A viable measure to assess stratification in later life

Dr Scott Oatley
University of Manchester
Research Associate
English Longitudinal Study of Ageing (ELSA)

Preamble

- Later Life

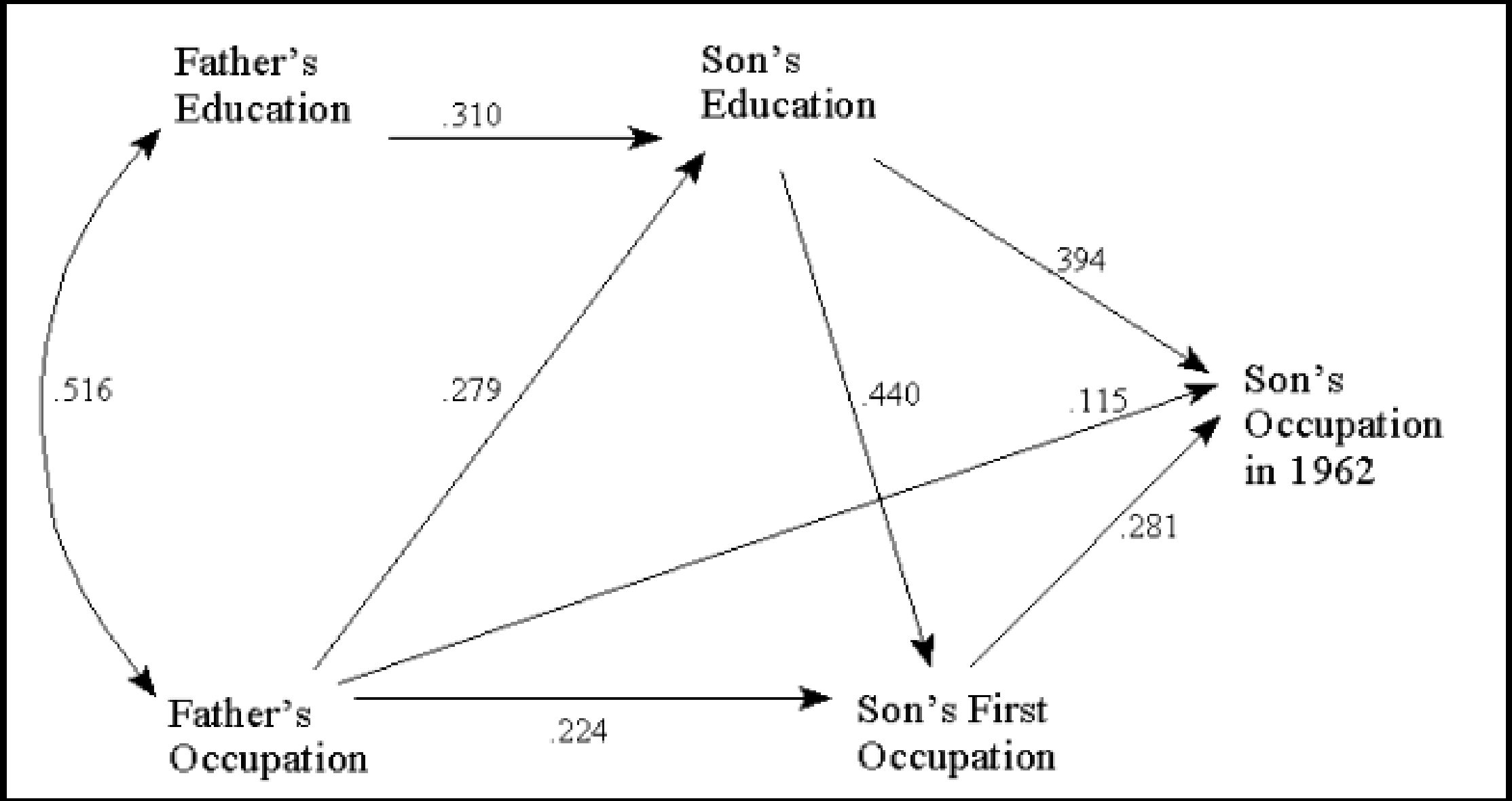
- Measure of social stratification = social class

Thesis statement

- The way we model later life is inadequate
- This inadequacy is a direct consequence of social class measures failing to account for anything outside the realm of employment relations
- The result of this forces researchers to either:
  - Use a ‘legacy’ occupation measure
  - Use a ‘socio-economic status’ measure
  - Use no measure at all as a proxy for social class

Use no measure at all as a proxy for social class

- Social class matters
- Does the influence of social class stop once we as individuals retire?
- Failing to account for social class in our models when we know it matters is sociological malpractice


Father's Education
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Son's Education
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Son's Occupation in 1962
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Father's Occupation
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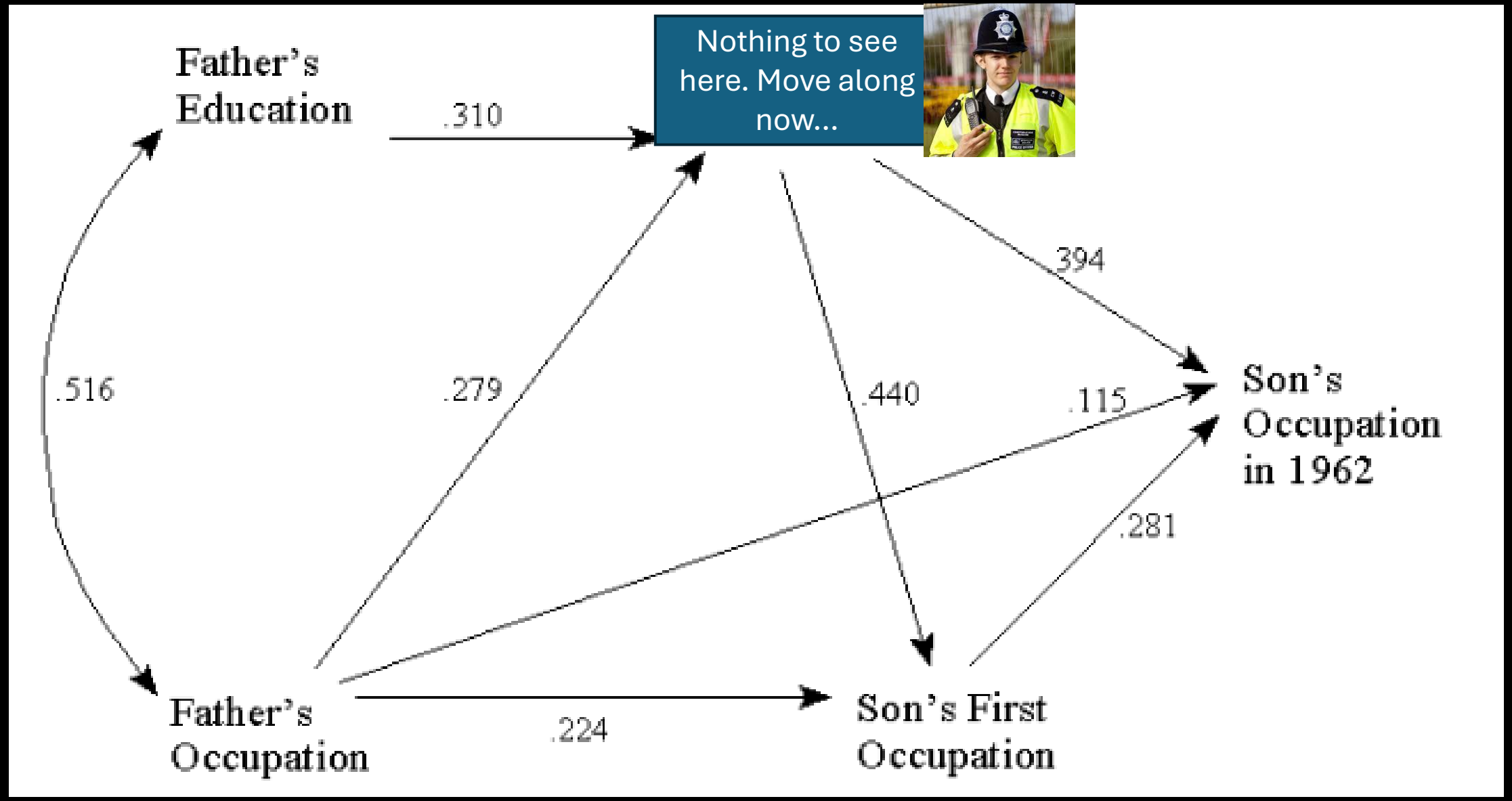
Son's First Occupation


