The Great Recession and the Distribution of Household Income

Stephen Jenkins
Andrea Brandolini
John Micklewright
Brian Nolan

with
G. Basso, A. Björklund, T. Callan, F. D'Amuri, I. Faiella, J. Frick,
M. Grabka, M. Jäntti, R. Joyce, B. Maître, L. Sibieta, T. Smeeding,
and J. Thompson

f R
D B

The Great Recession and the Distribution of Household Income

The subject: the impact on household incomes and their distribution of the major economic downturn that began at the end of 2007 (the 'Great Recession', GR)

- we track real income levels, poverty rates, and income inequality

Headline findings: for most of the countries we study,

- in the two years following the downturn, little change in household income distributions, but …

- in the medium- to longer-term, likely to be much greater change as a result of fiscal consolidation measures that are being put into place

The 'Great Recession' (GR)

- Starting late 2007, … Lehmann Bros bankruptcy in September 2008 (USA), financial crises, housing busts, trade collapses, … and significant declines in output across OECD countries

- 'The first contraction in the global world economy since the Second World War' (Keeley & Love's *OECD Insights* book, 2010)

- Worst macroeconomic downturn in most OECD countries since the Great Depression of the 1930s

⇒ Have real income levels, poverty rates, and income income inequality, changed to the same extent with the GR?

  ▪ Over the short-, medium-, and longer-terms

⇒ Is the US experience with the GR universally shared?

Features of the report

1. Measurement of living standards in terms of household net income

   - the sum of labour earnings, cash transfers, income from investments and savings, etc., after the deduction of income taxes, and adjusted for differences in household size

   - income rather than consumption expenditure, 'happiness', 'capabilities', or other indicators of personal living standards and well-being, including wealth and other asset measures

2. Analysis of the household incomes of all individuals in the population

   - whether young, old, working or not working

   - cf. narrower focus on e.g. wages for prime-aged employees

3. Cross-national perspective

Country coverage

- 21 rich OECD member states
  - Australia, Austria, Belgium, Canada, Denmark, Germany, Greece, Finland, France, Ireland, Italy, Japan, the Netherlands, New Zealand, Norway, Portugal, Spain, Sweden, Switzerland, the UK, and the USA

- Detailed case studies for 6 countries
  - Germany, Ireland, Italy, Sweden, the UK, and the USA

Caveats re coverage:

- no analysis of the experience of middle- or low-income countries
- our case study countries exclude OECD members such as Greece, Portugal, and Spain

Organisation of the report

- What to expect on the basis of analytical modelling and evidence about the past

  Chapter 1

- Distributional impacts for 21 OECD countries

  Chapter 2

- Country case studies: findings from 6 countries (DE, IE, IT, SE, UK, US)

  Chapters 3–8

- Summary & conclusions

  Chapter 9

Macroeconomic change and the household income distribution

Chapter 1

What to expect on the basis of:

(i) analytical models, and
(ii) empirical evidence about the past

Analytical approaches and tools

- Formal models, e.g. …
  - 'Macro' such as Dynamic Stochastic General Equilibrium (DSGE) models, and
  - 'Micro'
- Inequality and poverty decompositions
  - By population subgroup, and
  - By income source
  - By both
- Tax-benefit microsimulation models
  - Codification of tax-benefit rules + household survey data

Analytical approaches and tools: predictions regarding distributional impacts

1. Lower real income levels throughout the income range
2. Absolute poverty rate rises
    - Incomes fall relative to a poverty line that is fixed in real income terms
3. Relative poverty rate need not rise if the poverty line also falls sufficiently
    - Poverty line is a fraction of median or mean income, so changes over time
    - EU social exclusion indicator: poverty line = 60% median income
4. Impact on income inequality is not clear cut
    - Depends precisely on who is affected and where located in the distribution
5. Differences in effects across subgroups of people within the population
    - Some predictions with knowledge of who is to be found in the bottom, middle and top ranges to start with, and their income sources

Empirical evidence about the past

- Time-series econometric studies (Blinder-Esaki, etc.)
  - regress inequality on macro variables, but typically short time series
- 'Top incomes' studies (Atkinson-Piketty-Saez, etc.)
  - share of top x% tracked over very long periods of time
- 'Rising tides' studies of particular episodes
  - most evidence is about the USA; there is much less about the EU
- Tax-benefit microsimulation 'stress tests'
  - 'what if' exercises; 'if' refers to a characterisation of a recession
- Case studies
  - Multi-country time-series (e.g. *Rev. Econ. Dyn.* 2010 special issue)
  - USA in the 1930s
  - NZ at end of 1980s (and IE from the mid-1990s)
  - Nordic countries at the end of the 1980s
  - UK since 1970s

USA experience in 1930s indicative of upper bound to distributional impact of GR?

Menderhausen (1946) study of incomes of 240,000 families in 33 US cities in 1929 and 1933

- Gini inequality index increased substantially on average (from 0.40 to 0.45)
- Real income levels fell substantially, so absolute poverty rose

Expect more muted effects nowadays:

- Role of governments and extent of welfare states have developed enormously since the Great Depression, and partly in response to it
- So, we are better equipped to deal with a deep downturn

Findings from 21 OECD countries

Chapter 2

The Great Recession – how big?

OECD area

- GDP fell by 5%, 2008q1–2009q2
    - cf. the Great Depression: GDP in W. Europe, USA, Canada, Australia, and NZ fell by c. 17%

Among our 21 countries, 2008–9,

- Heterogeneity in GDP fall:
    - no fall in Australia, only 2% in NZ, but …
    - falls of 9% in Finland and 13% in Ireland
    - median change is fall of 5%, with USA fall of 4%
- Speed of recovery has varied greatly too
- Heterogeneity in labour market changes too
    - Employment changes are discussed later

Heterogeneity in fall in real GDP, and in later recovery

Change in quarterly real GDP:
6 case study countries,
2007q1 – 2011q1
(2007q1 = 100)
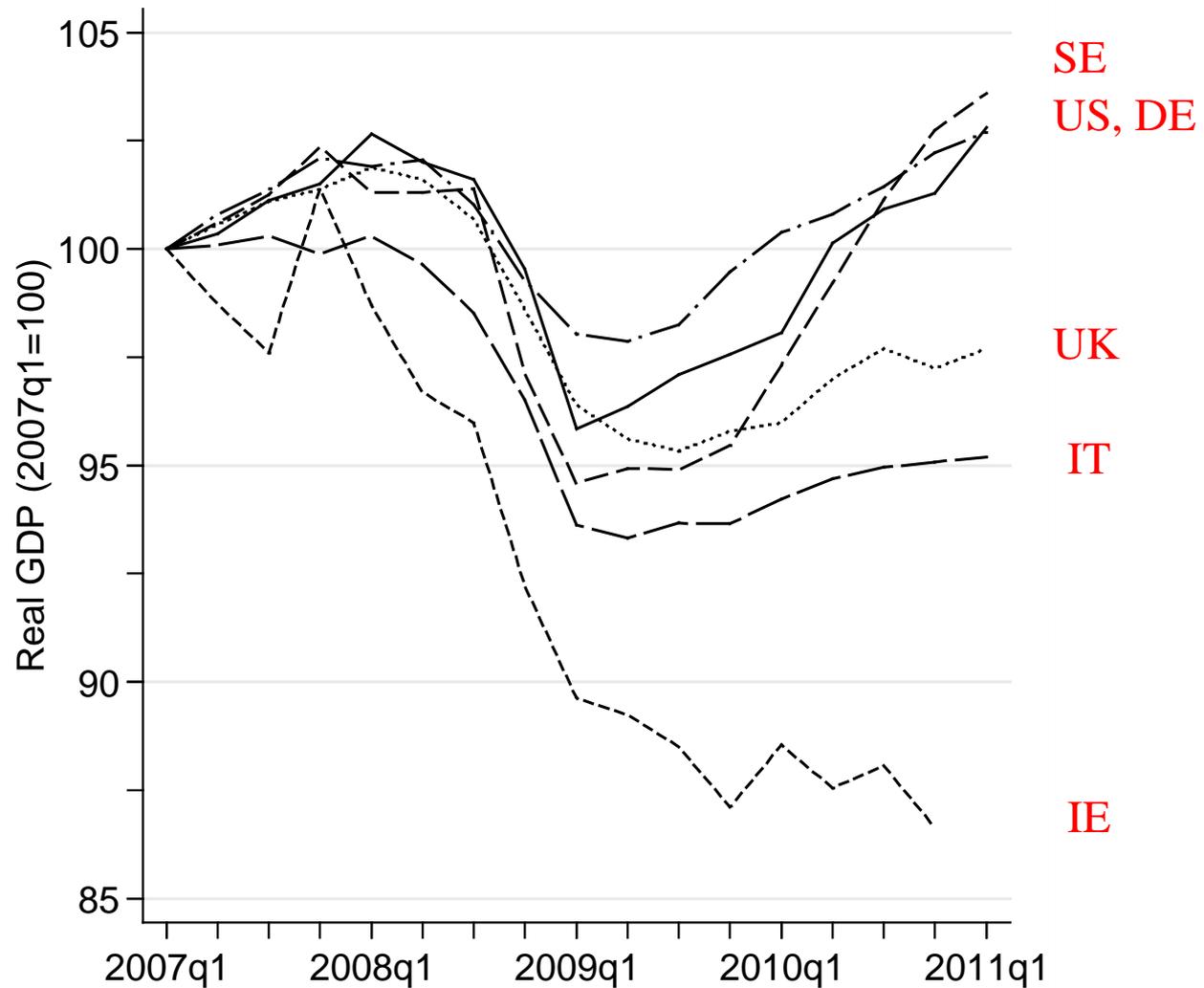
Note: line for all-OECD average is between the lines for US and DE

