

Issues in the analysis of inequality

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Background

- Rising earnings and market income inequality in Canada, the US, and some other countries.
- Largest increases in earnings and income at the top of the distribution.
- The tax and transfer systems appreciably reduce both the level and increase in inequality.

To be addressed ...

- Problems of conceptualization and measurement.
 - Competing explanations of increasing inequality.
 - The potential role of population changes in increasing inequality.
- I focus *primarily* on earnings

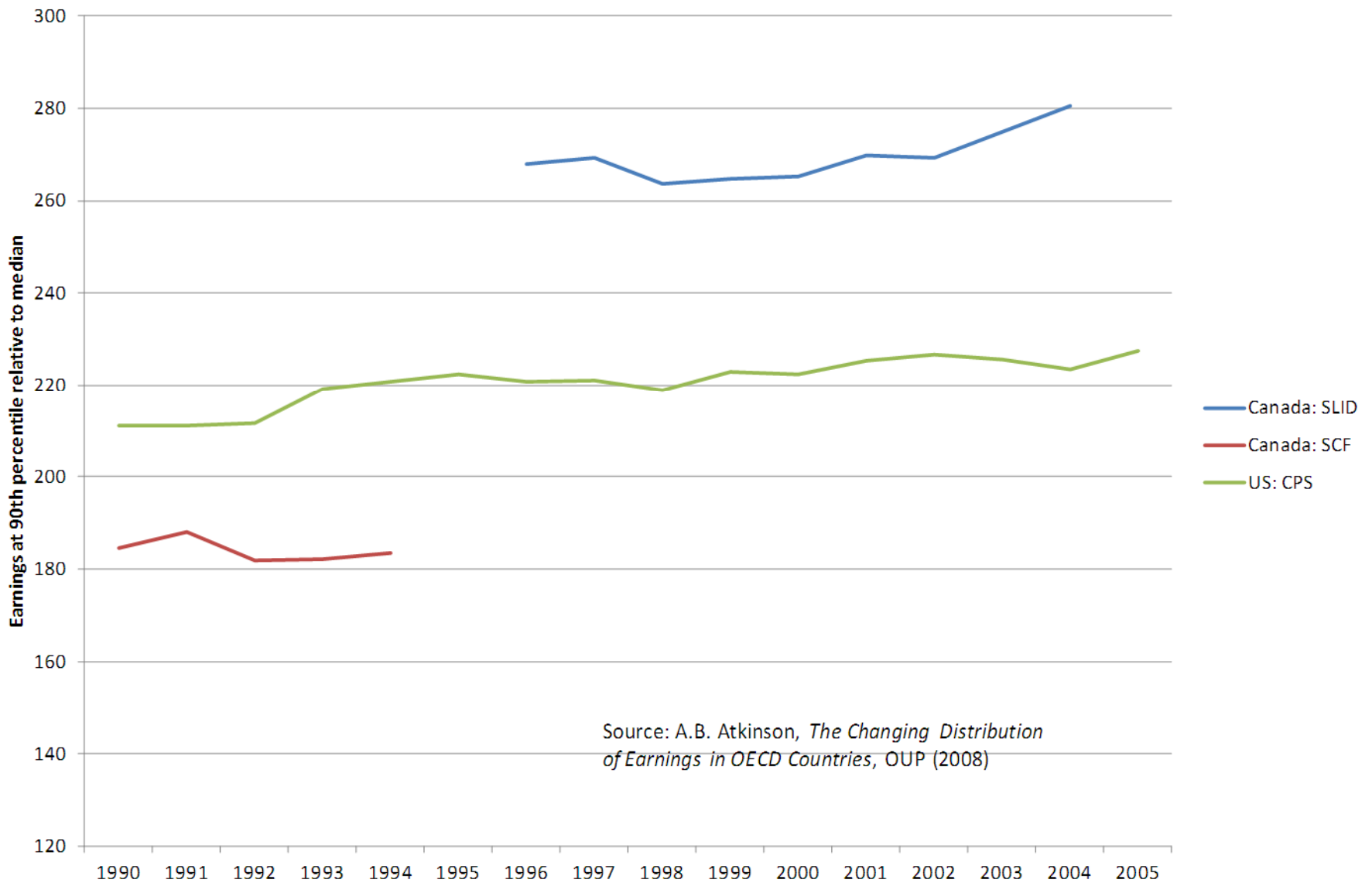
Inequality is a tricky business (1)

