

Measures of social stratification and their consequences: Occupational and non-occupational measures in the study of social stratification and mobility

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- 1) Introduction: Measuring stratification position
- 2) Different occupation-based measures of stratification position, and the evidence they give on social mobility
- 3) Measuring stratification position with measures that are not based on occupations
- 4) Comparing the empirical properties of occupation-based and non-occupation-based measures of stratification position and of inter-generational social mobility

(1) Introduction: Measuring stratification position

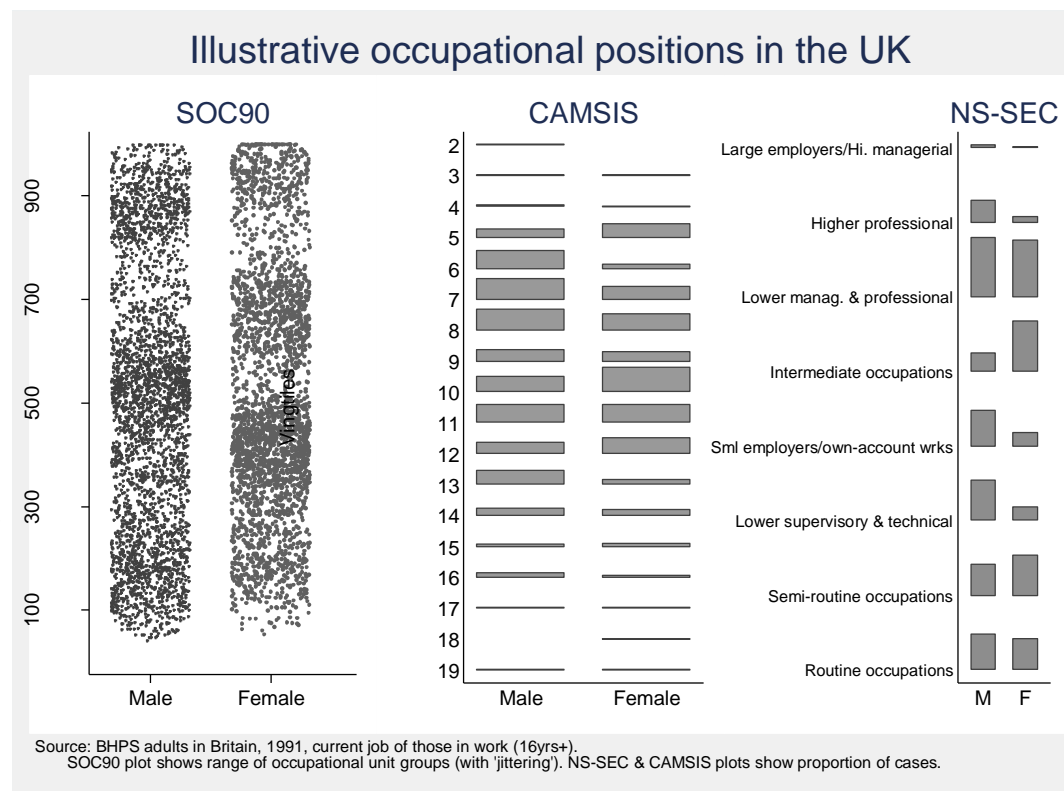
Traditional sociological perspective: stratification position = enduring relative location of people and their families in a system of socially organised, consequential, economic inequalities

(e.g. Bottero 2005; synonymous with measures of 'social class' and/or socio-economic status)

Many things might indicate stratification positions, but **occupations** make the most plausible single option

✓ Occupational structure the 'backbone' of distribution of inequality (Parkin 1972)

- ✓ Data on occupations is reasonably easy to record
- ✓& is reasonably stable over time & over the life-course



From Lambert & Bihagen (2012)

(1) Introduction: Measuring stratification position

Traditional perspective is increasingly challenged

- Multidimensional character of social circumstances
 - Different dimensions can be measured and seem to matter
 - Occupation(s); income/wealth; lifestyle; material assets
 - {Alleged} decline in centrality of occupations to individuals
- Longitudinal information on circumstances
 - Longitudinal change can be measured and ought to matter
- Certain social inequalities of heightened interest may not be well captured by occupation-based schemes



- Underclass/poverty; home-ownership; elites and power
- Growing interest in social inequality in disciplines outside sociology, with non-occupational focus (e.g. social geography; economics; public health)

(1) Introduction: Measuring stratification position

Motivation for this paper

“..we have found no clear affiliation between specific occupations and our latent classes. Perhaps, rather than seeking to locate class fundamentally in occupational ‘blocks’, the time is now ripe for a different, multi-dimensional perspective, in which occupational membership is spread (though unevenly) between different classes” (Savage et al. 2013: 245)

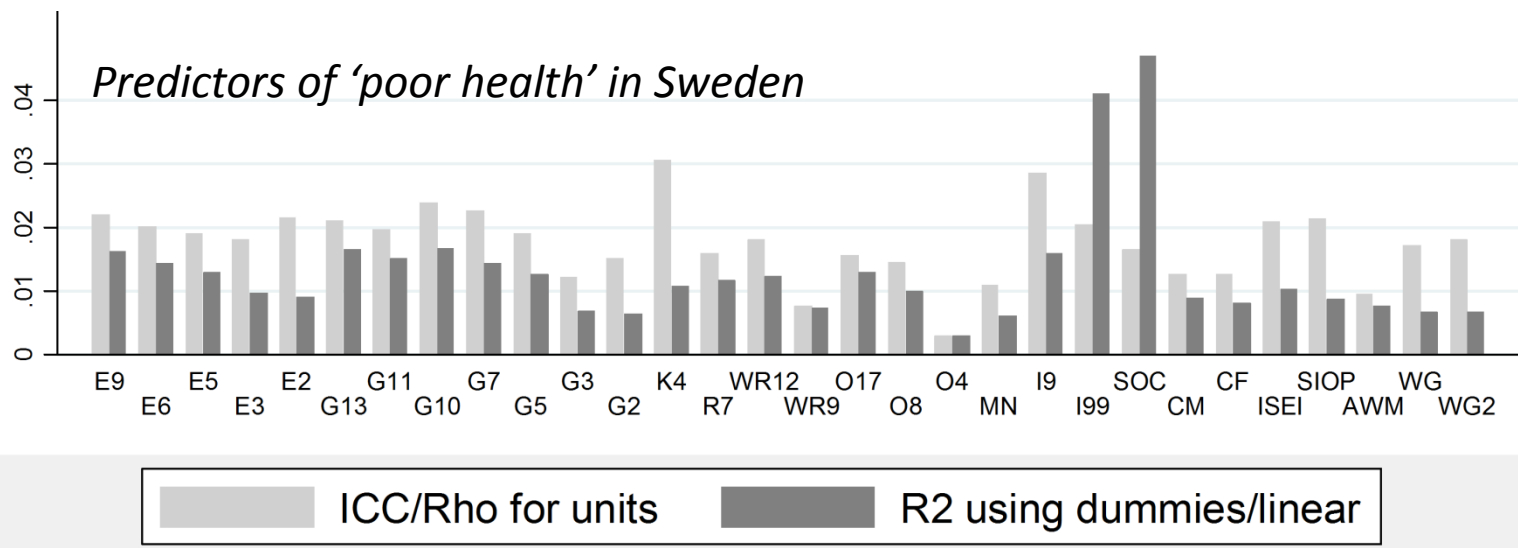
? *Even though it's possible to think of counter-examples, on the whole social stratification is probably still best studied in terms of occupations!*

- Enduring debates on occupation-based measures
- Comparisons with non-occupation-based measures and their data sources and spurious correlates
- Particularly interesting to study a traditional sociological topic – social mobility - from traditional and non-traditional perspectives

(2) Different occupation-based measures of stratification position, and the evidence they give on social mobility

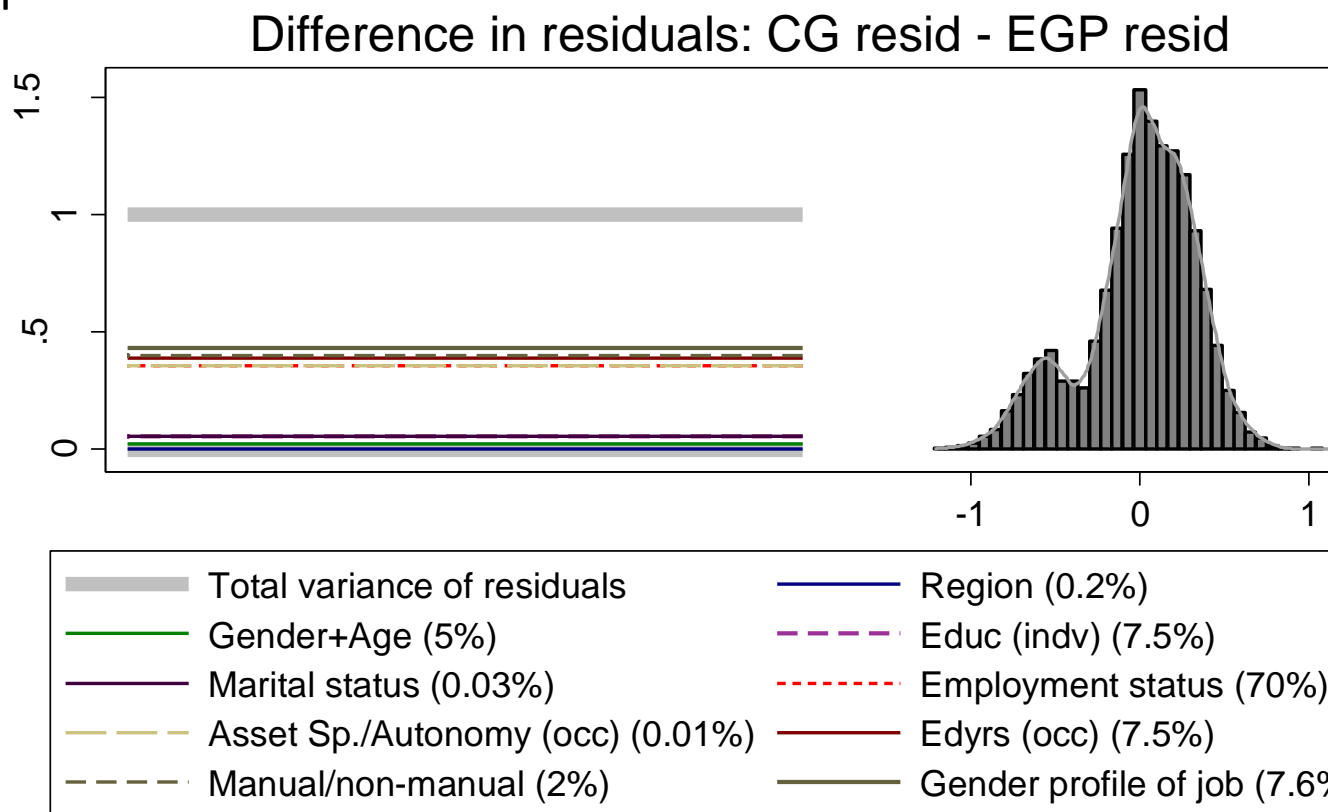
- There are many possible measures!
- They are substantially correlated with each other
- Their qualities are influenced by their functional form

