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# Youth in Transition: Longitudinal Comparisons of Youth Transitions in the UK using Cohort and Synthetic Cohort Data

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## Caveat

- I hate Secure Access Applications and so should you
- The ‘Synthetic’ part of this presentation is currently locked in a deep dark vault
- I will talk a little about it at the end if time permits



## Appendix

- <https://github.com/ScottOatley/YouthTransitions>
- Website: [---

Influencing the world since 1583](https://scottoatley.shinyapps.io>Youth In Transition</a></li></ul></div><div data-bbox=)



## Outline

- PhD thesis
- Revisit historical data on youth transitions – School-to-work transitions
- Use contemporary statistical techniques to assess prior literature on topic
- Test the underlying influence of structural inequalities on choice and opportunity



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# Literature Review



## A (very short) literature review

- Landscape of the NCDS + BCS cohorts (Bynner 2005; Blanden 2004)
- Structuration vs Individualisation (Beck 2002; Gayle et al 2009)
- ‘New Structuralism’ (Devine 2017)
- Life Course (Mayer 2004; Elder 1994)



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# Research Questions



## Research Questions

- What are the patterns of social inequality in youth transitions?
- How have patterns and trends in youth transitions changed over time?
- How have the social processes that underpin youth transitions changed over time?
- How can youth transitions be more comprehensively understood within a life course perspective?



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# Datasets



## National Childhood Development Study (NCDS) - 1958

- The NCDS follows the lives of all people born in England, Scotland and Wales in one week of March 1958
- It is a nationally representative longitudinal social survey (Power and Elliott 2006)
- Analysis uses data from birth until age 23 – accounting for five sweeps



## NCDS

Year	1958	1965	1969	1974	1981
Sweep	0	1	2	3	4
Age	Birth	7	11	16	23



## British Cohort Study (BCS) - 1970

- The BCS follows the lives of all people born in England, Scotland and Wales in one week of April 1970
- It is a nationally representative longitudinal social survey
- Analysis uses data from birth until age 30 – accounting for six sweeps (and one sub-sweep)



## BCS

Year	1970	1975	1980	1986	1991	1996	2000
<b>Sweep</b>	0	1	2	3	(sub-sweep)	4	5
<b>Age</b>	Birth	5	10	16	21	26	30



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# Model



## Proposed model

- Logistic Regression
- Dependent Variable: Economic Activity
- Independent Variables: Educational Attainment, Sex, Housing Tenure, Semi-Dominance NS-SEC, Cohort
- Each variable has a cohort interaction counterpart: Male # NCDS, Male # BCS etc



## The Model

- N=9,985
- Log odds, Average Marginal Effects, Predicted Probabilities and Quasi-variance statistics used to graph results
- See supplements on Github:  
<https://github.com/ScottOatley>YouthTransitions/tree/main/Q-Step> to look at full models



## Dependent Variable

- Economic Activity
- Derived from post-hoc monthly economic history diaries collected at age 23 (NCDS) and age 21 + 30 (BCS)
- Economic activity reported September Aged 16
  - Dichotomised into a dummy – Continuing Schooling versus Not Continuing Schooling



## Independent Variable

- Educational Attainment
- Derived from the number of O'level passes at age 23 (NCDS) and number of O'level and O'grade passes at age 26 and age 30 (BCS)
- NCDS combined O'levels and O'grades together, BCS did not



## Independent Variable

- Sex
- Collected at birth from the NCDS, collected at birth and supplemented through each included wave up to wave 3 for BCS
- BCS kept adding participants post-birth wave to supplement immigration numbers – each new observation provided a unique identifier



## Independent Variable

- Housing Tenure
- Collected at age 16 past housing tenure status (NCDS), derived from a set of variables on home ownership status at age 10 and age 16 for BCS



## Independent Variable

- NS-SEC
- Derived from separate SOC code datafiles (Gregg, 2012)
- .dta files corrupted due to conversion from spss format, manual re-coded was required.
- NCDS only collected data on father's status, BCS has semi-dominance parental measure



Foreshadowing of the problematic dataset...



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# Descriptive Statistics

Table 1.01: Descriptive Statistics for Economic Activity (Pooled Model)

	n	%
<b>Economic Activity</b>		
<i>Don't Continue Schooling</i>	5,740	57.49%
<i>Continue Schooling</i>	4,245	42.51%
<b>Educational Attainment O'levels</b>		
<i>&lt;5 O-Levels</i>	6,387	63.97%
<i>&gt;5 O-Levels</i>	3,598	36.03%
<b>Sex of Respondent</b>		
<i>Female</i>	5,087	50.95%
<i>Male</i>	4,898	49.05%
<b>Housing Tenure of Respondent when Child</b>		
<i>Own Home</i>	5,245	52.53%
<i>Don't Own Home</i>	4,740	47.47%
<b>NS-SEC Social Class of Father when Respondent Child SOC2000</b>		
<i>Large Employers and higher managerial occupations</i>	350	3.51%
<i>Higher professional occupations</i>	528	5.29%
<i>Lower Managerial and professional occupations</i>	1,334	13.36%
<i>Intermediate occupations</i>	984	9.85%
<i>Small employers and own account workers</i>	1,194	11.96%
<i>Lower supervisory and technical occupations</i>	1,630	16.32%
<i>Semi-routine occupations</i>	1,683	16.86%
<i>Routine occupations</i>	2,282	22.85%
<b>Member of Cohort</b>		
<i>NCDS</i>	8,411	84.24%
<i>BCS</i>	1,574	15.76%
<b>n</b>		9985
<b>Data Source:</b>	NCDS & BCS	

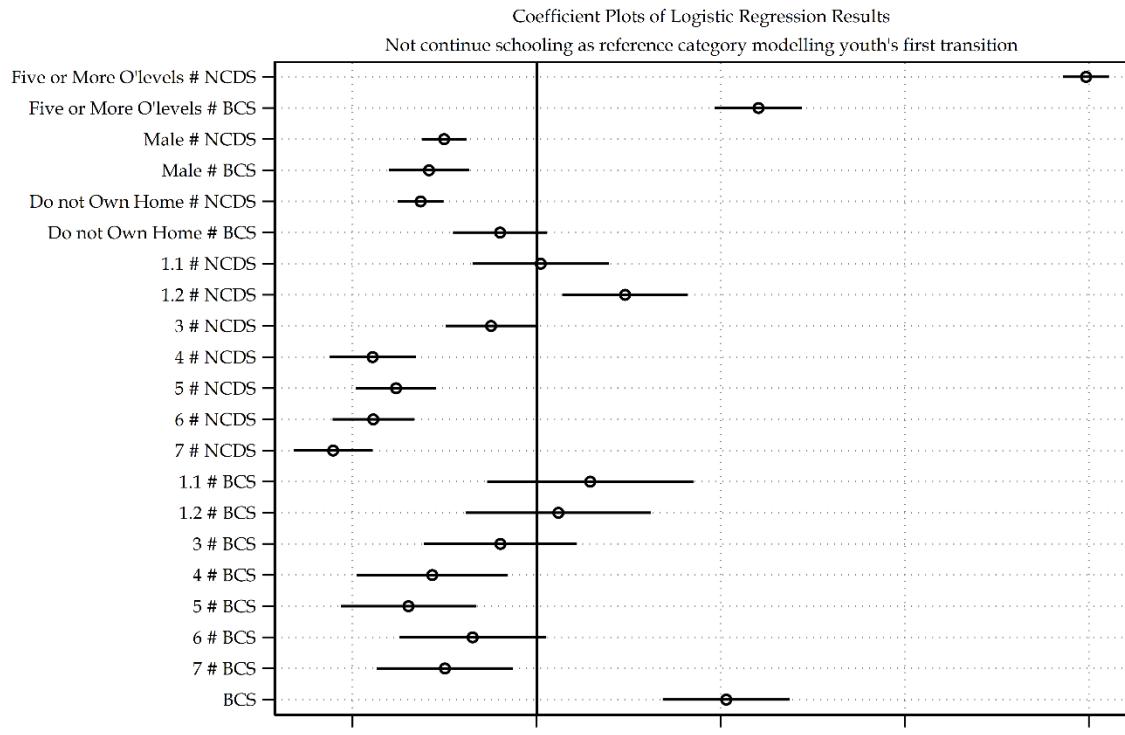
Descriptive Statistics by Cohort			
	Cohort		
	NCDS	BCS	Total
<b>n</b>	8411 (83.78%)	1574 (15.76%)	9985 (100.00%)
<b>Economic</b>			
<i>Don't Continue Schooling</i>	5116 (60.83%)	624 (39.64%)	4099 (41.05%)
<i>Continue Schooling</i>	3295 (39.17%)	950 (60.36%)	5886 (58.95%)
<b>Educational Attainment</b>			
<i>O'levels</i>			
<i>Less than Five O'levels</i>	5426 (64.51%)	961 (61.05%)	6387 (63.97%)
<i>Five or More O'levels</i>	2985 (35.49%)	613 (38.95%)	3598 (36.03%)
<b>Sex of Respondent</b>			
<i>Female</i>	4215 (50.11%)	872 (55.40%)	5087 (50.95%)
<i>Male</i>	4196 (49.89%)	702 (44.60%)	4898 (49.05%)
<b>Housing Tenure of Respondent when a Child</b>			
<i>Own Home</i>	4045 (48.09%)	1200 (76.24%)	5245 (52.53%)
<i>Don't Own Home</i>	4366 (51.91%)	374 (23.76%)	4740 (47.47%)
<b>Semi-Dominant NS-SEC</b>			
<b>Social Class of Parents when Respondent was 10 SOC2000</b>			
<i>Large Employers and higher managerial occupations</i>	261 (3.10%)	89 (5.65%)	350 (3.51%)
<i>Higher professional occupations</i>	410 (4.87%)	118 (7.50%)	528 (5.29%)
<i>Lower Managerial and professional occupations</i>	1038 (12.34%)	296 (18.81%)	1334 (13.36%)
<i>Intermediate occupations</i>	805 (9.57%)	179 (11.37%)	984 (9.85%)
<i>Small employers and own account workers</i>	1024 (12.17%)	170 (10.80%)	1194 (11.96%)
<i>Lower supervisory and technical occupations</i>	1372 (16.31%)	258 (16.39%)	1630 (16.32%)
<i>Semi-routine occupations</i>	1485 (17.66%)	198 (12.58%)	1683 (16.86%)
<i>Routine occupations</i>	2016 (23.97%)	266 (16.90%)	2282 (22.85%)



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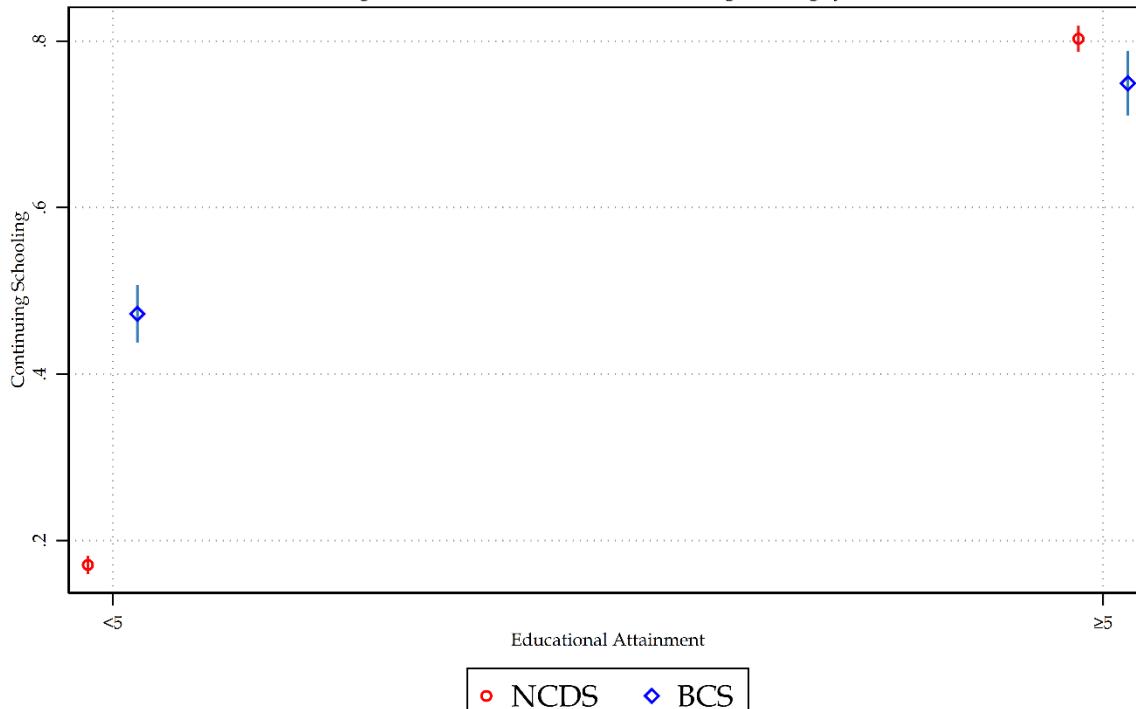
# Results



Data Source: NCDS & BCS, N= 9985.