Father's Education
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Nothing to see here. Move along now...
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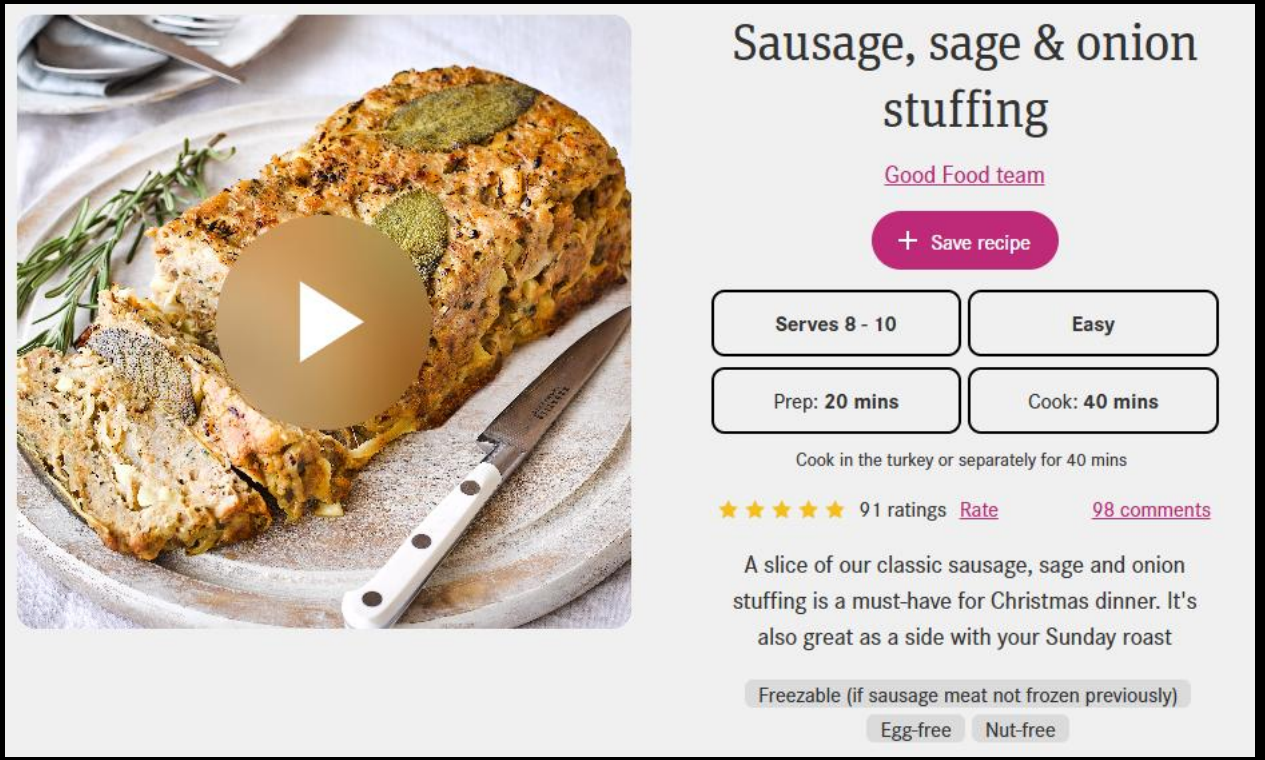
Use a ‘socio-economic status’ measure

- What exactly is SES?
- It’s a turkey stuffing exercise

SES – Income, Education, Occupation



SES – health, crime, housing tenure, wealth, favourite colour, did it rain when you were born…

The jist I've gotten of how she makes it is:

Soak white bread thoroughly in water.

Squeeze out some water and put the soggy bread in a bowl.

Cut up celery and onion and put in bowl.

Bake in oven at 350 for 45 minutes

Serve.

Use a ‘socio-economic status’ measure

- What exactly is SES?

- It’s a turkey stuffing exercise
  - Sometimes we get what we want. A traditional, (somewhat) informed measure
  - Other times, we get an abomination of things crammed into a measure because ‘why not?’

Use a ‘legacy’ occupation measure

- NS-SEC is dominant in British quantitative sociology

- For good reason
  - Widely tested (validity)
  - Grounded in solid theory
  - Reasonably easy to understand

What is NS-SEC

- Neo-Weberian measure of social class based on employment relations

- NS-SEC = Standard Occupational Classification Codes (SOC) + Employment Status

What is NS-SEC

Group:		Description:
1		Higher managerial, administrative and professional occupations
	1.1	Large employers and higher managerial and administrative occupations
	1.2	Higher professional occupations
2		Lower managerial, administrative and professional occupations
3		Intermediate occupations
4		Small employers and own account workers
5		Lower supervisory and technical occupations
6		Semi-routine occupations
7		Routine occupations
8		Never worked and long-term unemployed

Use a ‘legacy’ occupation measure

- Terrible measure for later life research
- NS-SEC (or any legacy) measure takes an individual’s last form of occupation and attaches that to an individual today
- Time is not fixed
- Is an individual who retired as a doctor at age 66 the same social class when they are 90?
- What about a stay-at-home mum whose part-time occupation was a cleaner and gave up work at age 30 after her second son was born?

