i> _{<i>t-2</i>}	-0.90*** (-4.62)	-0.56*** (-6.07)	-0.60*** (-4.10)	-0.83*** (-4.62)	-0.65*** (-6.14)	-0.72*** (-4.72)	-0.85*** (-4.78)	-0.57*** (-4.23)	-0.64*** (-4.71)
<i>public_debt</i> _{<i>t-2</i>}	0.08** (2.55)	0.011 (0.54)	0.06 (1.62)	0.07** (2.23)	0.02 (0.66)	0.07** (2.37)	0.07** (2.50)	0.02 (0.82)	0.07** (2.23)
<i>episode</i> _{<i>t-2</i>}	-0.68 (-0.55)	1.00* (1.68)	0.84 (1.52)	0.16 (0.24)	0.01 (0.02)	-0.41 (-0.71)	2.29** (2.13)	0.43 (0.70)	-0.11 (-0.13)
<i>gdppc</i> _{<i>t-2</i>}	-240.00 (-1.06)	77.91 (1.23)	-49.53 (-0.39)	-424.00* (-1.71)	95.40 (0.89)	-336.00** (-2.50)	-329.00 (-1.44)	146.00*** (2.72)	26.98 (0.24)
<i>gdppc_sq</i> _{<i>t-2</i>}	12.18 (1.08)	-3.97 (-1.24)	-2.45 (-0.39)	21.05* (1.71)	-4.78 (-0.88)	16.77** (2.57)	16.40 (1.45)	-7.41*** (-2.78)	-1.37 (-0.25)
<i>open</i> _{<i>t-2</i>}	-0.03 (-0.82)	-0.02 (-1.35)	-0.10** (-2.33)	-0.05** (-2.03)	-0.02 (-1.51)	-0.06** (-2.38)	-0.03 (-0.92)	-0.03* (-1.91)	-0.10** (-2.46)
<i>educ</i> _{<i>t-2</i>}	-9.75** (-2.02)	-5.79** (-2.55)	-14.17*** (-5.58)	-6.47 (-1.54)	-3.95 (-1.62)	-15.40*** (-3.87)	-8.55** (-2.11)	-2.08 (-0.97)	-13.9*** (-4.96)
<i>liberties</i> _{<i>t-2</i>}	-0.19 (-0.15)	0.66 (1.23)	-0.34 (-0.33)	-0.27 (-0.30)	-0.24 (-0.38)	-0.42 (-0.42)	-0.43 (-0.43)	-0.20 (-0.30)	-0.73 (-0.71)
<i>infl</i> _{<i>t-2</i>}	-0.04 (-0.23)	0.07 (0.56)	0.14 (0.98)	-0.19 (-0.87)	0.15 (1.20)	-0.02 (-0.18)	0.01 (0.07)	0.15 (1.30)	0.12 (0.96)
<i>unempl</i> _{<i>t-2</i>}	0.24 (0.80)	0.22 (1.39)	0.20 (0.99)	0.08 (0.32)	0.16 (0.99)	0.20 (1.14)	0.28 (1.28)	0.08 (0.63)	0.17 (0.99)
<i>pop_gr</i> _{<i>t-2</i>}	-1.12 (-0.66)	1.88* (1.93)	2.43** (2.31)	-0.64 (-0.40)	1.99** (2.41)	0.52 (0.55)	-0.87 (-0.63)	2.73** (2.47)	2.51** (2.02)
trend	0.02 (0.13)	0.19*** (2.89)	0.26*** (2.83)	0.06 (0.40)	0.21** (2.35)	0.05 (0.57)	0.09 (0.60)	0.28*** (5.38)	0.27*** (2.75)
Constant	1235.00 (1.08)	-345.00 (-1.11)	-203.00 (-0.31)	2182.00* (1.76)	-438.00 (-0.82)	1737.00** (2.53)	1691.00 (1.47)	-681.00* (-2.56)	-85.30 (-0.15)
Observations	278	633	312	234	496	255	278	633	312
Hansen J statistic	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AR(2) A-B test	0.24	0.73	0.54	0.30	0.74	0.46	0.26	0.78	0.70

Income shares and poverty (GMM)

	<i>top1_WTID</i>	<i>top10_WTID</i>	<i>top1_AM</i>	<i>top10_earn_AM</i>	<i>poverty</i>
<i>govt_size</i> _{t-2}	-0.26*** (-2.93)	-0.53*** (-2.75)	-0.21*** (-2.66)	-0.60 (-0.67)	-0.66*** (-4.20)
<i>public_debt</i> _{t-2}	0.01 (0.36)	0.05 (1.03)	0.02 (1.04)	-0.22** (-2.23)	0.02 (0.70)
<i>gdppc</i> _{t-2}	-67.90 (-1.37)	-42.80 (-0.44)	-133.00** (-2.16)	-126.00 (-0.42)	8.99 (0.13)
<i>gdppc_sq</i> _{t-2}	3.46 (1.41)	1.98 (0.41)	6.73** (2.17)	3.73 (0.27)	-0.73 (-0.21)
<i>open</i> _{t-2}	-0.01 (-0.65)	-0.04 (-1.27)	-0.03 (-1.19)	-0.47** (-2.28)	-0.03 (-1.13)
<i>educ</i> _{t-2}	-4.15 (-1.59)	-7.09 (-1.41)	-3.12 (-1.38)	-39.60* (-1.94)	-7.94** (-2.35)
<i>liberties</i> _{t-2}	-0.29 (-0.45)	-0.08 (-0.01)	-0.83 (-1.47)	-2.62 (-0.43)	-0.22 (-0.30)
<i>infl</i> _{t-2}	0.013 (0.18)	-0.10 (-0.40)	0.04 (0.75)	-1.14 (-1.48)	0.03 (0.33)
<i>unempl</i> _{t-2}	0.21** (2.23)	0.25 (1.22)	0.23** (2.22)	-0.21 (-0.18)	0.00 (0.33)
<i>pop_gr</i> _{t-2}	0.55 (0.70)	2.65 (1.30)	0.89 (0.83)	9.79 (1.20)	-0.39 (-0.43)
<i>lt_rate</i> _{t-2}	-0.06 (-0.93)	-0.29 (-1.52)	-0.10 (-1.28)	-1.34*** (-3.46)	
trend	0.08 (1.46)	0.14 (1.15)	0.08 (1.39)	1.67*** (3.19)	0.17*** (2.62)
Constant	347.00 (1.38)	274.00 (0.55)	674.00** (2.19)	1131.00 (0.69)	14.90 (0.04)
Observations	419	387	392	337	243
Hansen J statistic	1.00	1.00	1.00	1.00	1.00
AR(2) A-B test	0.52	0.42	0.48	0.42	0.06

Main conclusions

- Changes in govt spending exert considerable equalizing effects
- Weak role for govt debt and large fiscal changes
- Distributional impact of unfavourable macroeconomic shocks can be mitigated
- The Great Recession: likely, high debt levels will constrain mitigation and be costly in terms of income distribution