Where are the Middle Class in OECD Countries?

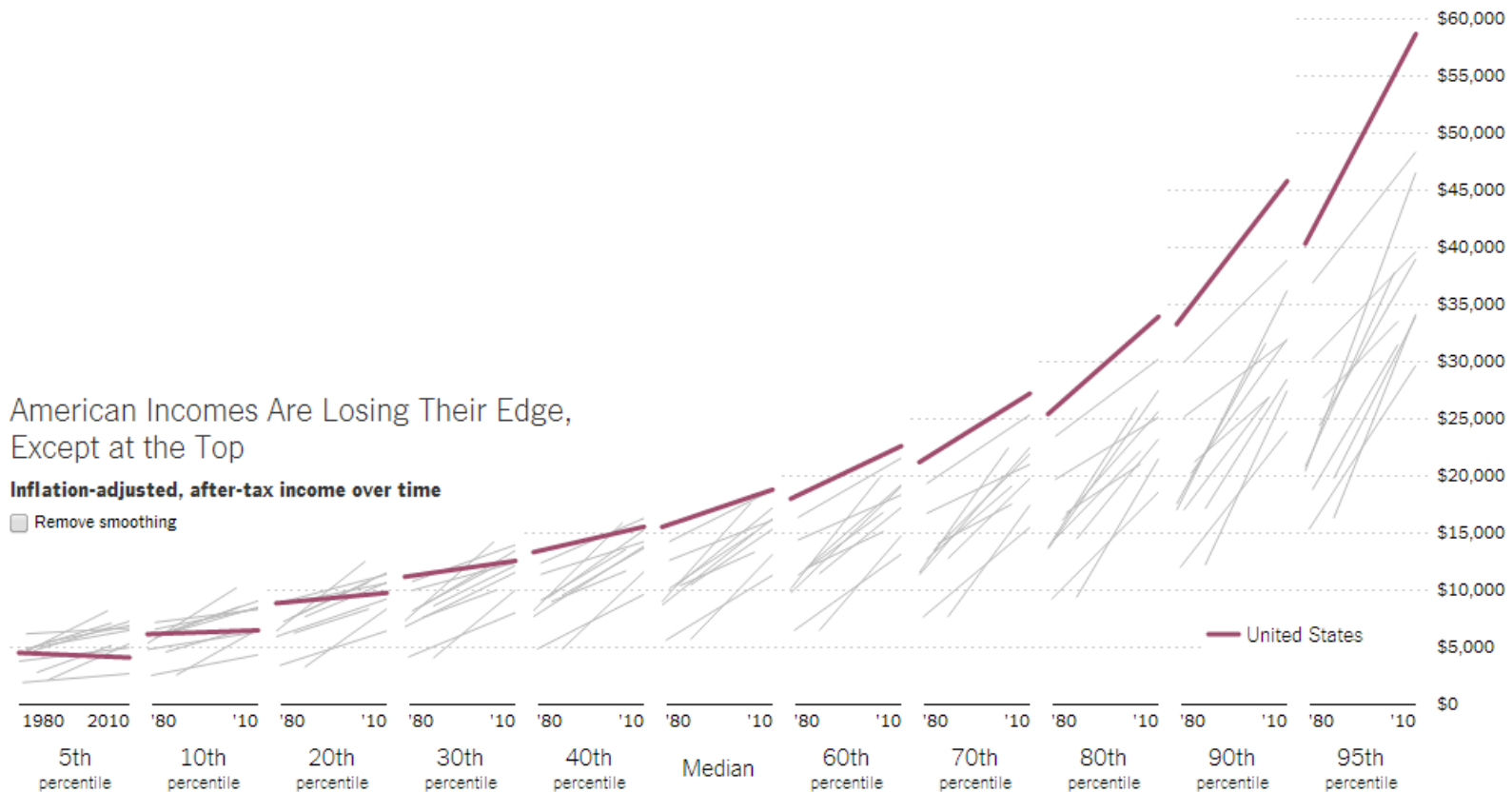**Nathaniel Johnson**
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The Middle Class is all over the US Headlines

- A strong middle class equals a strong America
  - President Obama

- Fewer Americans Identify as Middle Class in Recent Years
  - Gallup Poll

- The American Middle Class Is No Longer the World's Richest
  - NY Times

- Clinton's campaign claims the middle class "needs a raise" and promises that she would deliver one. Trump has declared his desire to "save the middle class."
  - Washington Post

NY Times showed that incomes rose in most countries, but some increased more than in US

American Incomes Are Losing Their Edge, Except at the Top
Inflation-adjusted, after-tax income over time
☐ Remove smoothing

— United States

5th percentile · 10th percentile · 20th percentile · 30th percentile · 40th percentile · Median · 60th percentile · 70th percentile · 80th percentile · 90th percentile · 95th percentile
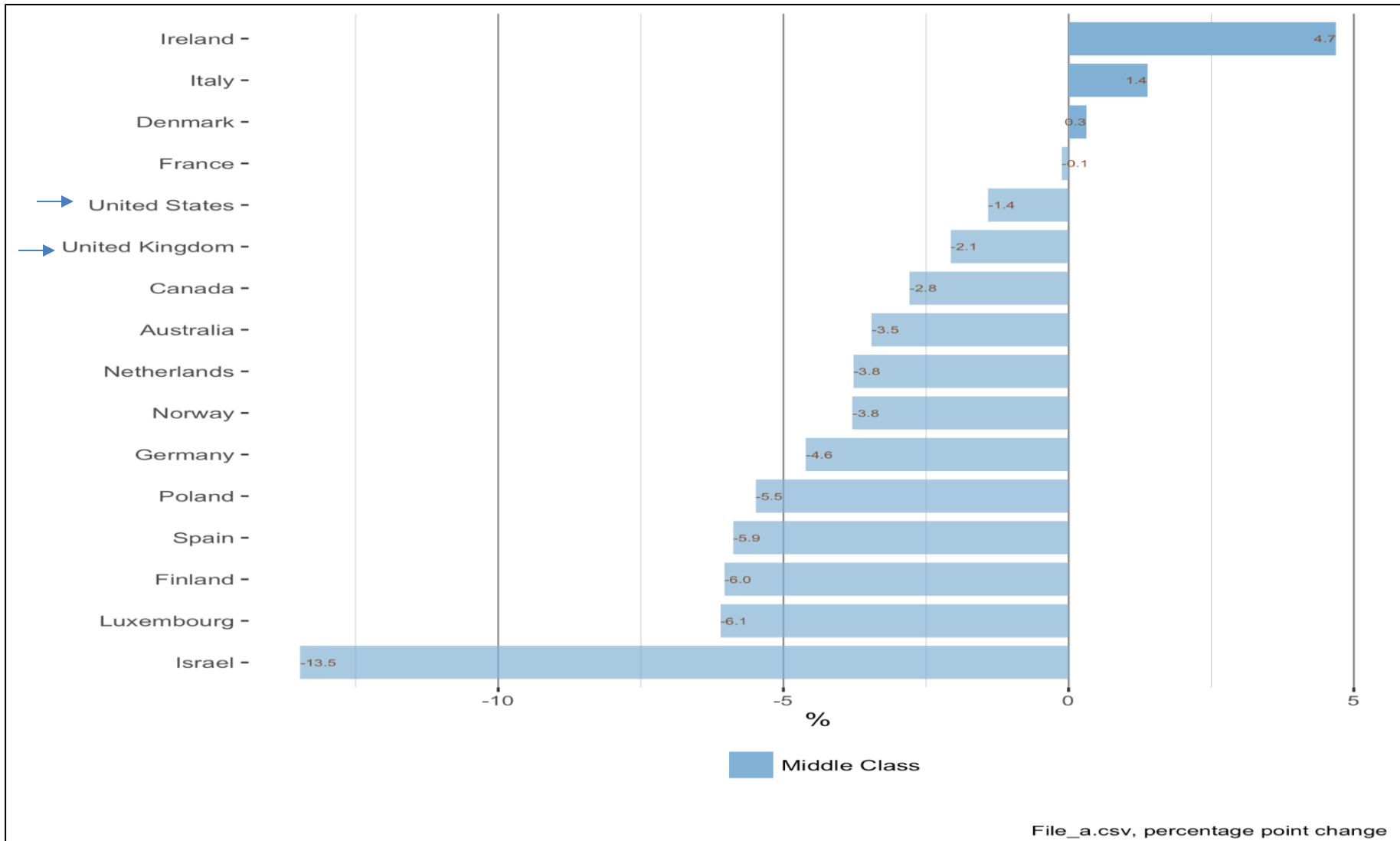
Source: New York Times/Luxembourg Income Study analysis
In 2014 dollars