From Lambert &
Bihagen (2012)



(2) Different occupation-based measures of stratification position, and the evidence they give on social mobility

- Could be fruitful to interpret differences between occupation-based measures
- Leads to new theoretical interpretations (e.g. Chan & Goldthorpe 2007)
- Risk that empirical differences between measures might not reflect what is theoretically intended
- Lambert & Bihagen 2007 cf. Bukodi et al. 2011
- Netuveli & Bartley 2012 cf. Blane et al. 2007



Source: Analysis of difference in residuals predicting income using CG or EGP. Data from 5266 adults in work in Britain, 1991 BHPS. Value modelled is CG resid - EGP resid. Percents & lines refer to r2 increment from adding relevant variables to model predicting residuals (sum of these increments is approximately equal to overall model r2 = 0.43).

(2) Different occupation-based measures of stratification position, and the evidence they give on social mobility

Ongoing debates over occupation-based measures

- *Decide by fiat? Encourage sensitivity analysis?*
- *Age and gender correlations are a substantial element of empirical differences between measures*
- *Much, but not all, of stratification difference is hierarchical, so using a gradational measure is often compellingly parsimonious*

- Generic issues

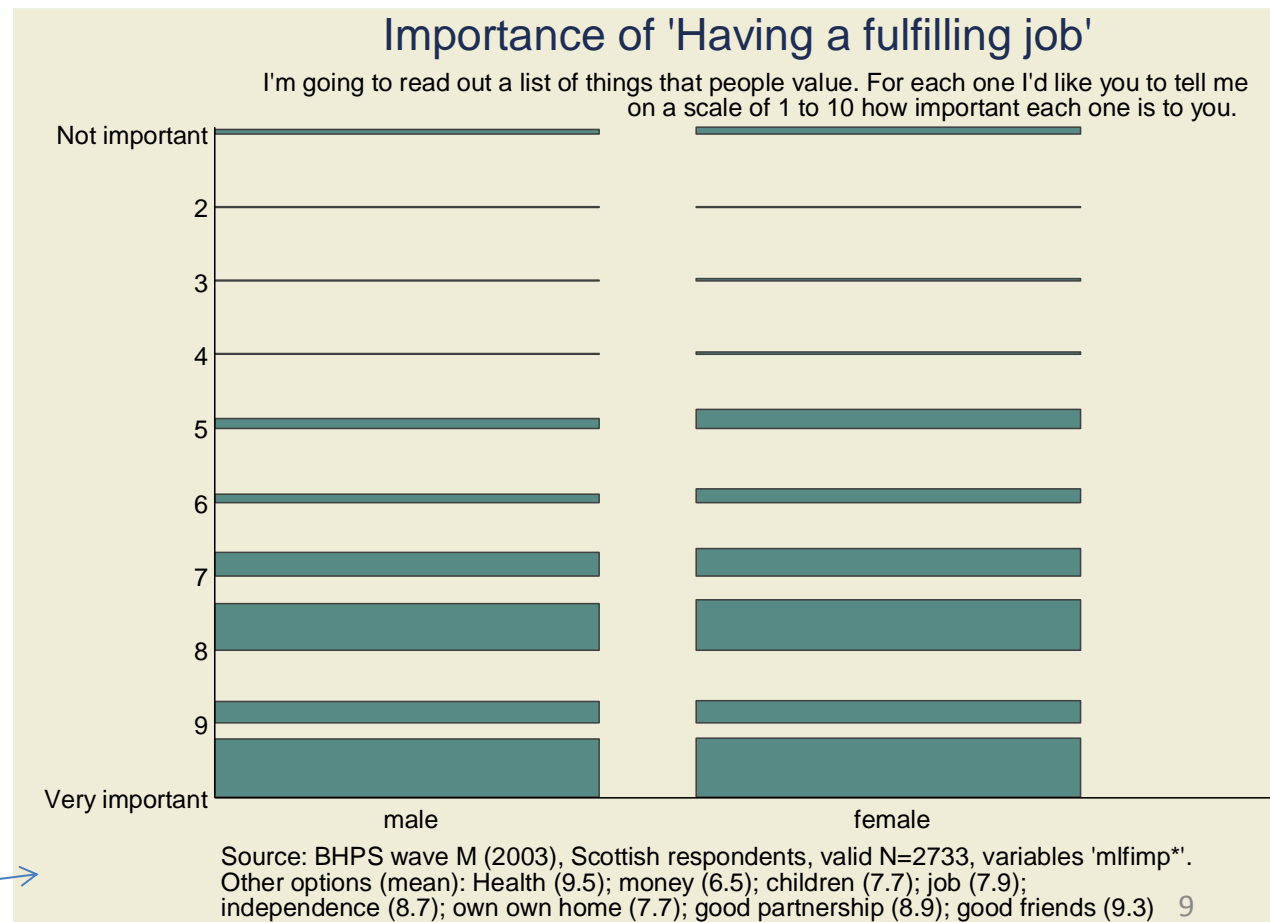
- What to do with the non-working?
- How to account for the household?
- Whether to use detailed or broad occupational data, and many or few model parameters?

(2) Different occupation-based measures of stratification position, and the evidence they give on social mobility

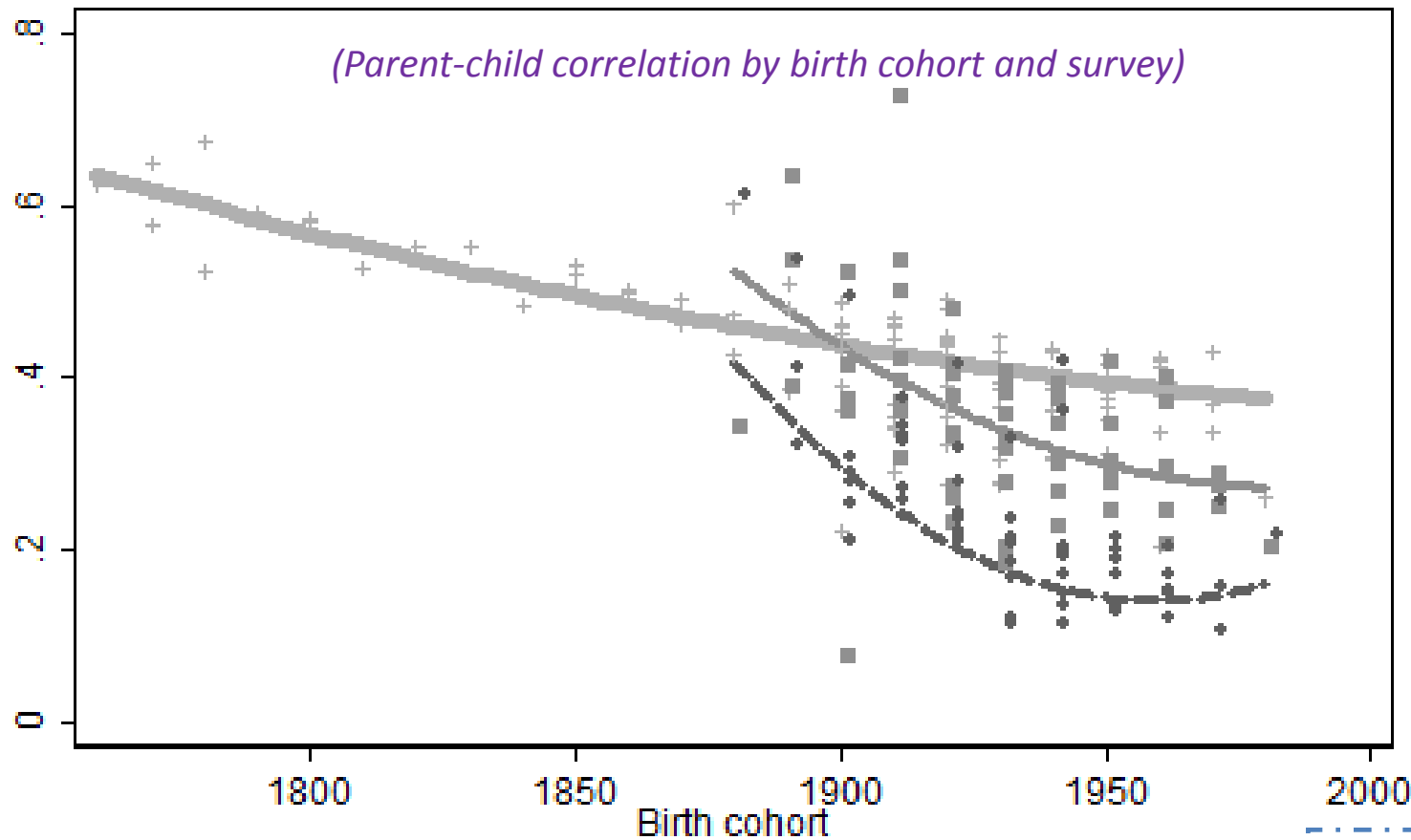
- Even though it's possible to think of counter-examples, on the whole social stratification is probably still best studied in terms of occupations!*