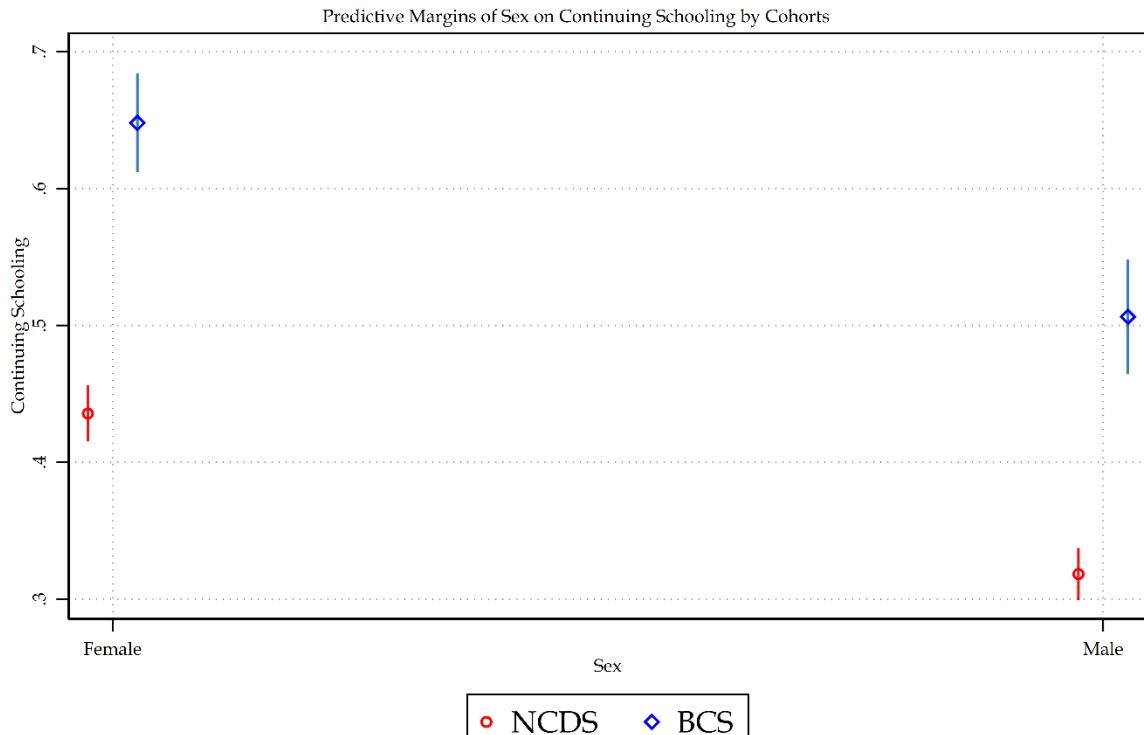
Educational Attainment, Sex, Housing Tenure, NS-SEC, and Cohort interactions included in Model

Predictive Margins of Educational Attainment on Continuing Schooling by Cohorts



Data Source: NCDS & BCS, N= 9985

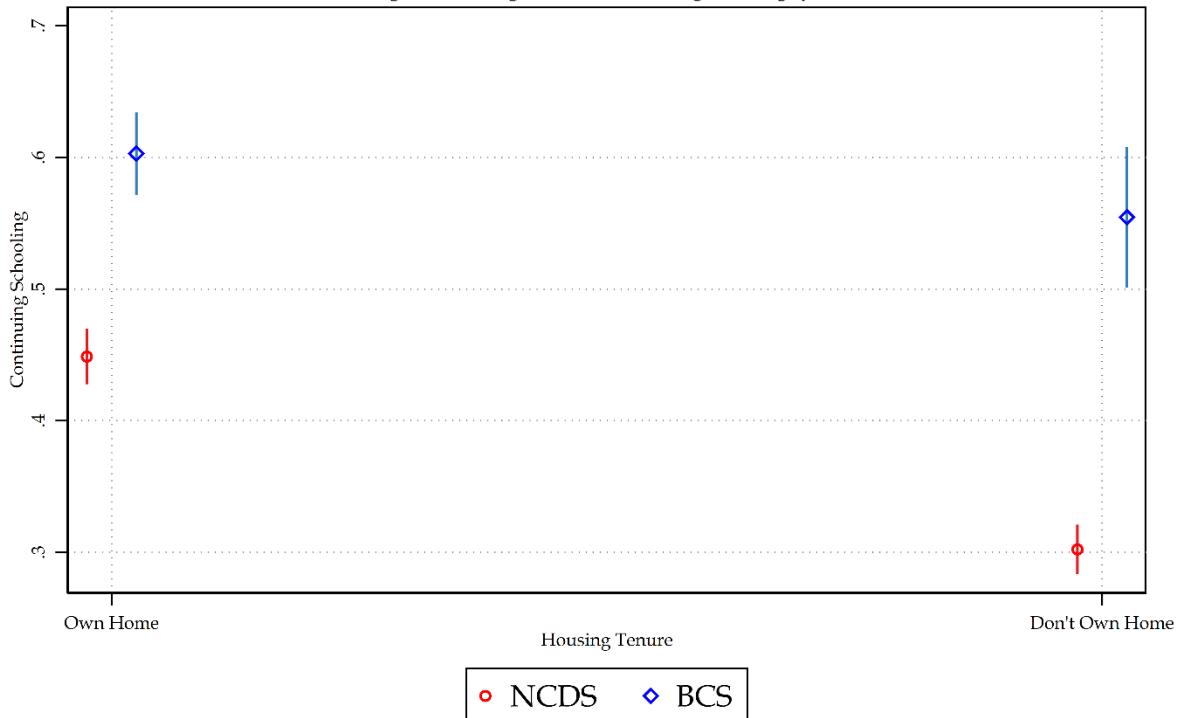
Sex, Housing Tenure, NS-SEC, and Cohort interactions also included in Model.



Data Source: NCDS & BCS, N= 9985

Educational Attainment, Housing Tenure, NS-SEC, and Cohort interactions also included in Model.

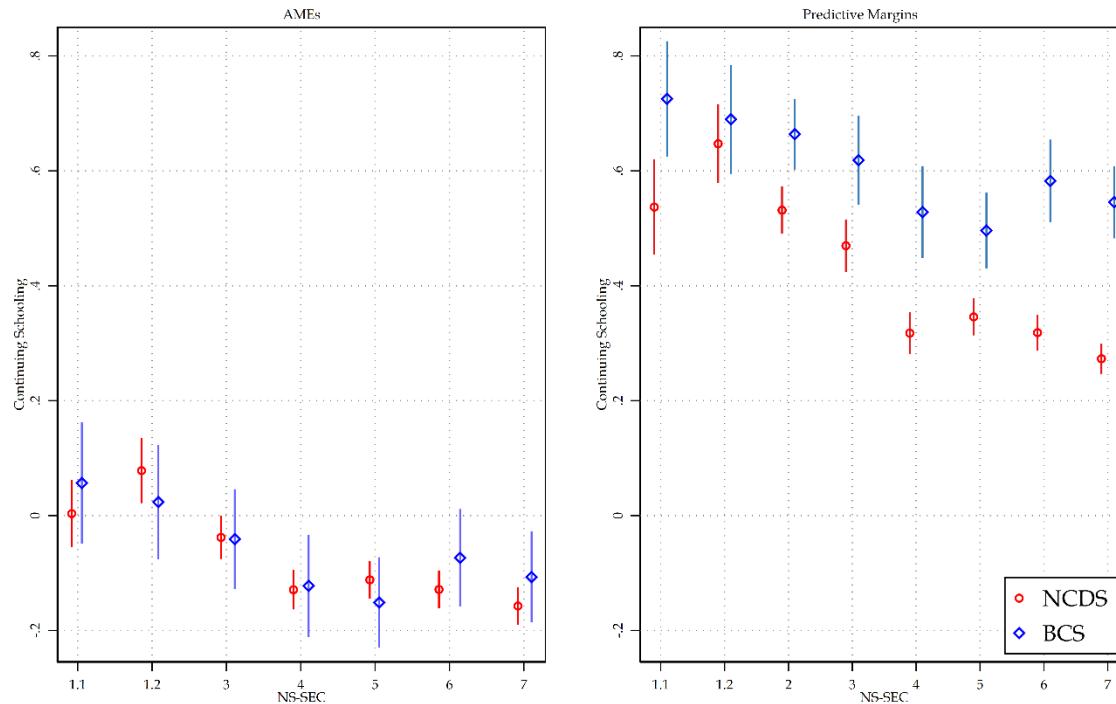
Predictive Margins of Housing Tenure on Continuing Schooling by Cohorts



Data Source: NCDS & BCS, N= 9985

Educational Attainment, Sex, NS-SEC, and Cohort interactions also included in Model.

### Predictive and Average Marginal Effects of NS-SEC on Continuing Schooling by Cohorts



Data Source: NCDS & BCS, N= 9985, Reference Category NS-SEC 2 for AMEs

Educational Attainment, Sex, Housing Tenure, and Cohort interactions also included in Model.



## Conclusions

- Certain structural inequalities transcend cohorts (socio-historical context) – sex
- Certain structural inequalities see a diminished significance – Educational Attainment and Social Class
- Certain structural inequalities become irrelevant across cohorts – Housing Tenure
- Complicated Story...



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# An Incomplete Story



## An Incomplete Story

- Why NS-SEC?
- Why SOC 2000?
- Is the data truly representative – here's looking at you BCS...



## Solution

- An in-depth analysis of each cohort
- Sensitivity analysis of social stratification variables – does variable selection alter substantive interpretation?
- Sensitivity analysis of SOC codes – should we be using SOC 90 for historical datasets over SOC 2000?
- Implementing handling missing data procedures – what ones are the best, and how to implement them.



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# NCDS in-depth analysis

Descriptive Statistics by Economic Activity			
	Continue Schooling or not after September when individuals are 16		
N	Don't Continue Schooling	Continue Schooling	Total
<b>Educational Attainment O-levels</b>			
<5 O-Levels	4588 (89.68%)	838 (25.43%)	5426 (64.51%)
>5 O-Levels	528 (10.32%)	2457 (74.57%)	2985 (35.49%)
<b>Sex of Respondent</b>			
Female	2413 (47.17%)	1802 (54.69%)	4215 (50.11%)
Male	2703 (52.83%)	1493 (45.31%)	4196 (49.89%)
<b>Housing Tenure of Respondent when Child</b>			
Own Home	1850 (36.16%)	2195 (66.62%)	4045 (48.09%)
Don't Own Home	3266 (63.84%)	1100 (33.38%)	4366 (51.91%)
<b>NS-SEC Social Class of Father when Respondent Child SOC2000</b>			
Large Employers and higher managerial occupations	82 (1.60%)	179 (5.43%)	261 (3.10%)
Higher professional occupations	82 (1.60%)	328 (9.95%)	410 (4.87%)
Lower Managerial and professional occupations	363 (7.10%)	675 (20.49%)	1038 (12.34%)
Intermediate occupations	358 (7.00%)	447 (13.57%)	805 (9.57%)
Small employers and own account workers	671 (13.12%)	353 (10.71%)	1024 (12.17%)
Lower supervisory and technical occupations	892 (17.44%)	480 (14.57%)	1372 (16.31%)
Semi-routine occupations	1083 (21.17%)	402 (12.20%)	1485 (17.66%)
Routine occupations	1585 (30.98%)	431 (13.08%)	2016 (23.97%)
<b>RGSC Social Class of Father when Respondent Child SOC2000</b>			
Professional	72 (1.41%)	290 (8.80%)	362 (4.30%)
Managerial and Technical	685 (13.39%)	1035 (31.41%)	1720 (20.45%)
Skilled non-manual	416 (8.13%)	489 (14.84%)	905 (10.76%)
Skilled manual	2457 (48.03%)	1044 (31.68%)	3501 (41.62%)
Partly skilled	898 (17.55%)	307 (9.32%)	1205 (14.33%)
Unskilled	588 (11.49%)	130 (3.95%)	718 (8.54%)
<b>NS-SEC Social Class of Father when Respondent Child SOC90</b>			
Large Employers and higher managerial occupations	3 (0.06%)	6 (0.18%)	9 (0.11%)
Higher professional occupations	79 (1.54%)	267 (8.10%)	346 (4.11%)
Lower Managerial and professional occupations	221 (4.32%)	468 (14.20%)	689 (8.19%)
Intermediate occupations	332 (6.49%)	538 (16.33%)	870 (10.34%)
Small employers and own account workers	438 (8.56%)	240 (7.28%)	678 (8.06%)
Lower supervisory and technical occupations	890 (17.40%)	524 (15.90%)	1414 (16.81%)
Semi-routine occupations	1355 (26.49%)	705 (21.40%)	2060 (24.49%)
Routine occupations	1798 (35.14%)	547 (16.60%)	2345 (27.88%)
<b>RGSC Social Class of Father when Respondent Child SOC90</b>			
Professional	67 (1.31%)	237 (7.19%)	304 (3.61%)
Managerial and Technical	191 (3.73%)	460 (13.96%)	651 (7.74%)
Skilled non-manual	476 (9.30%)	653 (19.82%)	1129 (13.42%)
Skilled manual	1910 (37.33%)	691 (20.97%)	2601 (30.92%)
Partly skilled	1892 (36.98%)	1048 (31.81%)	2940 (34.95%)
Unskilled	580 (11.34%)	206 (6.25%)	786 (9.34%)
<b>CAMSIS Score of Father when Respondent Child SOC2000</b>	40.49 (11.27)	50.90 (14.53)	44.57 (13.63)
<b>CAMSIS Score of Father when Respondent Child SOC90</b>	38.93 (10.53)	46.87 (14.50)	42.04 (12.84)