- Aggregate measurements – Gini, decile ratios, etc.
- Differences across categories of the population:
 - Women/men
 - Immigrants/native born
 - Young/old
 - Visible minorities/non visible minorities

Inequality is a tricky business (2)

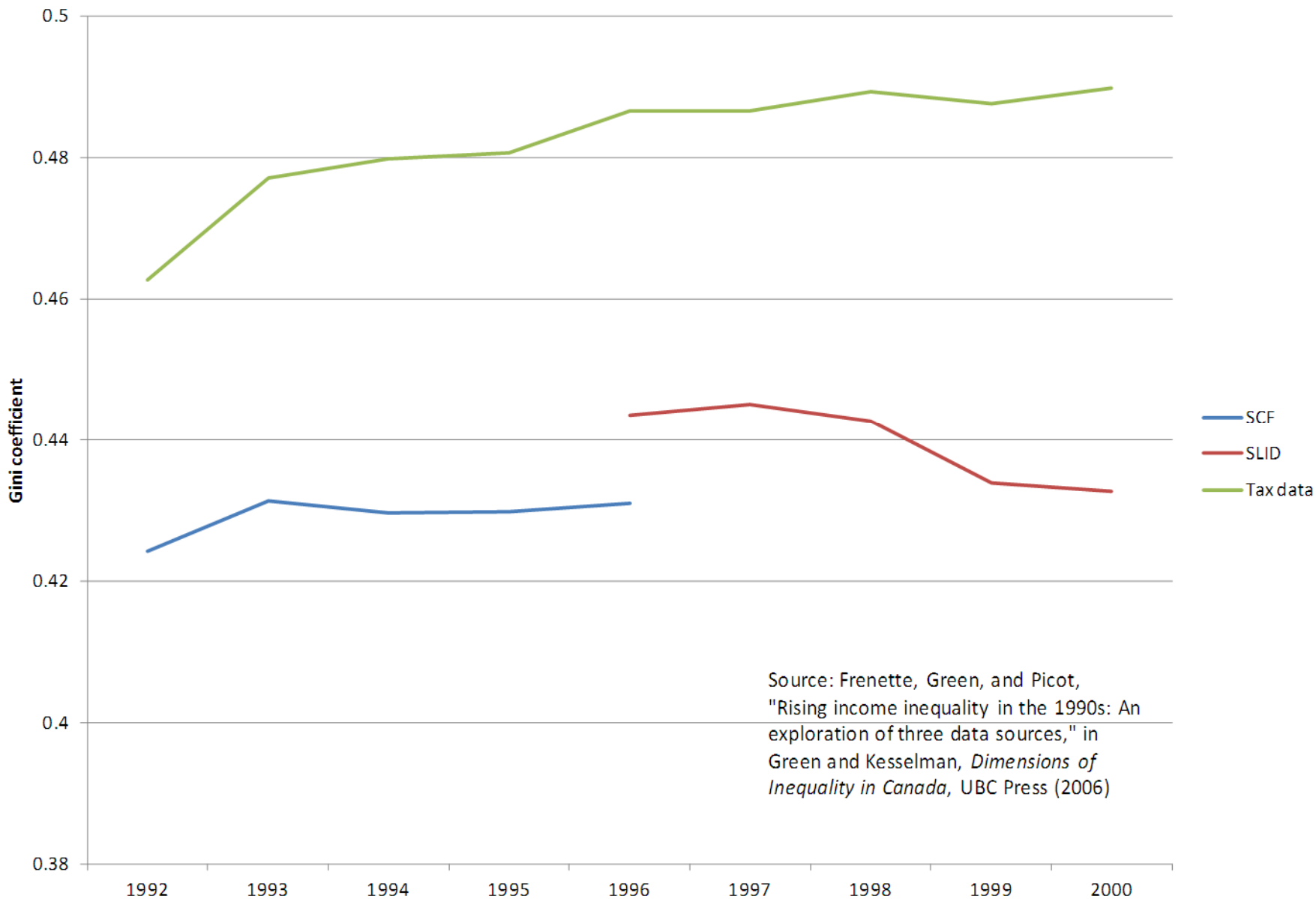
- Results on levels and trends differ across data sources.
- Inclusions and exclusions *matter*.
- Consumption inequality is usually lower than income inequality (or appears to be).