- Occupational data can be readily measured, stored, processed, and linked to nearly everybody
- Occupations have strong correlations to other outcomes and are important to people
- Relative occupational positions are fairly stable through time

From Lambert and Gayle 2009

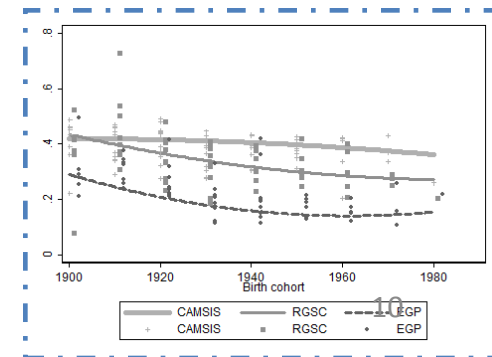


(2) Different occupation-based measures of stratification position, and the evidence they give on social mobility



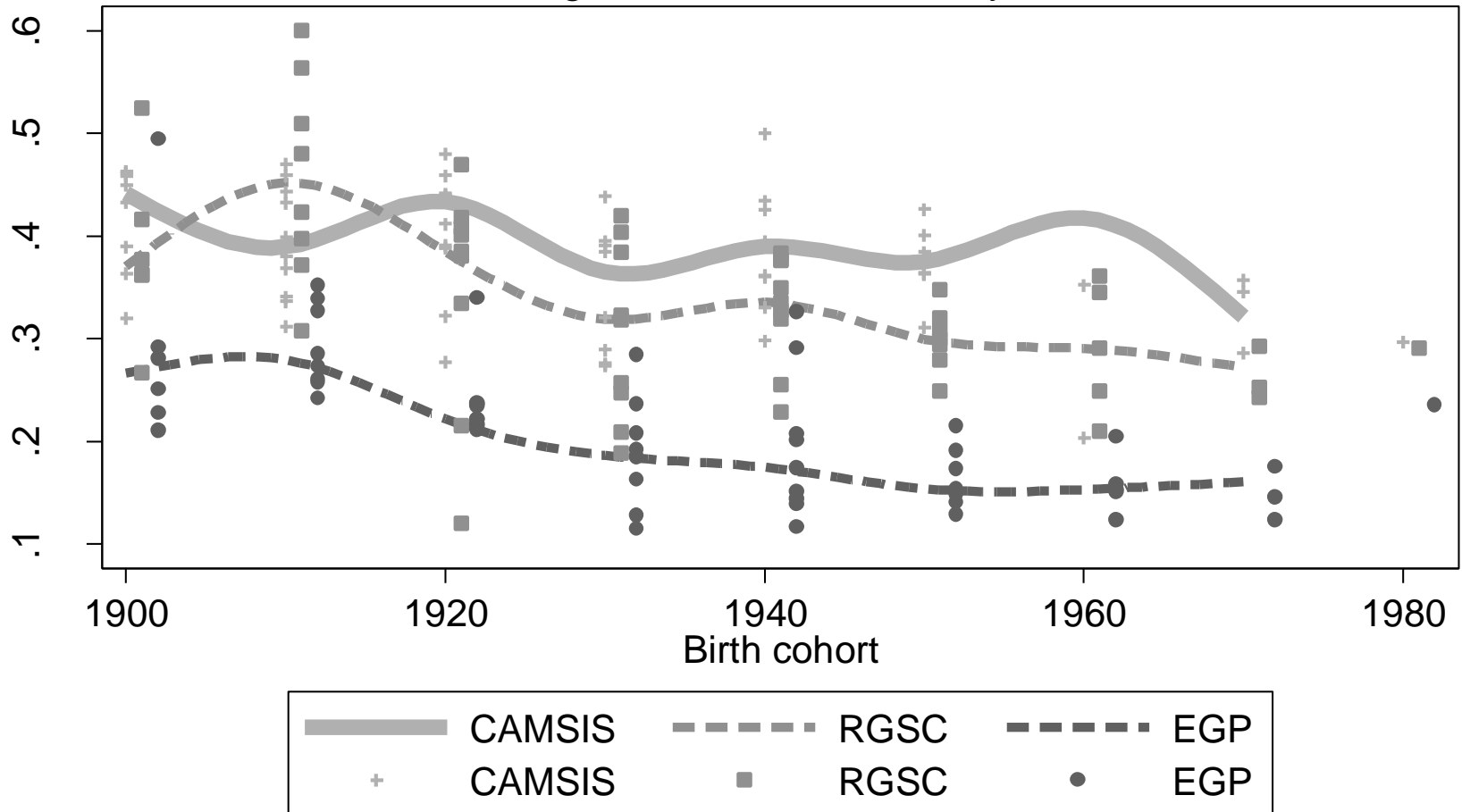
Most occ. measures suggest long-term rise in social mobility

(Updated results from dataset described in Lambert et al. 2007). Men, 20-100, N=106k (all); 80k (yob > 1900).



Social mobility in Britain by year of birth (splines)

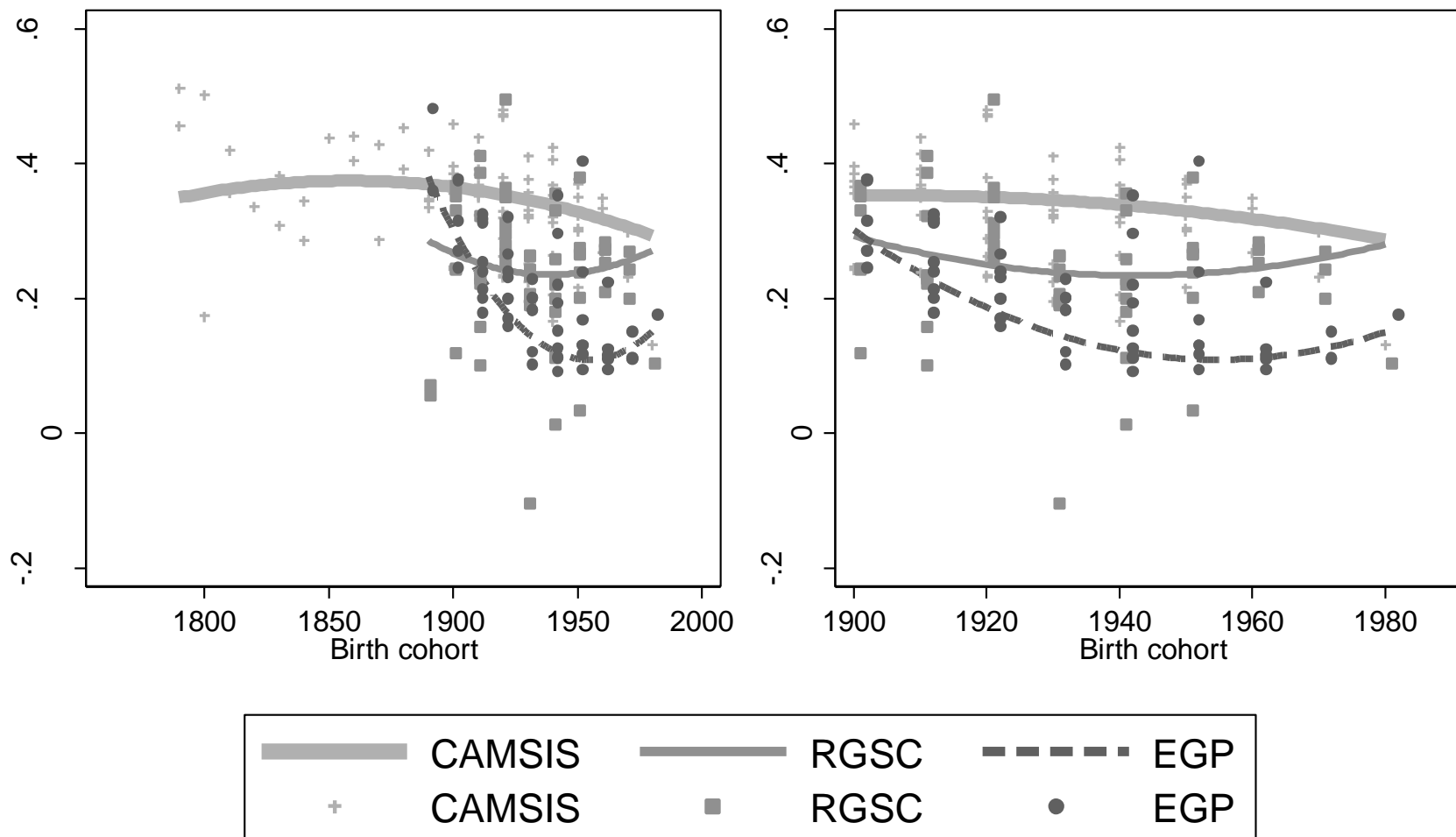
Ages 20 to 100. Men only.



Data from the 'Slow degrees' pooled survey dataset - see Lambert et al. (2007). N = 117199.
Points are correlation statistics for father-son association, 5 year surveys / 10 year birth cohorts.

