Income Inequality and the Labour Market

Richard Blundell
University College London & Institute for Fiscal Studies

Robert Joyce
Institute for Fiscal Studies

Agnes Norris Keiller
Institute for Fiscal Studies

James P. Ziliak
University of Kentucky & Institute for Fiscal Studies

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Motivating Issues

Substantial changes in distribution of incomes have placed increased pressure on government budgets

- Declining employment and stagnant wages translate into reduced tax collections
- Increased access to and generosity of work-contingent and work-eligible benefits and credits result in greater tax expenditures
- Latter are reinforced by changes in family structure
Background

Lots of work on wage and income inequality
- Some papers aim for identifying causal channels
  - Bound and Johnson (1992); Katz and Murphy (1992); Bowlus and Robin (2004); Lemieux (2006); Autor, Katz, and Kearney (2008); Blundell, Pistaferri, Saporta-Eksten (2016)
- Others are more descriptive
  - Gosling, Machin, and Meghir (2000); Pikety and Saez (2003); Machin (2011); Burkhauser et al. (2012); Guvenen et al. (2017)

Little systematic cross-country comparative work, and much less attention to the tax and transfer system in the evolution of household inequality
Our Paper

We examine the labour market and welfare/tax system in its relationship with household income inequality in Great Britain and the United States spanning the 36 years from 1979-2015

The approach we take is descriptive, but informed by structural changes in

- Selective labour-force participation (withdrawal in US!)
- Hours of work
- The rise of assortative mating
- Income insurance provided by the tax/transfer system across the wage distribution
We begin with trends in net (after-tax and transfer) income in each country and trace out


An additional contribution is emphasis on how family structure and the tax/transfer system affect changes in incomes by fixed percentiles of the male and female wage distributions
G.B. Data

Family Expenditure Survey, 1979-1993 survey years
Family Resources Survey, 1994-2015 survey years

- Men and Women ages 25-55
- Information refers to calendar years up until 1992 and Apr-Mar financial years from 1993 onwards
- Taxes and transfers based on self-reported income components
- In base sample drop those with extreme gender-specific real average hourly wages (below 1\textsuperscript{st} percentile; above 99.9\textsuperscript{th} percentile)
- Reweight the data using inverse probability weight, assuming data are missing mean conditional at random
U.S. Data


- Men and Women ages 25-55
- All information refers to prior calendar year
- Taxes estimated via TAXSIM
- Drop those with imputed employment/earnings/hours or imputed whole supplement
- In base sample drop those with extreme gender-specific real average hourly wages (below 1\textsuperscript{st} percentile; above 99.9\textsuperscript{th} percentile)
- Reweight the data using inverse probability weight, assuming data are missing mean conditional at random
Trends in Net Income

Net income is defined at the tax unit level, and includes earnings, nontransfer nonlabor income, transfer income, work-based tax credits, and tax payments.

G.B.: Transfers include all cash transfers (e.g. CTC/WTC, HB, CB, DLA, IS, ESA, JSA); tax payments include income tax, employee NICs and council tax.

U.S.: Transfers include SS, DI, UI, WC, SSI, TANF, SNAP; tax credits include federal and state EITC and the (additional) CTC; tax payments include federal, state, and payroll taxes.

Net income equivalised using ‘modified OECD’ scale: 
\[1 + 0.5 \times I(\text{spouse}=1) + 0.3 \times \text{#kids}(<14) + 0.5 \times \text{#kids}(\geq 14)\]
How do the net income trends translate into inequality?

• Common N.I. trends between till 2000, when GB 90/10 inequality stabilized but inequality in US continued upward. Secular rise in male earnings inequality in both countries.
Unpacking Net Income Inequality

Begin with trends in employment per capita by skill level

G.B.: Employment refers to survey week. Skill measured on school-leaving age
  - Age <= 16; Age = 17/18; Age = 19/20; Age >= 21

U.S.: Employment refers to prior year. Skill measured by education attainment
  - Less than High School; High School; Some College; College or more
Substantial education upgrading, most pronounced in G.B.

Appendix Figure 2. Trends in Education Attainment by Gender, 1979-2015

- G.B. Men
- U.S. Men
- G.B. Women
- U.S. Women

- Age Left Ed. >= 21
- Age Left Ed. 19-20
- Age Left Ed. 17-18
- Age Left Ed. <= 16
- College or More
- Some College
- High School Only
- Less than High School
Employment lower for men in both countries at end of period, especially less skilled
For women, much larger gap in US between skill groups
Wages

Measure wages as median average hourly earnings
- prior week for G.B.; prior year for U.S.
- converted to real terms using CPI+ in G.B. and PCE in U.S., with 2010 base year

Present both actual wages and worst-case bounds to account for possible nonrandom selection into work as seen in employment graph

Implement a new procedure based on ideas from median selection rule
(Neal and Johnson 1996; Chandra 2003; Blundell et al. 2007)
Bounding Wages

We consider a worst case where all changes in employment in each gender and skill group relative to 1994 occur as the result of entrances and exits at the bottom of the wage distribution.

This assumption implies that the bounded wage will be greater (less) than the true wage in years where the employment rate is higher (lower) than the rate in 1994.