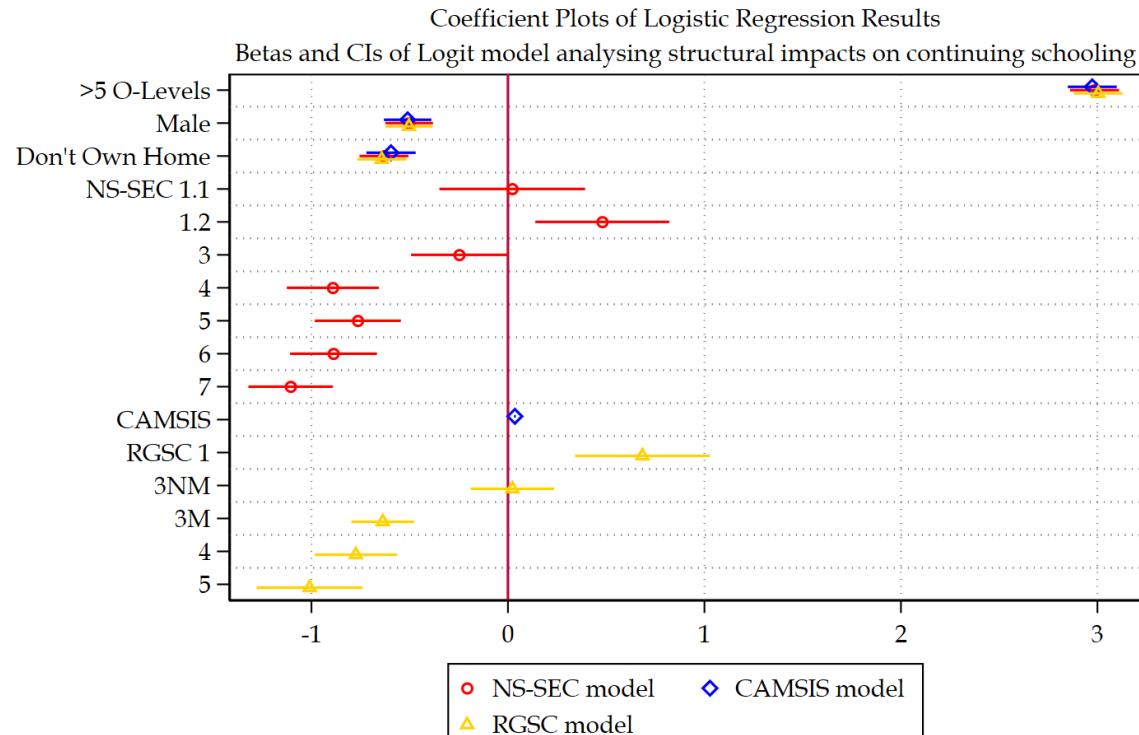
Data Source: NCDS [Sweeps 0-4]



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# NCDS Sensitivity Analysis of Social Stratification Variables



Data Source: NCDS, N=8,411

Educational Attainment, Sex, Housing Tenure, and Social Stratification Measures included in Model

# KHB Decomposition

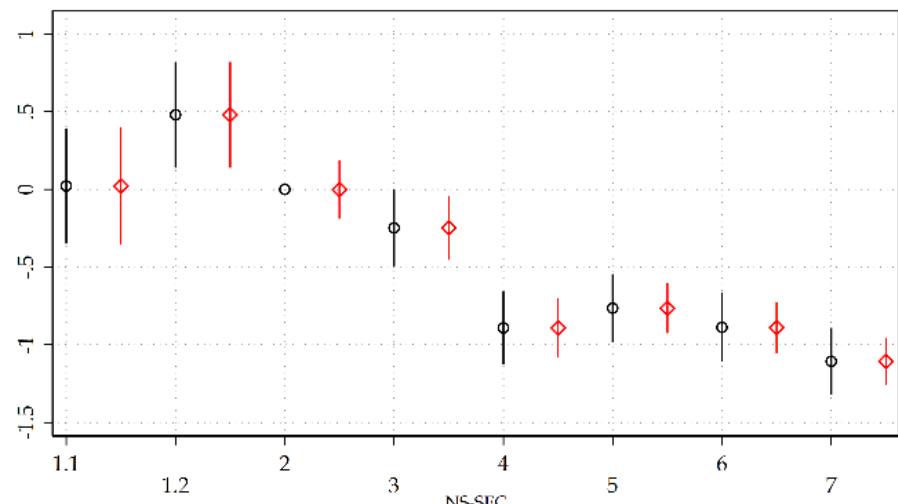
		NS-SEC Model		RGSC Model		CAMSIS Model			
		Log Odds	SE	Log Odds	SE	Log Odds	SE		
Educational Attainment	Reduced	3.25***	(0.07)	3.22***	(0.07)	3.25***	(0.07)		
	Full	2.99***	(0.06)	3.00***	(0.06)	2.97***	(0.06)		
	Difference	0.26***	(0.03)	0.22***	(0.02)	0.27***	(0.03)		
Sex	Reduced	-0.50***	(0.06)	-0.50***	(0.06)	-0.50***	(0.06)		
	Full	-0.50***	(0.06)	-0.50***	(0.06)	-0.51***	(0.06)		
	Difference	0.00	(0.02)	0.01	(0.02)	0.01	(0.02)		
Housing Tenure	Reduced	-0.88***	(0.06)	-0.88***	(0.06)	-0.88***	(0.06)		
	Full	-0.63***	(0.06)	-0.64***	(0.06)	-0.60***	(0.06)		
	Difference	-0.25***	(0.03)	-0.24***	(0.03)	-0.29***	(0.03)		

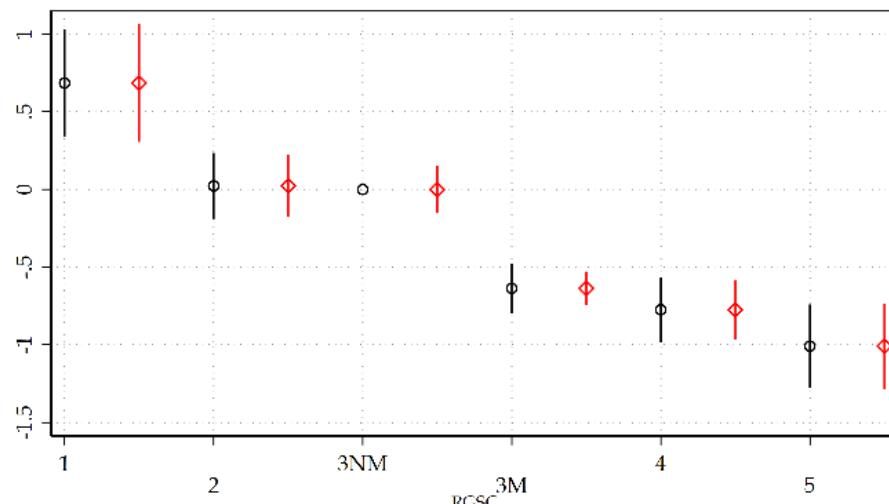
		Model 1		RGSC Model		CAMSIS Model				
		Confounding ratio	Confounding percentage	Rescaling factor	Confounding ratio	Confounding percentage	Rescaling factor	Confounding ratio	Confounding percentage	Rescaling factor
Educational Attainment	Educational	1.09	8.03	1.04	1.07	6.78	1.03	1.09	8.45	1.04
	Attainment									
	Sex	0.99	-0.78	1.04	0.99	-1.35	1.03	0.97	-2.75	1.03
Housing Tenure	Housing	1.40	28.38	1.01	1.37	27.06	1.01	1.48	32.45	1.01
	Tenure									



Comparative Log Odds and Quasi-variance Statistics by Parental Social Class  
Predictions of Staying in Schooling versus Not



○ Log Odds Coefficient      — Log Odds Confidence Intervals  
◆ Log Odds Coefficient      — Quasi-Variance Bounds

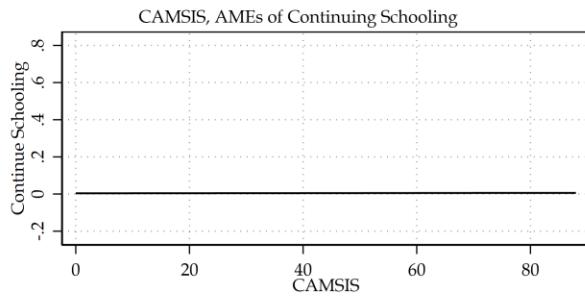
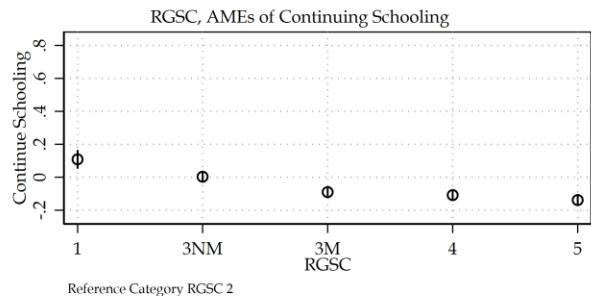
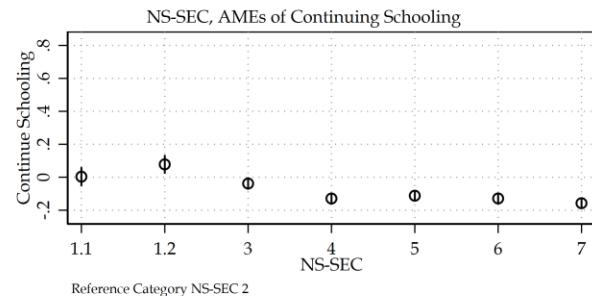
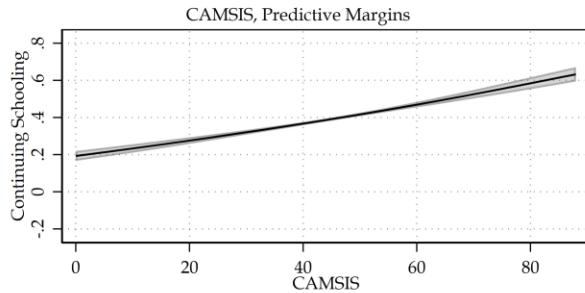
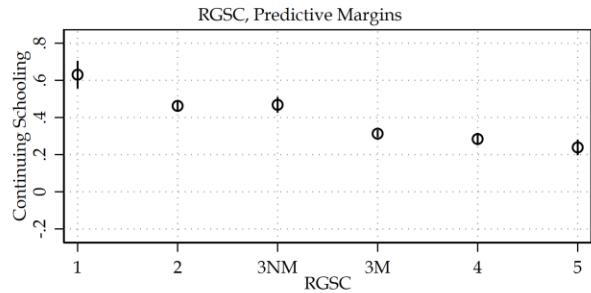
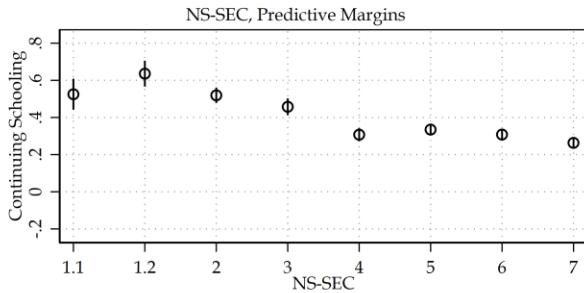


○ Log Odds Coefficient      — Log Odds Confidence Intervals  
◆ Log Odds Coefficient      — Quasi-Variance Bounds

Data Source: NCDS, N=8,411

Educational Attainment, Sex, and Housing Tenure also included in Model

## Predictive and Average Marginal Effects of Parental Social Stratification Measures on Continuing Schooling



Data Source: NCDS, N=8,411

Educational Attainment, Sex, and Housing Tenure also included in Model



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# NCDS Sensitivity Analysis of SOC codes