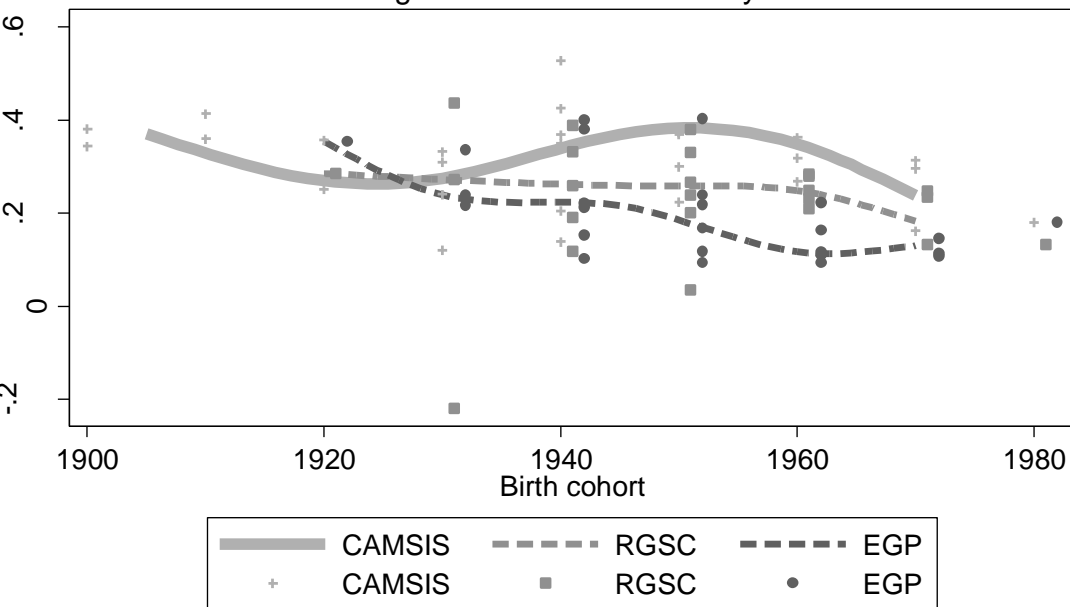
Social mobility trends in Britain by year of birth

Ages 20 to 100. Women only.



Data from the 'Slow degrees' pooled survey dataset - see Lambert et al. (2007). N = 95452.
Points are correlation statistics for father-son association, 5 year surveys / 10 year birth cohorts.

Ages 20 to 40. Women only.

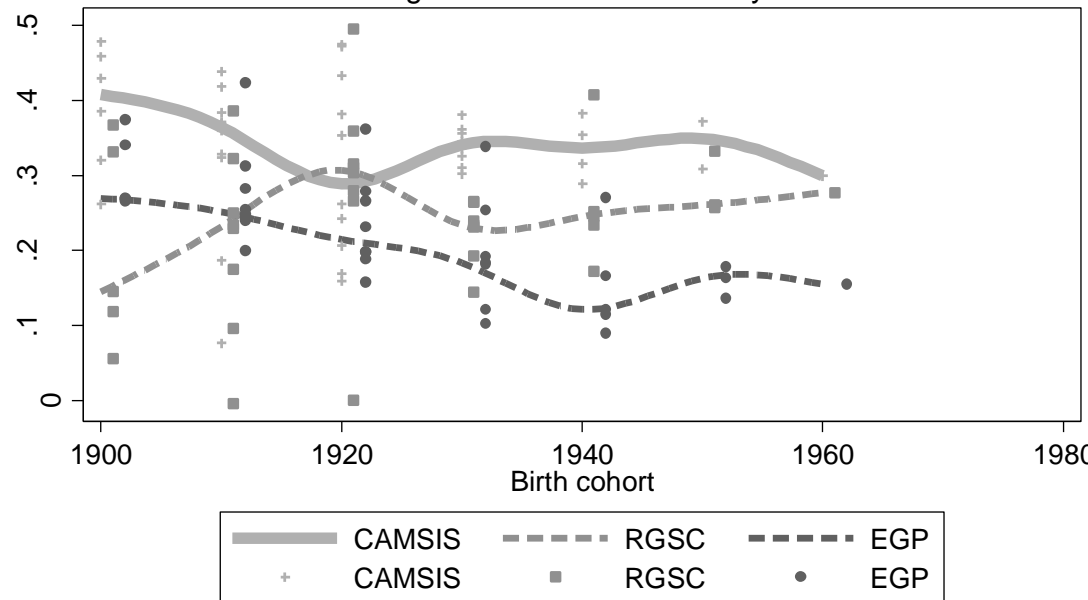


Trends, and values ,
are somewhat
sensitive to the age
of the child

Data from the 'Slow degrees' pooled survey dataset - see Lambert et al. (2007). N = 31329.
Points are correlation statistics for father-son association, 5 year surveys / 10 year birth cohorts.

mobility in Britain by year of birth (splines)

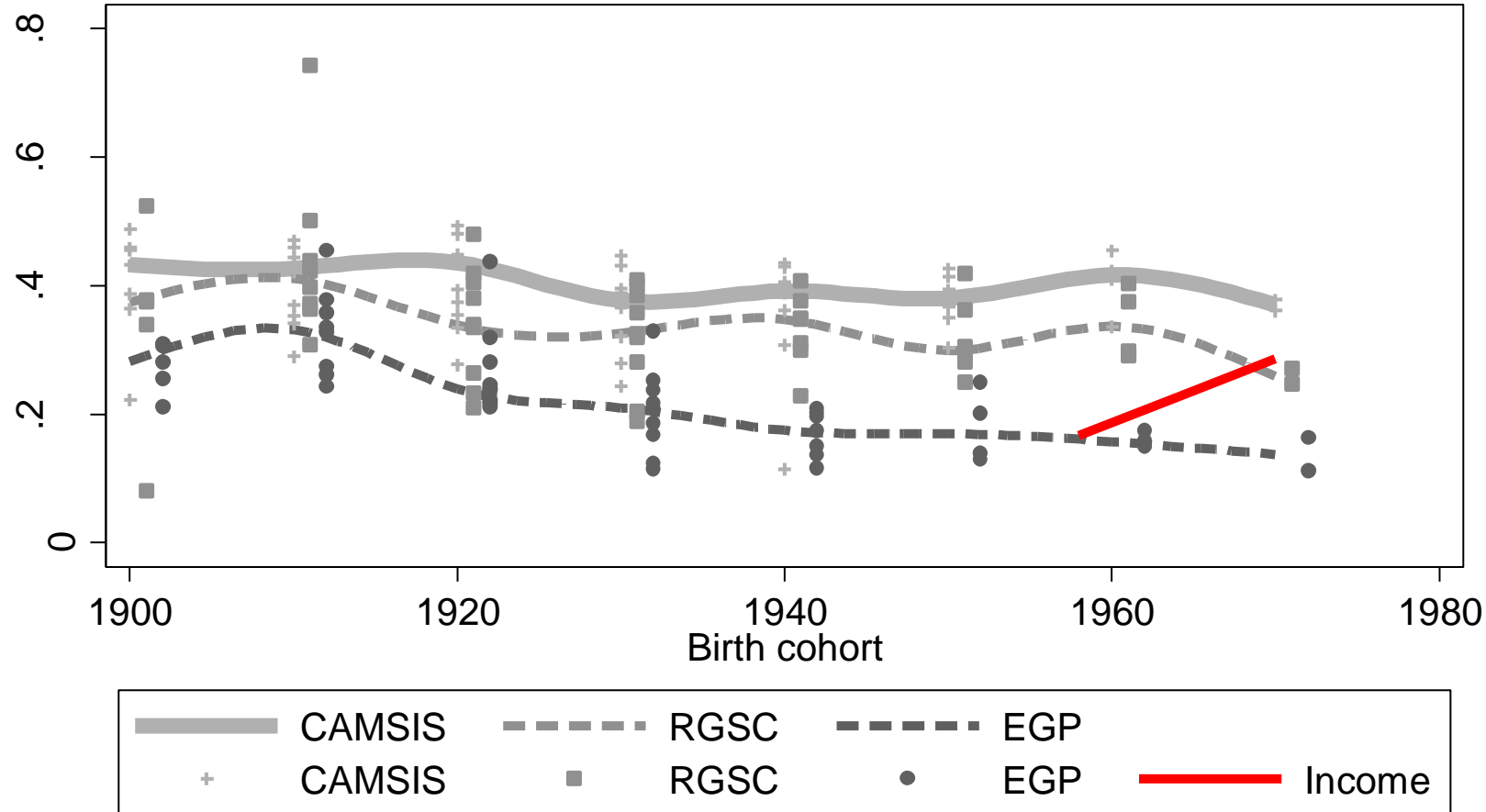
Ages 40 to 80. Women only.



Data from the 'Slow degrees' pooled survey dataset - see Lambert et al. (2007). N = 23735.
Points are correlation statistics for father-son association, 5 year surveys / 10 year birth cohorts.

Social mobility in Britain by year of birth (splines)

Ages 25 to 80. Men only.



Data from the 'Slow degrees' pooled survey dataset - see Lambert et al. (2007). N = 72509.
Points are correlation statistics for father-child association, 5 year surveys / 10 year birth cohorts.

(Income figures from Blanden et al. 2004.)