Social Class and Later Life

- Social Class matters
- Not appropriate to use social class constructed through employment relations as a determinant for later life social class locations
- Removes the possibility to work with Marxian or Weberian social class operationalisations

What is social class? (Bourdieu)

- Stratification at the point of consumption
- How class habitus are informed by individual volumes of economic, cultural, and social capital
- How that class habitus relationally negotiates itself within a wider social field

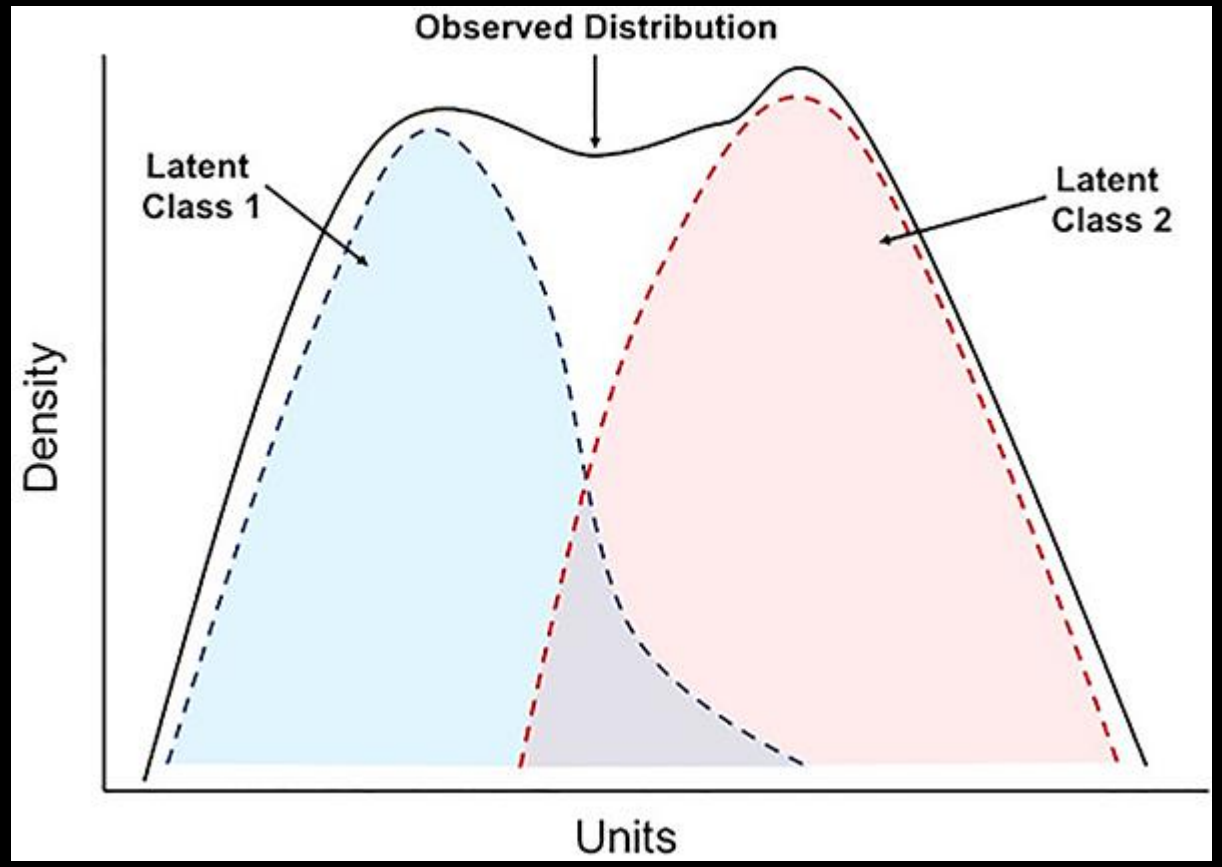
How do we operationalise this?

Methods

- Latent Class Analysis

Manifest Indicators	Latent Variable: Continuous	Latent Variable: Categorical
Continuous	Factor Analysis	Latent Profile Analysis Latent Transition Analysis & Finite Mixture Modeling
Categorical	Latent Trait Theory (Item Response Theory)	Latent Class Analysis Latent Transition Analysis & Finite Mixture Modeling

Latent Class Analysis



Optimal Class Selection

- Fit Indices
  - AIC and BIC
- Model Testing
  - LMR and VLMR
    - Both used to test if model with k classes is better fit than model with k-1 classes
- Model Characteristics
  - Number of classes, size of smallest classes, entropy (class separation)

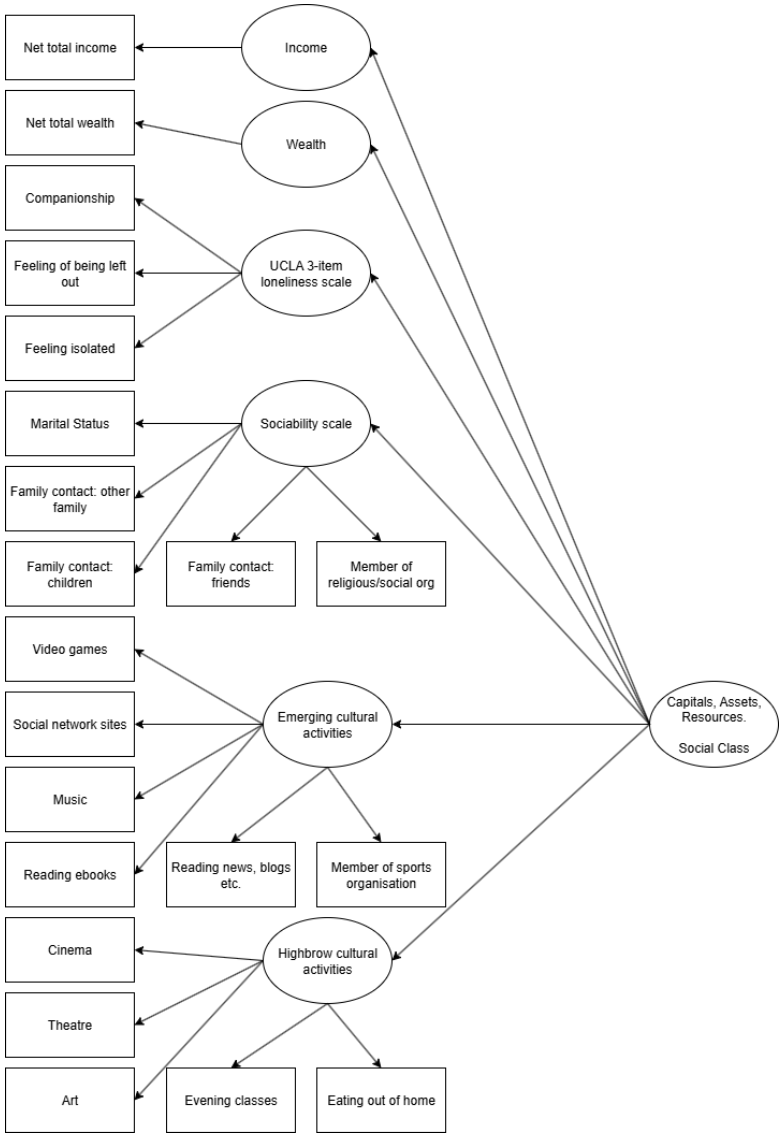
Data

- English Longitudinal Study of Ageing (ELSA)
- Using cross-sectional data (for now) Wave 10
  - Wave 11 doesn’t have weights constructed (pending…)
- Sample
  - Core sample members +50
  - Individuals that are NOT in active employment
  - n=4,297
    - This drops by around 30 due to weights = 0

Data

- All models are adjusted for complex survey design where possible

- For latent class models, this isn’t possible as fit statistics cannot be used after svy: gsem
  - This means latent class models are appropriately weighted but aren’t adjusted for complex survey design



- Manifest indicators

Economic Capital

- Total net income - It includes total income from employment, self-employment, private pension, state pension, state benefit, assets, and other income sources
- Total net wealth- includes non-housing wealth related to financial and physical wealth as well as primary housing wealth.
- Used in other CAR based approaches (Savage et al XXXX; Connelly et al XXXX)
- Both at the benefit unit level

Social Capital

- Traditionally used number of contacts + average CAMSIS score of those contacts
  - Tied to employment relations