Descriptive Statistics comparing NS-SEC by SOC2000 and SOC90 codes

	NS-SEC Social Class of Father when Respondent Child SOC90								Total
	Large Employers and higher managerial occupations	Higher professional occupations	Lower Managerial and professional occupations	Intermediate occupations	Small employers and own account workers	Lower supervisory and technical occupations	Semi-routine occupations	Routine occupations	

N	9 (0.11%)	346 (4.11%)	689 (8.19%)	870 (10.34%)	678 (8.06%)	1414 (16.81%)	2060 (24.49%)	2345 (27.88%)	8411 (100.00%)
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**NS-SEC Social Class of Father when Respondent Child SOC2000**

Large Employers and higher managerial occupations	9 (100.00%)	18 (5.20%)	19 (2.76%)	87 (10.00%)	0 (0.00%)	7 (0.50%)	121 (5.87%)	0 (0.00%)	261 (3.10%)
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Higher professional occupations	0 (0.00%)	285 (82.37%)	78 (11.32%)	46 (5.29%)	1 (0.15%)	0 (0.00%)	0 (0.00%)	0 (0.00%)	410 (4.87%)
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Lower Managerial and professional occupations	0 (0.00%)	43 (12.43%)	526 (76.34%)	184 (21.15%)	19 (2.80%)	8 (0.57%)	174 (8.45%)	84 (3.58%)	1038 (12.34%)
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Intermediate occupations	0 (0.00%)	0 (0.00%)	13 (1.89%)	528 (60.69%)	61 (9.00%)	86 (6.08%)	103 (5.00%)	14 (0.60%)	805 (9.57%)
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Small employers and own account workers	0 (0.00%)	0 (0.00%)	53 (7.69%)	11 (1.26%)	511 (75.37%)	267 (18.88%)	179 (8.69%)	3 (0.13%)	1024 (12.17%)
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Lower supervisory and technical occupations	0 (0.00%)	0 (0.00%)	0 (0.00%)	14 (1.61%)	29 (4.28%)	984 (69.59%)	141 (6.84%)	204 (8.70%)	1372 (16.31%)
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Semi-routine occupations	0 (0.00%)	0 (0.00%)	0 (0.00%)	0 (0.00%)	45 (6.64%)	1 (0.07%)	1252 (60.78%)	187 (7.97%)	1485 (17.66%)
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Routine occupations	0 (0.00%)	0 (0.00%)	0 (0.00%)	0 (0.00%)	12 (1.77%)	61 (4.31%)	90 (4.37%)	1853 (79.02%)	2016 (23.97%)
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### **Descriptive Statistics comparing RGSC by SOC2000 and SOC90 codes**

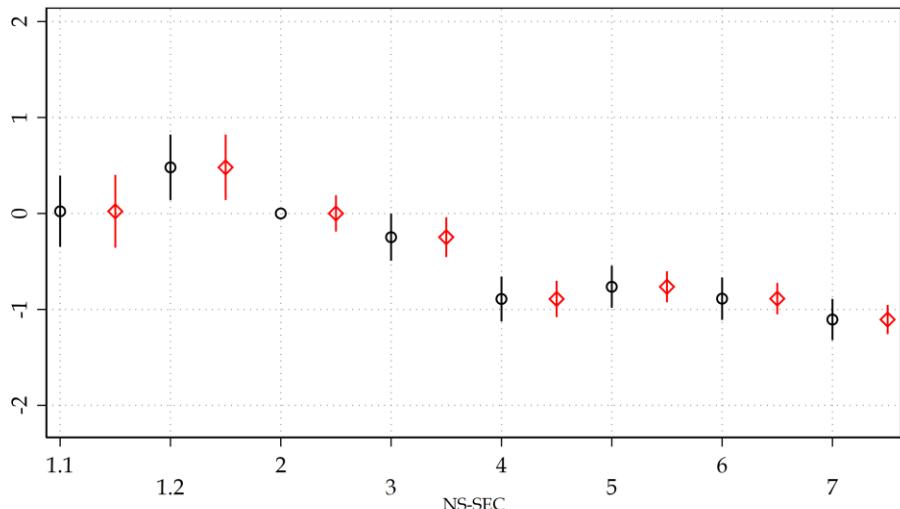
RGSC Social Class of Father when Respondent Child SOC90							
	Professional	Managerial and Technical	Skilled non-manual	Skilled manual	Partly skilled	Unskilled	Total
N	304 (3.61%)	651 (7.74%)	1129 (13.42%)	2601 (30.92%)	2940 (34.95%)	786 (9.34%)	8411 (100.00%)
<b>RGSC Social Class of Father when Respondent Child SOC2000</b>							
Professional	268 (88.16%)	73 (11.21%)	20 (1.77%)	0 (0.00%)	1 (0.03%)	0 (0.00%)	362 (4.30%)
Managerial and Technical	36 (11.84%)	542 (83.26%)	446 (39.50%)	6 (0.23%)	651 (22.14%)	39 (4.96%)	1720 (20.45%)
Skilled non-manual	0 (0.00%)	3 (0.46%)	652 (57.75%)	42 (1.61%)	186 (6.33%)	22 (2.80%)	905 (10.76%)
Skilled manual	0 (0.00%)	32 (4.92%)	10 (0.89%)	2015 (77.47%)	1349 (45.88%)	95 (12.09%)	3501 (41.62%)
Partly skilled	0 (0.00%)	1 (0.15%)	1 (0.09%)	191 (7.34%)	753 (25.61%)	259 (32.95%)	1205 (14.33%)
Unskilled	0 (0.00%)	0 (0.00%)	0 (0.00%)	347 (13.34%)	0 (0.00%)	371 (47.20%)	718 (8.54%)

**Data Source: NCDS [Sweeps 0-4]**

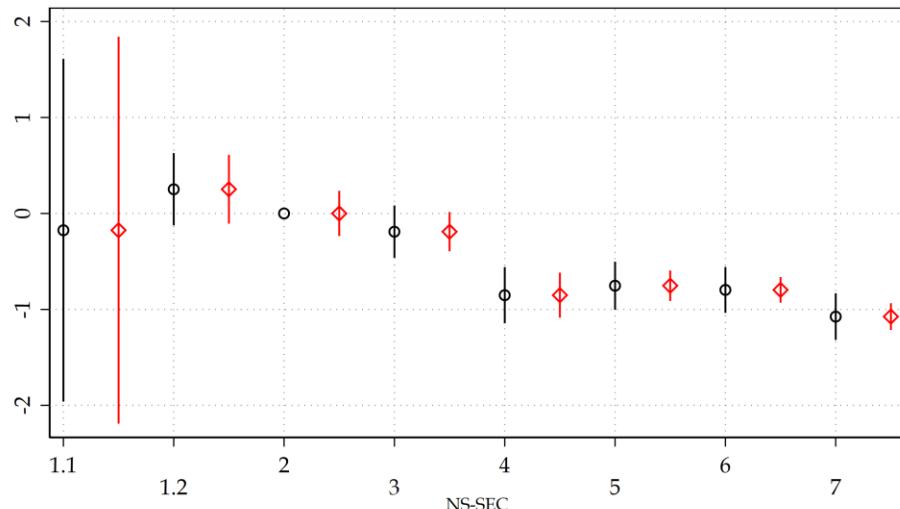
<b>CAMSIS2000</b>	
<b>Mean</b>	44.57
<b>Standard Deviation</b>	13.63
<b>CAMSIS90</b>	
<b>Mean</b>	42.04
<b>Standard Deviation</b>	12.84
<b>N</b>	8411
<b>Data Source: NCDS [Sweeps 0-4]</b>	

Scotto Atley

### Comparative Log Odds and Quasi-variance Statistics by SOC construction of Parental NS-SEC Predictions of Staying in Schooling versus Not by Parental NS-SEC



○ Log Odds Coefficient	— Log Odds Confidence Intervals
◊ Log Odds Coefficient	— Quasi-Variance Bounds



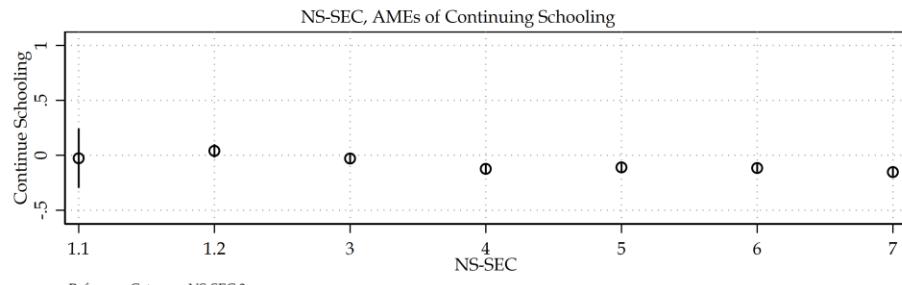
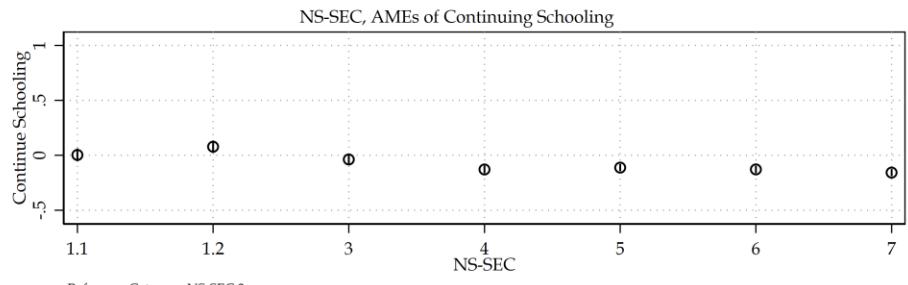
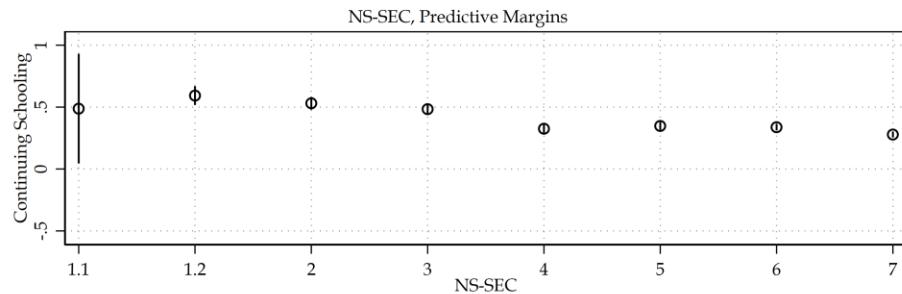
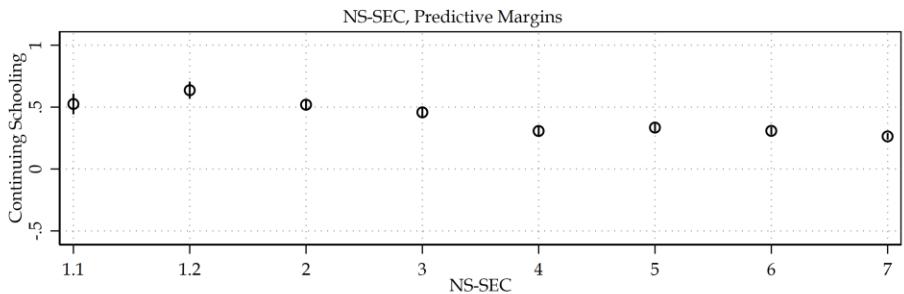
○ Log Odds Coefficient	— Log Odds Confidence Intervals
◊ Log Odds Coefficient	— Quasi-Variance Bounds

Data Source: NCDS, N=8,411. SOC2000 on left, SOC90 on right.