⇒ Different types of measure of stratification have hitherto led to different (influential) interpretations

(3) Measuring stratification position with measures that are not based on occupations

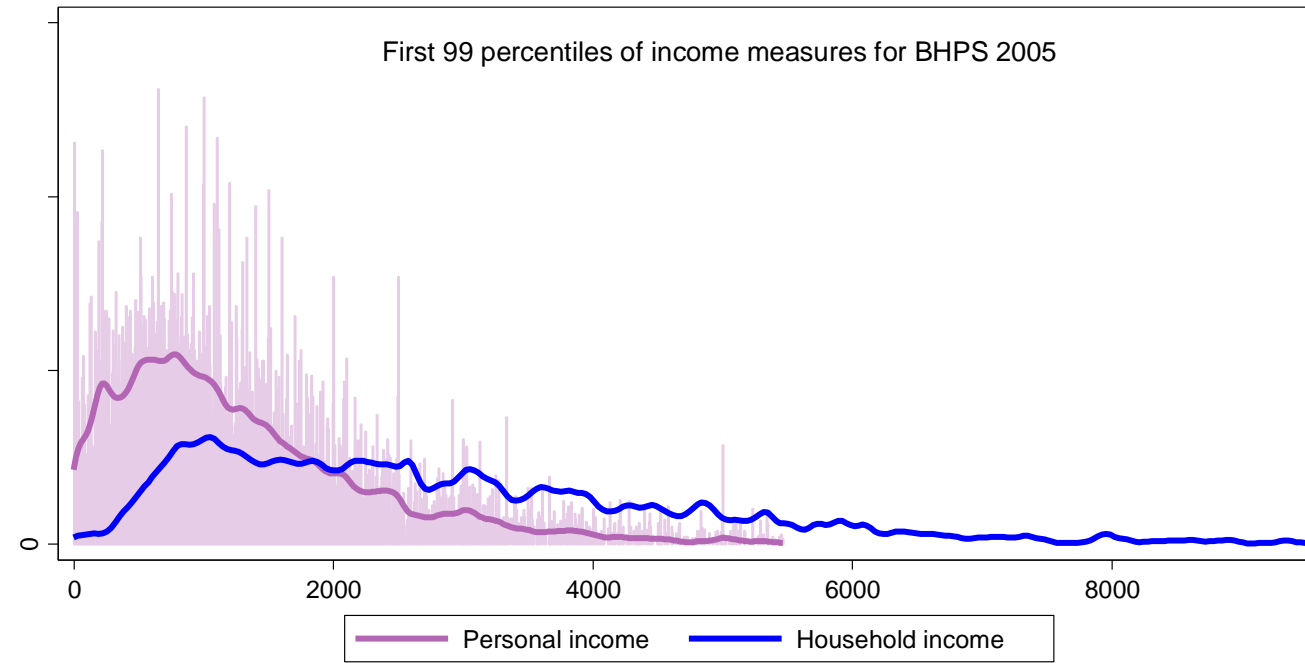
Intuitive, theoretical and empirical reasons to expect non-occupation based measures to be revealing

- 1) Indices of income, wealth, etc.
 - Esp. Corak 2004; Dorling 2013
- 2) Longitudinal life-course summary indexes
- 3) Non-traditional occupation-based or income-related measures
- 4) Multidimensional summaries

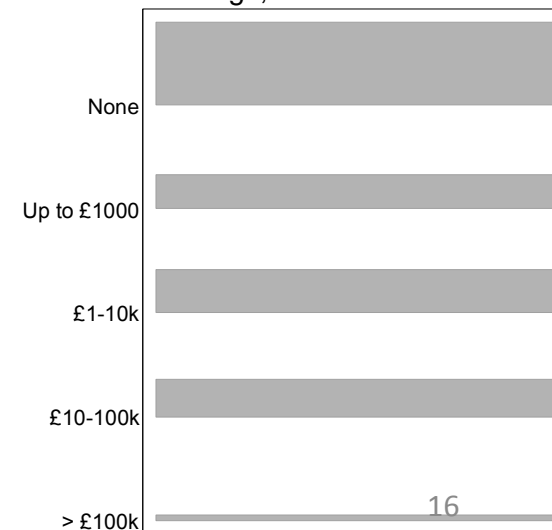
Indices of income, wealth, etc

Access	<ul style="list-style-type: none"> • Easy to measure current income for individuals and households • Some surveys have data on wealth, assets, investments • Hard to reliably measure family income, life-course income, or social origins income, particularly for suitably mature adults
Qualities	<ul style="list-style-type: none"> • Convenient metric outcome (& readily converted to key contrasts) • High correlations with age, life-course stage, family structure
Findings on intergenerational mobility	<ul style="list-style-type: none"> • Rising intergenerational income correlations in recent decades • UK findings based on income of young adults from 1958 and 1970 cohorts at fixed points, with varying parental ages and high attrition

First 99 percentiles of income measures for BHPS 2005

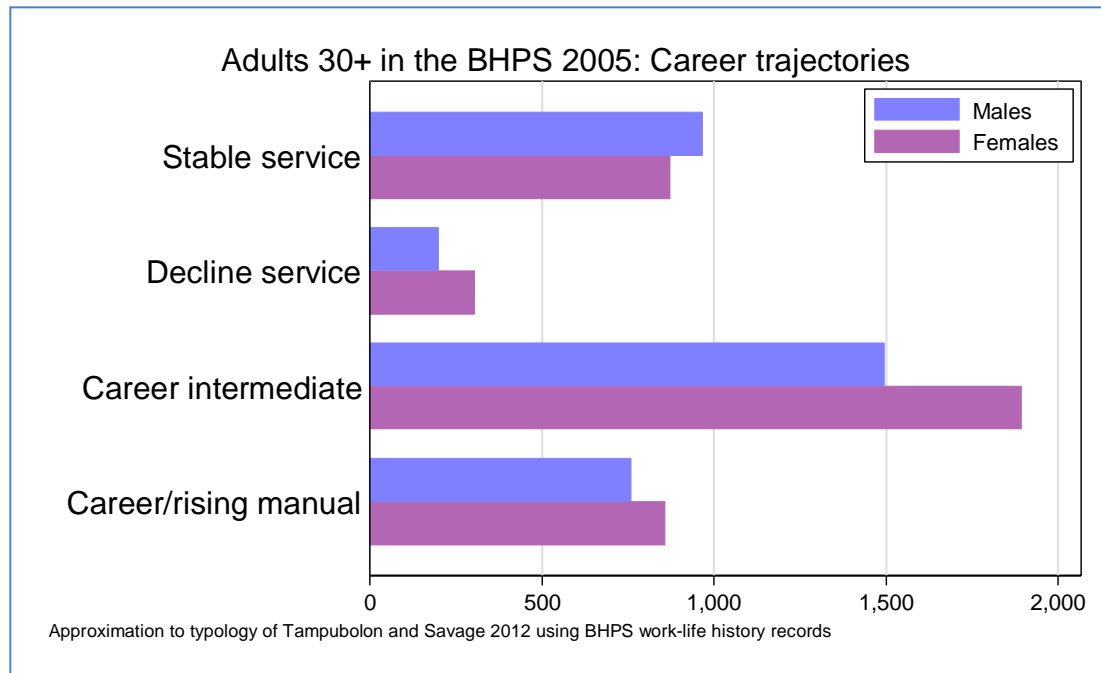


Household savings, BHPS



Longitudinal life-course measures

- Traditional limitation of stratification studies is their focus on outcome at a single point in time
- Longitudinal data could address this in various ways
- One idea has been to try to construct categories indicative of typical life-course trajectory
 - Occupation-based measures may argue they have already done this (e.g. Stewart et al. 1980; Goldthorpe and McKnight 2006)!



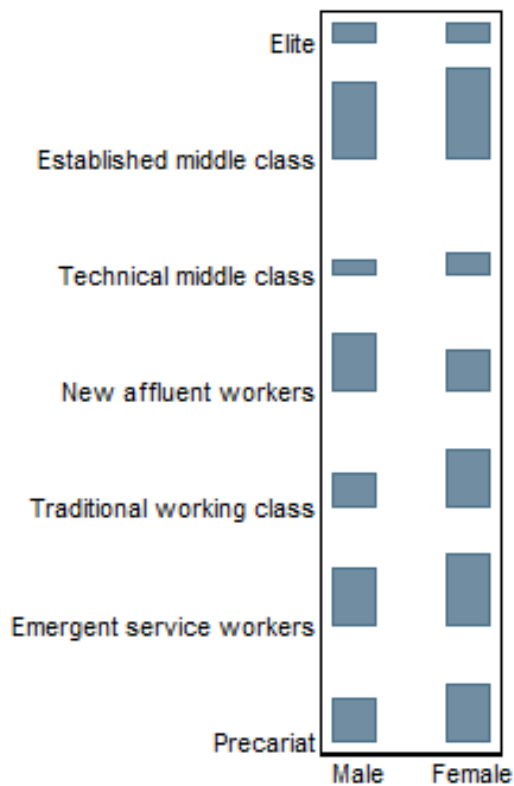
Non-traditional occupational or income-related

Access	<ul style="list-style-type: none">• 'Microclass' measures focus on detailed occupational differences rather than the low-parameter summaries (<i>e.g. 81 units on UK scheme</i>)• Measures of polarised inequality focus on the most or the least advantaged in society, for instance using income, occupational or other information as available
Qualities	<ul style="list-style-type: none">• Microclasses:<ul style="list-style-type: none">• Strong empirical correlations but ambiguity in interpretation• No standard, comparable scheme over time yet published• Polarised inequality:<ul style="list-style-type: none">• Most sample surveys lack good coverage of extremes of inequality (lack of cases at top or bottom + measurement challenges)• No consensus on how to define extremes
Findings on mobility	<ul style="list-style-type: none">• UK analysis of microclass mobility through time yet to be undertaken• Elites/most advantaged probably re-opening the gap from mainstream on economic assets (<i>e.g. Dorling 2013</i>), but social origins of elements of elites are increasingly heterogeneous (<i>e.g. Griffiths et al. 2008</i>)• Unclear regarding trends in social origins of those in extremes of poverty/deprivation

Multidimensional measures

Different aspects of individual lives matter, so it might be productive to summarise social positions drawing upon several aspects

- Multidimensional deprivation measures often used (e.g. Gordon 2006)
- Market research typologies use area/economic circumstances
- Recent efforts to make multidimensional social stratification measures for social research purposes
 - Hennig and Liao 2013: Combined economic circumstances
 - Savage et al. 2013: Combining social, economic and cultural capital
- *In the UK, multidimensional measures raise potentially ambiguous correlations with age, life-course stage, family structure, gender and region*



Huge survey reveals seven social classes in UK

[<http://www.bbc.co.uk/news/uk-22007058>]

< Middle class? | Class calculator | US view | Reader reactions | 'Huge survey' | The >

People in the UK now fit into seven social classes, a major survey conducted by the BBC suggests.