- We instead used the UCLA 3-item loneliness scale + a sociability scale

Social Capital

- UCLA 3-item loneliness scale (Hughes et al 2004; Gale et al 2018)
  - Frequency of feeling left out
  - Frequency of feeling isolated
  - Frequency of feeling like you lacked companionship
- Higher values indicate greater loneliness
- Range of 3-9

Social Capital

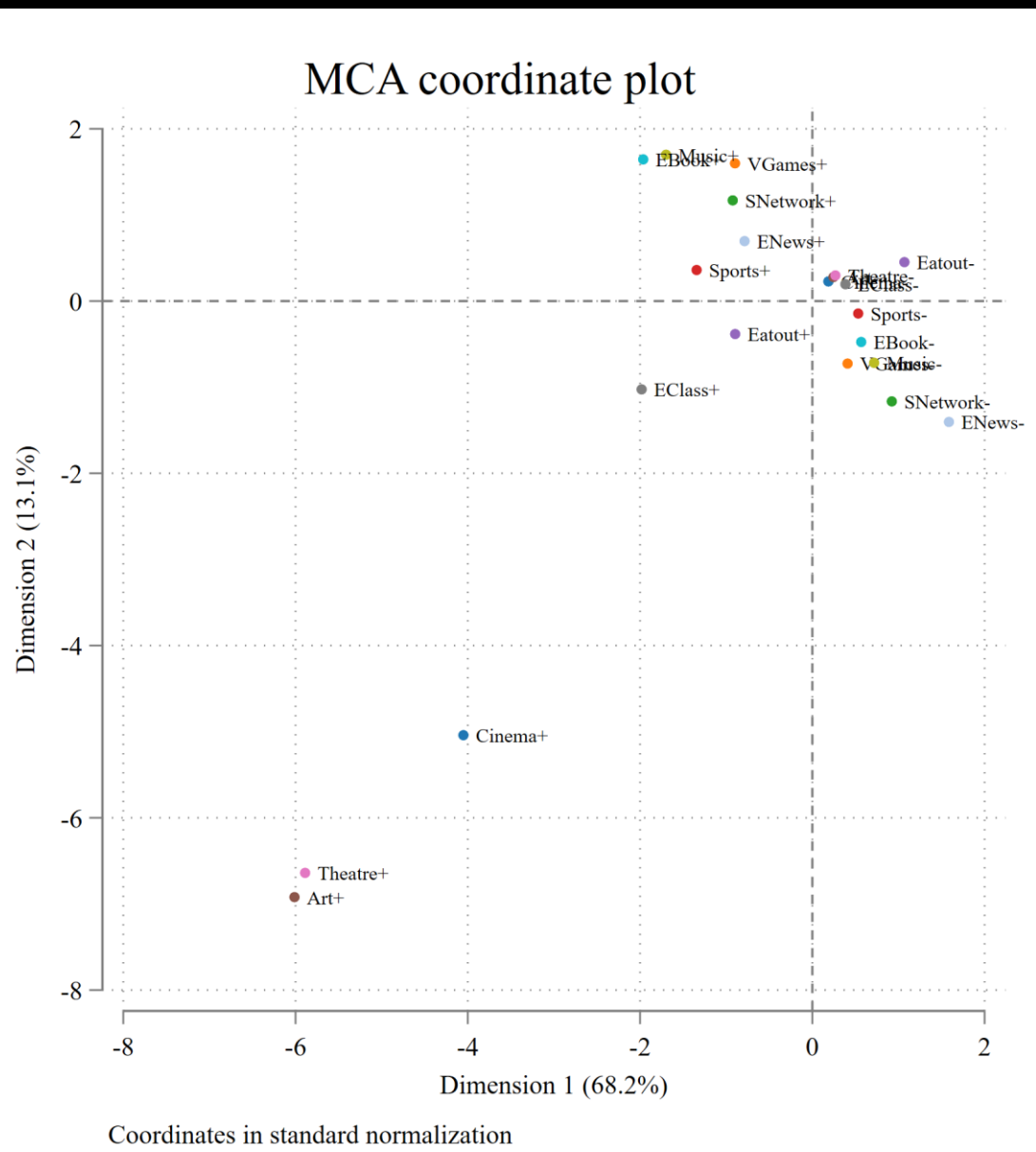
- Sociability scale (Gale et al 2018)
  - Marital status
  - Having less than monthly contact with:
    - Children
    - Other members of family
    - Friends
  - Not being member of organisations/clubs/societies
- Higher values indicate lower levels of sociability
- Range of 0-5

Cultural Capital

- Typically split into highbrow and emerging capital
- This is not ad hoc known
- Inductive process of identification required

Cultural Capital

- 11 measures of cultural activity identified within ELSA
- Multiple correspondence analysis used to plot clusters of like-minded activities together
- This helped to identify highbrow/emerging traits


MCA coordinate plot
Dimension 2 (13.1%)
Dimension 1 (68.2%)
2
0
-2
-4
-6
-8
-8
-6
-4
-2
0
2
Music+
EBook+
VGames+
SNetwork+
ENews+
Eatout-
Sports+
Theatre-
EClass-
Sports-
Eatout+
EBook-
VGames-
Music-
EClass+
SNetwork-
ENews-
Cinema+
Theatre+
Art+
Coordinates in standard normalization

Cultural Capital

- Dimension 1
  - Indicates active participation with such cultural activities
- Dimension 2
  - Indicates clustering effect of type of cultural activities
  - Cluster 1 - <0 = Highbrow
  - Cluster 2 - >0 = Emerging