Educational Attainment, Sex, and Housing Tenure also included in Model



### Predictive and Average Marginal Effects of Parental NS-SEC on Continuing Schooling by SOC Codes



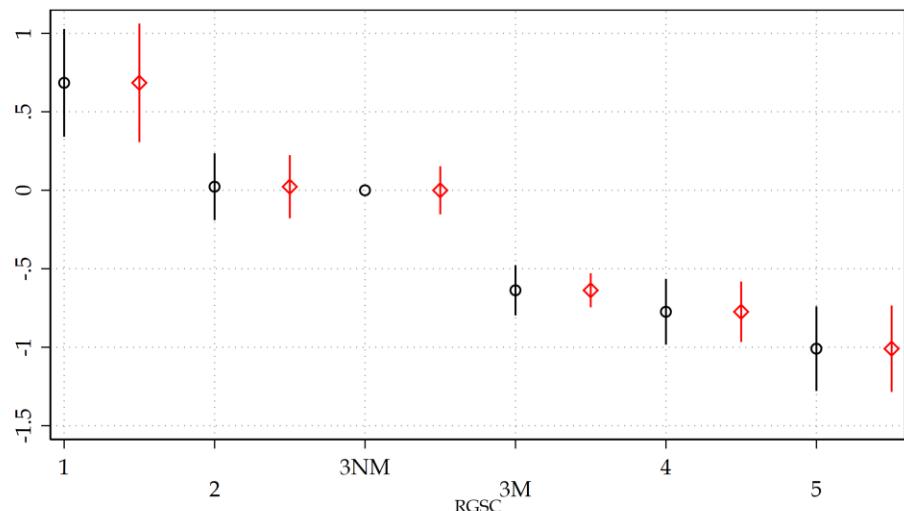
Reference Category NS-SEC 2

Data Source: NCDS, N=8,411, SOC 2000 on left, SOC 90 on right

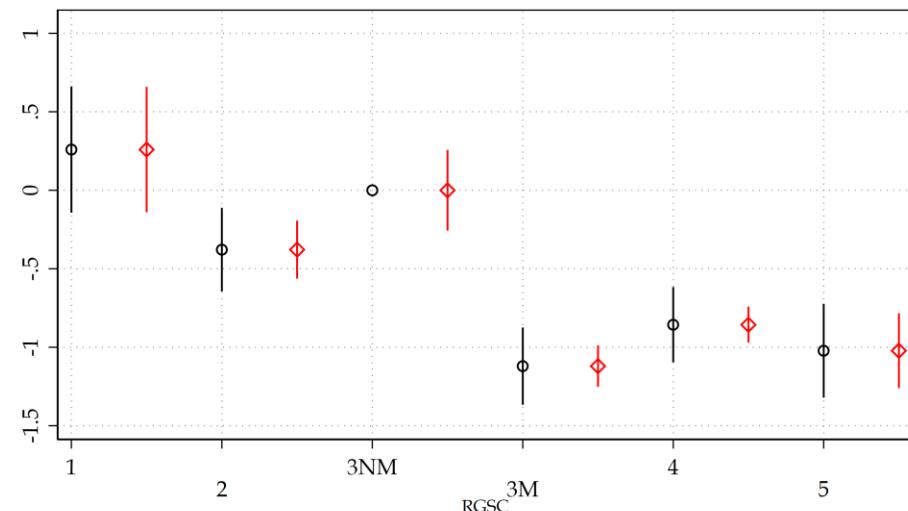
Educational Attainment, Sex, and Housing Tenure also included in Model



Comparative Log Odds and Quasi-variance Statistics by SOC construction of Parental RGSC  
Predictions of Staying in Schooling versus Not by Parental RGSC



○ Log Odds Coefficient    — Log Odds Confidence Intervals  
◆ Log Odds Coefficient    — Quasi-Variance Bounds



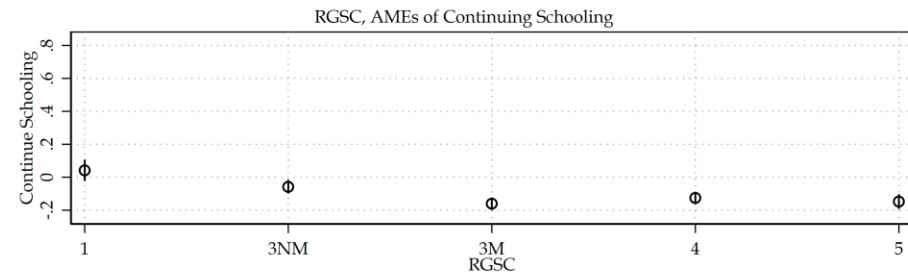
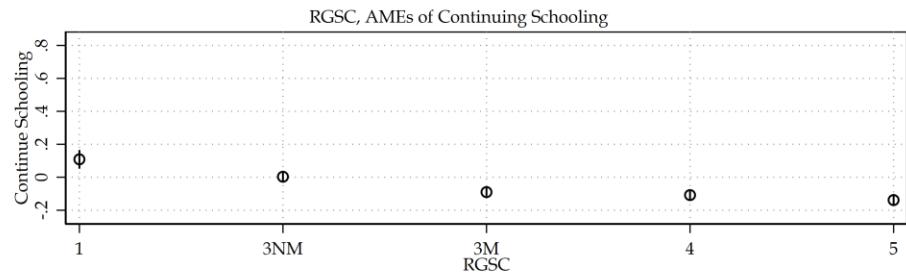
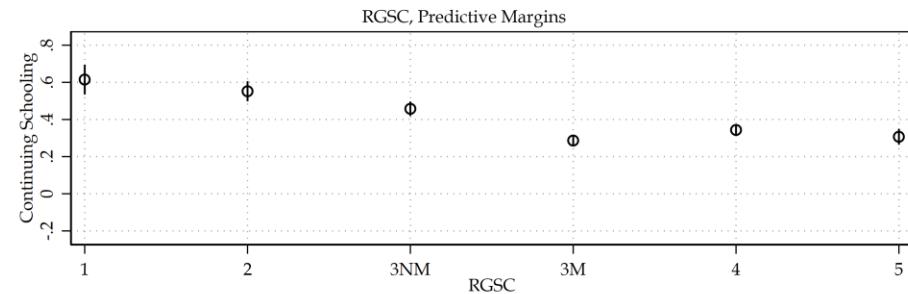
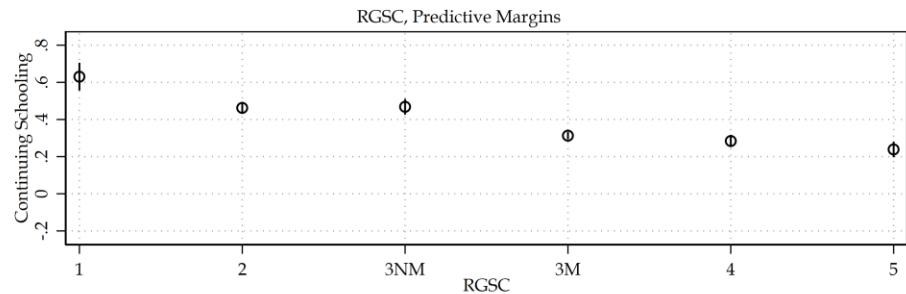
○ Log Odds Coefficient    — Log Odds Confidence Intervals  
◆ Log Odds Coefficient    — Quasi-Variance Bounds

Data Source: NCDS, N=8,411. SOC2000 on left, SOC90 on right.

Educational Attainment, Sex, and Housing Tenure also included in Model



### Predictive and Average Marginal Effects of Parental RGSC on Continuing Schooling by SOC Codes

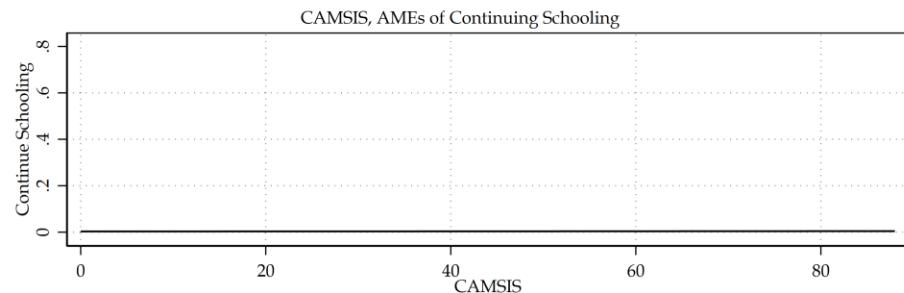
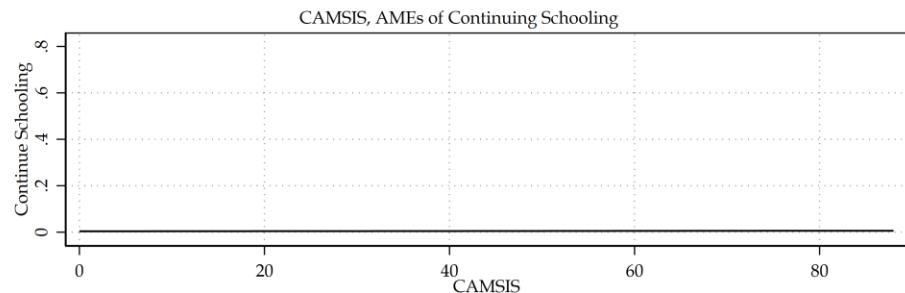
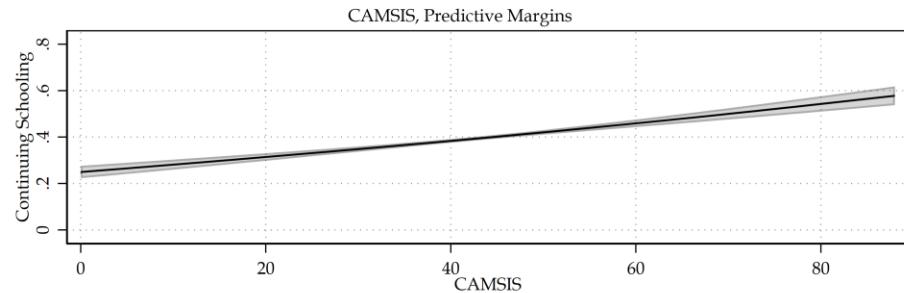
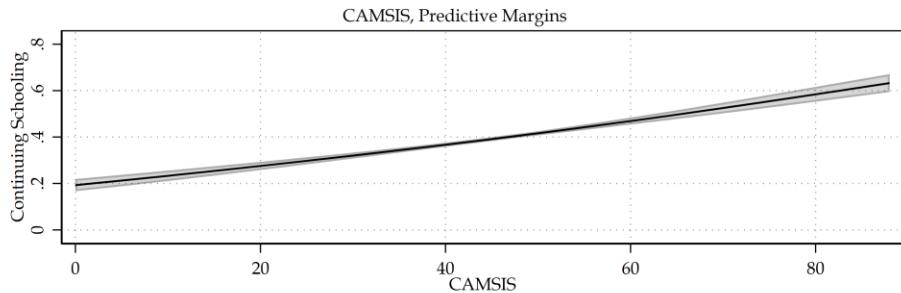


Data Source: NCDS, N=8,411, SOC 2000 on left, SOC 90 on right

Educational Attainment, Sex, and Housing Tenure also included in Model



### Predictive and Average Marginal Effects of Parental CAMSIS on Continuing Schooling by SOC Codes

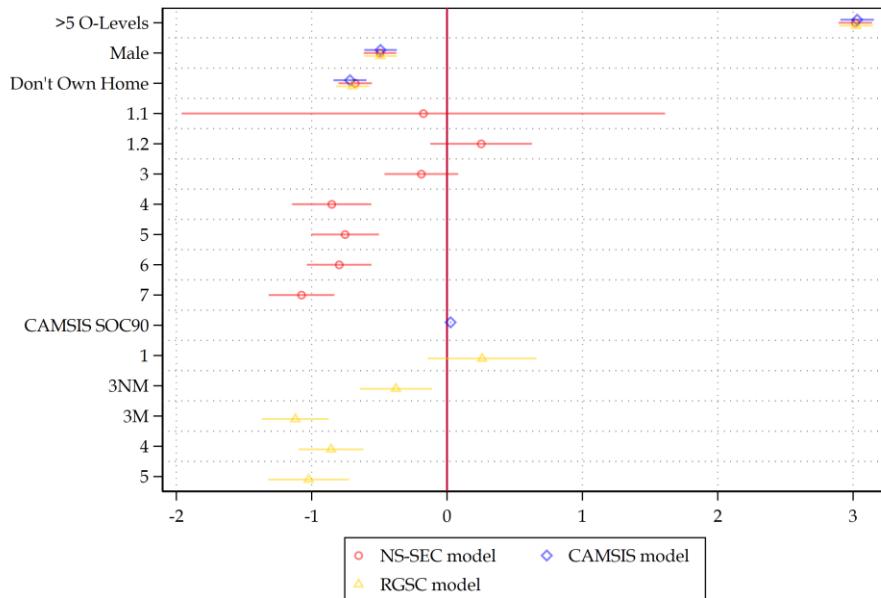
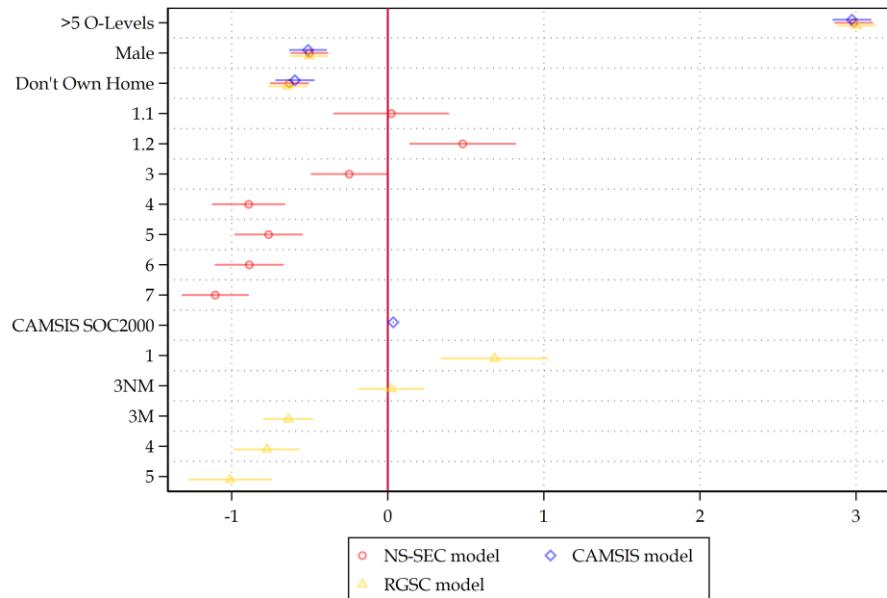