Recent research (PEW, 2016) seems to show that there has been a decline in the US middle class (using income as measure). It even seems that there has been both a decline in the relative size of the middle class and a decrease in middle class incomes.
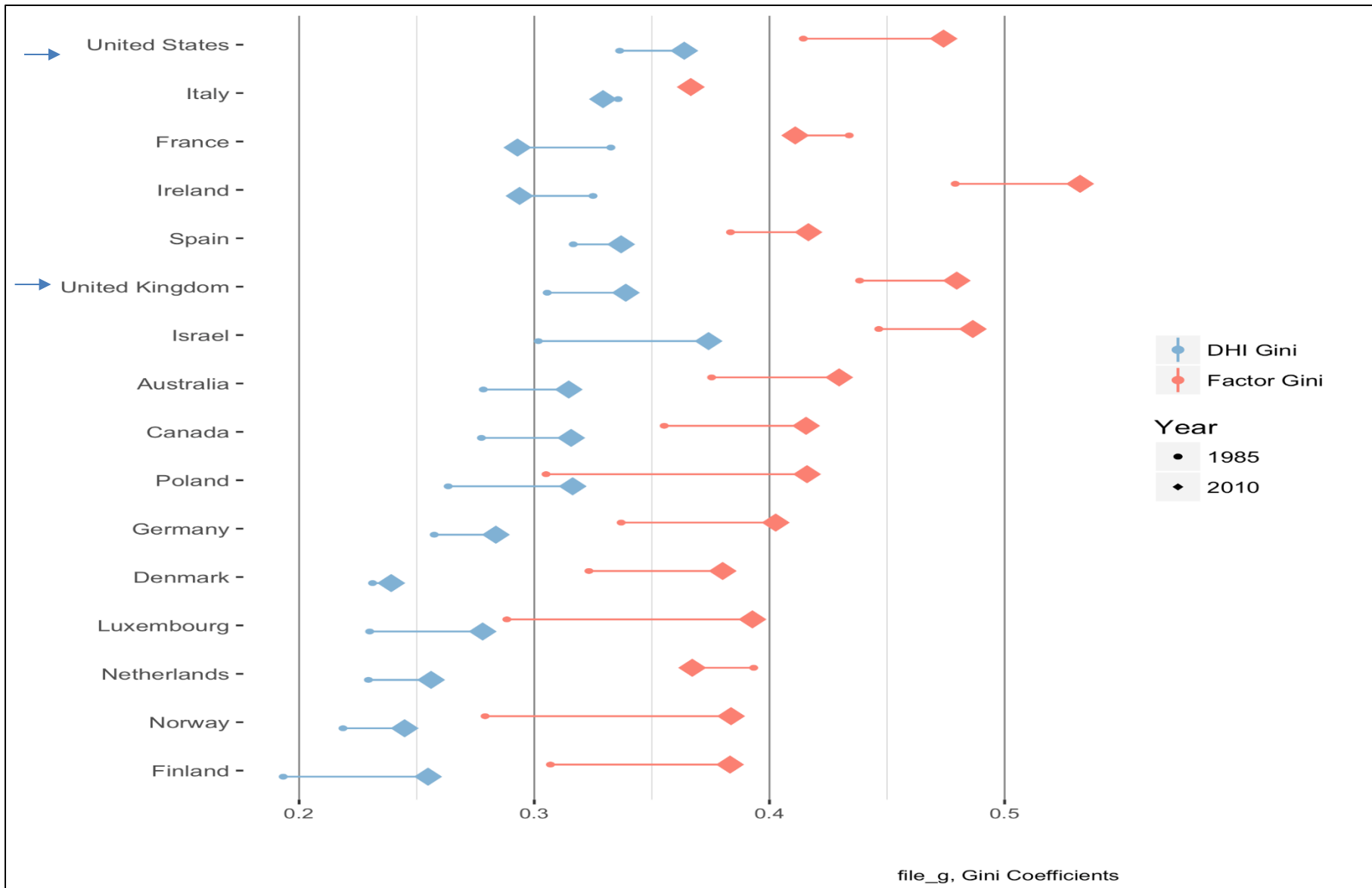
This is also true in Europe (Thewissen et al., 2015).

Gornick and Jantti (2013) show that this decline occurred in many developed countries, with in some countries middle class households moving up the income distribution, while in some others they moved down and became poor.

Janet Gornick at APPAM (Association for Public Policy Analysis and Management) demonstrated that between 1985 and 2010 there was a shrinking middle class in most countries.

Country	Percentage point change
Ireland	4.7
Italy	1.4
Denmark	0.3
France	-0.1
United States →	-1.4
United Kingdom →	-2.1
Canada	-2.8
Australia	-3.5
Netherlands	-3.8
Norway	-3.8
Germany	-4.6
Poland	-5.5
Spain	-5.9
Finland	-6.0
Luxembourg	-6.1
Israel	-13.5

%

Middle Class

File_a.csv, percentage point change

And inequality has also increased in most countries (Gornick)

file_g, Gini Coefficients

Who are the middle class?

There are many definitions of the middle class:

- Middle three quintiles
- Self identification – are you in the middle class?
- Percent of Median – half to twice median, 0.75 to 1.5, 0.67 to 2
- By SES category using income, occupation and education

In US usually compares state-level distributions with overall US distribution (PEW, 2016).

But in Europe generally compares the income distributions of the countries separately.

Goal of the authors: Instead of using average across countries, create a "global" European distribution:

Measurement issues:

- Use disposable and not market income (see Figure 9)

- Importance of Purchasing Power Parity (see, Deaton , 2010, on world poverty)

- Role of equivalence scales (see, Jantti and Johnson, 2014)

- Importance of country's price index which is selected when looking at growth of middle class

Figure 9. **Market incomes are distributed much more unequally than net incomes**
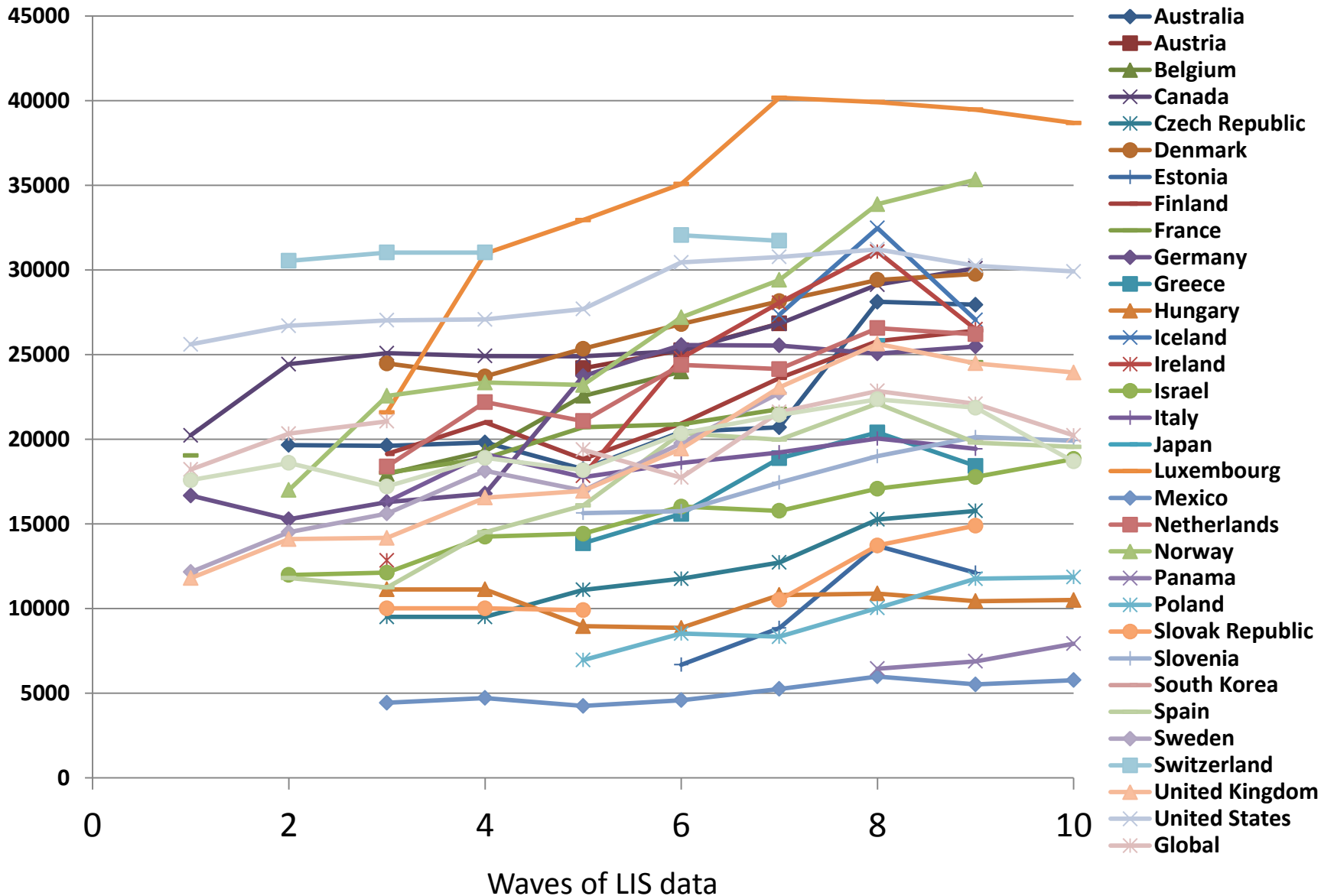
Inequality (Gini coefficient) of market income and disposable (net) income in the OECD area, working-age persons, late 2000s

OECD, Divided We Stand: Why Inequality Keeps Rising, OECD Publishing, 2011.
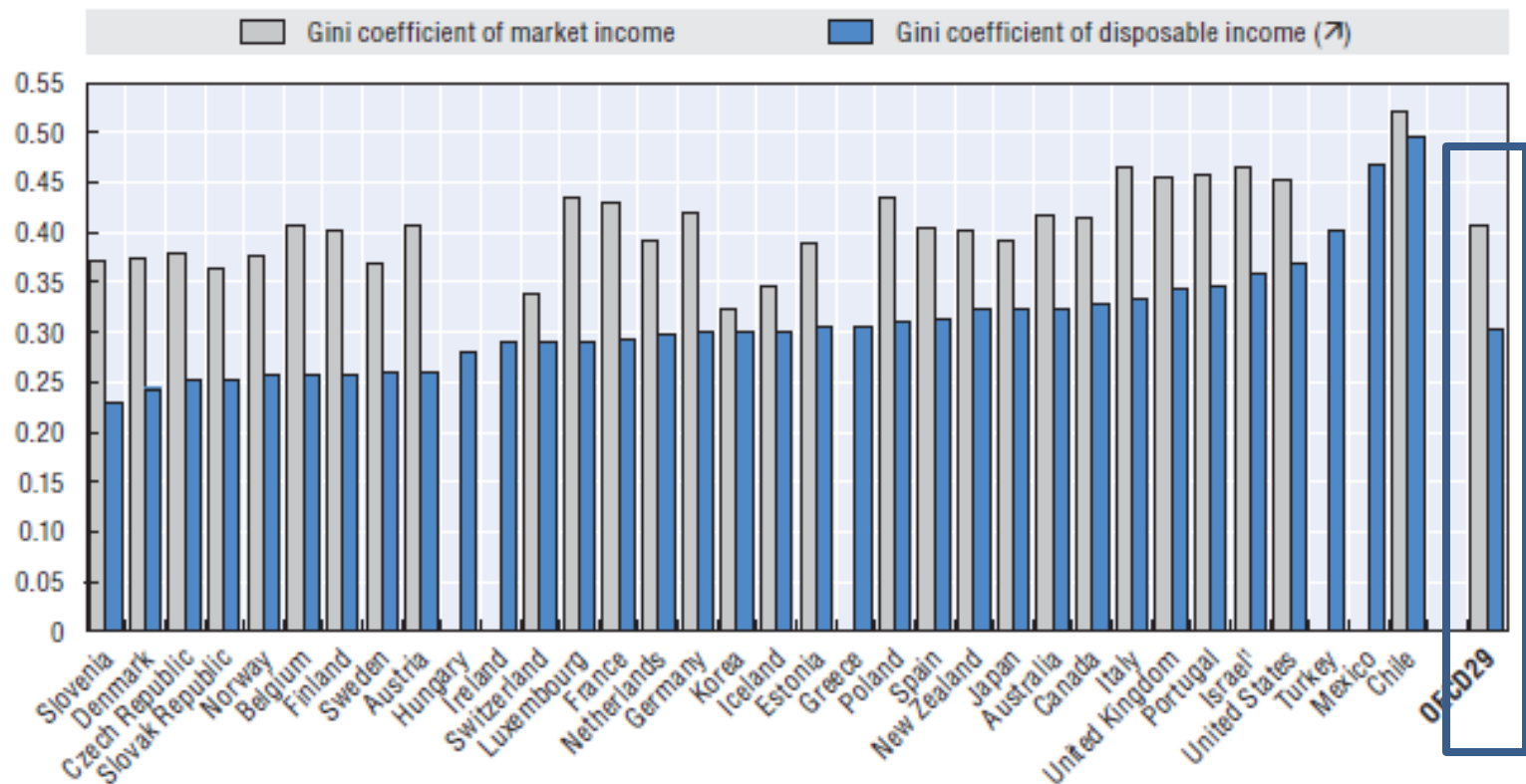
Data sources:

- 9 waves of LIS data for 19 countries

- Use disposable household income = all cash incomes + (government transfers - government taxes)

- Use country specific price indexes (OECD CPI data)

- Convert in US $ via Penn Tables

- Use equivalent household income (Buhmann et al., 1988, equivalence scale with parameter 0.5)

- Median income estimated at individual level

- Database: 800,000 observations by wave but the balanced set of 19 countries over 4 waves includes over 1,500000 observations

• Global median (for 19 countries) is calculated by pooling all countries and finding the overall median

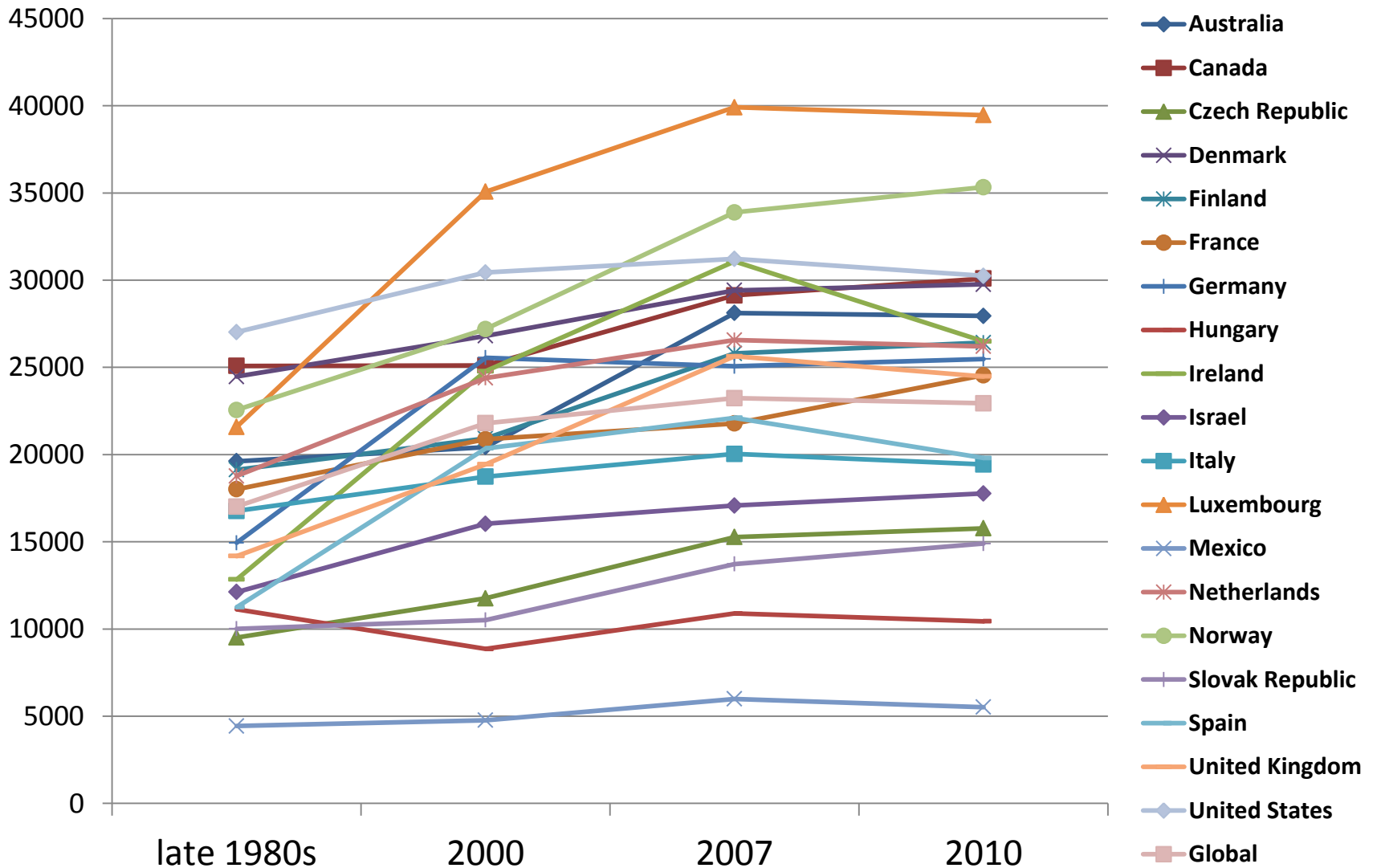• Middle class is between 0.5 and 2 times global median

Data show increasing median incomes in most countries between mid-1990s and mid-2000s, but many missing data

Waves of LIS data

Legend:
- Australia
- Austria
- Belgium
- Canada
- Czech Republic
- Denmark
- Estonia
- Finland
- France
- Germany
- Greece
- Hungary
- Iceland
- Ireland
- Israel
- Italy
- Japan
- Luxembourg
- Mexico
- Netherlands
- Norway
- Panama
- Poland
- Slovak Republic
- Slovenia
- South Korea
- Spain
- Sweden
- Switzerland
- United Kingdom
- United States
- Global

- Note that Canadian's median is now similar to that of US

- Fall in median income in most countries between 2007 and 2010 (Great Recession)

- When looking at balanced panel of 19 countries (next Figure) for waves 2, 5 and 8 (late 1980s to 2010) somehow different picture with global median income pooling all countries growing by 35% while the weighted average of country median incomes increased only by 24%.
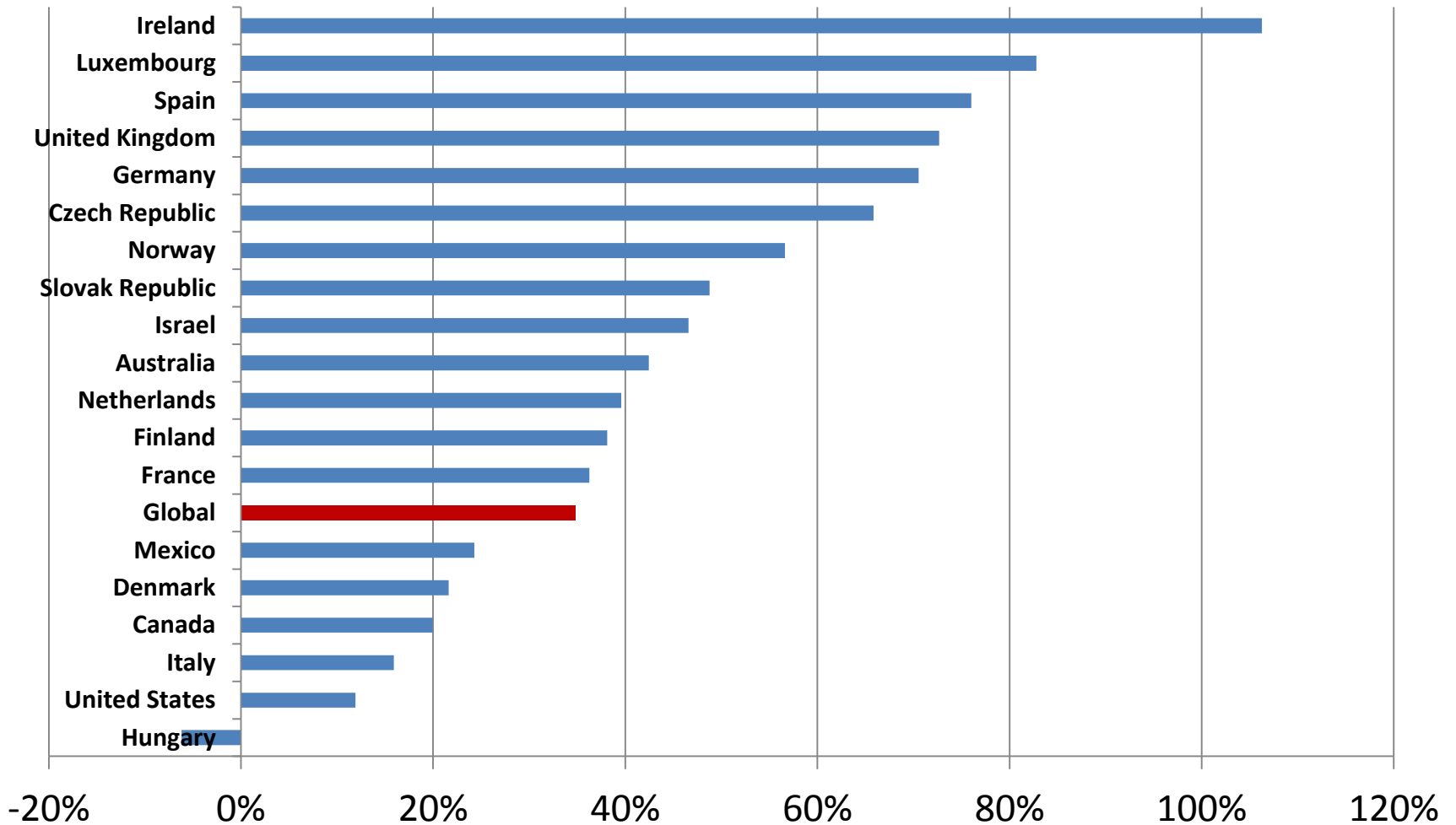
Using balanced panel of 19 countries
Median income by country (for four waves)

