

What a difference a day makes: inequality and the tax and benefit system from a long-run perspective

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Overview

- Much empirical analysis of inequality and tax and benefit system based on measures of individuals' circumstances at a snapshot
- Good reasons why we might want to look at longer horizons
 - Differences across individuals at a point in time may provide a poor indication of differences in longer-run welfare
 - Snapshot measures may not give an accurate impression of welfare even in the short-run
- This paper:
 - Explores how a longer horizon changes our perception of inequality and the role of the tax and benefit system
 - Shows the choice of reference horizon can be particularly important for assessing the distributional impact of policy reforms



Related Literature

- Lifetime versus snapshot/annual inequality
 - Mostly using simulations eg Blomquist (1981), Brewer et al (2012)
 - Some work using panel or administrative data: Bjorklund (1993), Jenkins (2000), Kopczuk et al (2010)
 - Large literature looking at consumption inequality as alt. measure
- How tax and benefit system redistributes resources
 - Reduces lifetime inequality but by less than annual inequality (Liebman, 2002; Bjorklund and Palme, 1997)
 - Annual progressivity of system typically higher than lifetime progressivity (Bengtsson et al., 2011)
 - Considerable degree of intrapersonal redistribution (Bovenberg et al., 2008; O'Donoghue, 2001)
- Potential for efficiency gains from making taxes and benefits dependent lifecycle information

- E.g. Weinzier (2010), Bovenberg et al. (2008), Laroque (2009)

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Data

- Most studies use simulated data (for good reasons)
 - Difficult to find long panel data (esp. with good measure of earnings)
 - But results will reflect assumptions underlying simulations
- Here use full length of the British Household Panel Survey
 - Started in 1991 with around 5,500 hhs and ran for 18 waves (2008)
 - Longest running and most detailed UK panel data
 - Some attrition which we try to account for using longitudinal weights



Why might we want to look at longer horizons?

 Differences across individuals at a point in time may provide a poor indication of differences in longer-run welfare



Substantial variability in circumstances over time

State	Average across waves	Ever over 18 waves
In a couple	64.4%	87.2%
Married	56.0%	80.7%
Has child aged 18 or under	28.1%	52.3%
Disabled	7.7%	26.8%
Unemployed	4.7%	23.9%

Note: Authors' calculations based on BHPS data. Includes all non-dependants aged 16+. The 'average across waves' column includes all waves and is weighted using cross-sectional weights. The 'ever observed' columns are calculated for individuals observed in all waves from wave 1 to the destination wave and weighted using longitudinal weights. The final two lines (earnings quintiles) only include individuals who are employed in all relevant waves.



... with substantial earnings mobility

			Wave	2 quin	tile	Wave 18 quintile					
		Bottom	2	3	4	Тор	Bottom	2	3	4	Тор
Mer	า										
e	Bottom	70%					24%				
uinti	2		58%					32%			
1 գւ	3			55%					26%		
ave	4				59%					30%	
3	Тор					79%					38%
Wo	men										
ile	Bottom	81%					26%				
uint	2		66%					27%			
1 qı	3			64%					32%		
ave	4				68%					28%	
3	Тор					83%					50%

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both periods, aged at least 16 in wave 1 and no more than 70 in the destination wave. Results are weighted using crosssectional weights.

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... with substantial earnings mobility

		Wave 2 quintile				Wave 18 quintile					
		Bottom	2	3	4	Тор	Bottom	2	3	4	Тор
Men											
e	Bottom	70%	13%	4%	6%	6%	24%	19%	19%	24%	13%
linti	2	21%	58%	14%	4%	3%	24%	32%	20%	10%	14%
1 գւ	3	5%	22%	55%	13%	5%	21%	25%	26%	20%	9%
Wave	4	3%	5%	23%	59%	9%	20%	14%	23%	30%	12%
	Тор	1%	1%	3%	16%	79%	13%	10%	13%	26%	38%
Women											
ile	Bottom	81%	11%	4%	2%	2%	26%	19%	23%	15%	17%
uint	2	16%	66%	15%	2%	0%	26%	27%	20%	19%	8%
ave 1 qu	3	4%	13%	64%	16%	3%	12%	18%	32%	24%	14%
	4	1%	1%	15%	68%	14%	11%	18%	25%	28%	18%
Š	Тор	1%	1%	2%	13%	83%	8%	13%	9%	20%	50%

Note: Authors' calculations based on pooled data from all 18 waves of the BHPS. Includes all non-dependants employed in both periods, aged at least 16 in wave 1 and no more than 70 in the destination wave. Results are weighted using cross-

sectional weights.