Data Source: NCDS, N=8,411, SOC 2000 on left, SOC 90 on right

Educational Attainment, Sex, and Housing Tenure also included in Model



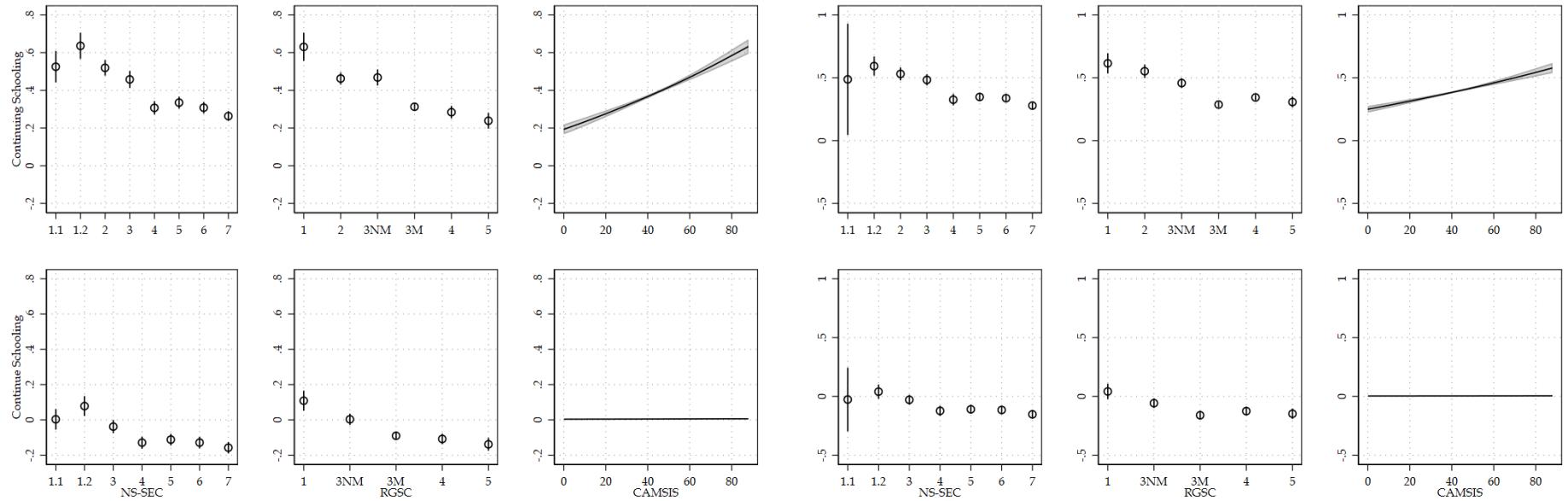
Coefficient Plots of Logistic Regression Results by SOC  
Betas and CIs of Logit model analysing structural impacts on continuing schooling



Data Source: NCDS, N=8,411. SOC2000 on left, SOC90 on right.

Educational Attainment, Sex, Housing Tenure, and Social Stratification Measures included in Model

Predictive and Average Marginal Effects of Social Stratification Measures on Continuing Schooling by SOC  
 Predictive margins across row one, AMEs across row two



Data Source: NCDS, N=8,411

Educational Attainment, Sex, and Housing Tenure also included in Model. Reference Category for AMEs for NS-SEC=2 and RGSC=2.



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# Handling Missing Data – A Simulation

**Table 2.45 Simulation Regression Models Using a MAR Principle**

Complete Records 'God Model'		Complete SEM		Missingness Introduced at Independent Variable 3		All Missingness coded as =0		All Missingness coded as =1		Single Use Modal Imputation		FIML		Imputed with no auxiliary variables and 10 imputations		Imputed with 10 imputations		Imputed with 100 imputations	
Independent Variable 1	[-0.19, -0.19]	[-0.19, -0.19]	[-0.10, -0.10]	[-0.28, -0.27]	[-0.19,-0.19]	[-0.28, -0.27]	[-0.12,-0.12]	[-0.20, -0.20]	[-0.19, -0.18]	[-0.20, -0.20]	[-0.19, -0.19]	[-0.19, -0.19]	[-0.19, -0.19]	[-0.19, -0.19]	[-0.19, -0.19]	[-0.19, -0.19]	[-0.19, -0.19]	[-0.19, -0.19]	
Independent Variable 2	[(0.02,0.02)]	[(0.02,0.02)]	[(0.01,0.01)]	[(0.02,0.02)]	[(0.02,0.02)]	[(0.02,0.02)]	[(0.02,0.02)]	[(0.02,0.02)]	[(0.02,0.02)]	[(0.02,0.02)]	[(0.02,0.02)]	[(0.02,0.02)]	[(0.02,0.02)]	[(0.02,0.02)]	[(0.02,0.02)]	[(0.02,0.02)]	[(0.02,0.02)]	[(0.02,0.02)]	
Independent Variable 3	[-0.19, -0.19]	[-0.19, -0.19]	[-0.10, -0,10]	[-0.28, -0.28]	[-0.19,-0.19]	[-0.28, -0.28]	[-0.12, -0.12]	[-0.18, -0.18]	[-0.19, -0.19]	[-0.19, -0.19]	[-0.19, -0.19]	[-0.19, -0.19]	[-0.19, -0.19]	[-0.19, -0.19]	[-0.19, -0.19]	[-0.19, -0.19]	[-0.19, -0.19]	[-0.19, -0.19]	[-0.18, -0.18]
Number of observations	1000	1000	513	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000

Data Source: Simulation using a MAR principle. 51 per cent missingness introduced.

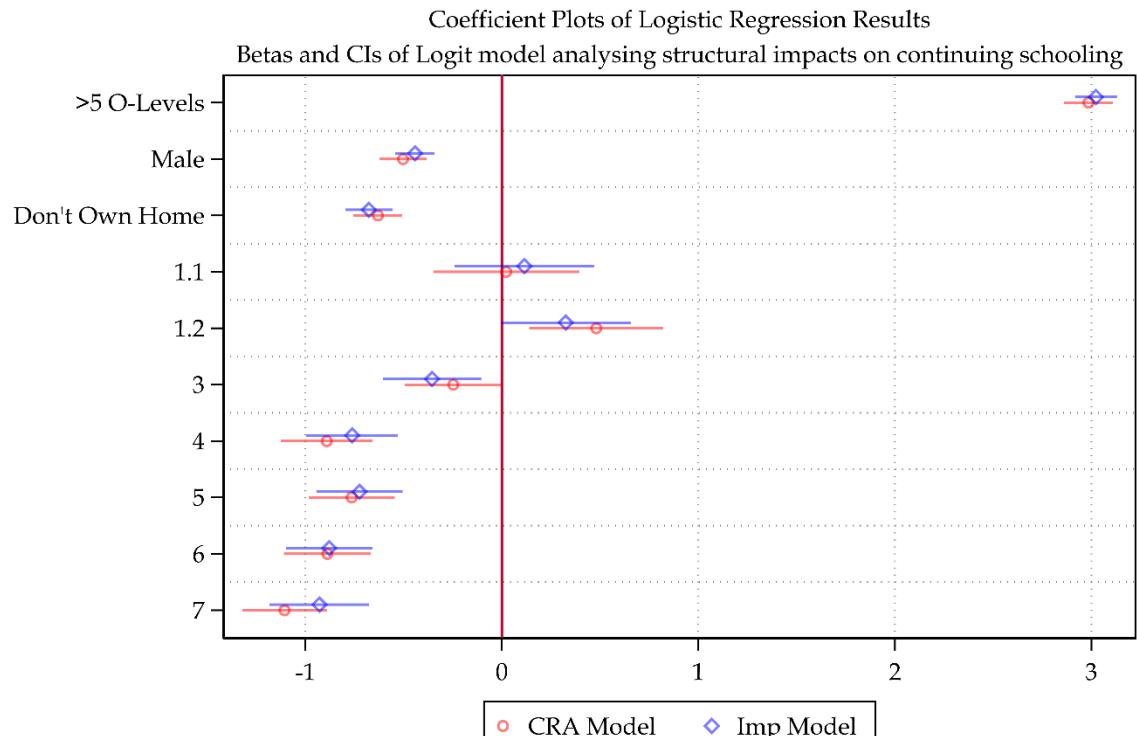


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# NCDS Multiple Imputation

N	Percent Complete (%)	Educational Attainment	Economic Activity	Housing Tenure	NS-SEC	Sex
8411	67	✓	✓	✓	✓	✓
2201	17	✓	✓	✓		✓
1636	13	✓	✓			✓
251	2	✓	✓		✓	✓
<b>Total =</b>						
<b>12536</b>						



Data Source: NCDS

Educational Attainment, Sex, Housing Tenure, and Social Stratification Measures included in Model



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# BCS in-depth analysis

Descriptive Statistics by Economic Activity			
	Continue Schooling or not after September when individuals are 16		
N	Don't Continue Schooling	Continue Schooling	Total
Educational Attainment O'levels			
<5 O-Levels	486 (77.88%)	475 (50.00%)	961 (61.05%)
>5 O-Levels	138 (22.12%)	475 (50.00%)	613 (38.95%)
Sex of Respondent			
Female	299 (47.92%)	573 (60.32%)	872 (55.40%)
Male	325 (52.08%)	377 (39.68%)	702 (44.60%)
Housing Tenure of Respondent when Child			
Own Home	444 (71.15%)	756 (79.58%)	1200 (76.24%)
Don't Own Home	180 (28.85%)	194 (20.42%)	374 (23.76%)
NS-SEC Social Class of Father when Respondent Child SOC2000			
1.1	23 (3.69%)	66 (6.95%)	89 (5.65%)
1.2	30 (4.81%)	88 (9.26%)	118 (7.50%)
2	87 (13.94%)	209 (22.00%)	296 (18.81%)
3	64 (10.26%)	115 (12.11%)	179 (11.37%)
4	80 (12.82%)	90 (9.47%)	170 (10.80%)
5	125 (20.03%)	133 (14.00%)	258 (16.39%)
6	86 (13.78%)	112 (11.79%)	198 (12.58%)
7	129 (20.67%)	137 (14.42%)	266 (16.90%)
RGSC Social Class of Father when Respondent Child SOC2000			
1	24 (3.85%)	68 (7.16%)	92 (5.84%)
2	132 (21.15%)	326 (34.32%)	458 (29.10%)
3NM	68 (10.90%)	128 (13.47%)	196 (12.45%)
3M	283 (45.35%)	294 (30.95%)	577 (36.66%)
4	79 (12.66%)	95 (10.00%)	174 (11.05%)
5	38 (6.09%)	39 (4.11%)	77 (4.89%)
NS-SEC Social Class of Father when Respondent Child SOC90			
1.1	20 (3.21%)	65 (6.84%)	85 (5.40%)
1.2	38 (6.09%)	94 (9.89%)	132 (8.39%)
2	91 (14.58%)	224 (23.58%)	315 (20.01%)
3	64 (10.26%)	114 (12.00%)	178 (11.31%)
4	79 (12.66%)	78 (8.21%)	157 (9.97%)
5	127 (20.35%)	134 (14.11%)	261 (16.58%)
6	90 (14.42%)	109 (11.47%)	199 (12.64%)
7	115 (18.43%)	132 (13.89%)	247 (15.69%)
RGSC Social Class of Father when Respondent Child SOC90			
1	35 (5.61%)	88 (9.26%)	123 (7.81%)
2	112 (17.95%)	279 (29.37%)	391 (24.84%)
3NM	92 (14.74%)	174 (18.32%)	266 (16.90%)
3M	259 (41.51%)	277 (29.16%)	536 (34.05%)
4	97 (15.54%)	107 (11.26%)	204 (12.96%)
5	29 (4.65%)	25 (2.63%)	54 (3.43%)
CAMSIS SOC2000	45.78 (12.51)	51.21 (14.21)	49.06 (13.81)
CAMSIS SOC90	46.04 (13.09)	51.57 (15.00)	49.38 (14.52)