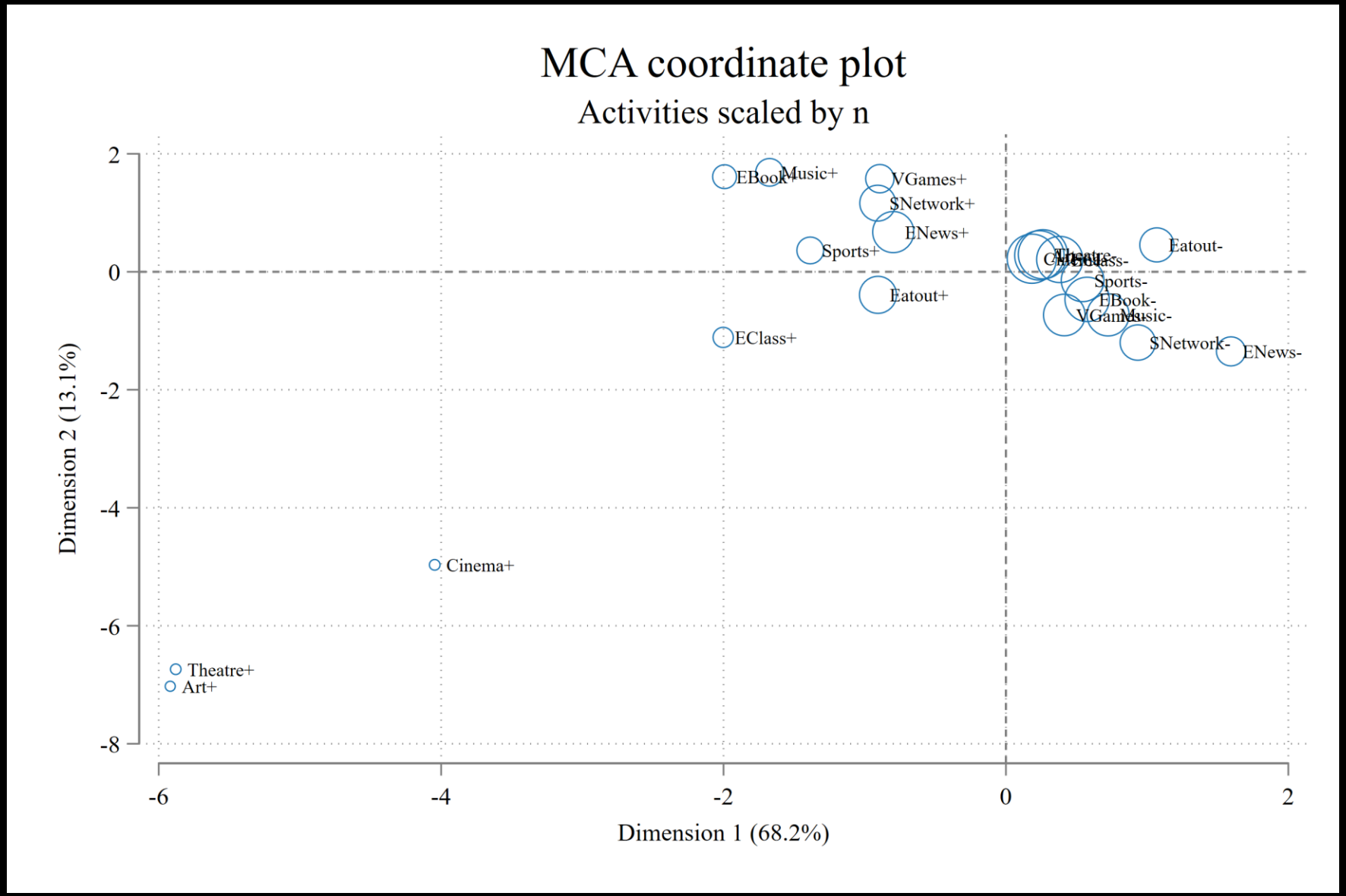
Cultural Capital

- Highbrow
  - Going to an art gallery
  - Going to the theatre
  - Going to the movies
  - Attending Evening classes
  - Eating outside the home

- Emerging
  - Playing video games
  - Going on social media sites
  - Being a member of a sports club
  - Listening to music online
  - Reading eBooks
  - Reading blogs

A Note on ‘Highbrow’ and ‘Emerging’

- Do these really fit the clusters of activities?
- A lot of crossover with Savage et al (xxxx)
- There is a big contrast between the clusters
  - ‘Highbrow’ activities require mobility; ‘emerging’ (for the most part) doesn’t
  - Something to think about…


MCA coordinate plot
Activities scaled by n
Dimension 2 (13.1%)
Dimension 1 (68.2%)
2
0
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EBook+
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ENews+
Sports+
Eatout+
EClass+
Cinema+
Theatre+
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Eatout-
Sports-
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SNetwork-
ENews-

Latent Class Analysis

- All summary measures are z_standardised to provide equal weighting within latent class model
- A total of 12 class models were run (models 11-12 did not converge so stopped there)
- K classes, log likelihood, BIC, AIC, LMR, VLMR, and Entropy were collected
- As were the marginal probabilities of class memberships (and SE) of all class models

Latent Class Analysis

- A Nine-Class model was identified
- This decision was based on parsimony as well as meaningful class separation
- Membership for individuals was assigned on the basis of maximum probability
- All nine classes had a maximum probability range of 0-1, preventing ‘ghost classes’ from being an issue

Model Fit Statistics

Classes	Log Likelihood	BIC	AIC	LMR	P>LMR	VLMR	P>VLMR	Entropy
1	-24,499.47	49,099.20	49,022.95					
2	-23,436.38	47,031.50	46,910.77	2,090.44	0.042	2,126.18	0.041	0.9891
3	-23,012.94	46,243.10	46,077.89	832.64	<0.001	846.88	<0.001	0.8027
4	-22,544.51	45,364.72	45,155.02	921.12	0.526	936.87	0.522	0.7968
5	-22,307.57	44,949.32	44,695.14	465.91	0.278	473.88	0.274	0.7993
6	-22,042.83	44,478.33	44,179.67	520.57	0.637	529.47	0.635	0.8090
7	-21,742.85	43,936.83	43,593.69	589.89	0.120	599.98	0.119	0.8496
8	-21,454.78	43,419.18	43,031.56	566.44	0.686	576.13	0.685	0.8470
9	-21,278.81	43,125.71	42,693.61	346.04	0.029	351.95	0.028	0.8497
10	-21,168.69	42,963.96	42,487.38	216.53	0.487	220.23	0.482	0.8545

Marginal Probabilities of Class Membership

Classes	Class marginal probabilities (SE)									
1	1.00									
	0.00									
2	0.02	0.98								
	0.00	0.00								
3	0.32	0.02	0.66							
	0.02	0.00	0.02							
4	0.30	0.01	0.61	0.08						
	0.02	0.00	0.02	0.02						
5	0.29	0.08	0.01	0.03	0.59					
	0.02	0.02	0.00	0.00	0.02					
6	0.28	0.01	0.01	0.10	0.03	0.57				
	0.02	0.01	0.00	0.05	0.01	0.05				
7	0.08	0.08	0.01	0.01	0.03	0.45	0.34			
	0.01	0.01	0.00	0.00	0.00	0.01	0.01			
8	0.08	0.02	0.01	0.01	0.43	0.02	0.10	0.33		
	0.01	0.00	0.00	0.00	0.02	0.00	0.02	0.01		
9	***0.08***	***0.10***	***0.01***	***0.01***	***0.02***	***0.03***	***0.02***	***0.42***	***0.31***	
	0.01	***0.01***	***0.00***	***0.00***	***0.00***	***0.01***	***0.00***	***0.01***	***0.01***	
10	0.08	0.06	0.01	0.02	0.01	0.43	0.04	0.01	0.03	0.30
	0.01	0.01	0.00	0.00	0.00	0.01	0.01	0.00	0.01	0.01

Nine Class CAR

Class	Frequency	Percent	Description	Potential Name	Suggested Rank Order
1	224	5.21	Low income and very low wealth. Very high loneliness and high isolation. Low highbrow.	Precariat	9
2	441	10.26	High income and above average wealth. Very low loneliness and below average isolation. Above average highbrow and emerging.	Established Middle	3
3	46	1.07	Exceptionally high income and high wealth. Above average highbrow.	Income Elite	2
4	24	0.56	Very high income and exceptionally high wealth. Low isolation.	Wealth Elite	1
5	75	1.75	High income and high wealth. Low loneliness. High emerging.	Emergent Middle	4
6	157	3.65	High wealth and high loneliness.	Lonely Middle	5
7	90	2.09	Below average wealth and below average loneliness. Exceptionally high highbrow and high emerging.	Culturally Engaged	6
8	1,996	46.45	Below average income and wealth. Exceptionally low loneliness and low isolation. Below average highbrow and emerging.	Traditional Working Class	7
9	1,244	28.95	Below average income and low wealth. Above average loneliness. Below average highbrow.	Lonely Working Class	8

Nine Class Clustering

CAR Class	Clustering	Frequency	Percent
1 Wealth Elite	Elite	70	1.63
2 Income Elite			
3 Established Middle	Middle Class	673	15.66
4 Emergent Middle			
5 Lonely Middle			
6 Culturally Engaged	Working Class	3,330	77.49
7 Traditional Working Class			
8 Lonely Working Class			
9 Precariat	Precariat	224	5.21