How can we estimate the GR's distributional impact in 21 countries?

Problem: we would usually use household survey data but they are unavailable for 21 countries on an up-to-date and comparable basis

Strategy:

- Use the various data sources that *are* available
  - National Accounts, LFS, household surveys, etc.
- Unifying idea is 'decomposition by income source':
  - look at main sources of household income – (i) changes in prevalence of receipt, and (ii) changes in distribution of the source
  - main focus is the labour market – (un)employment rates, and distribution of labour income – but other income sources examined too
- Piece together the picture of changes relative to trends apparent at 2007 baseline

National Accounts data on 'Gross Household Disposable Income' (GHDI) and its components

A picture about changes for the

household sector in aggregate

(i.e. about totals, not distributions)

In most nations, total household sector income rose though GDP fell

Change in real Gross Household Disposable Income (GHDI) and in real GDP, 2007–9
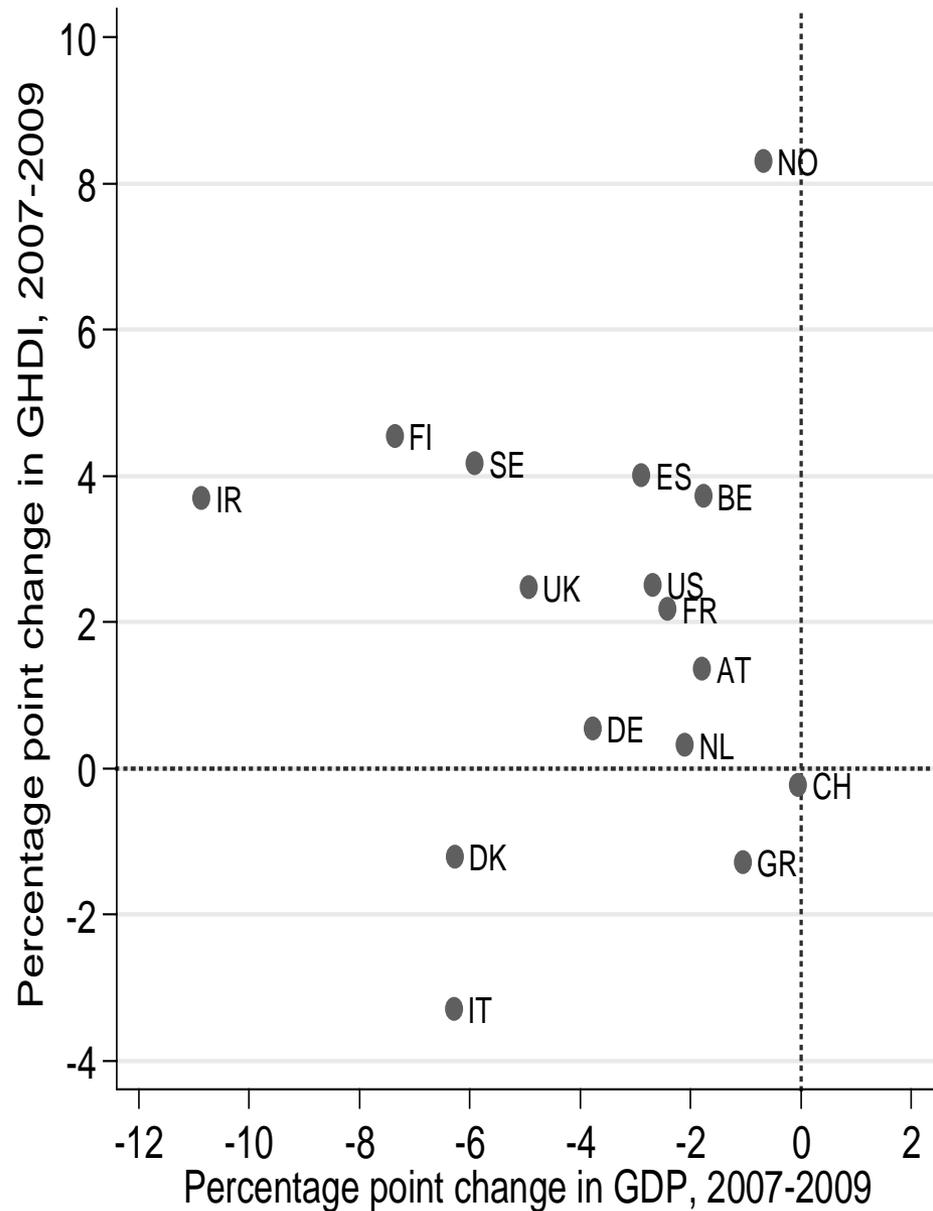
Total household sector income would have been lower, but for offsetting tax and benefit changes

Notes.
(1): percentage change in real GHDI, 2007–9 and 2009.
(2), (3): percentage change in GHDI when social benefits held at 2007 values (2), and social benefits and taxes and social contributions at 2007 values (3). Estimates for Greece and Switzerland refer to one year change, 2007–8, only. Countries ranked by column 3 values.

Changes 2007–9	GHDI	GHDI holding social benefits at 2007 value	GHDI holding social benefits and taxes at 2007 values
	(1)	(2)	(3)
Norway	8.3	5.4	8.3
Belgium	3.7	0.8	1.9
Switzerland	−0.2	0.5	1.5
Germany	0.5	−1.4	0.5
France	2.2	0.3	0.5
Finland	4.5	1.5	0.1
Austria	1.4	−1.2	0.1
Netherlands	0.3	−2.4	−0.5
Spain	4.0	0.0	−1.9
Greece	−1.3	−3.4	−2.4
UK	2.5	−1.6	−3.0
Denmark	−1.2	−3.2	−3.7
Sweden	4.2	3.0	−3.8
USA	2.5	−0.7	−4.6
Italy	−3.3	−5.2	−5.1
Ireland	3.7	−1.8	−7.4

# Distributional baseline at GR onset

Two aspects:

1. Need to consider changes relative to prior trend when gauging distributional effect of GR

   - 15 EU countries plus NO: Eurostat metadata about inequality and poverty derived from EU-SILC data

2. How the share in total income of each income source varies across the income distribution is informative about distributional impact of changes in components