Earnings at 90th percentile relative to median: Canada (two series) and US



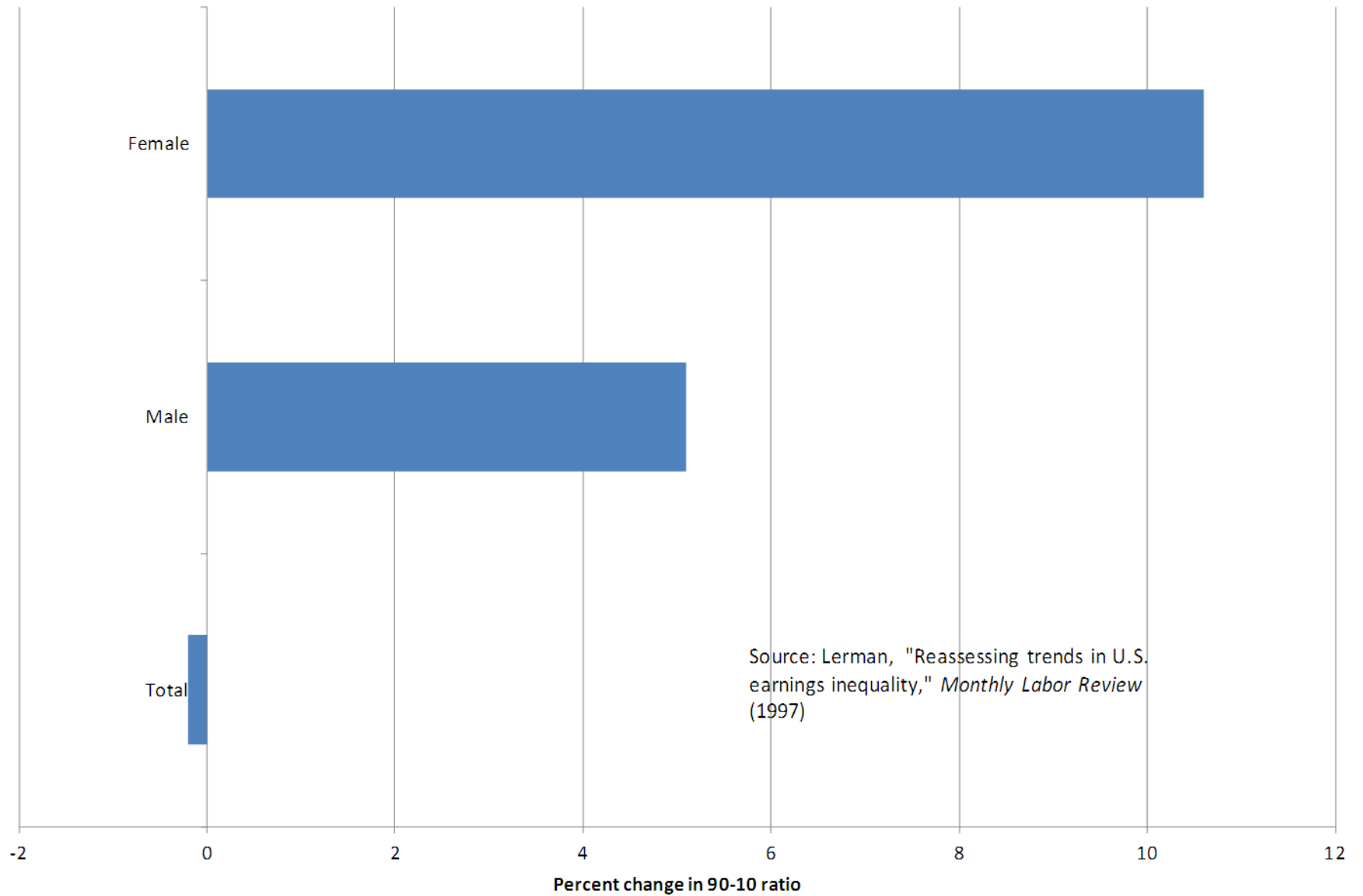
Source: A.B. Atkinson, *The Changing Distribution of Earnings in OECD Countries*, OUP (2008)