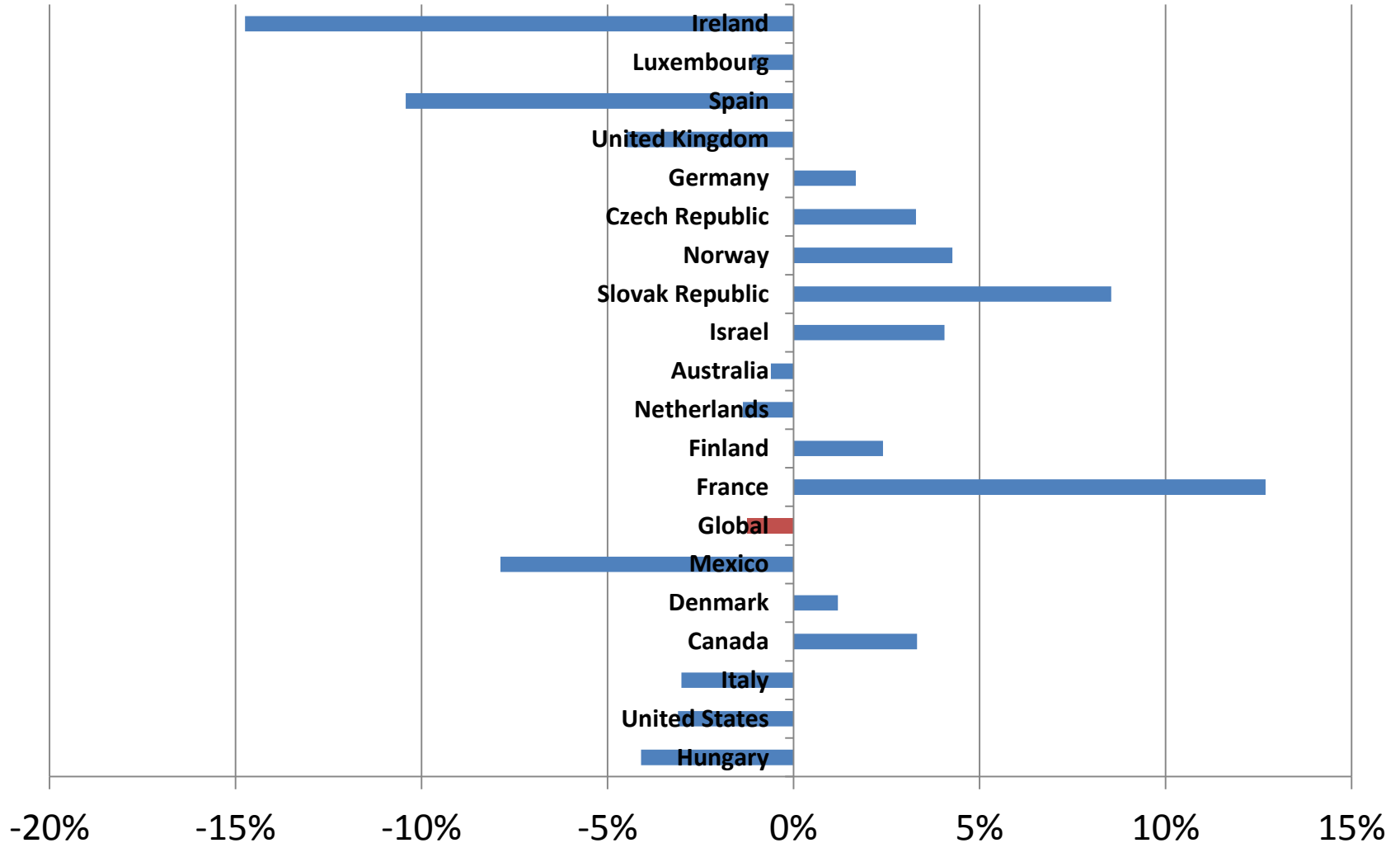|			
◆	Australia		
■	Canada		
▲	Czech Republic		
✕	Denmark		
✳	Finland		
●	France		
+	Germany		
—	Hungary		
—	Ireland		
◆	Israel		
■	Italy		
▲	Luxembourg		
✕	Mexico		
✳	Netherlands		
●	Norway		
+	Slovak Republic		
—	Spain		
—	United Kingdom		
◆	United States		
■	Global		

- Next the authors show wide disparity in income growth between late 1980s and 2010 (+100% for Ireland, -6% for Hungary)

- During Great recession half of countries experiences decrease in median income (global median fell by 1%)

Changes in the median income by country
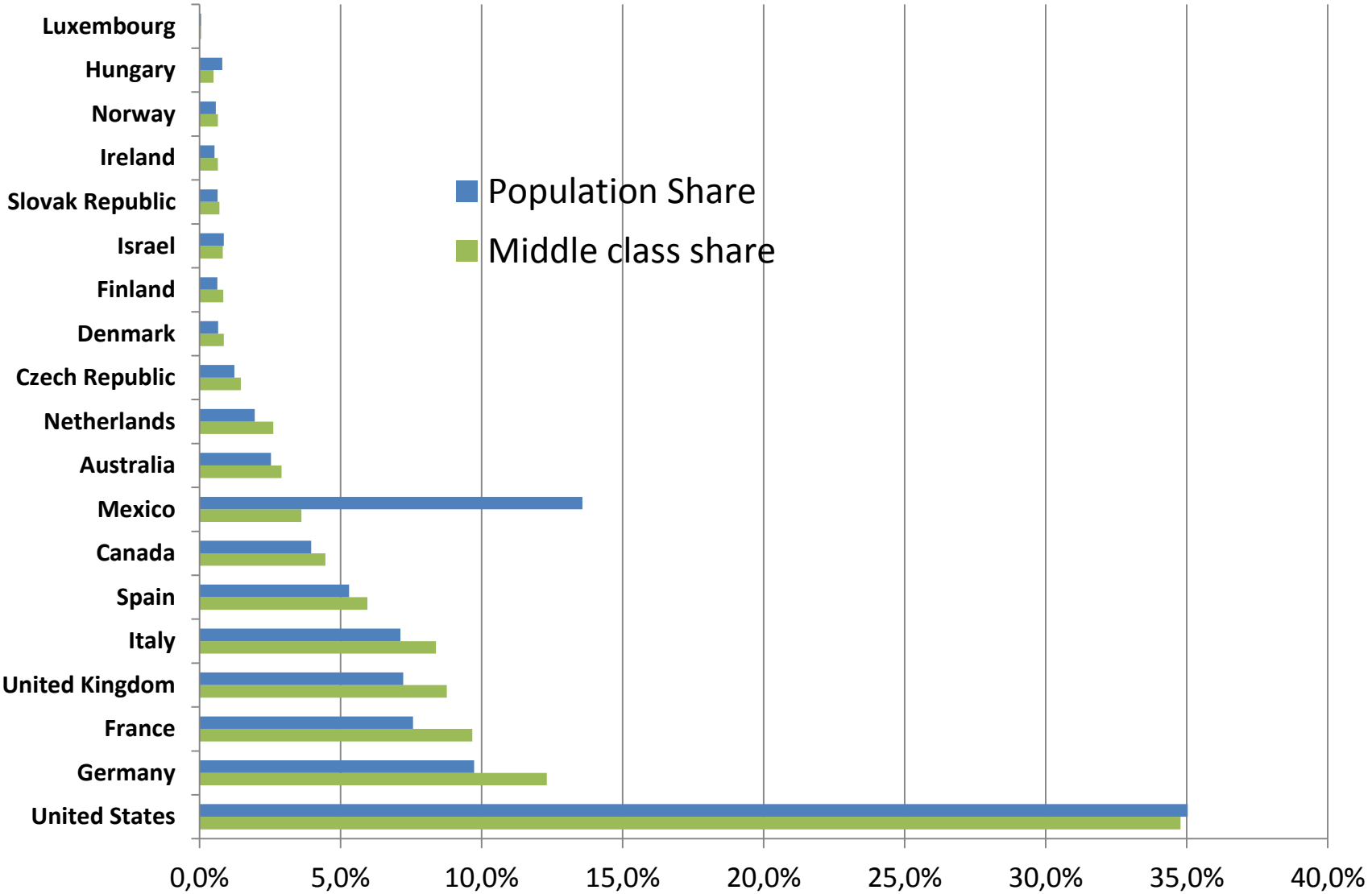# late 1980s to 2010

Country	Change
Ireland	~106%
Luxembourg	~83%
Spain	~76%
United Kingdom	~72%
Germany	~70%
Czech Republic	~65%
Norway	~56%
Slovak Republic	~49%
Israel	~46%
Australia	~43%
Netherlands	~40%
Finland	~38%
France	~36%
Global	~35%
Mexico	~24%
Denmark	~22%
Canada	~20%
Italy	~16%
United States	~12%
Hungary	~-3%

Change in median over the Great Recession, 2007 to 2010

- Next compare shares of countries in total population and in middle class

County population share is similar to share of global middle class, except for Mexico. Germany, France and UK have larger middle class shares than population


Legend:
- Population Share
- Middle class share

Countries (top to bottom): Luxembourg, Hungary, Norway, Ireland, Slovak Republic, Israel, Finland, Denmark, Czech Republic, Netherlands, Australia, Mexico, Canada, Spain, Italy, United Kingdom, France, Germany, United States

X-axis: 0,0%, 5,0%, 10,0%, 15,0%, 20,0%, 25,0%, 30,0%, 35,0%, 40,0%

- The authors then compare share of middle class using country specific median income versus global median income

- Using country specific median, share of middle class varies form 60% to 90%.