   - 12 EU countries (EU-SILC) + USA (CPS), around 2007
   - 4 income sources: Labour income, Benefits and other transfers, Other income (e.g. from capital), Direct tax payments
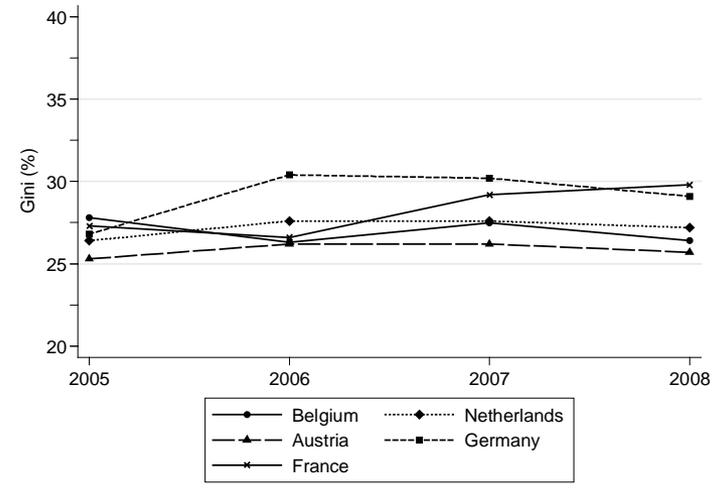   - Richest fifth versus poorest fifth

Little trend in the inequality of household income
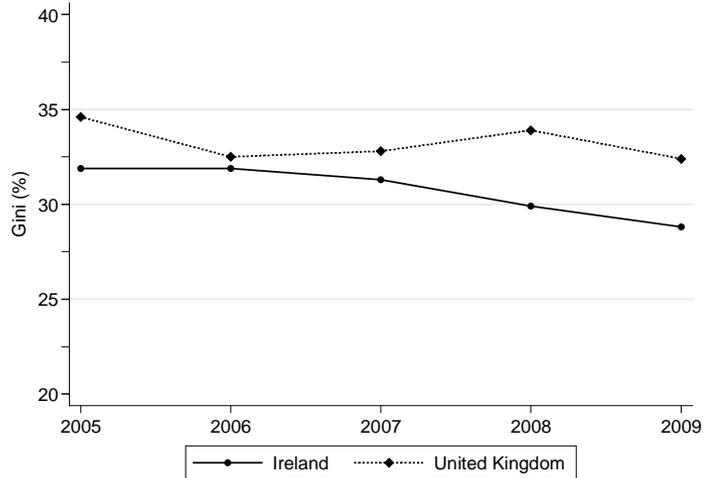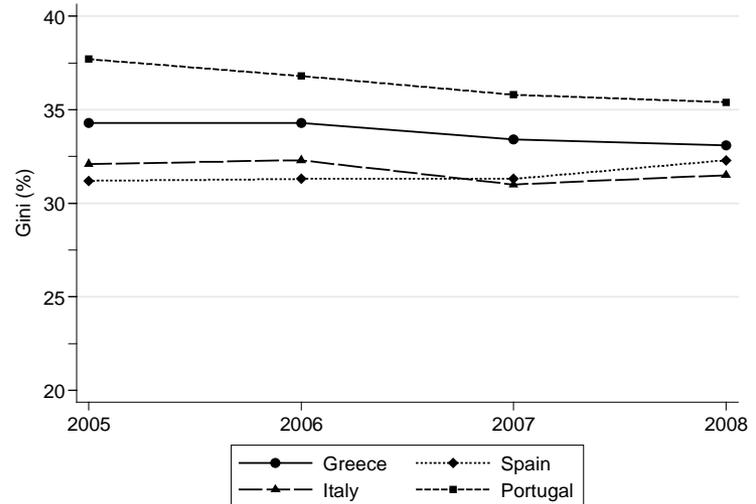## Gini coefficient (%), 2005–9
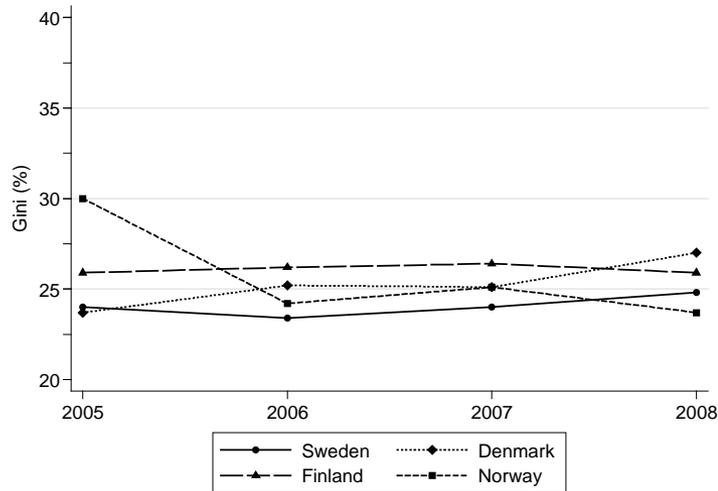
Source: Eurostat metadata derived from EU-SILC. Distributions of net household income among individuals (equivalised using modified-OECD scale)

Little trend in relative poverty rates in most nations
Percentage with household income less than 60% of national median, 2005–9
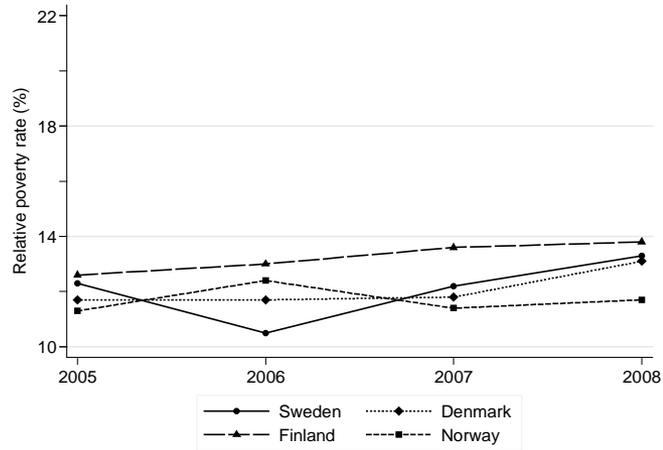