Mean Manifest Indicators by Nine Class Model

	Wealth Elite	Income Elite	Established Middle	Emergent Middle	Lonely Middle	Culturally Engaged	Traditional Working Class	Lonely Working Class	Precariat	Total
Net Income	£1,494	**£2,828**	£1,109	£1,125	£852	£623	£540	£468	*£404*	£642
Net Wealth	**£5,540,298**	£1,422,610	£3,035,484	£1,113,556	£1,460,393	£536,949	£429,983	£327,052	*£272,011*	£629,546
Loneliness	4.06	4.30	3.72	*3.24*	5.87	3.80	3.27	5.75	**8.52**	4.42
Social Isolation	*1.54*	2.29	1.87	1.82	2.18	2.18	1.80	2.07	**2.46**	1.95
Highbrow	0.70	1.54	0.92	1.05	0.90	**3.49**	0.68	0.59	*0.41*	0.77
Emerging	2.80	2.70	2.83	2.96	2.60	**3.31**	2.25	2.24	*2.02*	2.40

Socio-demographics by Nine Class Model

	Wealth Elite	Income Elite	Established Middle	Emergent Middle	Lonely Middle	Culturally Engaged	Traditional Working Class	Lonely Working Class	Precariat	Sample Total
Mean Age	**74**	71	72	71	71	71	**74**	73	70	73
% Female	12 (50.0%)	24 (52.2%)	**46 (61.3%)**	233 (52.8%)	89 (56.7%)	**61 (67.8%)**	1,103 (55.3%)	**751 (60.4%)**	**142 (63.4%)**	2,461 (57.3%)
% Ethnic Minority	0 (0.0%)	2 (4.3%)	2 (2.7%)	11 (2.5%)	6 (3.8%)	3 (3.4%)	79 (4.0%)	**91 (7.4%)**	8 (3.6%)	202 (4.7%)
% Degree Owners	**10 (41.7%)**	**28 (62.2%)**	**37 (50.0%)**	**226 (51.6%)**	**76 (49.4%)**	**51 (57.3%)**	387 (19.5%)	231 (18.7%)	39 (17.7%)	1,085 (25.5%)

Legacy NS-SEC versus Nine Class Model

- None of this really matters if:
- 1) The CAR measure does not capture something different from legacy measures
- 2) The CAR measure does not capture something better than the legacy measures

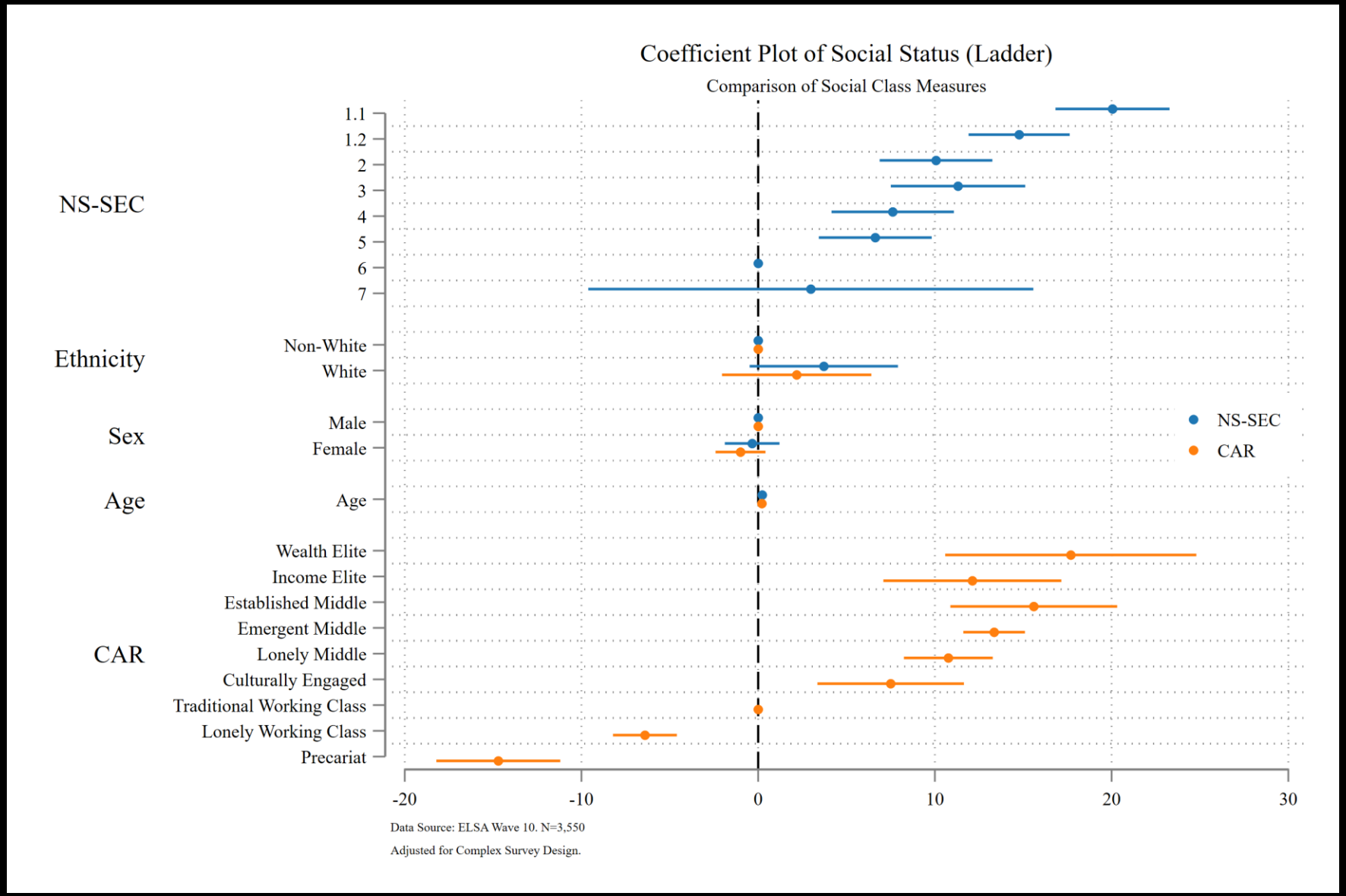
Legacy NS-SEC versus Nine Class Model Crosstab