Market income inequality among Census families: different sources

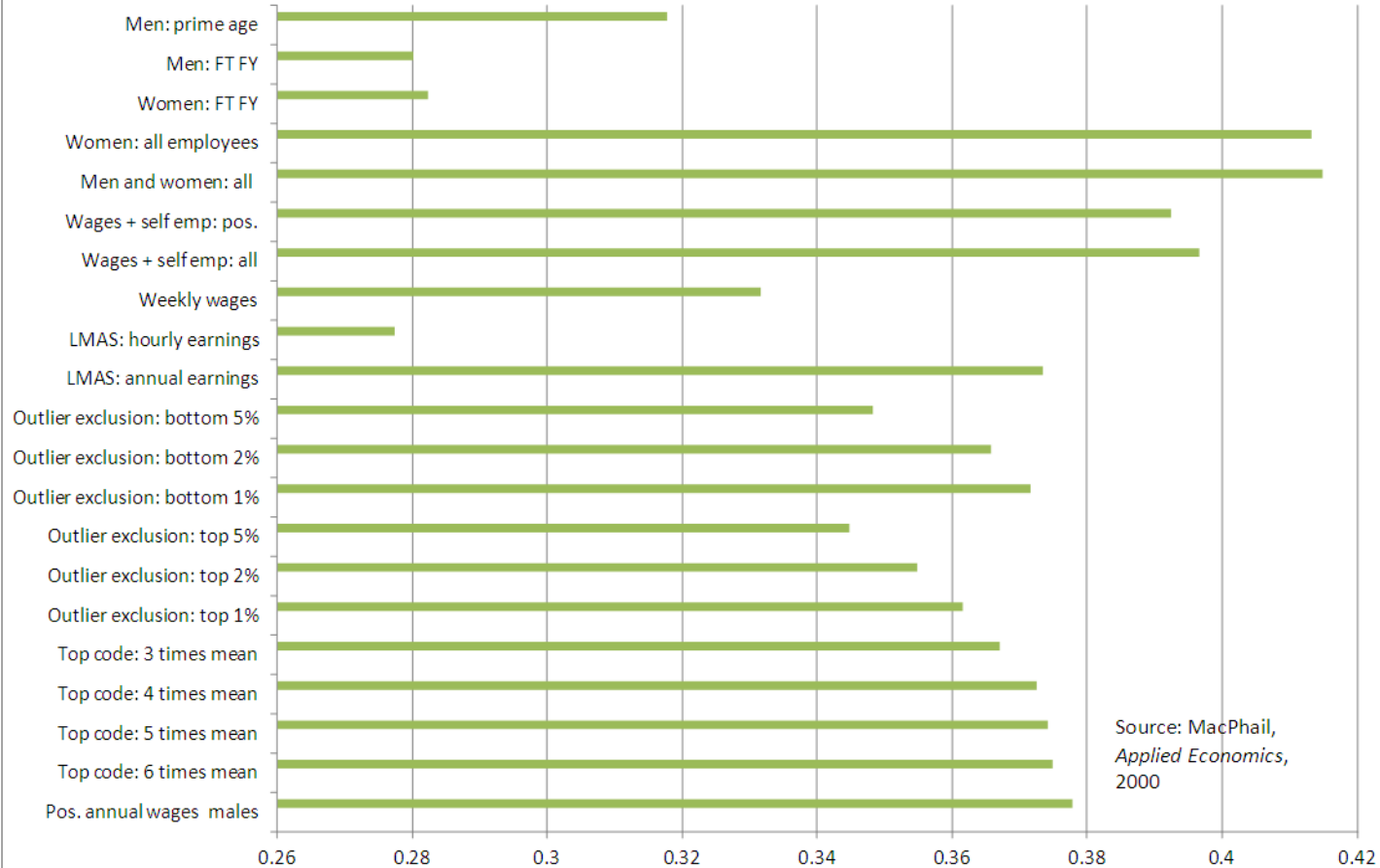


Source: Frenette, Green, and Picot,
"Rising income inequality in the 1990s: An
exploration of three data sources," in
Green and Kesselman, *Dimensions of
Inequality in Canada*, UBC Press (2006)