Source: Eurostat metadata derived from EU-SILC. Distributions of net household income among individuals (equivalised using modified-OECD scale)
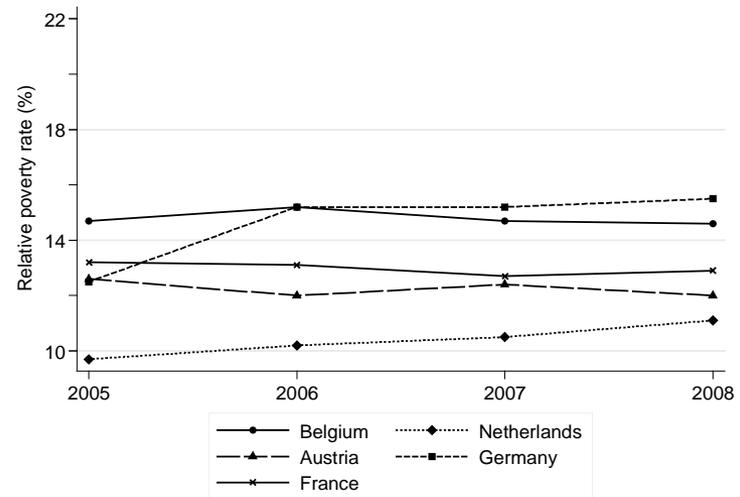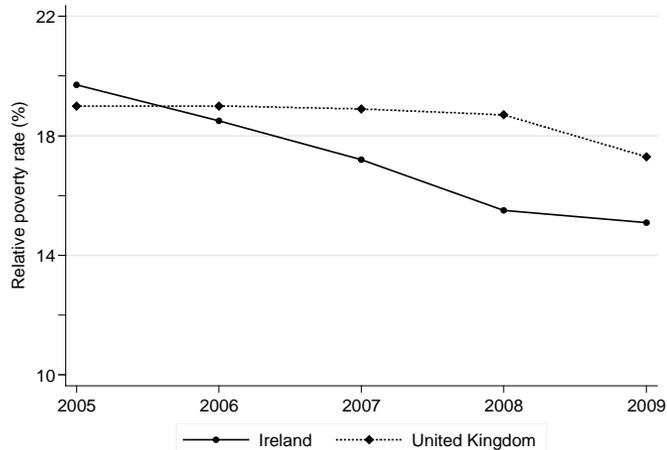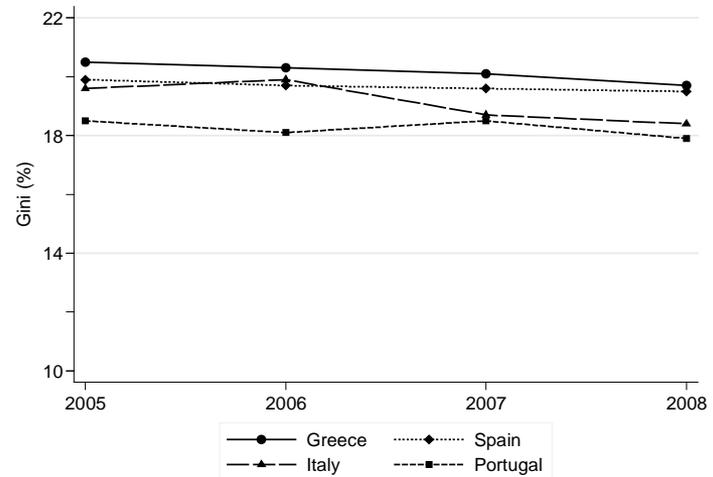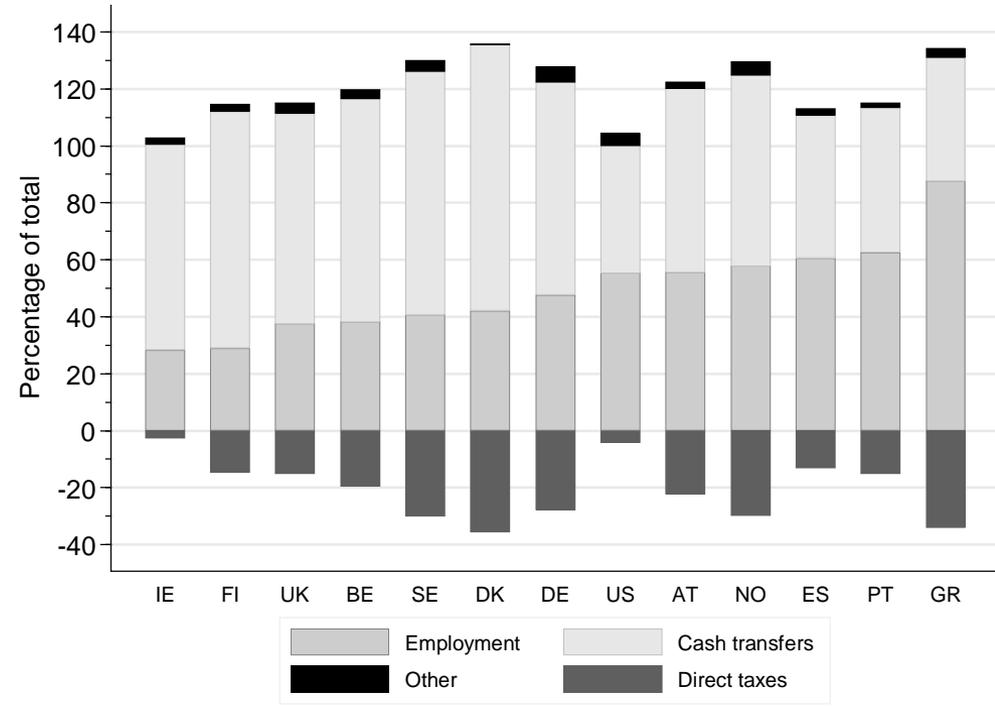
Household income packages differ substantially between the rich and the poor

Shares of income sources (%) in total equivalised net household income, 2007

(a) richest fifth of individuals

(b) poorest fifth of individuals
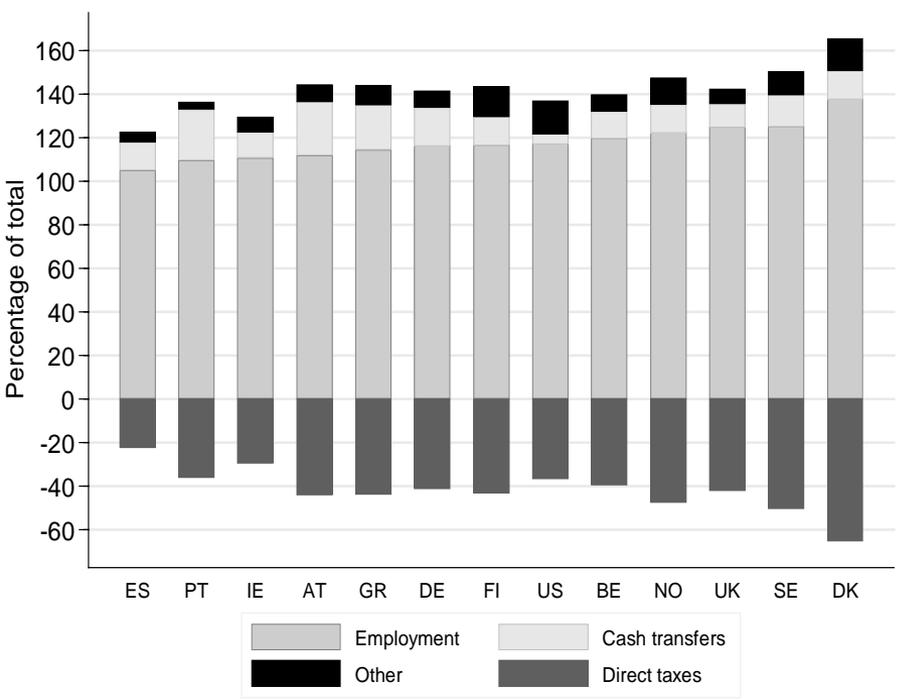
Source: EU-SILC for EU countries; CPS for USA. Refundable tax credits such as the working tax credit and child tax credit in the UK, and the Earned Income Tax Credit and child tax credit in the USA, are counted as cash transfers rather than as offsetting tax payments. Distributions of net household income among individuals (equivalised using square-root scale). Countries are ranked from left to right in ascending order of the share of employment income in total equivalised household net income. The income shares for each income group in each country sum to 100 per cent.

Changes in the distribution of work (§2.4)