CAR

	Wealth Elite	Income Elite	Established Middle	Emergent Middle	Lonely Middle	Culturally Engaged	Traditional Working Class	Lonely Working Class	Precariat	Total
N	24 (0.6%)	46 (1.1%)	75 (1.7%)	441 (10.3%)	157 (3.7%)	90 (2.1%)	1,993 (46.4%)	1,243 (29.0%)	224 (5.2%)	4,293 (100.0%)
NS-SEC										
1.1	5 (20.8%)	9 (19.6%)	15 (20.0%)	78 (17.7%)	35 (22.3%)	19 (21.1%)	298 (15.0%)	178 (14.3%)	31 (13.8%)	668 (15.6%)
1.2	10 (41.7%)	14 (30.4%)	27 (36.0%)	137 (31.1%)	52 (33.1%)	35 (38.9%)	660 (33.1%)	373 (30.0%)	70 (31.2%)	1,378 (32.1%)
2	4 (16.7%)	4 (8.7%)	5 (6.7%)	48 (10.9%)	12 (7.6%)	10 (11.1%)	202 (10.1%)	145 (11.7%)	24 (10.7%)	454 (10.6%)
3	2 (8.3%)	6 (13.0%)	5 (6.7%)	45 (10.2%)	18 (11.5%)	11 (12.2%)	229 (11.5%)	153 (12.3%)	20 (8.9%)	489 (11.4%)
4	0 (0.0%)	1 (2.2%)	3 (4.0%)	13 (2.9%)	2 (1.3%)	2 (2.2%)	53 (2.7%)	37 (3.0%)	9 (4.0%)	120 (2.8%)
5	1 (4.2%)	5 (10.9%)	10 (13.3%)	49 (11.1%)	14 (8.9%)	6 (6.7%)	227 (11.4%)	175 (14.1%)	30 (13.4%)	517 (12.0%)
6	2 (8.3%)	7 (15.2%)	9 (12.0%)	57 (12.9%)	17 (10.8%)	4 (4.4%)	259 (13.0%)	148 (11.9%)	36 (16.1%)	539 (12.6%)
7	0 (0.0%)	0 (0.0%)	1 (1.3%)	14 (3.2%)	7 (4.5%)	3 (3.3%)	65 (3.3%)	34 (2.7%)	4 (1.8%)	128 (3.0%)

Legacy NS-SEC versus Nine Class Model Models

- Two models presented
- Model One: Subjective Social Status
- Model Two: CES-D Depression Scale
- Covariates: Age, Sex, Ethnicity
- Focused on Point Estimates and R-Squared
- Log odds graphs presented for both legacy measure and CAR measure side by side
- Reference categories roughly similar: NS-SEC = 6 & CAR = Traditional Working Class


Coefficient Plot of Social Status (Ladder)
Comparison of Social Class Measures
NS-SEC
1.1
1.2
2
3
4
5
6
7
Ethnicity
Non-White
White
Sex
Male
Female
Age
Age
CAR
Wealth Elite
Income Elite
Established Middle
Emergent Middle
Lonely Middle
Culturally Engaged
Traditional Working Class
Lonely Working Class
Precariat
NS-SEC
CAR
-20
-10
0
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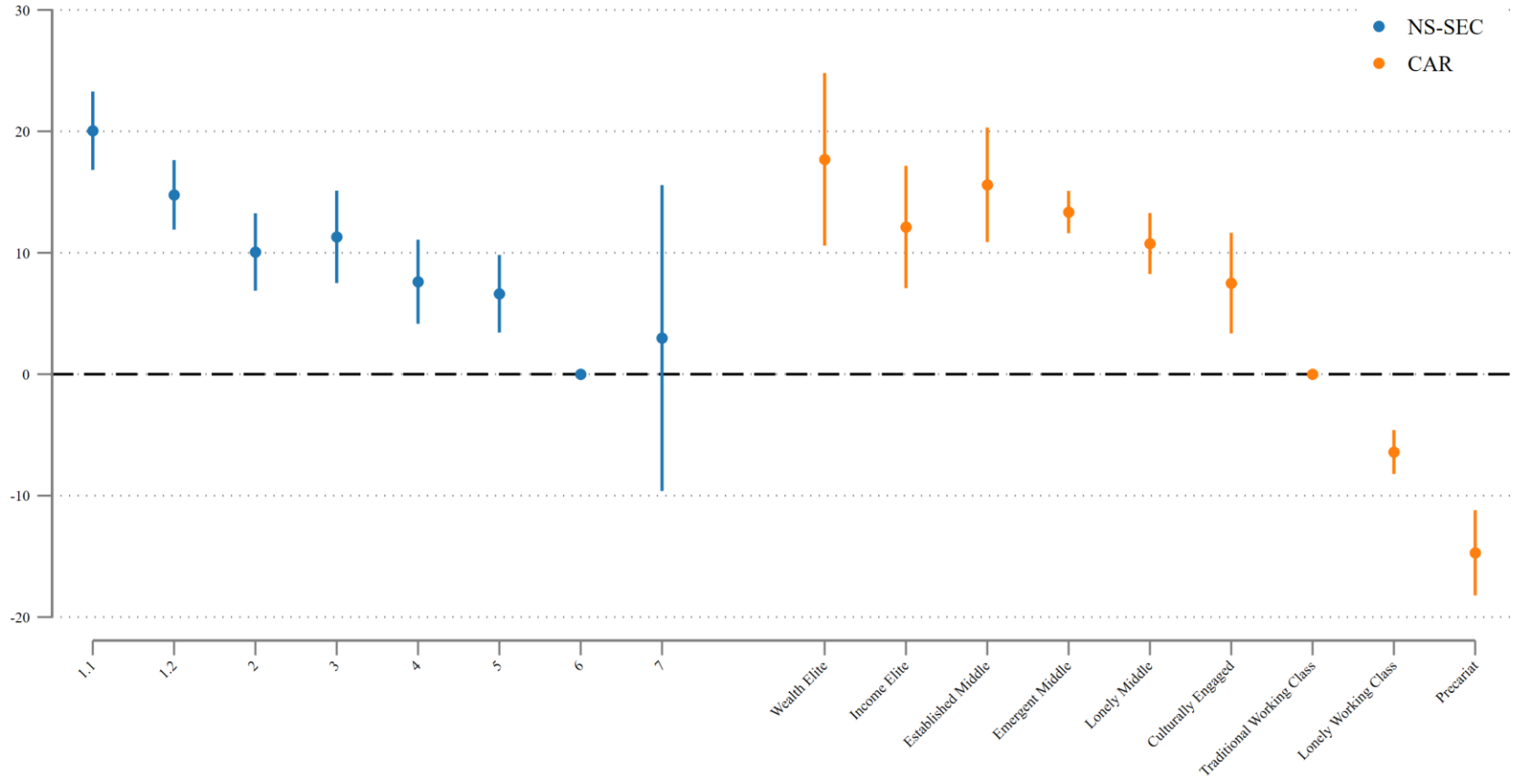
20
30
Data Source: ELSA Wave 10. N=3,550
Adjusted for Complex Survey Design.

Coefficient Plot of Social Status (Ladder)