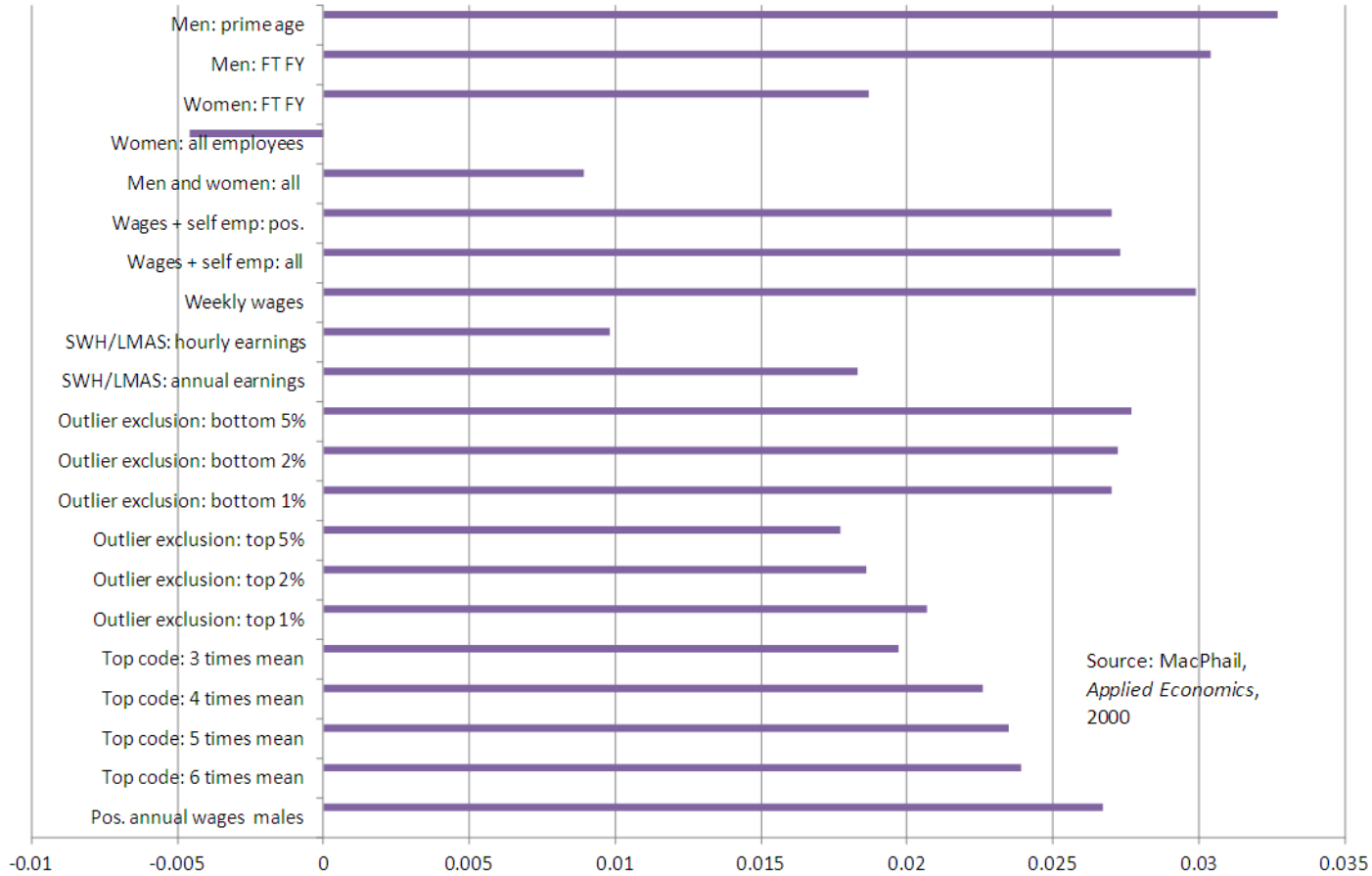
Change in US earnings inequality, 1986-1995



Gini coefficients for earnings, Canada, 1989 (SCF unless otherwise indicated)



Changes in Gini coefficient for earnings: Canada 1981-1989 (SCF unless otherwise indicated)



Implications?