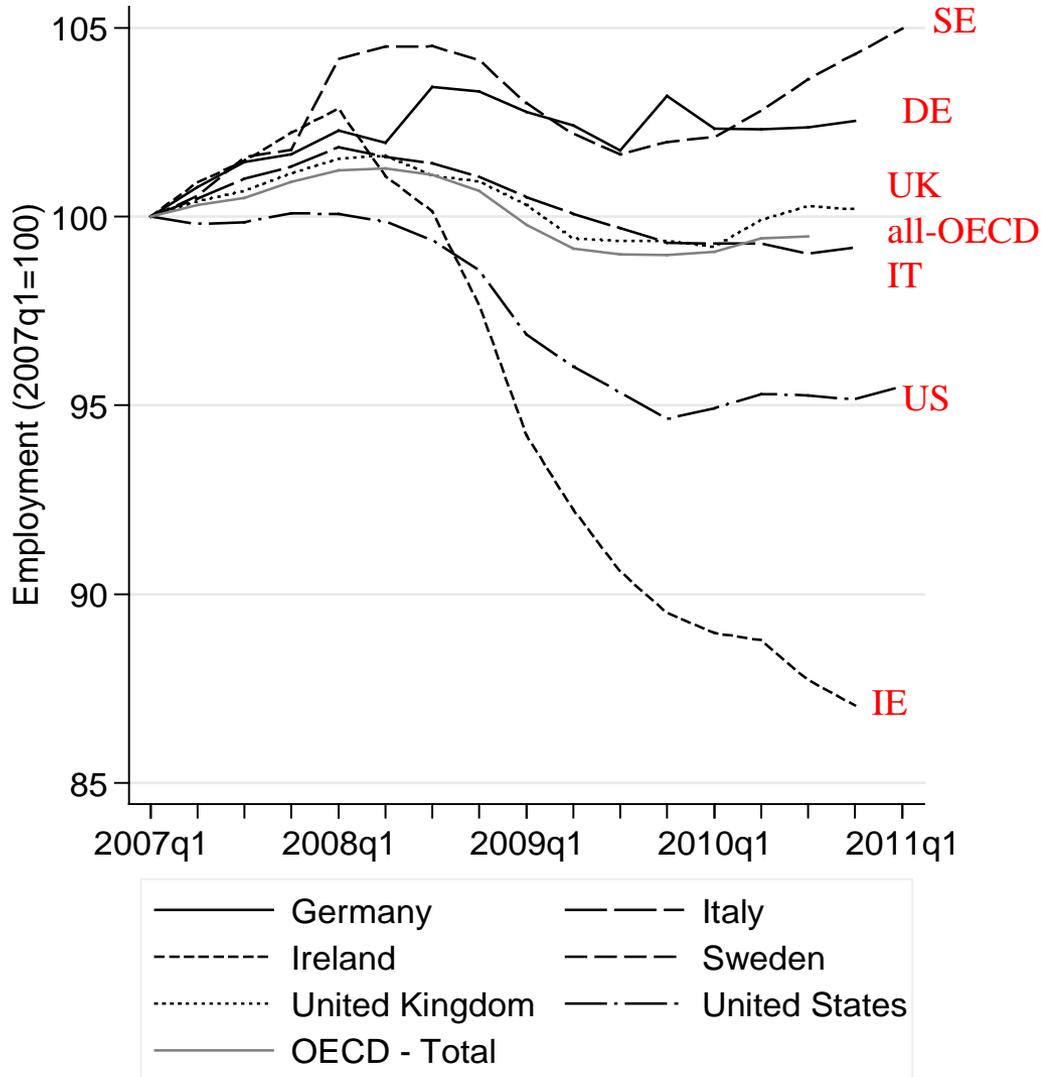Total household income = $w_1h_1 + w_2h_2 + \ldots +$ net non-labour income

So, look at:

Changes in employment ($h > 0$) and hours (h) among individuals

Changes in employment among households (% with no work)

Heterogeneity in employment falls and in later changes

Changes in employment, 2007–10: 6 case-study countries and all-OECD

Weaker relationship between employment change and GDP change than in the past

Employment rate changes differ across and within countries

Country	Rate (2007)	Change (2007–9)
	(%)	(percentage points)
Germany	69.0	1.4
Netherlands	74.8	0.9
Switzerland	78.6	0.6
Austria	71.4	0.2
France	64.0	0.2
Greece	61.4	–0.1
Norway	76.9	–0.4
Belgium	62.0	–0.4
Japan	70.7	–0.6
Australia	72.8	–0.9
Italy	58.7	–1.2
Denmark	77.1	–1.4
Portugal	67.8	–1.5
United Kingdom	72.3	–1.6
Finland	70.5	–2.1
Canada	73.6	–2.1
New Zealand	75.2	–2.3
Sweden	75.7	–3.5
United States	71.8	–4.2
Spain	66.6	–6.0
Ireland	69.2	–6.7
Average	*70.5*	*–1.5*

Changes in employment rates, 2007–9

Sex: employment rate falls larger for men than for women

Age: employment rate falls much larger for young (15–24) than middle (25–54); some rises in rates for 55+

Work hours among employed: full-time hours falling more than part-time hours; use of Short Time schemes in e.g. BE, DE, IT, JP

More adults live in households without workers (in most EU countries)
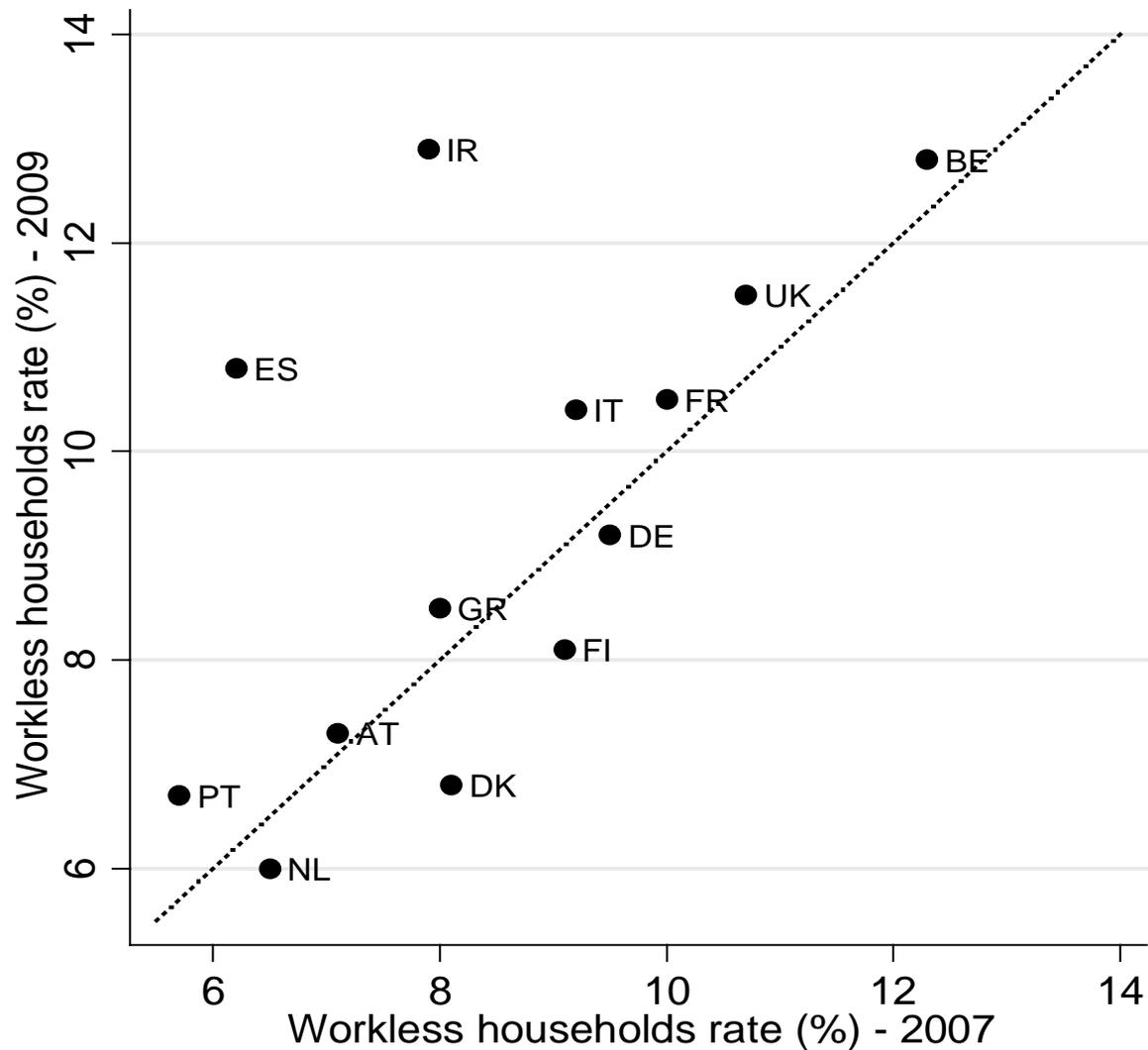
Workless household rate refers to % of 18–59 year olds in workless households.
Source: Eurostat

Changes in income sources (§2.5)

Total household net income = labour earnings + capital income + transfers + other income − direct tax payments

So, look at:

Changes in employment earnings among individuals

Changes for other income sources (but many fewer data)