It says the traditional categories of working, middle and upper class are outdated, fitting 39% of people.

It found a new model of seven social classes ranging from the elite at the top to a "precariat" - the poor, precarious proletariat - at the bottom.

More than 161,000 people took part in the Great British Class Survey, the largest study of class in the UK.

Class has traditionally been defined by occupation, wealth and education. But this research argues that this is too simplistic.

Previous definitions of social class are considered to be outdated

- Intersection of social, economic & cultural capital
- For theoretical/qualitative research
- Online 'class calculator' and offline LCA derivations
- Criticisms raised
 - BBC's bumptiousness!
 - Correlation to age/family/gender
 - Probably not better than using the underlying measures
 - Probably not a neat 7 class solution; doesn't address change over time
 - Ambiguity of interpretation

'Great British Class Scheme' (GBCS)

- Savage et al. (2013)
- Based on <https://ssl.bbc.co.uk/lab/uk/experiments/class/>

Operationalisation

- British Household Panel Survey (Univ. Essex 2010) with socio-economic and behavioural questions on adults 1991-present
- With limitations, it's possible to operationalise representatives of all these measures of social position on the BHPS respondents
- The same is not true for (most) BHPS respondents' fathers/parents
 - Compare with parental occupational positions
 - Construct proxy measures which capture most likely position on other schemes according to the parents occupations(!)

Empirical measures of social position – BHPS (wave 5 & 15)

Measure	#; % missing	
CAMISIS*	Scale; 11%	<i>Occupational scale score for most recent job</i>
EGP-7*	7; 18%	``
RGSC-5*	5; 18%	``
Microclass*	81; 14%	<i>Allocated via SOC90/ISCO88, most recent job</i>
Personal Income	Scale; 6%	
Household income	Scale; 5%	
Household savings	Scale; 0%**	<i>Adds together reported savings and investments</i>
Top 1% money	2; 1%**	<i>Top 1% by personal or hhld inc., or house value</i>
Poverty (inc)	2; 5%	<i>< half median hhld income</i>
Life-history categories	4; 43%	<i>4 categories following Tampubolon & Savage 2012 (stable service; decline service; intermed.; manual)</i>
Hennig-Liao	8; 8%**	<i>See over</i>
GBCS	7; 0%**	<i>See over</i>

* Available in original form for BHPS respondents' parents

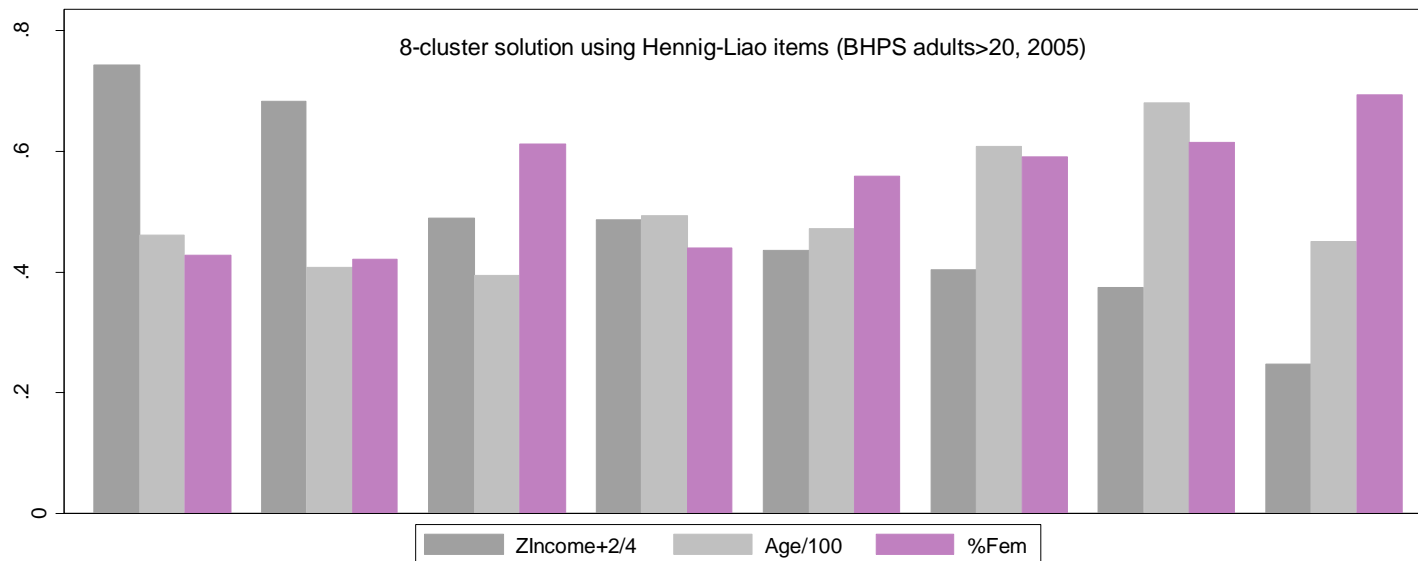
**Includes imputed values, where non-missing = valid data for any component item

...(Badly) reconstructing the multidimensional measures...

Hennig & Liao 2013: 'Appropriate clustering for mixed type variables with an application to socio-economic stratification'		Savage et al. 2013: Seven latent classes identified by distributions of social, economic and cultural capital	
HL source (m)	HL-BHPS (m+f)	GBCS source	GBCS-BHPS
Total monthly savings	Self reported savings	Household income	=
Total personal income	=	Household savings	Sum indiv. savings ($e \sim o$)
Years of education	Ranked educ. quals	House value	=
Number of checking accounts	Has credit card	Social contact score	Mean CAMSIS of friends/family
Number of savings accounts	Savings income category	Social contact number	# friends/family in work
Housing tenure	=	Highbrow cultural capital	Proportion ^{1/2} contacts read broadsheets
Has life insurance	=	Emerging cultural capital	Sports, eating out, pub, visit friends, computer
Occupational class (6 +not working)	RGSC + not working (8)		

Hennig-Liao (2013) classification for the BHPS

- Seek to identify constellation of shared characteristics related to income, housing, employment, & education
- HL publish a routine in R for mixed-type items
- Implemented below on BHPS, choosing 8-cluster solution



- Higher and lower numbers of clusters are also plausible
- “If the model does not hold precisely, the truth may be best approximated according to the BIC (or any consistent criterion) by a very high number of mixture components if there are only enough observations, which is of little interpretative value.” (Hennig and Liao 2013: 16)

Approximating GBCS for the BHPS

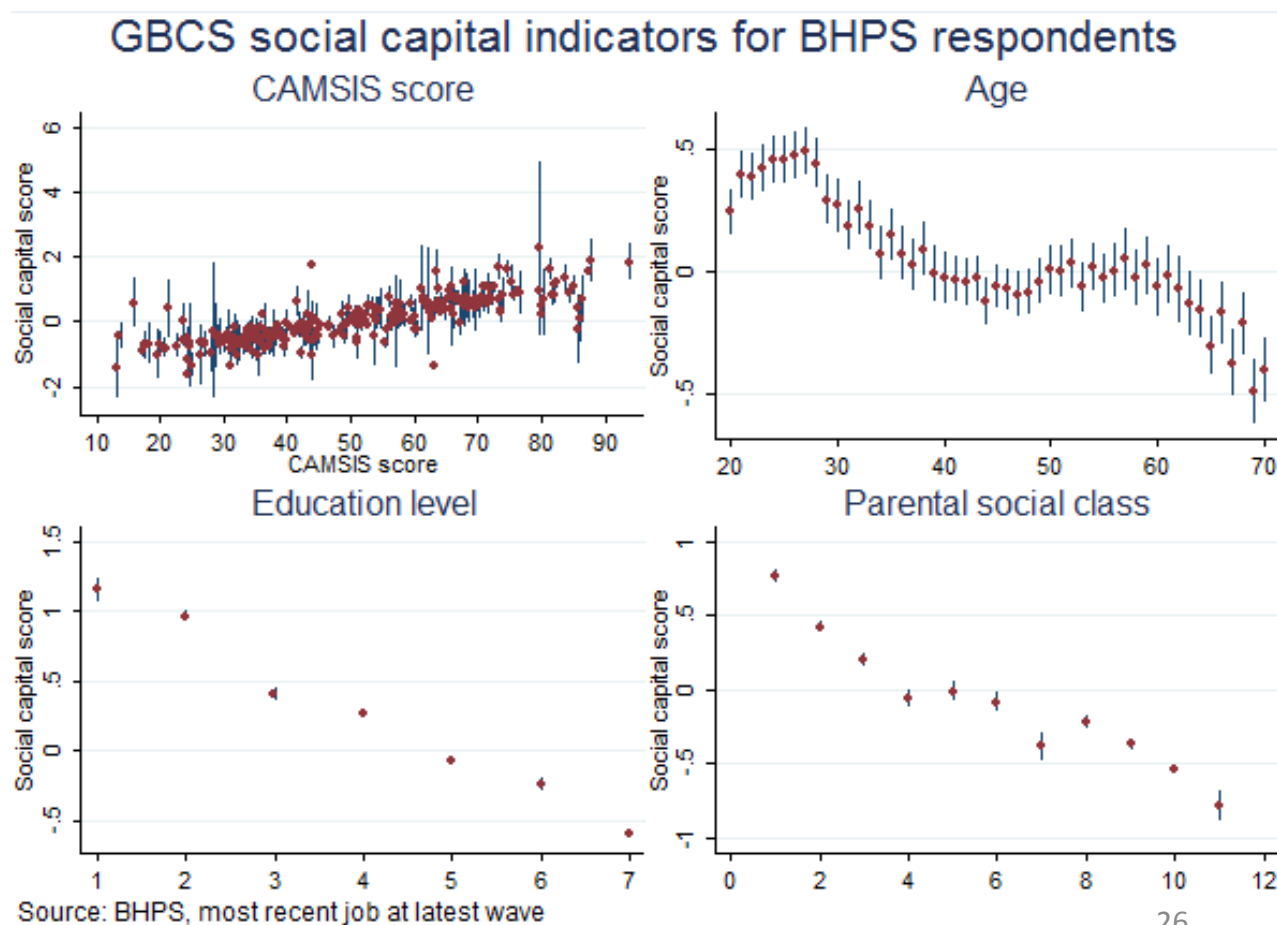
% cases; % female; mean age		BHPS, 1995		BHPS, 2005	
	Original	GBCS1	GBCS2	GBCS1	GBCS2
Elite	6; 50; 57	2; 48; 55	14; 43; 49	1; 41; 55	13; 51; 46
Est. middle class	25; 54; 46	17; 43; 43	20; 46; 41	12; 45; 45	11; 44; 54
Tech. middle class	6; 59; 52	4; 58; 55	14; 51; 41	6; 59; 57	17; 50; 45
New affluent workers	15; 43; 44	27; 51; 52	10; 47; 38	21; 53; 44	14; 53; 50
Traditional working class	14; 62; 66	25; 64; 61	15; 57; 49	28; 63; 64	21; 62; 56
Emergent service wkrs	19; 55; 34	19; 48; 40	15; 63; 54	23; 47; 41	11; 48; 39
Precariat	15; 57; 50	7; 61; 59	11; 63; 65	9; 61; 62	13; 60; 66
GBCS1: Minimise sum of magnitude of residuals for 7 component items (modal imputation if missing)					
GBCS2: Choose a 7 class solution from Hennig-Liao function for component measures					