But using global median share of middle class varies from 17% (Mexico) to 87% (Netherlands)

Global middle class usually smaller for each country (similar shares for UK and France, higher for Luxembourg)
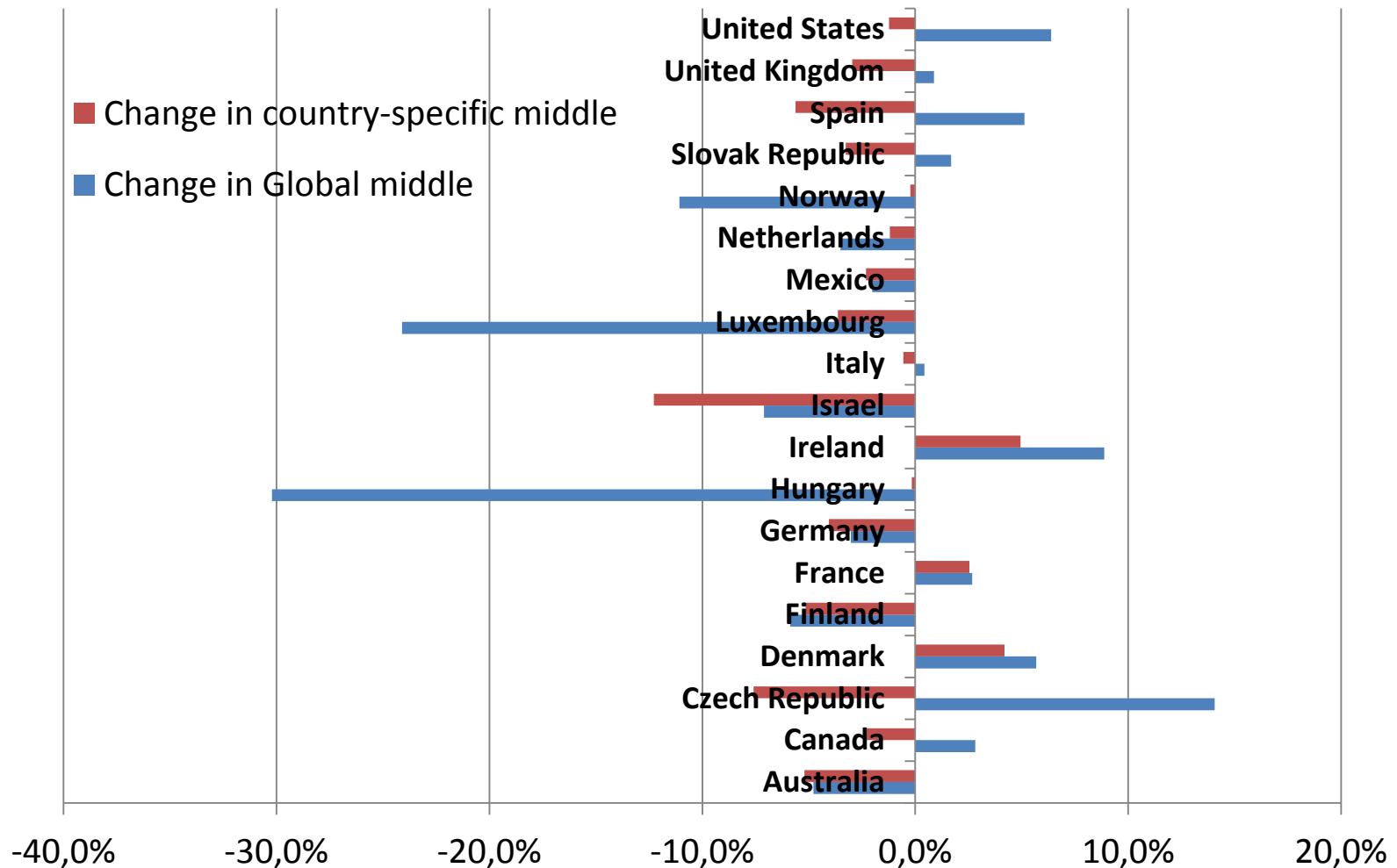
Middle class shares using country-specific middle class
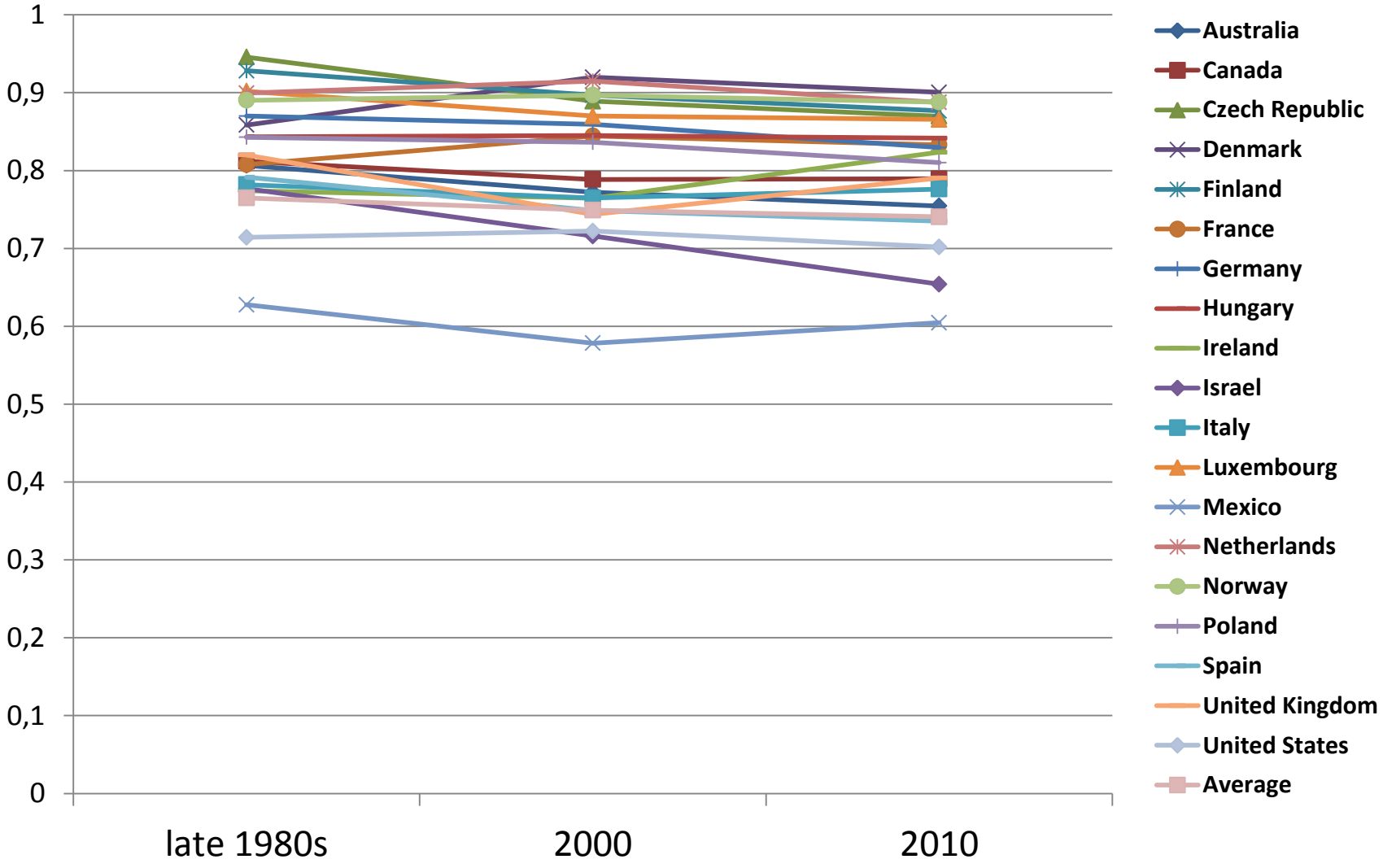
Middle class shares using Global Middle Class are more spread out
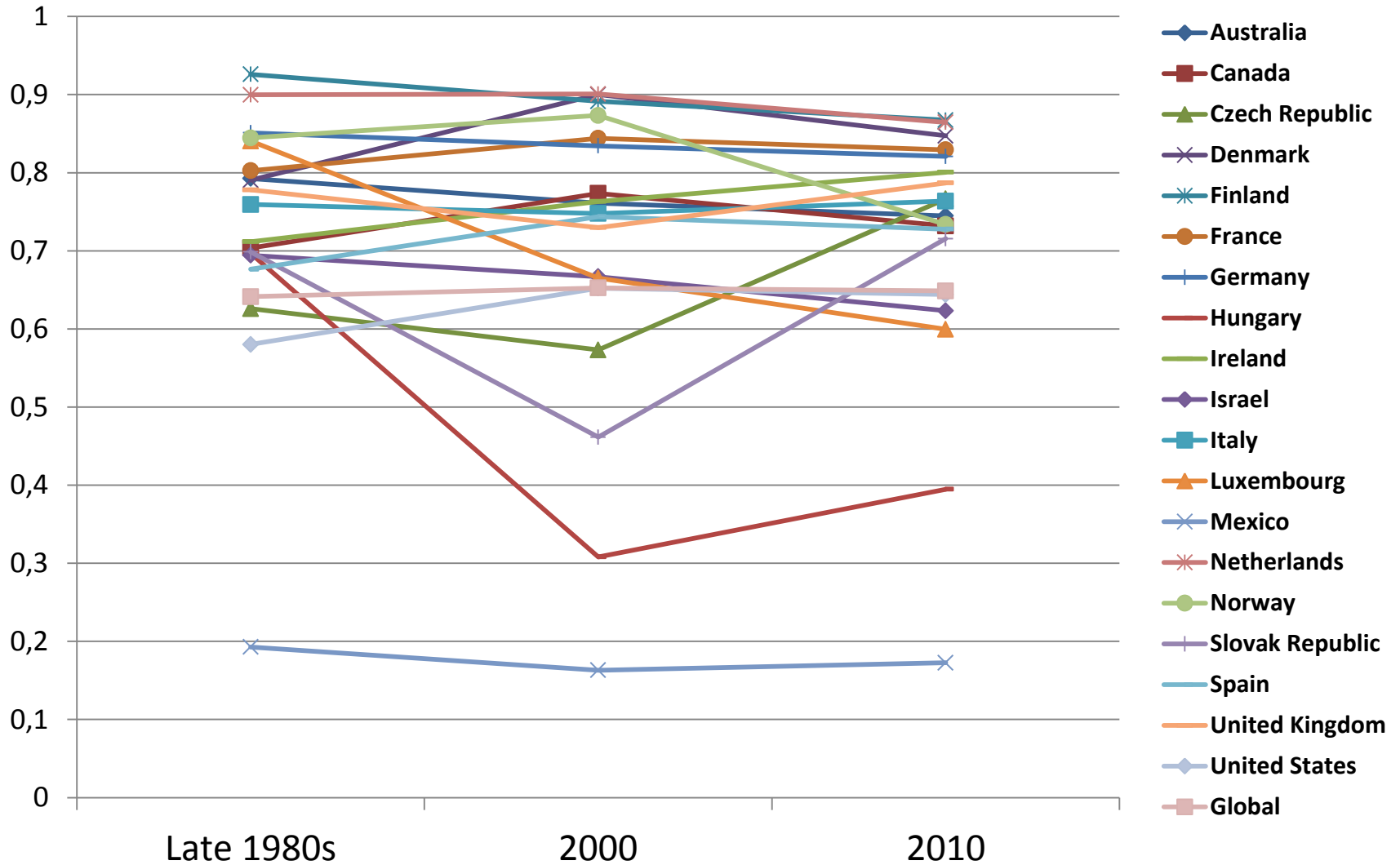
- The next Figure compares the percentage change in the middle class between the late 1980s and 2010 using both approaches