Average earnings increased in most countries when employment rates fell

Changes in annual average earnings and in employment rates, 2007–9 (percentage points)
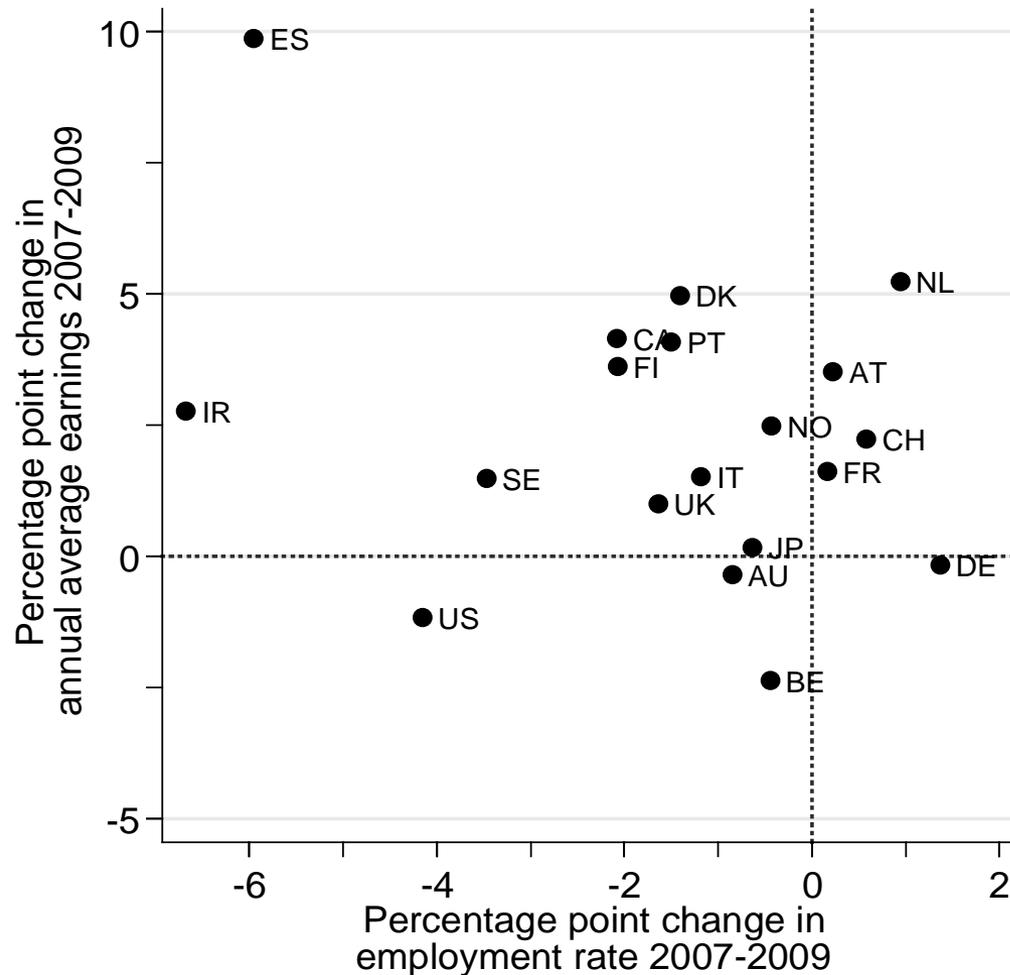
Why? Probably because it was lower earners who were more likely to lose their jobs

Trend in earnings inequality is generally flat around GR
Inequality of gross earnings of full-time employees, 2000–9: ratio of 90th percentile to 10th percentile
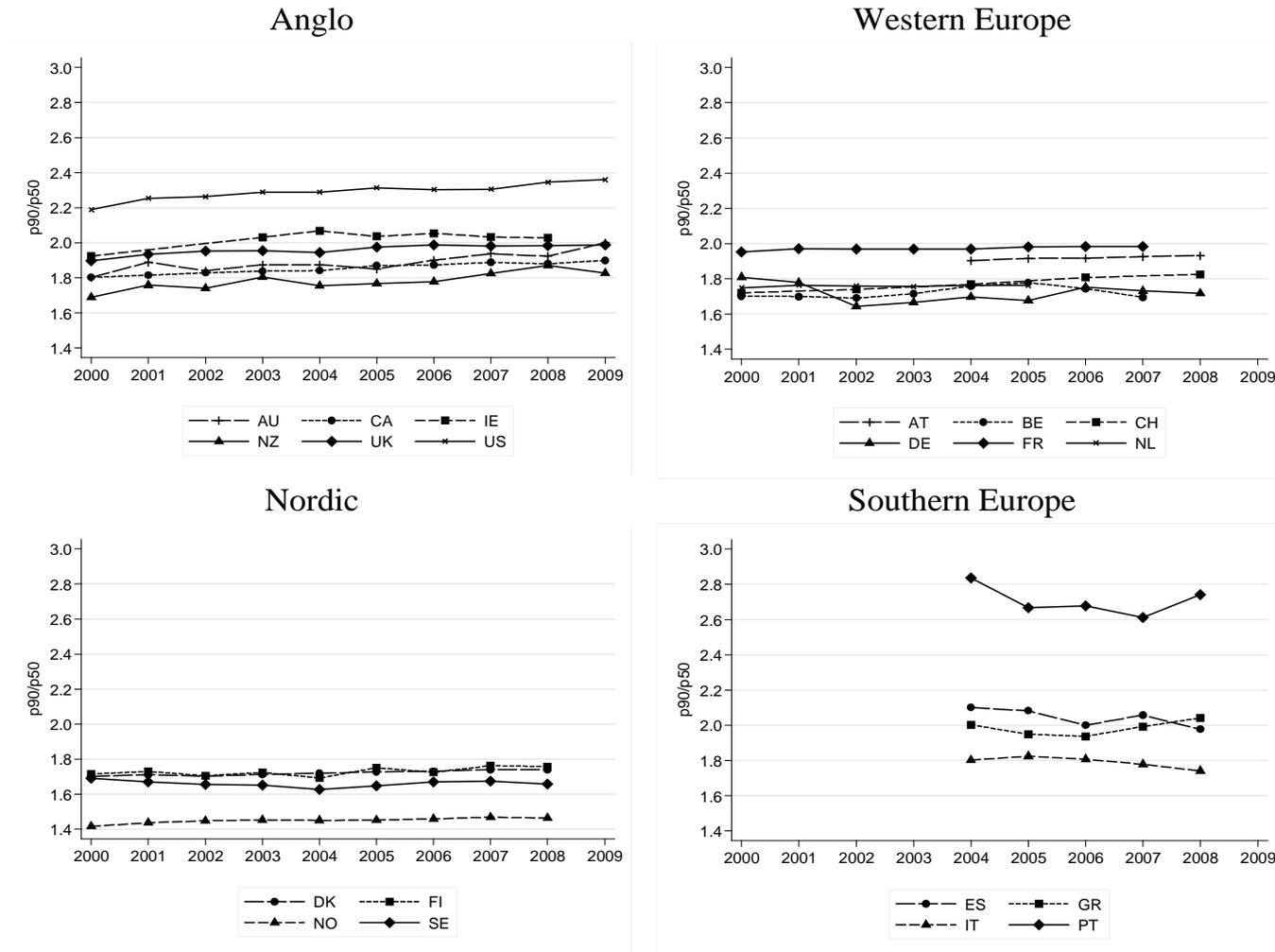
Similar results for trends in *P*90/*P*50 and *P*50/*P*10

Changes in capital income: no multi-country data, so …

Working hypothesis: Pr(receipt) not to have changed much; with changes more in amounts received

- Examine rich/poor incidence of capital income receipt around GR onset, and predict from this
  - Higher income households more likely to receive capital income, and so …
  - we expect GR changes to have had an equalising impetus
- Use EU-SILC data, 2007 income year, on income received from
  - property ('rent')
  - interest and dividends

The receipt of capital income is pro-rich

(a) rent

Row %	Decile group		
	1 to 5	6 to 9	10
Denmark	28	45	28
Sweden	21	47	32
Norway	16	45	39
Greece	12	48	39
Portugal	9	46	45
Spain	14	38	48
Italy	13	39	48
Belgium	17	34	49
Germany	15	36	49
UK	9	40	51
Ireland	15	32	53
Finland	11	33	56
Austria	7	26	66

(b) interest and dividends

Row %	Decile group		
	1 to 5	6 to 9	10
Italy	23	46	30
Germany	24	44	32
UK	19	41	40
Austria	17	42	41
Belgium	19	37	44
Portugal	16	36	48
Spain	14	37	49
Ireland	9	37	54
Sweden	17	29	54
Norway	15	25	60
Greece	3	27	70
Finland	7	22	70
Denmark	–5	2	103

Source: Calculations from EU-SILC, income year 2007. Distributions refer to total net household income among households (equivalised using modified-OECD scale).
Decile group 1 is the poorest; decile group 10 is the richest. Row percentages sum to 100%.