[Correlation GBCS1-GBCS2 = 0.417 (2005)]

Background comments on the GBCS

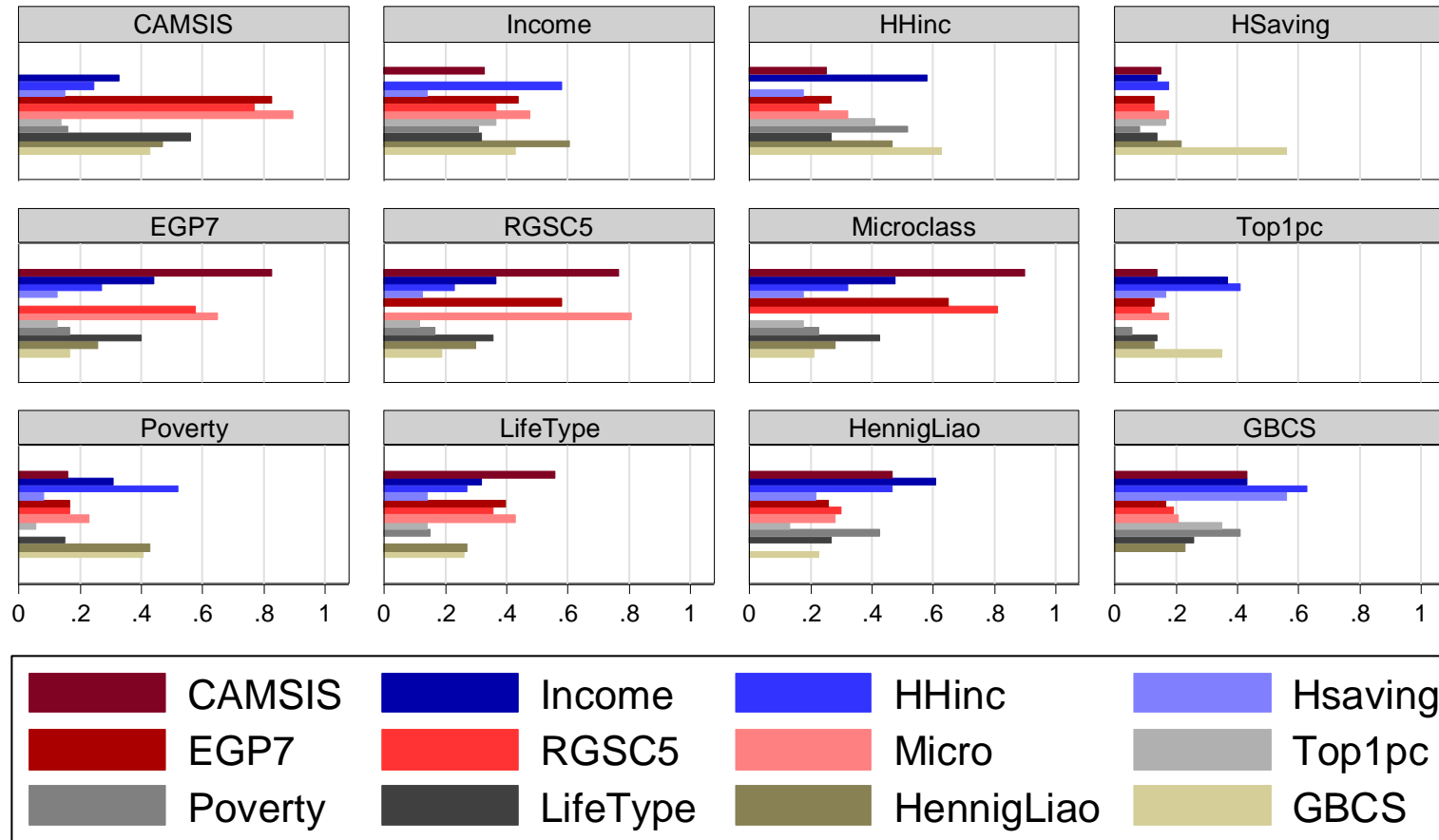
- BHPS clustering on similar items doesn't correspond at all to GBCS descriptions, but several possible limitations to my BHPS analysis (unweighted; suboptimal measures; possible implementation errors)

- GBCS seeks to distinguish social capital from economic capital, but it's social capital score seems to relate more to age and occupations



(4) Comparing the empirical properties of occupation-based and non-occupation-based measures of stratification position and of inter-generational social mobility

Correlations between alternative measures of stratification



Graphs by vartype

Regression $r^2^{0.5}$ when 1 variable is linear; Cramer's V when both categorical.

(4) Comparing the empirical properties of occupation-based and non-occupation-based measures of stratification position and of inter-generational social mobility

	#categ.s	Correlation to sex; age ² ; educ	Correlation to smoking; age 1 st child; reads broadsheet newsp.
CAMSIS	-	5; 12; 50	16; 10; 23
EGP-7	7	21; 11; 26	9; 7; 11
RGSC-5	5	7; 11; 31	8; 11; 12
Microclass	81	24; 14; 23	8; 17; 10
Personal Income	-	26; 29; 36	2; 14; 14
Household income	-	8; 38; 32	4; 7; 12
Household saving	-	4; 13; 11	10; 7; 14
Top 1% money	2	8; 15; 24	8; 5; 17
Poverty (by hhinc.)	2	10; 42; 27	1; 16; 9
Life-history categories	4	6; 8; 34	12; 17; 18
Hennig-Liao	8	7; 36; 49	8; 12; 11
GBCS	7	8; 32; 28	11; 13; 24

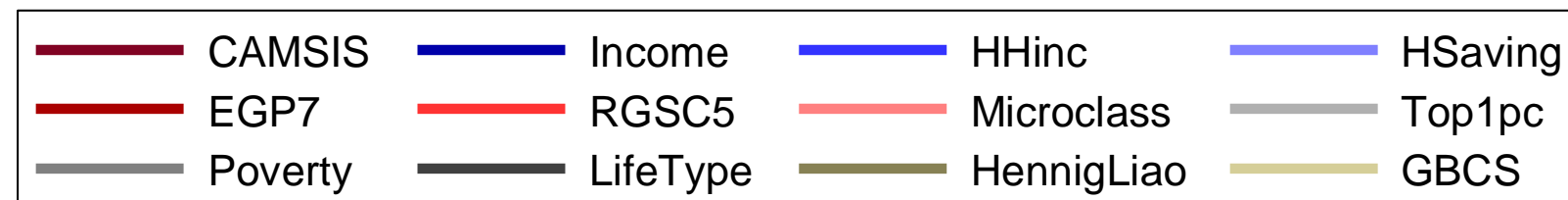
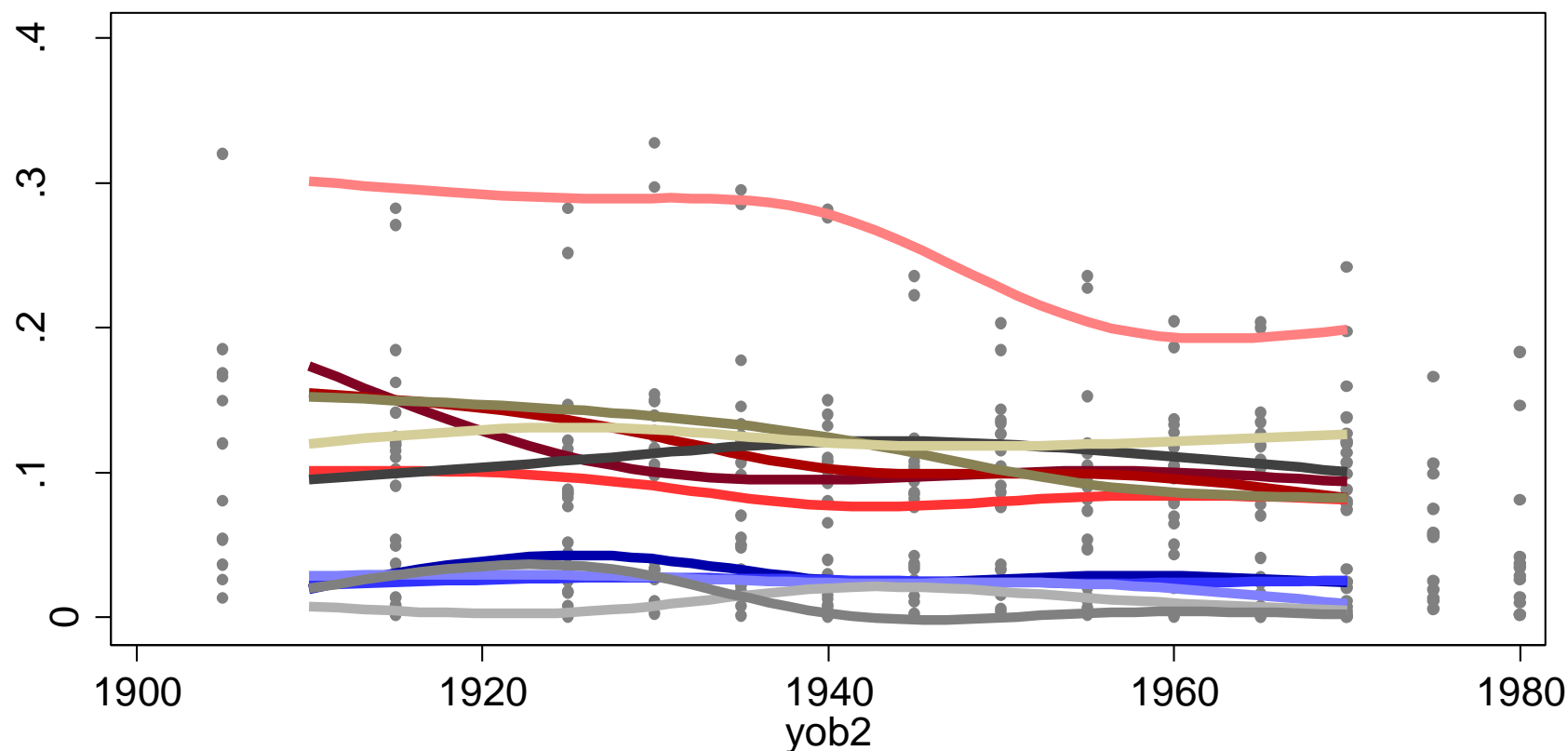
Figures for BHPS adults 2005, using x-sectional weight, N ~ 13000