- For 7 countries the global middle class increases while the country-specific middle class decreases

Percentage point change in middle class
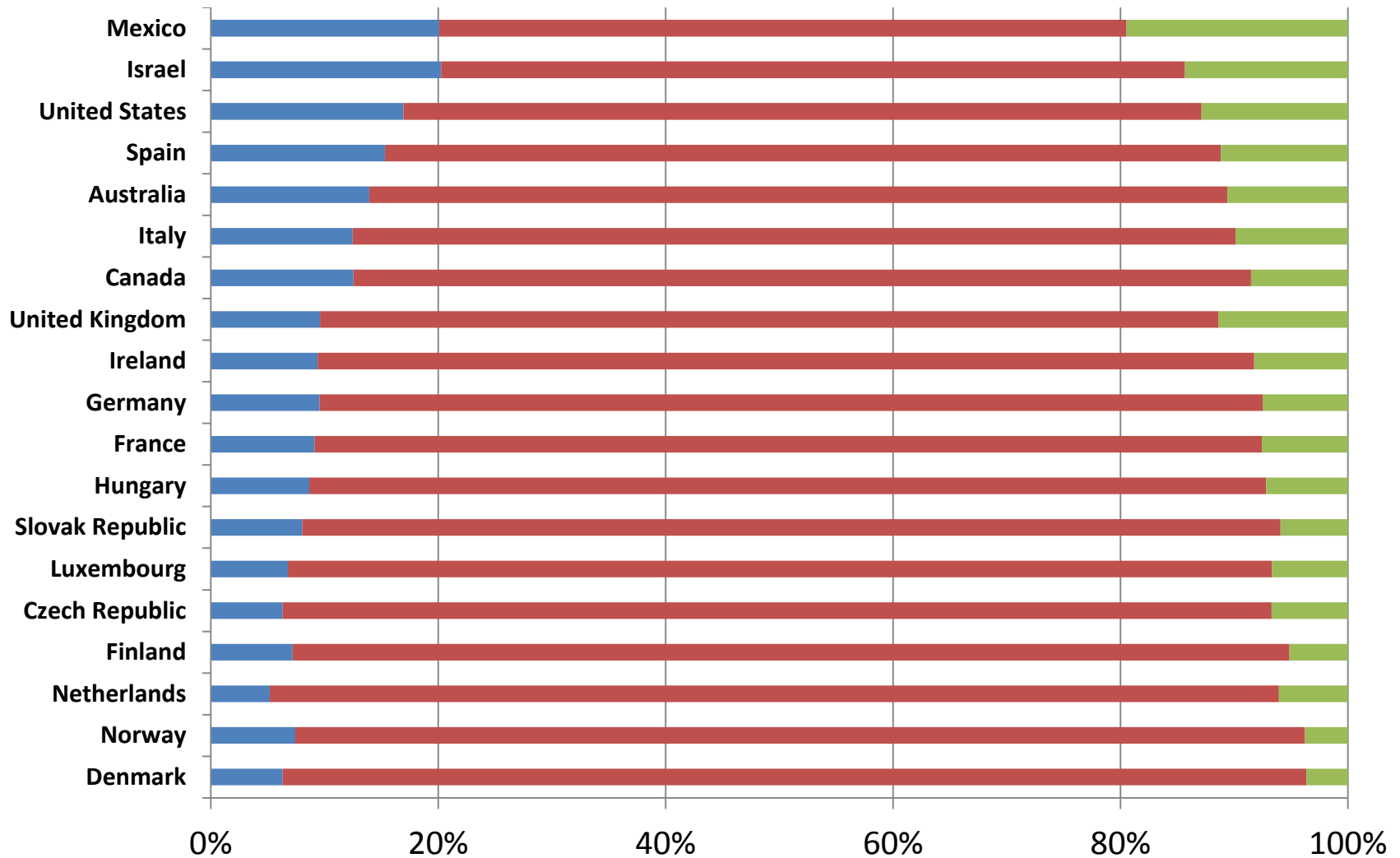## Country-specific vs global middle, late 1980s to 2010

■ Change in country-specific middle

■ Change in Global middle

United States
United Kingdom
Spain
Slovak Republic
Norway
Netherlands
Mexico
Luxembourg
Italy
Israel
Ireland
Hungary
Germany
France
Finland
Denmark
Czech Republic
Canada
Australia

-40,0%   -30,0%   -20,0%   -10,0%   0,0%   10,0%   20,0%

- Then the authors give the percentage of he population in the lower, middle and upper class in 2010, using both approaches

# Middle, Lower and Upper class shares
Country-specific medians, 2010

Country			
Mexico			
Israel			
United States			
Spain			
Australia			
Italy			
Canada			
United Kingdom			
Ireland			
Germany			
France			
Hungary			
Slovak Republic			
Luxembourg			
Czech Republic			
Finland			
Netherlands			
Norway			
Denmark			

And the distribution using the global medians is very different – all countries have smaller middle class, 2010
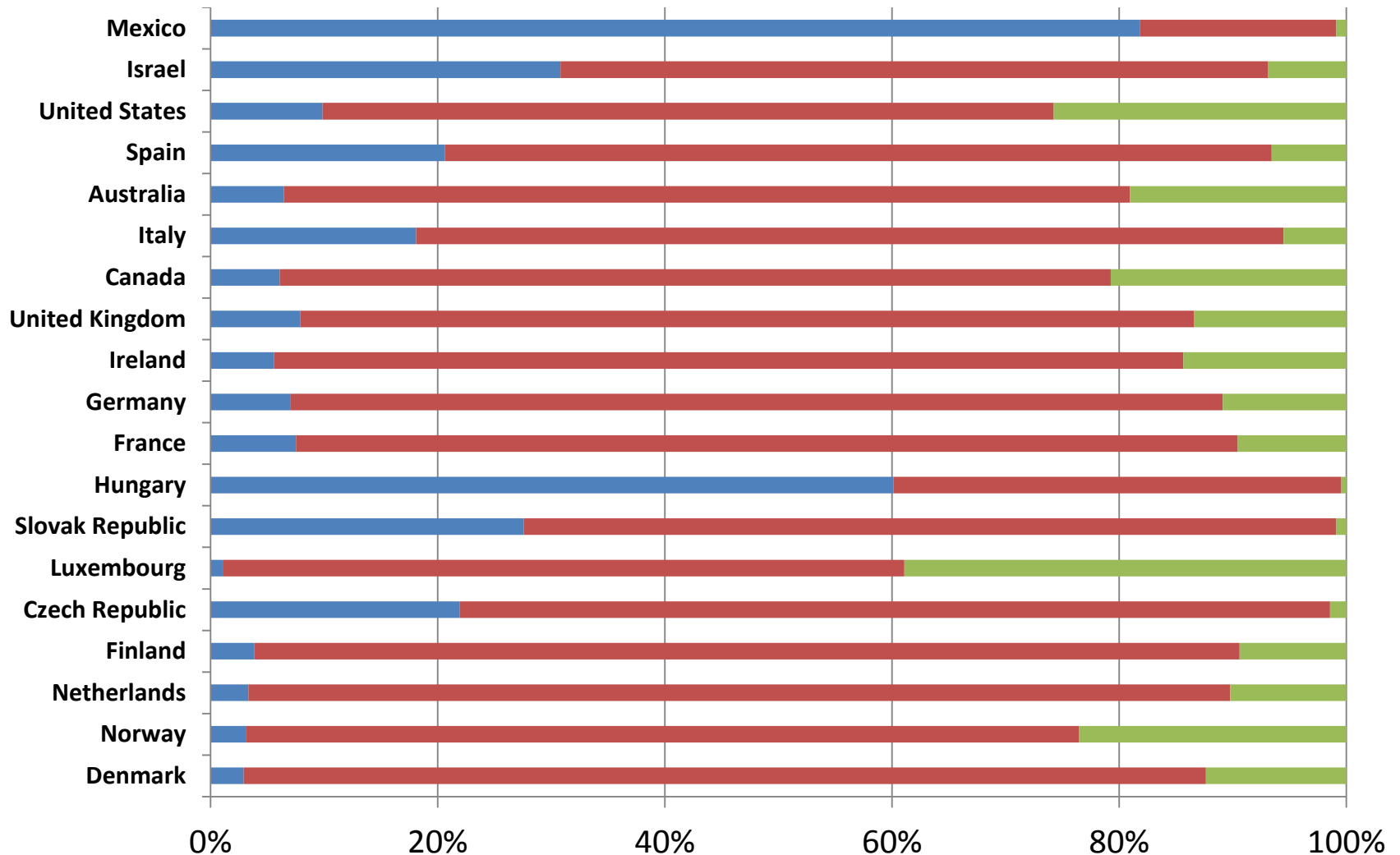
Next graph shows where middle class went (using both approaches):