Changes in income from cash transfers: no multi-country data, so …

- OECD Social Expenditure database (SOCX) is an obvious source, but data currently only to 2007

- Total (average) payments on social benefits rose almost everywhere 2007–9 according to National Accounts data (see earlier)

- Social benefits concentrated on the bottom half of the distribution

$\Rightarrow$ expect equalising impact from this source with GR

- NB also no comparable data on changes in households' payments of direct taxes

Change in household incomes in 21 countries: summary (§2.6)

(1) Short-term prospects: predictions from what we have seen

(2) Longer-term prospects: implications of fiscal rebalancing measures being put into place

Predictions from what seen for 21 countries

1. Heterogeneity in distributional changes across countries

    ▪ Magnitude and other features of the GR have varied across countries

    ▪ Worst hit countries of the 21 in terms of GDP and employment are Ireland and Spain (and USA according to employment decline)

2. Marked declines in incomes at the bottom of the income distribution relative to historical trend are unlikely to appear

    ▪ Total household sector income did not fall 2007–9

    ▪ Reflects increase in state support to households which, by design, is concentrated on households in the bottom half of the income distribution

Predictions for 21 countries: continued

3. Impetus to higher inequality from rise in average earnings among workers that increases the income gap between working and non-working households

    ▪ Earnings inequality did not change markedly over the initial GR period relative to trend – suggests the GR effect is relatively small

4. Equalising impact from changes in capital income

    ▪ Share of capital income in GHDI, especially distributed income from corporations, has declined.

    ▪ Capital income receipt is concentrated among richer households

Summary of predictions for 21 countries

Relatively modest changes in household income distribution:

- absolute poverty rates up, but

- relative poverty rates up by a smaller degree, and

- change in overall inequality not clear

Changes in household distributions after 2009

Changes in government benefits and taxation around GR, or imminent, will have important effects on living standards

- not all are revealed in our measure of household income

- Changes in government support for household sector associated with:

  - worsening of fiscal stance (flow)

  - increasing government debt (stock)

- Many countries are now making adjustments

  - Nature and size depends on financial health at time of GR onset

Government balances have worsened almost everywhere
General government balance as % of GDP, 2007 and 2009
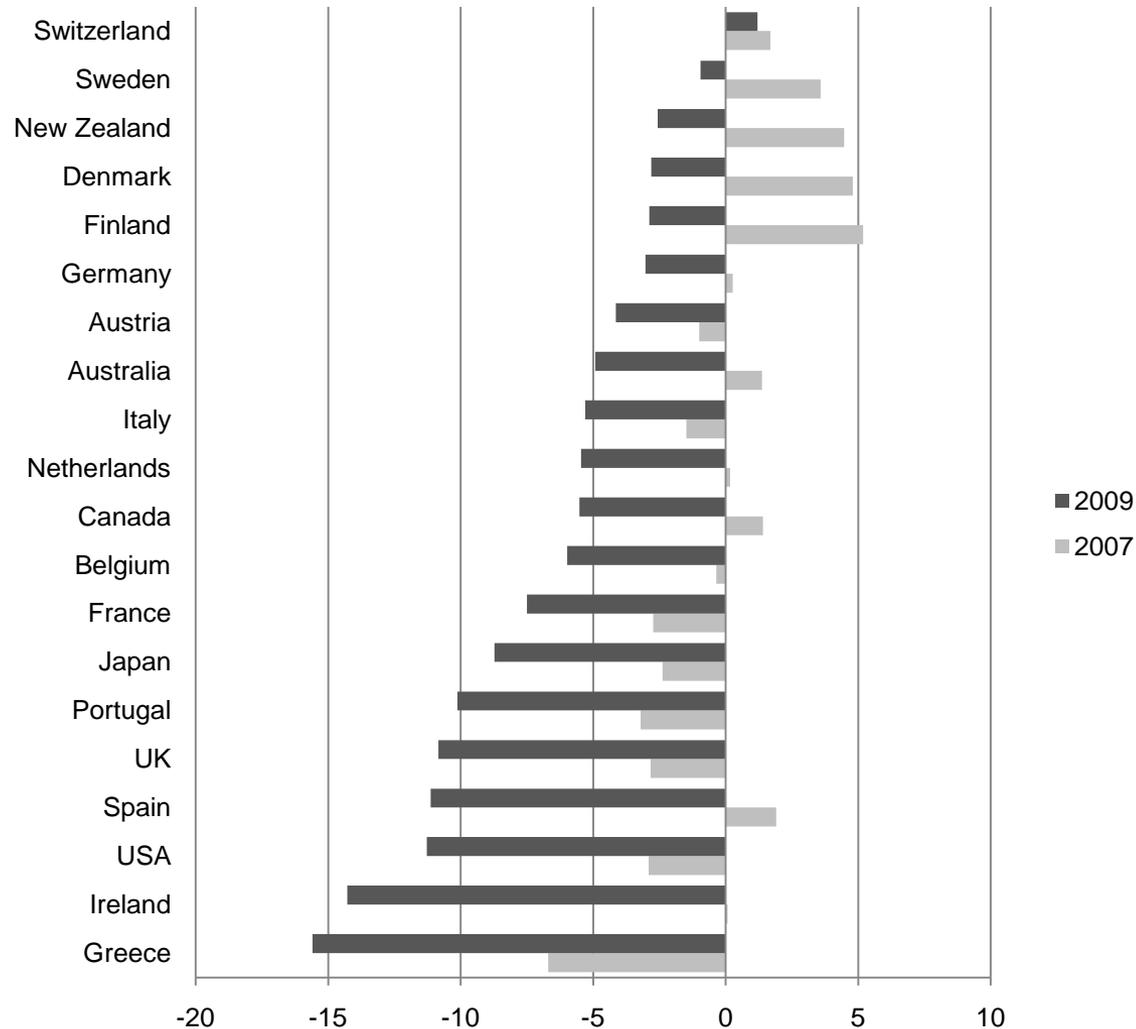
Source: OECD. Norway is not shown on the graph: +17.5% in 2007; +10.5% in 2009.

Most OECD countries have fiscal consolidation plans
Survey of 30 OECD member states, Autumn 2010

Expenditure		Revenue	
Area	Number of countries	Area	Number of countries
Welfare	18	Consumption taxes	20
Health	15	Tax expenditures	14
Pensions	14	Income taxes	12
Infrastructure	13	Tax on financial sector	8

Source: OECD. The four most frequently cited 'areas' under each heading (headings as in source).
Note. 30 countries were surveyed of which not all had fiscal consolidation plans.
'Welfare' appears to be a broad heading covering all public cash benefits including universal benefits.

Distributional implications of fiscal consolidation?