- Notwithstanding these data issues, it is clear that earnings inequality has risen, particularly at the top.
- But when you go on to associate changes in earnings inequality with other changes – e.g., the business cycle, policy changes, trade exposure, economic growth – these differences almost certainly do matter.
- For comparisons across countries, especially large numbers of countries, they probably matter even more. See Atkinson and Brandolini, “On data: A case study of the evolution of income inequality across time and across countries,” *Cambridge Journal of Economics*, 2009).

Inequality has risen in the US and elsewhere.

Why? (1)

- There have been several decades of innovation in communications and information technology.
- Productively using these technologies requires more skilled employees.
- *Unless* the supply of more skilled employees rises sufficiently quickly the increased demand for them increases their relative wages.
- The *growth* in the supply of people with a college education in the US slowed from the 1980s.
- The result was rising differentials associated with two skill indicators: education and work experience.

(Autor, Katz, and Kearney, *Review of Economics and Statistics*, 2008)

Inequality has risen in the US and elsewhere. Why? (2)

A further refinement: IT ...

- increases the productivity of employees who have to exercise discretion and judgment (college professors? investment bankers? – people who have postgraduate diplomas);
- replaces lots of routine office and manufacturing work (some of which may be work done by people receiving a first degree);
- and has little effect on a range of manual and service work (“health aides, security guards, orderlies, cleaners, and servers”); hence the concentration of earnings growth at the top of the earnings distribution.

Not so fast ...

- Is *residual inequality* a problem for this account?
- The extent to which the periods of most rapid growth in earnings inequality coincide with IT innovations.
- The occupations in which earnings have risen the most are not those most closely associated with IT.
- There are considerable international differences in the extent to which earnings inequality rises – in some cases fails to rise.

An alternative, largely institutional, account

- In the US: the role of the minimum wage in the 1980s.
- In the US: the decline of unionization.
- The spread of performance-related pay and the growth in earnings at the top.
- In the US: changes in measurement error in the standard data source.
- The effect of a rising proportion of older and more educated employees in the work force, given the tendency of earnings to become more dispersed with age and education.
- In terms of different trends across countries, the effect of bargaining structures on pay dispersal.

(Lemieux, *Journal of Population Economics*, 2006; Lemieux, *American Economic Review*, 2006)

Implications?

- We have two substantially alternative accounts of the increase in inequality: skill biased technical change versus a somewhat more messy, largely institutional, account. Neither side seems ready to disarm. (Autor et al. allow for a small contribution from the minimum wage. Lemieux allows that technological change may have had an effect.)
- At least some policy conclusions are likely to be influenced by the explanation chosen.

What does 'population' have to do with inequality?

- Two common population composition accounts:
 - Cohort size influences cohort earnings (Easterlin, *Birth and Fortune*; Macunovich, *Birth Quake: The Baby Boom and its Aftershocks*; Foot, *Boom, Bust and Echo 2000*).
 - The effects of immigration on the earnings of the native-born (many writings by George Borjas).

Changing cohort size

- Suppose that the labour market is divided into jobs likely to be filled by young persons and jobs likely to be filled by older persons.
- Suppose that circumstances lead to a substantial swing in fertility:
 - the Great Depression led to a fall in fertility – and this reduced the size of the cohort of people entering the labour market in the late 1940s and 1950s;
 - a smaller cohort competing for entry level jobs pushed up entry level wages which encouraged early marriage and increased fertility – the baby boom;
 - the baby boom increased the size of the cohort entering the labour market in the 1960s and early 1970s which, in turn, pushed down entry level wages.
 - females entered the labour market, in part, to offset the fall in family income that would have resulted from the declining entry level wages of men.
- These processes are likely to affect inequality: i) the ratio of the wages of older to younger employees: ii) overall inequality because, for example, a large cohort of young employees means a larger proportion of lower wage employees; iii) overall inequality because females enter the labour market and many of them have low wages.

Evidence and Canada

For the US, Macunovich provides quite good evidence; for 1965-1995:

- cohort size (20 years earlier);
- military demand for young male labour;
- durable goods imports (thought to damage the demand for young male labour)
 - predict the ratio of the earnings of young males to prime age males.