- In many countries increase in share upper class but lower class also often increased its share

- Picture somehow different when using global median

Moving up or down – percentage point change in upper and lower class, late 1980s to 2010 (using country-specific median)
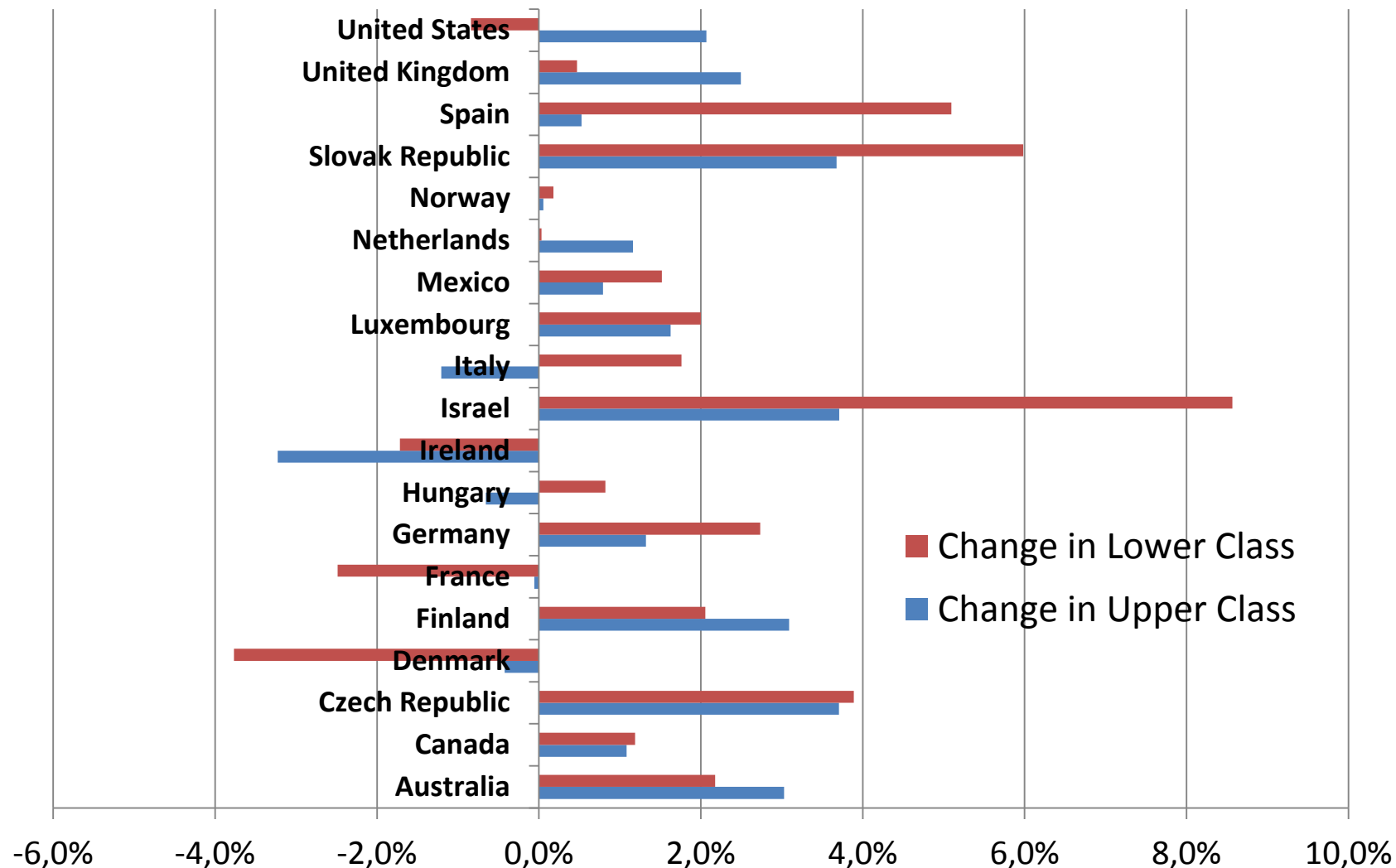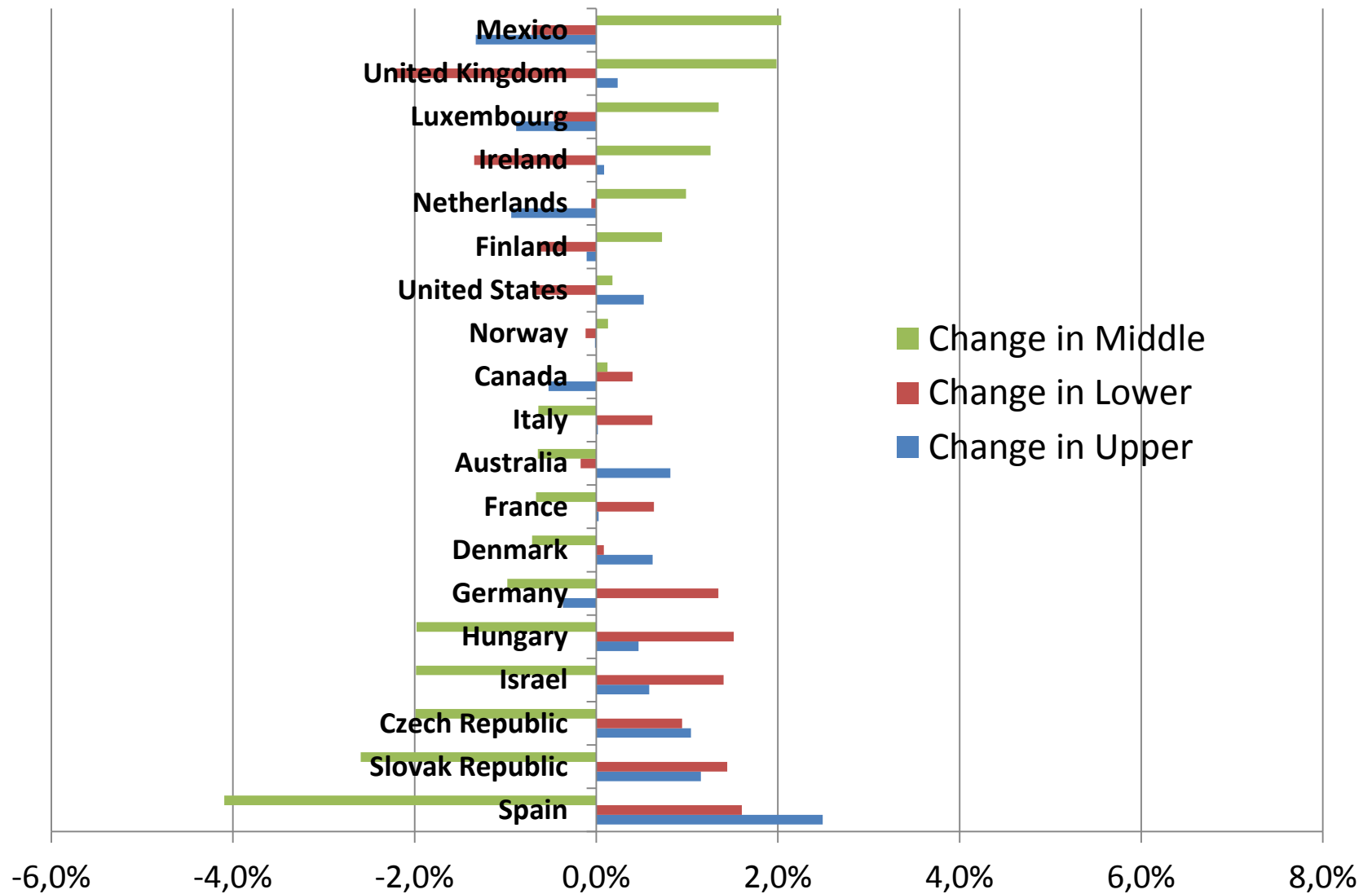
Moving up or down – percentage point change in upper and lower class, late 1980s to 2010 (using global median)