- Hard to make precise numerical predictions
- Cuts in cash social security benefits (whether nominal, or by not fully uprating) decrease incomes towards the bottom more those towards the top, and so likely to raise absolute poverty rates
  - impact on relative poverty rates less clear – what happens to the median?
- Impact on inequality not clear cut – depends on precise nature of measures, including exemptions etc
  - e.g. public sector wage freeze impact and distributional location of public sector workers (IE)
  - changes in progressivity of taxes
- Country case studies provide further detail …

Country case studies

Chapters 3–8

3. Germany (by Frick and Grabke)

4. Ireland (by Nolan, Callan, and Maître)

5. Italy (by Brandolini, D'Amuri, and Faiella)

6. Sweden (by Björklund and Jäntti)

7. UK (by Joyce and Sibieta)

8. USA (by Thompson and Smeeding)

Germany

- Historically large, but short-lived, decline in GDP with export-led recovery

- 'Germany's jobs miracle' (Krugman 2009): significant use of temporary short-time working compensation scheme

- Remarkably few changes in household income distribution over GR
  - Automatic stabilisation effect of strong welfare state

- But the future for incomes may not be as rosy, e.g. …
  - Konjunkturpaket I, II reducing government spending, including reduced welfare benefit spending
  - Fiscal consolidation 'debt brake' rules from 2011
  - Discussion about other tax changes is on-going

Ireland

- Large downturn following 'Celtic tiger' period of rapid growth and housing price bubble

- EU/IMF bail-out late 2010

- So far, no recovery in macro-economy or labour market

- Substantial rise in benefit receipt, mainly unemployment-related

- Real income falls for all income groups
  - More falls at the top than the bottom, so Gini index of inequality fell a little
  - Beneficiaries (including elderly) protected well relative to others

- Absolute poverty rate increased slightly
  - Relative poverty rate fell slightly (median fell)
  - Material deprivation prevalence rose

- Difficult future ahead … many measures introduced …

Ireland: many tax increases and benefit cuts

Budget 2009
- income levy introduced
- 3% rise in welfare payment rates

Supplementary Budget April 2009
- Levy rates doubled (to 2/4/6%), Health levy doubled (to 4%)
- PRSI ceiling raised
- Christmas bonus abolished
- Early Childcare Supplement halved, to be abolished
- Cuts in payment rates for unemployed aged under 21

Budget 2010
- Cuts in welfare for working age of 4%
- Larger cuts for 21–25 year-olds
- Child Benefit cut by 10% with compensation for welfare recipients

Budget 2011
- Cuts in welfare for working age of 4%
- Child Benefit cut by 10% with no compensation for welfare recipients
- Universal Social Charge – combining Income and Health levies
- Increases in income tax via reduced credits
- Cuts in public service pensions
- Restricting tax reliefs on employee pension contributions

Microsimulation modelling suggests income patterns observed through 2009 sustained to 2010/11

Italy

- Historically severe recession, triggered by drop in world trade and demand ('real', not 'monetary')

- GR onset amplifying existing problems of stagnating economy, government constrained by high public debt

- No household survey data available for 2009–, so innovative microsimulation to derive estimates

- Relatively small changes in household income distribution

- Importance of family safety-net (young people living with parents) in absence of comprehensive social benefit system

- Fiscal consolidation plans to improve government balance and reduce debt

  - reflecting pre-GR situation as much as the GR

- Packages proposed Summer 2011

  - commentators guess these will have regressive effects

Sweden

- GR 2008–9 is a larger downturn than early-1990s downturn, and has different sources
  - Fall in external demand, rather than a housing bubble burst and weaker domestic demand
- GR increase in unemployment rates is *less* than in early-1990s downturn, and no weakening of government balance as before
- Only small changes over GR in the household income distribution (as in the earlier downturn)
- Strong welfare state including active labour market ('work first') policies
- Various GR-related policy changes, e.g. to payroll taxes, in-work tax credits, but fiscal balance remains fine
- Likely to continue to have one of the most equal distributions of income in the world

UK

- GR = deepest recession since WWII; GDP not yet recovered peak level of 2008q1
  - Financial crisis and housing bubble burst, becoming a more 'conventional' recession
  - Large employment falls, esp. for young, but by less than real GDP
- 'The pain was delayed, but not avoided'
  - 2007–9: little change in household income distribution
  - 2010/11: fall in real income levels across all income groups:
    – Highlights potential impacts of rules used for uprating benefits and tax credits
    – Default change each April = change in RPI to previous September; sharp recent rise in inflation reduced real value of benefits (unlike previous period where opposite)
    – Also falls in employment income, and in capital income especially at the top
  - 2011–14 : regressive impacts of planned tax-benefit changes (e.g. VAT rate up, change to uprating index, cuts to benefits)
    – Losses as % income greater at bottom, made worse by service cuts
  - Usefulness of microsimulation modelling for out-of-sample prediction

USA

- Largest decline in real GDP since 1930s
  - Banking crisis, falls in stock and house prices, …
- Large decline in employment rates; no recovery as for GDP
  - 20% of 25–54 year old men jobless in April 2011
- Distributional impacts depend somewhat on the income measure: narrow 'Census' vs. broader equivalised net (NEI)
- Relatively small fall in mean, and small rise in inequality (NEI)
  - greater effects among non-elderly, who are less protected by transfers
- Relative poverty rate (EU defn.) constant 2007–9 (~30%), but official poverty rate (absolute) rose: 12.2% to 13.4%
- 'Doubling up' as a coping mechanism
  - growth in average household size amongst poorest fifth
- Various GR policies, including extension of UI eligibility
- Debates: reduce outlays vs. raise taxes? More jobs, but how?

6 countries: a summary of changes 2007–9

Country	Real GDP	Employment	Household income distribution (real equivalised net income)			Government balance
	2007q1–2010q1	2007q1–2010q1	2007–9 Median	2007–9 % with less than 0.6 of median	2007–9 Inequality (Gini)	2007–9 % of GDP
Germany	–2 %	+2 %	–2 %	–0.5 ppt	–1 %	–3.3 ppt
Ireland	–12 %	–11 %	–3 %	–2.0 ppt	–6 %	–15.3 ppt
Italy	–6 %	–1 %	0 %	+1.0 ppt	+3 %	–6.8 ppt
Sweden	–3 %	+2 %	+3 %	+1.5 ppt	+1 %	–4.5 ppt
UK	–4 %	–1 %	+1 %	–1.5 ppt	0 %	–8.0 ppt
USA	0 %	–5 %	–3 %	+0.3 ppt	+1 %	–8.4 ppt

Note: cell entries show estimated changes over the period indicated. 'ppt': percentage point.
Source: editors' derivations from country chapter estimates, and OECD.

Elderly people appear well-protected so far relative to other groups (IE, IT, UK, US)

Conclusions

Chapter 9

3 Caveats

1. Analysis is of the period during and immediately after the GR; the distributional impacts will differ between the short-, medium-, and longer-terms

   - the longer-term consequences depend on the policy mixes adopted, and on future economic growth rates

2. Our household income measure misses 'non-cash' income received from government services and reductions in purchasing power arising from increases in indirect taxation

   - But cuts in spending on services, and changes in indirect taxes, are features of many countries' fiscal consolidation packages

3. No analysis of middle- or low-income countries, and our case study countries exclude OECD members such as GR, PT, and ES, which – like IE and IT – continue to face severe pressures for fiscal adjustment

5 Policy lessons

1. Cross-country heterogeneity ('one size does not fit all')
2. Stabilisation of the household income distribution in the face of macroeconomic turbulence is an achievable policy goal, at least in the short-term (cf. 1930s)
3. Stronger welfare states provide greater 'automatic stabilisation': countries with greater stability in the income distribution after the GR are ones that already had relatively strong welfare states

    ▪ Among our 6 case study countries, the softest landings were experienced by DE, SE and the hardest by IT and the USA

5 Policy lessons (continued)

4. If substantial cut-backs are made to welfare states as part of fiscal consolidation packages, then greater instability in household distributional outcomes is likely

    - Whether this matters depends on whether distributional issues are a political priority, and have public support
    - We're moving from era with broad consensus to era of sharp distributional conflicts (cf. Greece, UK): rich versus poor; old versus young

5. Timely monitoring of distributional outcomes essential

    - Important to maintain and extend cross-national databases such as those at OECD and Eurostat
    - National accounts data about the household sector, available more quickly than household survey data, can be employed to investigate some aspects
    - Make more systematic use of microsimulation modelling