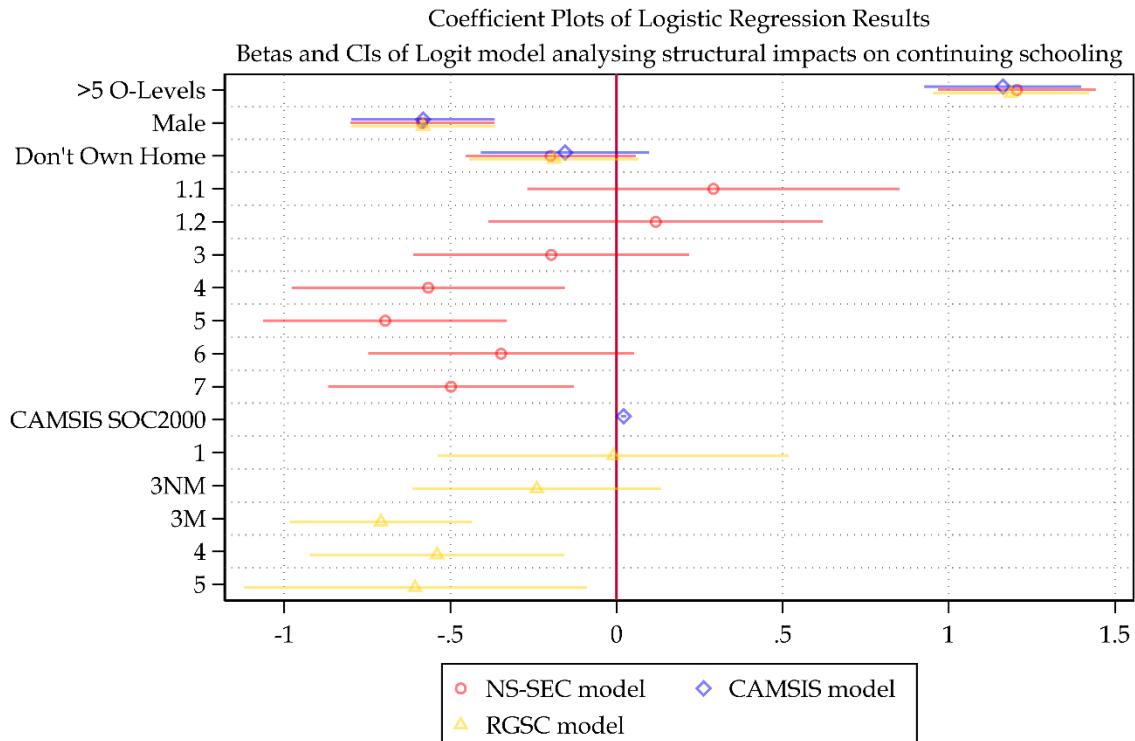
Data Source: BCS [Sweeps 0-5]



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# BCS Sensitivity Analysis of Social Stratification Variables



Data Source: BCS, N=1,574

Educational Attainment, Sex, Housing Tenure, and Social Stratification Measures included in Model

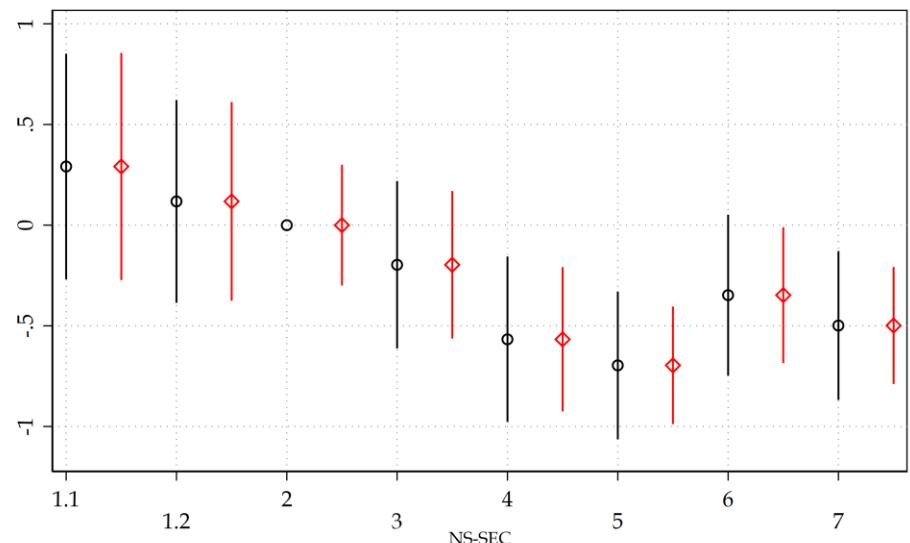
# KHB Decomposition

		NS-SEC Model		RGSC Model		CAMSIS Model			
		Log Odds	SE	Log Odds	SE	Log Odds	SE		
Educational Attainment	Reduced	1.30***	(0.12)	1.29***	(0.12)	1.29***	(0.12)		
	Full	1.21***	(0.12)	1.19***	(0.12)	1.16***	(0.12)		
	Difference	0.09**	(0.04)	0.10**	(0.04)	0.12***	(0.04)		
Sex	Reduced	-0.59***	(0.11)	-0.59***	(0.11)	-0.59***	(0.11)		
	Full	-0.58***	(0.11)	-0.58***	(0.11)	-0.58***	(0.11)		
	Difference	-0.01	(0.03)	-0.01	(0.03)	-0.01	(0.03)		
Housing	Reduced	-0.31**	(0.13)	-0.31**	(0.13)	-0.30**	(0.13)		
Tenure	Full	-0.20	(0.13)	-0.19	(0.13)	-0.16	(0.13)		
	Difference	-0.11**	(0.04)	-0.12***	(0.04)	-0.15***	(0.04)		

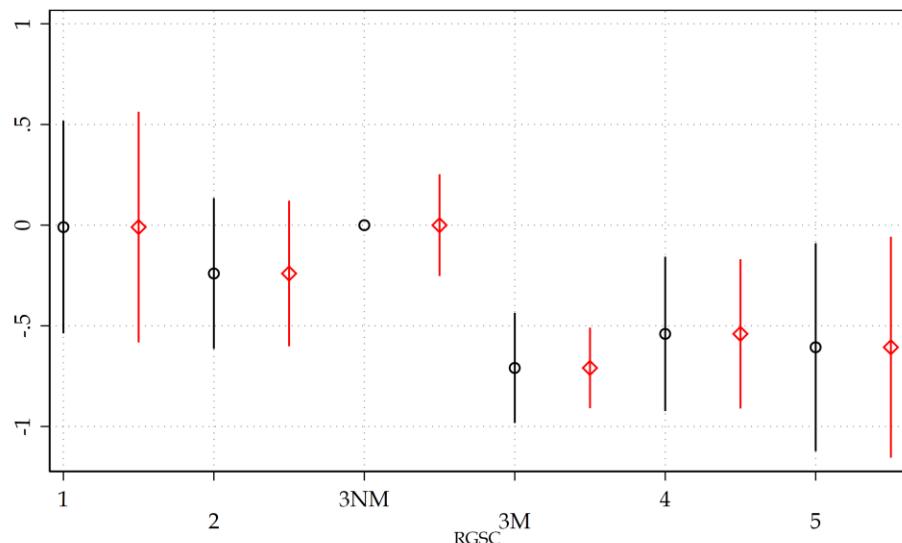
		NS-SEC Model		RGSC Model		CAMSIS Model				
		Confo unding ratio	Confo unding percen tage	Resc aling facto r	Confo unding ratio	Confo unding percen tage	Resc aling facto r	Confo unding ratio	Confo unding percen tage	Resc aling facto r
Education	1.07	6.66		1.02	1.09	8.03	1.02	1.11	9.65	1.02
Attainment										
Sex	1.01	0.85		1.02	1.01	1.45	1.02	1.01	0.90	1.01
Housing	1.55	35.61		1.03	1.62	38.35	1.02	1.96	48.96	1.01
Tenure										



### Comparative Log Odds and Quasi-variance Statistics by Parental Social Class



○ Log Odds Coefficient    — Log Odds Confidence Intervals  
◆ Log Odds Coefficient    — Quasi-Variance Bounds

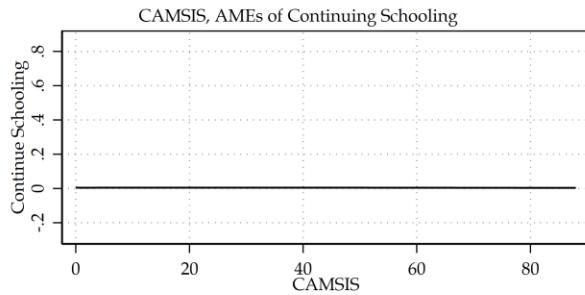
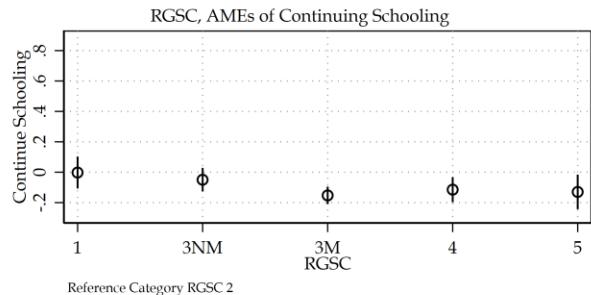
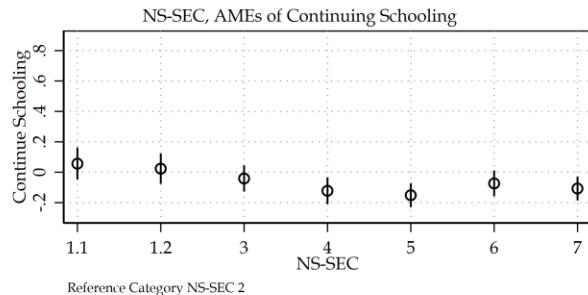
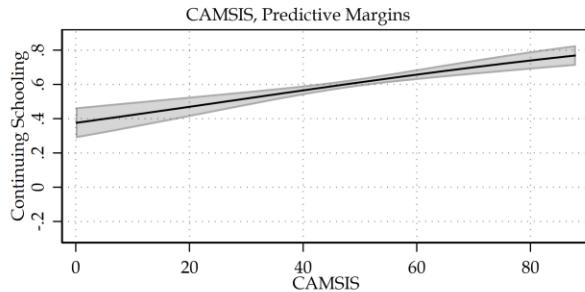
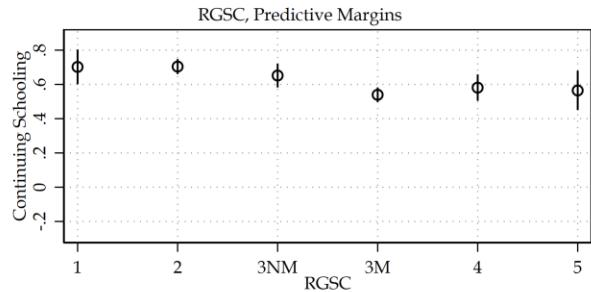
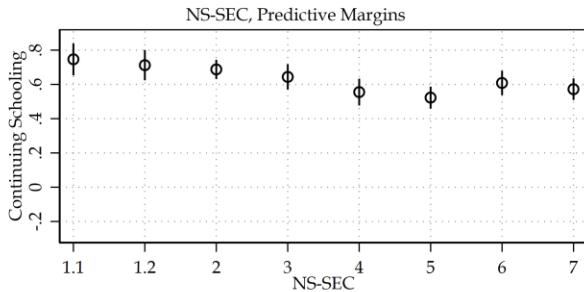


○ Log Odds Coefficient    — Log Odds Confidence Intervals  
◆ Log Odds Coefficient    — Quasi-Variance Bounds

Data Source: BCS, N=1,574

Educational Attainment, Sex, and Housing Tenure also included in Model

## Predictive and Average Marginal Effects of Parental Social Stratification Measures on Continuing Schooling



Data Source: BCS, N=1,574

Educational Attainment, Sex, and Housing Tenure also included in Model



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# BCS Sensitivity Analysis of SOC codes