- lagged cohort size predicts:
 - The male hourly wage rate
 - The college wage premium

- Lagged cohort size predicts
 - Within year, state, education, and experience wage variance because, Mancunovich suggests, a glut of workers caused by a large cohort allows employers to discriminate among workers with similar education and experience (including the wage rate and the annual hours of work)

- Other than a rather general analysis by David Foot, I've found little interest in this in Canada which is a bit surprising, given the decline in relative youth wages through the 1980s and 1990s.

Immigration

- In the US, a significant proportion of immigrants is poorly educated. Have they depressed the earnings of native-born citizens with poor education?
- In a stream of publications George Borjas has provided evidence that they do; by how much is less clear.
- How does one measure the effect? One way is to look at the association between immigrant proportions in metropolitan areas and the earnings of those with whom they compete - the low skilled in the US. But that ignores the effects of immigration on internal migration.
- In contrast to the US, the education levels of immigrants to Canada have been higher than those of the native-born. This raises the possibility that there might have been contrasting effects of immigration in the two countries.

Aydemir and Borjas*

- Using census data from the US (1960-2000) and Canada (1971-2001) they group native-born and immigrants into skill groups, defined by education, then they look at the associations between changes in immigrant proportion in a skill group and changes in labour market outcomes.
 - They estimate that, in the long run, immigration reduced the earnings of low skilled workers by about 4% in the US and reduced the earnings of college graduates by about 6% in Canada.
 - Immigration, then, increased inequality in the US and reduced it in Canada.
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- Aydemir and Borjas, "Cross-country variation in the impact of international migration ..." *Journal of the European Economic Association*, 2007.

Implications?

- There has been a great deal more interest in the effect of changes in population composition on inequality in the US than in Canada.
- But this looks to me like a somewhat neglected line of research. Such research might shed light on the decline in the relative wages of young workers in the 1980s and part of the 1990s, for example.

Implications for policy: data problems

- Examining the effects of institutions – often through cross-national research: be careful! These data are particularly fragile.
- That earnings and income inequality in Canada have risen is clear. Magnitudes and timing are a bit less clear. This complicates the exploration of correlates. (Robustness checks may be particularly valuable.)

Implications for policy: competing explanations

- *If* the skill-biased technical change account is correct, rising inequality is simply a price we pay for getting the most out of information and communications technology.
- *If* the alternative account is correct, the implications for policy are a bit more complicated, especially in Canada.
 - Raise minimum wages?
 - Facilitate unionization and collective bargaining?
 - Move to centralized bargaining?
- Market income inequality rises more than disposable income inequality. If market income inequality effects are regarded as unacceptable, change the tax and transfer system.
- Inequality caused by changes in population composition (employees with more education and experience) probably doesn't warrant intervention.
- Measurement error suggests that the rise in the US is overstated.

Implications for policy: changing population composition (1)

- If you value only lower inequality, the effect of immigration to Canada has been positive.
- We know, however, that in the 80s and 90s relative earnings of both immigrants and young people fell.
- Both categories are new entrants to the (Canadian) labour market.

Implications for policy: changing population composition (2)

- “the downward shift in age-earnings profiles of recent young entrants (relative to earlier cohorts) in the early to mid-1990s coincides with high immigration rates over a strong recession. It would be useful to analyse to what extent, if at all, keeping the immigration tap on over this period influenced this cohort effect among young entrants, since both groups represent essentially new entrants to the Canadian labour market and hence the margin that would likely be severely hit by recessions.” (Beach and Finney “A longitudinal analysis of earnings change in Canada, *Canadian Journal of Economics*, 2004, p.236).
- So: i) presumably reduced young people’s earnings is not a preferred policy objective and ii) since young people earn less, the inequality effect of immigration in reducing earnings in the upper part of the distribution may have been offset by some reduction in the earnings of young people at the bottom of the distribution.

A final note on research and policy

- In 2005, median earnings (FT FY employees, 25-54) \approx \$41,000
- Atkinson (*Changing Distribution of Earnings*):
 - 90th percentile \approx median * 2
 - 95th percentile \approx median * 2.5
- This produces earnings for these quantiles of about \$82,000 and \$101,000 respectively. These are sums that were exceeded by significant proportions of university professors. There may be something to be said for looking at internal processes within universities and other institutions to better understand the sources of growing earnings inequality.