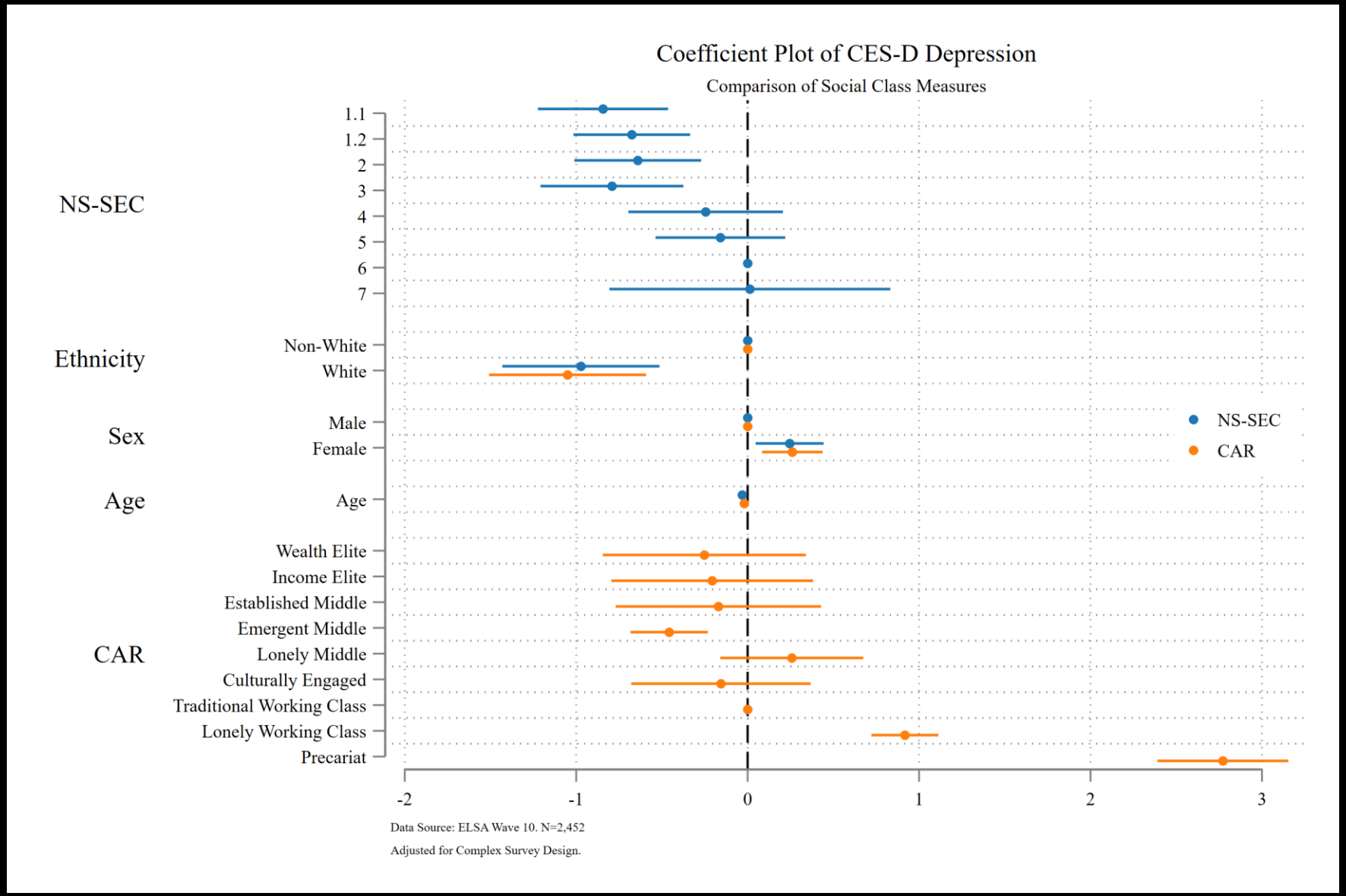
Comparison of Social Class Measures



NS-SEC CAR

Data Source: ELSA Wave 10. N=3,550

Adjusted for Complex Survey Design.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Lonely Middle
Culturally Engaged
Traditional Working Class
Lonely Working Class
Precariat
NS-SEC
CAR
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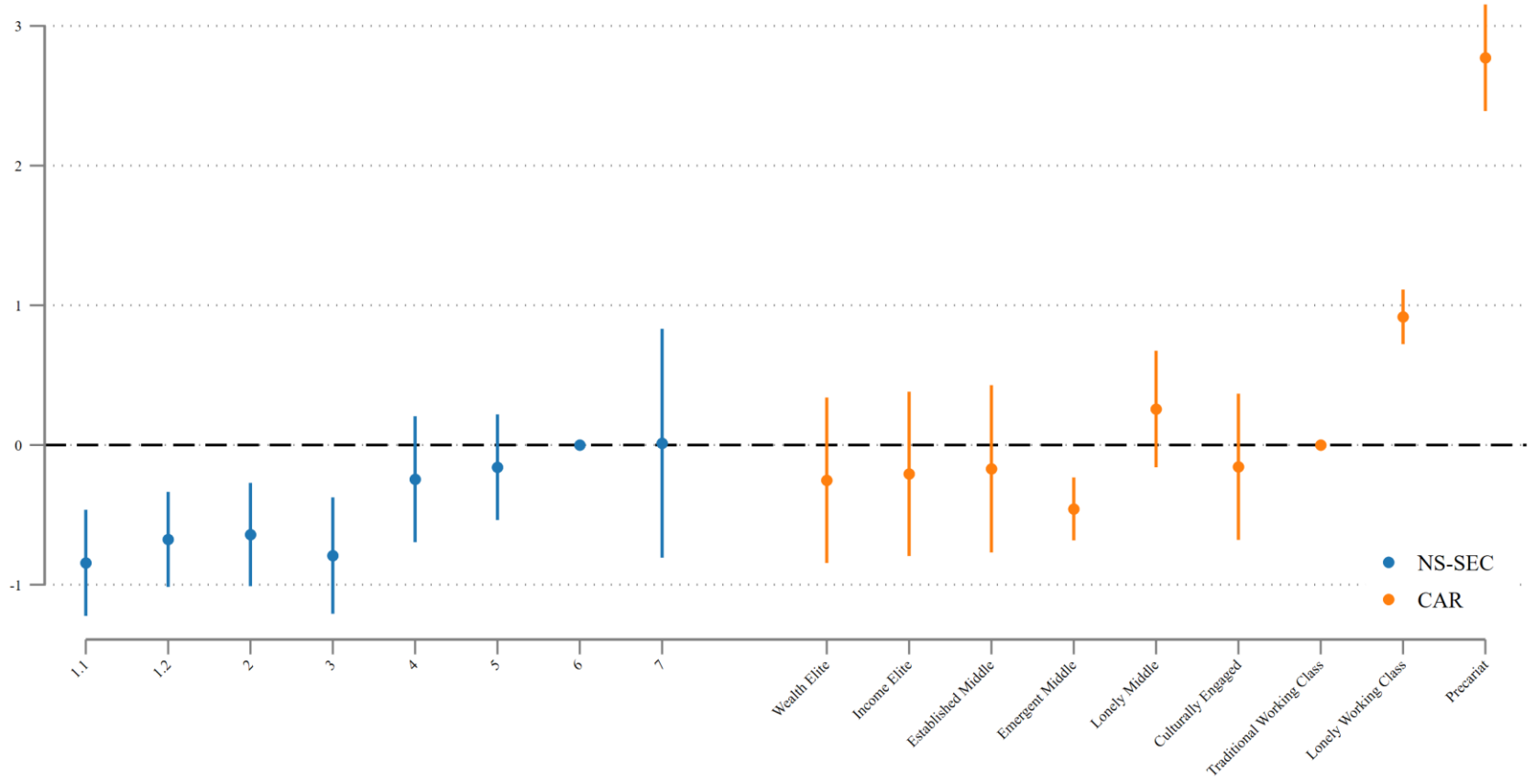
Data Source: ELSA Wave 10. N=2,452
Adjusted for Complex Survey Design.

Coefficient Plot of CES-D Depression

Comparison of Social Class Measures



NS-SEC CAR

Data Source: ELSA Wave 10. N=2,452

Adjusted for Complex Survey Design.

Conclusion

- We have made a viable measure of social class* stratification for the analysis of later life research
- We have show statistically that this measure outperforms legacy measures
- We have shown substantively that legacy measures are leaving out a rich context
- The reality of class in later life seems quite dim unless you are one of the few privileged elite.

Questions

Large Social Surveys

- New members – Join (if you want)
- PhD supervisors – send new students our way
- Coffee after this meeting…