In years where the employment rate is greater than the 1994 rate, workers are re-classified as non-workers, starting with the lowest-wage first, until the employment rates align. In years where the employment rate is below the rate in the base year, randomly selected non-workers are re-classified as workers and assigned a wage equal to the 1st percentile of the gender-year wage distribution until the employment rates align.
Divergence b/t G.B. and U.S. more in evidence with wages. For all G.B. groups wages are higher in 2015 than 1979. For U.S., this is only true for skilled.
Race and the Labour Market

The next two figures we disaggregate employment and wages of men and women by race

- Especially important in U.S. because of mass incarceration of less-skilled young black men starting in 1980s

For G.B. we examine two race groups, white and non-white. Data limitations restrict attention to 1994-2015

For U.S. we examine white and black. Other race (Asian, Pacific Islanders) suppressed as more noisy (tend to mimic white trends)
Employment rates of less-skilled non-white men in both countries is substantially lower, especially black men in U.S. No race gap for U.S. women.
Wage gap of less skilled white and black men in U.S. closed greatly in mid 90s, though bounds suggest this is affected by differential labour-force withdrawal.
Hours of Work

In building towards earnings, we next examine trends in hours of work.

In G.B. we observe usual weekly hours of work.

In U.S. we observe both usual weekly hours worked last year, and number of weeks worked. We focus on weekly hours.
Less-skilled G.B. men work much longer hours than other groups, though converged starting in late 90s. In U.S., skilled men and women work the most, though male hours declined post 2000 for all groups. G.B. women work fewest hours.
Changes from 1994-2015

For the remainder of talk the focus is on changes from 1994-2015

We start with individual wages and earnings of men and women at the respective percentiles of own distribution, then add in cohabiting/married partners to assess role of assortative mating

- Wilson (1987); Blundell et al (2016); Autor et al. (2017); Kearney and Wilson (2017)
Gains across the distribution in wages and earnings in both countries. The notable exception is male earnings in G.B. reflecting the decline in work hours at the bottom of the distribution and growth in part-time work as seen in next figure.
Growth of Part Time Work among Low-Wage Men in G.B.

Appendix Figure 3. Changes in Part-Time Work and Long Hours by Percentile and Gender, 1994-2015

- G.B. Men
- U.S. Men
- G.B. Women
- U.S. Women

- Red line: Part-time (≤30 hours)
- Orange line: Long hours (>45)
- Blue line: Mini-jobs (<16 hours)
Story for U.S. men is less rosy if extend back to 1979. Most of the gain is from 1994-2000.
Big declines in marriage/cohabitation, though clearly less pronounced as move up the wage distribution. Increased presence of working partner in G.B.
And evidence of “tilting” in favour of assortative mating, especially in the U.S.
Changes in the Welfare State

During this period there were fundamental changes to tax/transfer policy in both G.B. or U.S. Whether these are a consequence or cause of the labour market changes is not explored

G.B.

- Large cuts in income tax rates (especially at top) during 1980s; increases in zero-rate band and cuts to higher rate threshold since 2011
- Expansion of work-based transfers in 1988 and (especially) 1999 and 2003
- Increases in other transfers in late 1990s and early 2000s; cuts since 2011
- Introduction of National Minimum Wage in 1999

U.S.

  - CTC created in 1997
- Welfare reform in 1996
Secular growth in transfer/credit income, and also big response to Great Recession
This growth accounts for comparable shares of gross income in both countries among less skilled, though G.B. fills more among the skilled.

Figure 11. Trends in Safety Net Income as a Fraction of Gross Income by Education and Gender, 1994-2015

- G.B. Men
- U.S. Men
- G.B. Women
- U.S. Women

<table>
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<th>Category</th>
<th>Line Color</th>
<th>Description</th>
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<td>Age Left Ed. &gt; 21</td>
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<td>College or More</td>
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</tr>
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<td>Green</td>
<td>Less than High School</td>
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Putting it all together: Changes in Net Income across the Distribution

At each percentile of the respective male and female wage distribution, we examine changes from 1994-2015 in

- Tax unit equivalised labour income
- Then add in work-based tax credits
- Then add in other transfer and nonlabor income (Gross Income)
- Then subtract out tax liabilities (Net Income)

First pooled, and then separated by marital status and presence of dependent children
Tax system much more accommodative in bottom half of G.B. wage distribution than in U.S., and for non-workers, the G.B. welfare state improved tax unit well being.
U.S. tax system results in significant income smoothing among singles

Figure 13a. Changes in Equivalised Gross and Net Income among Single Persons by Fixed Wage Percentile, 1994-2015

Note: growth rates are plotted as 5-pt moving averages across the wage distribution
And in both G.B. and U.S. the economic status of non-working married men has improved, and that of working women is more pronounced in U.S. in upper tail.
Low-wage single men in G.B. have less growth in net income, while high-wage have higher growth compared to U.S.
Work-based tax credits, and tax-systems overall (especially GB), have lifted net incomes for families with dependent children in both countries in bottom half of the wage distribution.
Conclusion

90/10 male earnings inequality rose in both countries from 1994-2015, but 90/10 net income inequality fell slightly in G.B., while it rose sharply in the U.S., all from upper tail changes.

Worst-case bounds on wages do not qualitatively change the story over the last 36 years, but align post-Great Recession wage trends in G.B. and U.S.

Even though there were sharp declines in hours of work among G.B. men, and declines in marriage/cohabitation, the G.B. welfare state has stabilized the economic inequality of tax units across the distribution.

In comparison, the U.S. tax and welfare system is less successful at counteracting changes in the labour and marriage markets that have left low-wage and less-skilled workers further behind.