(4) Comparing the empirical properties of occupation-based and non-occupation-based measures of stratification position and of inter-generational social mobility

	Correlation to parental CAMSIS / EGP / RGSC	Correlation to parental measure (*occupational proxy)
CAMSIS	30; 15; 15	30
EGP-7	26; 15; 14	15
RGSC-5	24; 12; 12	12
Microclass	33; 16; 16	24 {for scale scores}
Personal Income	16; 8; 8	11*
Household income	21; 11; 11	21*
Household saving	10; 5; 6	15*
Top 1% money	11; 6; 7	0*
Poverty (inc)	13; 6; 6	3*
Life-history categories	31; 15; 16	15*
Hennig-Liao	31; 16; 17	15*
GBCS	35; 18; 18	15*

Correlation values are usually obtained as square root of r^2 or pseudo- r^2 statistic from linear or mlogit regression. Correlations are systematically larger for continuous variables.

Different social mobility trends by measures?



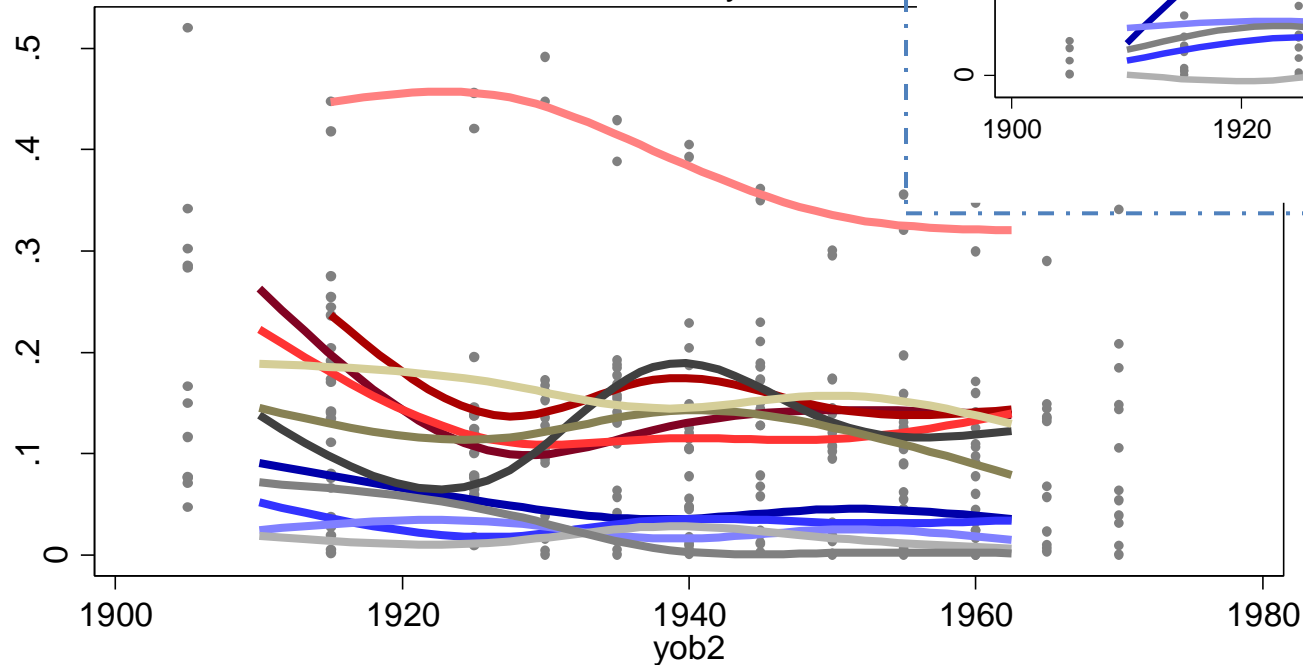
Pooled data from BHPS 1995 and 2005 by 5-year birth cohort with weights. N ~ 19k cases, 14k individuals (age 20+). Points analysed are correlations between measure and fathers CAMSIS score.

Lines 'calculates cross medians and then uses the cross medians as knots to fit a cubic spline' (Stata manual)

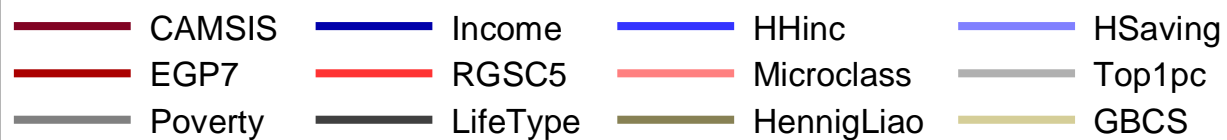
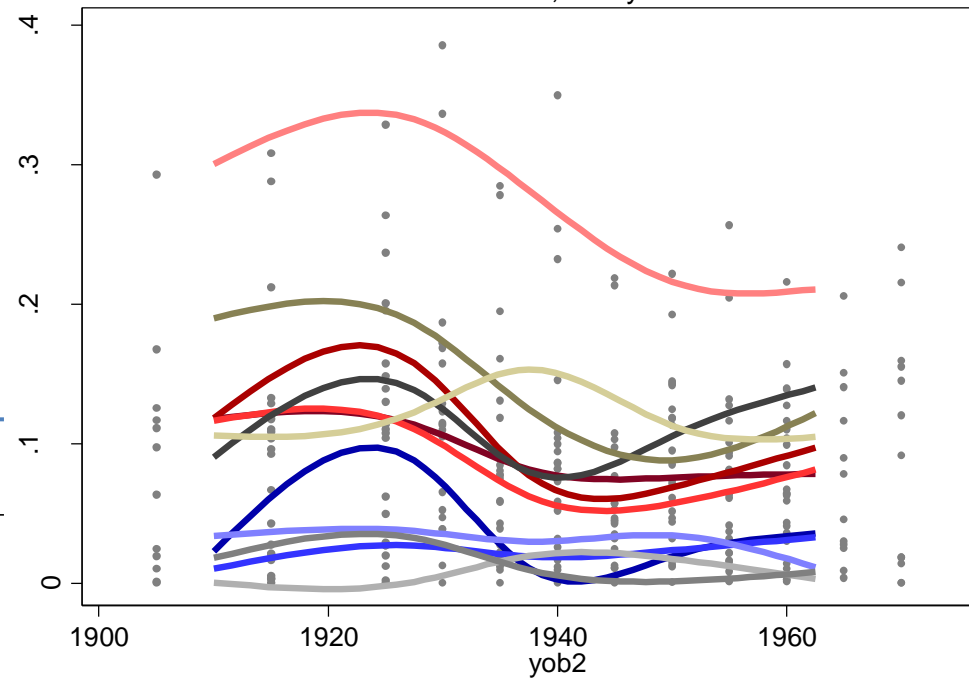
[correction: R^2 values, not correlations as in footnote]

Trends in parent-child r^2 association?

Men, 30+ years



Women, 30+ yrs



Some conclusions

- Occupation-based measures perform largely as well as any other measures in correlating expected factors
- Correlations with age and gender are a complication to many measures
 - This isn't necessarily a problem (though I've implied it is)
 - An open question whether we want to use measures to indicate current situation or general, lifetime circumstances
 - But ambiguity with age: occupation-based measures are defined through occupations, but other measures are more directly determined by age
- Hennig-Liao, GBCS, life history and household income measures do all seem to pick up something of interest regarding stratification reproduction/social mobility
 - More work needed, but social mobility trends vary by stratification measures
 - Cf. Marks (2013): questioning income-based measures

Conclusions, ctd

Advocates of non-traditional measures don't generally seem to prioritise implementability of their measure on relevant secondary data!

- Longitudinal profiling works ok for specific age cohorts and studies, but restricts population coverage
- Income data is rarely held across generations in studies without attrition and life-course stage bias
- Constellation of measures approach is typically unique to the relevant survey and hard to replicate

➤ *...All points back to using occupations to me...!*

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