Legend:
- Change in Lower Class
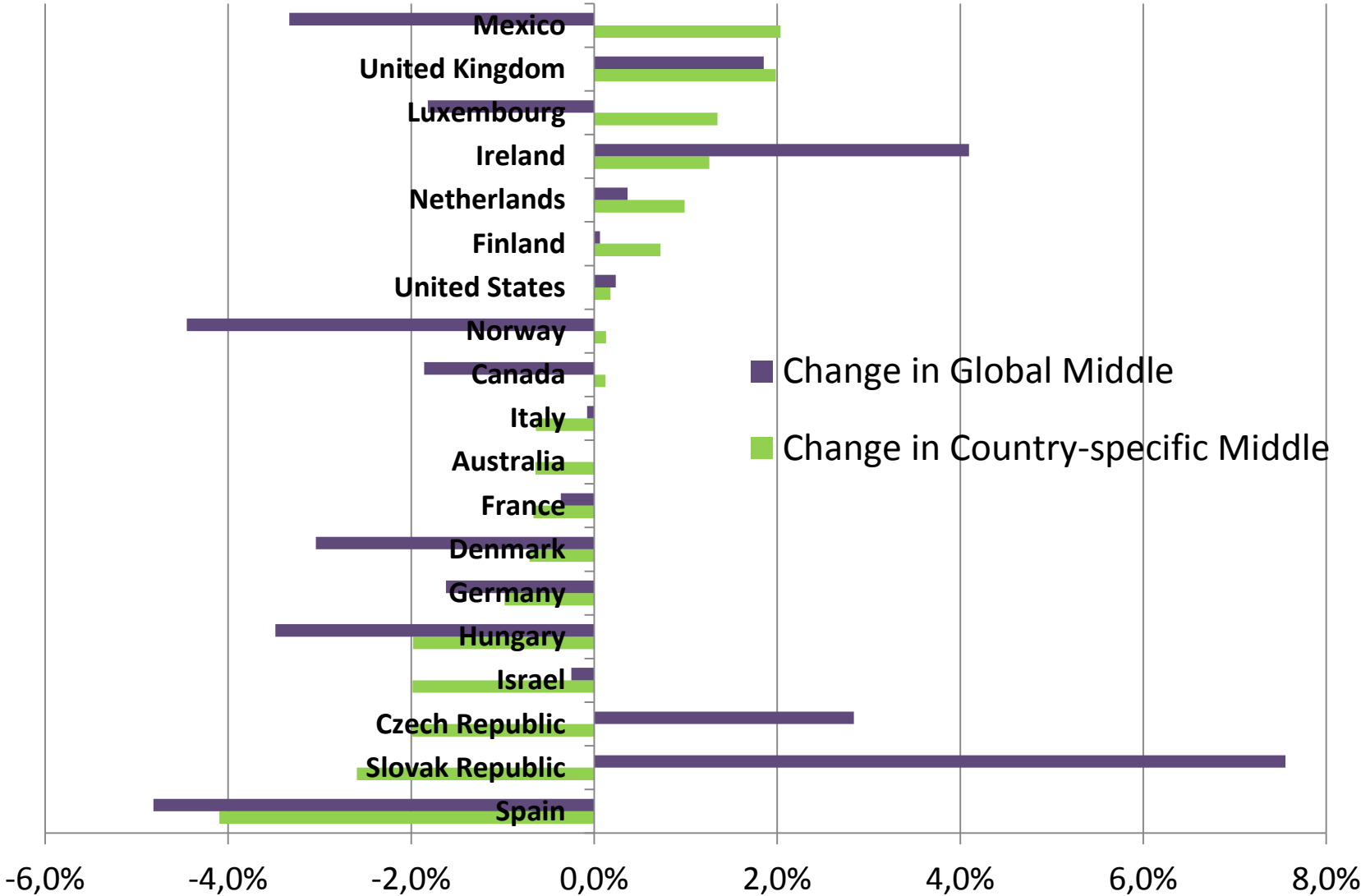- Change in Upper Class
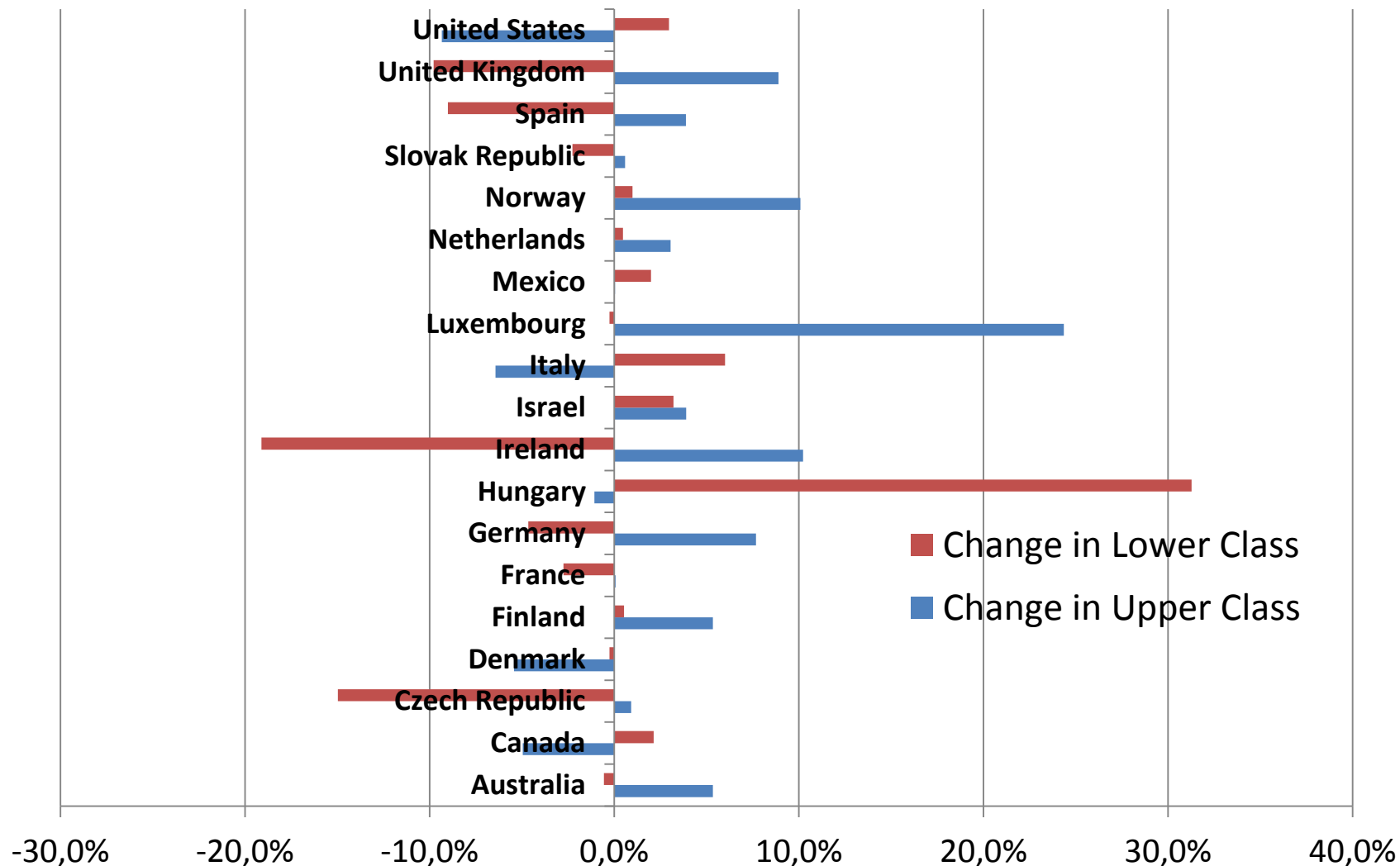
- What happened during the Great Recession(using both approaches)?

Is the country-specific middle class shrinking over the Great Recession and are they moving up or down

Some countries don't have shrinking middle class using the global middle

In short

- Using the global middle class shows smaller middle classes in countries
- The changes in the last 3 decades are different – the global middle class increases for US, Czech Rep, Spain and Canada, while their country-specific middle class falls
- Germany and US make up an increasing share of the middle class
- Over the Great Recession, some of the differences are larger – while global middle class falls for Norway, Canada and Luxembourg, they all experience increases in the upper class
- But these differences depend on the countries included in the global median

Next Steps

- Include more countries by simulating distributions
- Examine the sensitivity of the definition of the middle class range, 0.75 to 1.5, 0.67 to 2.
- Examine the demographic characteristics of global middle class – age, education, family type and occupation
- Examine the sensitivity to the equivalence scale (OECD scale and country-specific scales)
- For countries with longitudinal data, examine the mobility out of the middle class

MY COMMENTS

- An interesting paper and nice attempt to look at the middle class in Europe from a global European perspective

- It is however necessary to stress that this attempt takes a kind of *absolute view of the middle class*, by de facto comparing someone with a 2000 Euros income in, say, the Slovak Republic with someone with a 2000 Euros income in, say, Luxembourg. I will come back to this point.

- The authors have limited themselves to one definition of the middle class, one with bounds equal to half and twice the median European income, adjusted via the simple but very useful (I like this approach) equivalence scale approach of Bühmann, Rainwater, Schmaus and Smeeding (1988), with a parameter of 0.5 .

- I think that it would be useful to check the sensitivity of their results when other definitions of the middle class are used (and there are plenty of them…). *The authors indeed plan to do so*.

- In addition it is precisely to avoid the arbitrariness of choosing specific bounds that Foster and Wolfson (among other reasons) proposed their bipolarization index. I therefore also suggest to compute it to check whether it would modify their conclusions.

- Now, like Levy (1987) did, it is also possible to define the middle class in the people space rather than in the income space. The middle was assumed by Levy to cover the range from the 20th to the 80th percentile.

- In fact at the beginning of their paper Foster and Wolfson make a similar distinction between a plot in the income and the people space.

- The advantage of using the Levy approach is that it would allow you to define the "European middle class" in relative terms by assuming, say, that it would include in each country (on the basis of the country's distribution and median) those located between the 20th to the 80th percentile.

- A similar approach was in fact suggested in a very nice paper by Peter Lambert , entitled "Positional Equity and equal Sacrifice: design Principles for an EU-Wide Income Tax?", published in a book in honor of Serge Kolm entitled *Social Ethics and Normative Economics*, edited by Marc Fleurbaey, Maurice Salles and John Weymark.

- Peter Lambert even mentioned the possibility of combining a rank and income approach, following a short paper I had published with the late M. Berrebi ("Weighting income ranks and levels: a multi-parameter generalization for absolute and relative inequality indices," Economics Letters, 1981). Now I did not have time to think how you could apply such an idea …

- Probably more relevant to what interests you I suggest you apply the ideas that appear in two nice papers co-authored by our chair, Grazia Pittau, an approach which, based on the concept of "relative distribution" would allow you to isolate changes due to differences in location from changes due to differences in shape, thus enabling a deeper analysis of income polarization. See

1) "A dwindling middle class? Italian evidence in the 2000s," by Riccardo Massari, Maria Grazia Pittau·and Roberto Zelli in *Journal of Economic Inequality* (2009)

2) "Measuring changes in the Russian middle class between 1992 and 2008: a nonparametric distributional analysis," by Zoya Nissanov and Maria Grazia Pittau in *Empirical Economics*, 2016.

- Finally it might be useful not to limit yourself from the beginning to three groups (poor, middle class and rich).

1) You could try computing the DER index proposed by Debraj Ray, Joan Esteban and Jean-Yves Duclos (Econometrica, 2004) which does not assume a fixed number of groups.

2) Even better would be to implement an approach described in "Mixture Models, Convergence Clubs and Polarization" by Maria Grazia Pittau, Roberto Zelli and Paul A. Johnson in Review of Income and Wealth (2010). As stressed by these authors, "when applied to the cross-country distribution of per capita income, the components in a mixture model can be interpreted as corresponding to the basins of attraction in the dynamic process describing the evolution of per capita income. This mixture approach is able to detect the presence of multiple components in a distribution even if that multiplicity does not manifest itself as multimodality". For more details,…talk to our chair…(not to me…).