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... and churn in benefit receipt

Benefit type	Average across waves	Ever across 18 waves			
Child benefit	28.5%	51.9%			
Tax credits ^a	3.6%	17.5%			
Income support ^b	6.1%	17.5%			
Council tax benefit	10.9%	32.7%			
Housing benefit	7.0%	17.3%			
Unemployment benefit / IS for unemployed / JSA ^c	1.7%	16.4%			
All above (excl. child benefit)	16.5%	47.8%			

a The substantial increase as the horizon is extended in the share of individuals in a family claiming tax credits partly reflects the large expansion of tax credits from 1999 onwards.

b Does not include Income Support for the unemployed.

c This measure combines families claiming unemployment benefit and income support for the unemployed (in operation until October 1996) with families claiming jobseeker's allowance (subsequently).

Note: Authors' calculations based on BHPS data. Includes all non-dependants aged 16+. The 'average across waves' column includes all waves and is weighted using cross-sectional weights. The 'ever reported' columns are calculated for individuals observed in all waves from wave 1 to the destination wave and weighted using longitudinal weights.

Source: Author's calculations using BHPS.



Why might we want to look at longer horizons?

- Differences across individuals at a point in time may provide a poor indication of differences in longer-run welfare
 - Substantial variability in individuals' circumstances over time
 - Means that more individuals experience a given circumstance at some stage over their life than at a particular point in time
 - e.g. almost half of individuals in a family receiving one of the UK's main means tested benefits over 18 waves vs 17% in a wave on avg
- Snapshot measures may not give an accurate impression of welfare even in the short-run
 - Individuals can transfer resources across periods of life and have some influence over future circumstances through decisions today



What difference a longer horizon makes

Income inequality considerably lower over longer horizons



Gini & 90/10 ratio decline as horizon increases



Note: Authors' calculations based on BHPS data. Includes all individuals aged at least 16 who are not dependent children and who have been observed from wave 1 up to the relevant horizon.



What difference a longer horizon makes

- Income inequality considerably lower over longer horizons
 - Gini coefficient for gross and net income both decline by around 1/5th as horizon increases from 1–18 waves. 90/10 ratio falls by 1/3rd
 - Reason: some variation across individuals is transitory
- Tax and benefit system looks less redistributive



On two measures, tax & benefit system does...

- Kakwani index of tax progressivity
 - Asks: are taxes and benefits more unequally distributed than gross incomes?
 - Equal to concentration index for taxes and benefits less the Gini coefficient for gross incomes
 - Ranges between -1 and +2 if everyone a net contributor
 - +ve values mean progressive; converse for -ve values
- Reynolds-Smolensky index
 - Asks: do taxes and benefits reduce inequality (measured by Gini)?
 - Formally equal to difference between gross and net income Ginis
 - Ranges between -1 and +1
 - +ve values mean inequality reducing; converse for -ve values



... less redistribution over a longer horizon

	One wave	18 waves
Kakwani index	2.08	1.81
Reynolds-Smolensky index	0.157	0.131

Note: Authors' calculations based on BHPS data. Includes all individuals aged at least 16 who are not dependent children and who have been observed from wave 1 to 18, weighted using BHPS longitudinal weights.



... as net taxes less progressive over longer horizon



Note: Authors' calculations based on BHPS data. Includes all individuals aged at least 16 who are not dependent children and who are observed in wave 1 ('snapshot' series) or in each of waves 1–18 ('long-run' series).



... & growing share of redistribution intrapersonal



Note: Authors' calculations based on BHPS data. Includes all individuals aged at least 16 who are not dependent children and who have been observed from wave 1 up to the relevant horizon.



What difference a longer horizon makes

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 - Gini coefficient for gross and net income both decline by around 1/5th as horizon increases from 1–18 waves. 90/10 ratio falls by 1/3rd
 - Reason: some variation across individuals is transitory
- Tax and benefit system looks less redistributive
 - Kakwani & Reyolds-Smolensky indices fall by 10–20%: shows tax & benefit system achieving less redistribution over longer periods
 - Some of what system does is to effectively redistribute resources across periods of life rather than individuals
- Distributional impact of reforms sensitive to reference horizon



WFTC reform more progressive in long-run



Note: Authors' calculations based on BHPS data and net incomes simulated using TAXBEN assuming full take-up. Includes all individuals aged at least 16 who are not dependent children and who are observed in wave 1 ('snapshot effects and deciles' series) or across all 18 waves ('long-run effects & deciles' series).



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- Distributional impact of reforms sensitive to reference horizon
 - Working Families Tax Credit reform more progressive in long run
 - Shows targeting support at poorest snapshot decile may not be most effective way of supporting long-run poor



Summary

- Horizons longer than a year are important
 - Differences across individuals at a point in time may provide a poor indication of differences in longer-run welfare
 - Snapshot measures of income may not give an accurate impression of living standards even in the short-run
- From a long-run perspective:
 - The reach of the benefit system is far greater
 - … income inequality is considerably lower
 - ... the tax and benefit system is less redistributive
 - ... the distributional impact of tax and benefit reforms is less clear
- All perhaps obvious but underappreciated by many