Descriptive Statistics comparing NS-SEC by SOC2000 and SOC90 codes

	NS-SEC Social Class of Father when Respondent Child SOC90								Total
	Large Employers and higher managerial occupations	Higher professional occupations	Lower Managerial and professional occupations	Intermediate occupations	Small employers and own account workers	Lower supervisory and technical occupations	Semi-routine occupations	Routine occupations	
<b>N</b>	85.00 (5.40%)	132.00 (8.39%)	315.00 (20.01%)	178.00 (11.31%)	157.00 (9.97%)	261.00 (16.58%)	199.00 (12.64%)	247.00 (15.69%)	1574.00 (100.00%)
<b>NS-SEC Social Class of Father when Respondent Child SOC2000</b>	75 (88.24%)	1 (0.76%)	6 (1.90%)	5 (2.81%)	2 (1.27%)	0 (0.00%)	0 (0.00%)	0 (0.00%)	89 (5.65%)
Large Employers and higher managerial occupations	2 (2.35%)	106 (80.30%)	7 (2.22%)	3 (1.69%)	0 (0.00%)	0 (0.00%)	0 (0.00%)	0 (0.00%)	118 (7.50%)
Higher professional occupations	7 (8.24%)	25 (18.94%)	251 (79.68%)	4 (2.25%)	5 (3.18%)	1 (0.38%)	2 (1.01%)	1 (0.40%)	296 (18.81%)
Lower Managerial and professional occupations	0 (0.00%)	0 (0.00%)	8 (2.54%)	156 (87.64%)	1 (0.64%)	7 (2.68%)	4 (2.01%)	3 (1.21%)	179 (11.37%)
Intermediate occupations	0 (0.00%)	0 (0.00%)	29 (9.21%)	1 (0.56%)	138 (87.90%)	1 (0.38%)	0 (0.00%)	1 (0.40%)	170 (10.80%)
Small employers and own account workers	1 (1.18%)	0 (0.00%)	5 (1.59%)	0 (0.00%)	2 (1.27%)	243 (93.10%)	3 (1.51%)	4 (1.62%)	258 (16.39%)
Lower supervisory and technical occupations	0 (0.00%)	0 (0.00%)	8 (2.54%)	8 (4.49%)	2 (1.27%)	0 (0.00%)	178 (89.45%)	2 (0.81%)	198 (12.58%)
Semi-routine occupations	0 (0.00%)	0 (0.00%)	1 (0.32%)	1 (0.56%)	7 (4.46%)	9 (3.45%)	12 (6.03%)	236 (95.55%)	266 (16.90%)
Routine occupations	75 (88.24%)	1 (0.76%)	6 (1.90%)	5 (2.81%)	2 (1.27%)	0 (0.00%)	0 (0.00%)	0 (0.00%)	89 (5.65%)

**Descriptive Statistics comparing RGSC by SOC2000 and SOC90 codes**

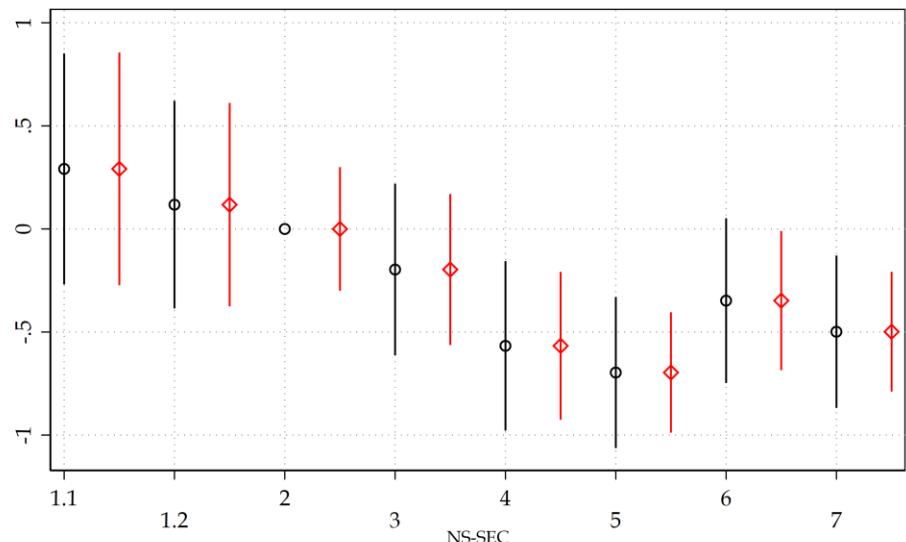
RGSC Social Class of Father when Respondent Child SOC90							
	Professional	Managerial and Technical	Skilled non-manual	Skilled manual	Partly skilled	Unskilled	Total
N	123 (7.81%)	391 (24.84%)	266 (16.90%)	536 (34.05%)	204 (12.96%)	54 (3.43%)	1574 (100.00%)
<b>RGSC Social Class of Father when Respondent Child SOC2000</b>							
<b>Professional</b>	90 (73.17%)	1 (0.26%)	1 (0.38%)	0 (0.00%)	0 (0.00%)	0 (0.00%)	92 (5.84%)
<b>Managerial and Technical</b>	32 (26.02%)	352 (90.03%)	66 (24.81%)	2 (0.37%)	6 (2.94%)	0 (0.00%)	458 (29.10%)
<b>Skilled non-manual</b>	0 (0.00%)	11 (2.81%)	175 (65.79%)	5 (0.93%)	5 (2.45%)	0 (0.00%)	196 (12.45%)
<b>Skilled manual</b>	0 (0.00%)	21 (5.37%)	4 (1.50%)	505 (94.22%)	45 (22.06%)	2 (3.70%)	577 (36.66%)
<b>Partly skilled</b>	1 (0.81%)	6 (1.53%)	7 (2.63%)	19 (3.54%)	137 (67.16%)	4 (7.41%)	174. (11.05%)
<b>Unskilled</b>	0 (0.00%)	0 (0.00%)	13 (4.89%)	5 (0.93%)	11 (5.39%)	48 (88.89%)	77 (4.89%)

Data Source: NCDS [Sweeps 0-4]

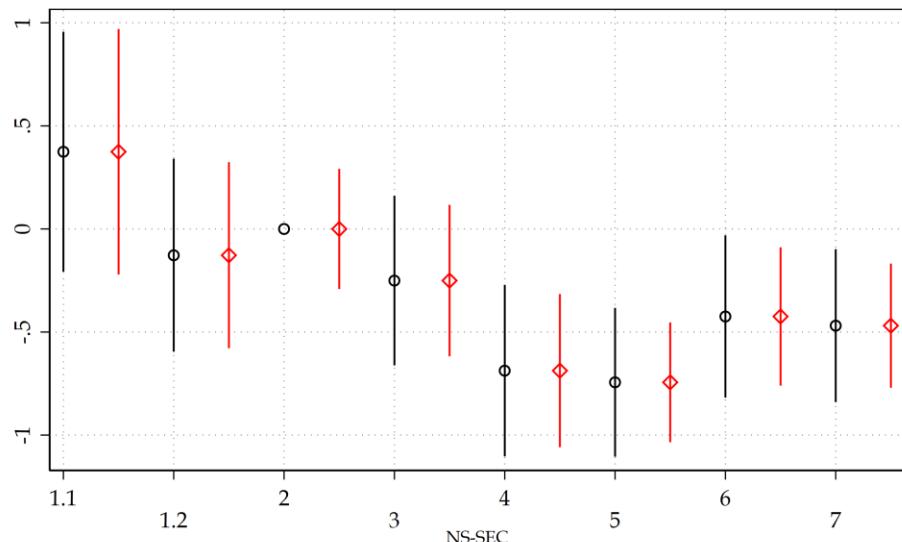
<b>CAMSIS2000</b>	
<b>Mean</b>	49.06
<b>Standard Deviation</b>	13.81
<b>CAMSIS90</b>	
<b>Mean</b>	49.38
<b>Standard Deviation</b>	14.52
<b>N</b>	1574
<b>Data Source: NCDS [Sweeps 0-4]</b>	



Comparative Log Odds and Quasi-variance Statistics by SOC construction of Parental NS-SEC



○ Log Odds Coefficient    — Log Odds Confidence Intervals  
◆ Log Odds Coefficient    — Quasi-Variance Bounds



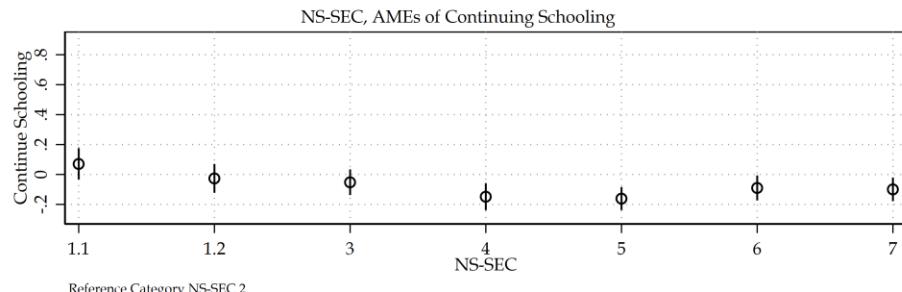
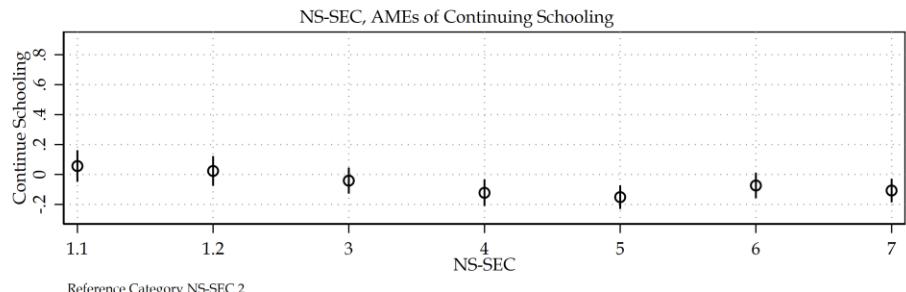
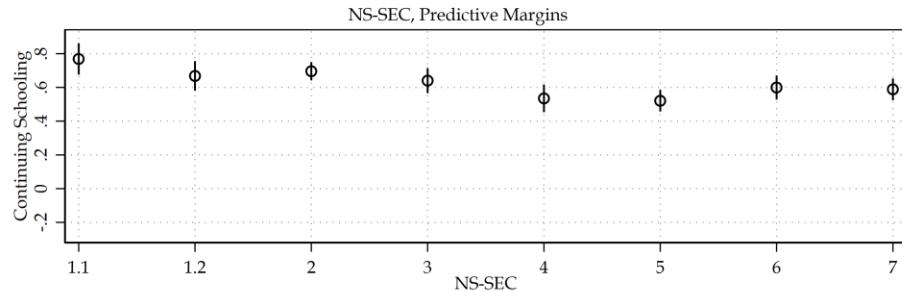
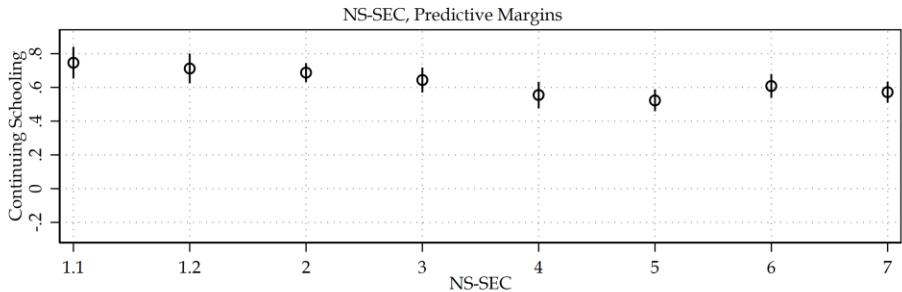
○ Log Odds Coefficient    — Log Odds Confidence Intervals  
◆ Log Odds Coefficient    — Quasi-Variance Bounds

Data Source: BCS, N=1,574

Educational Attainment, Sex, and Housing Tenure also included in Model



### Predictive and Average Marginal Effects of Parental NS-SEC on Continuing Schooling by SOC Codes



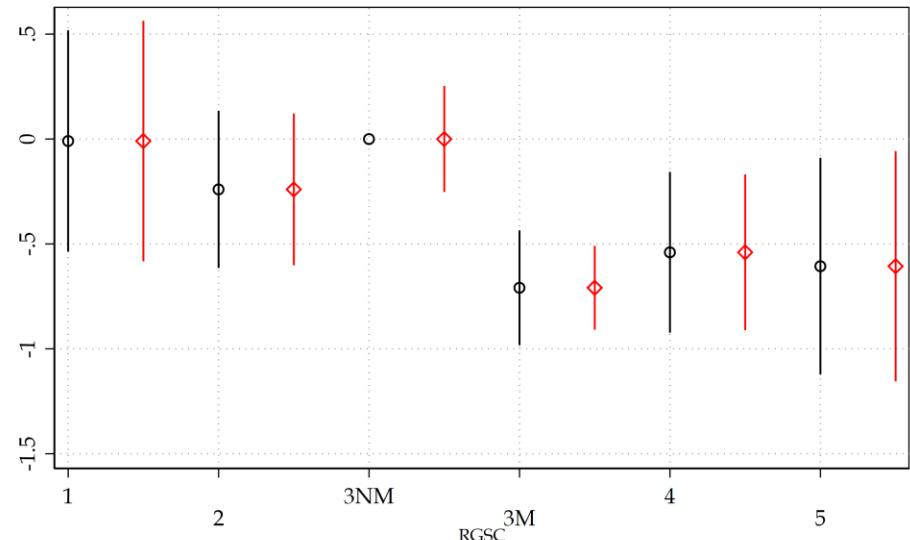
Reference Category NS-SEC 2

Data Source: BCS, N=1,574, SOC 2000 on left, SOC 90 on right

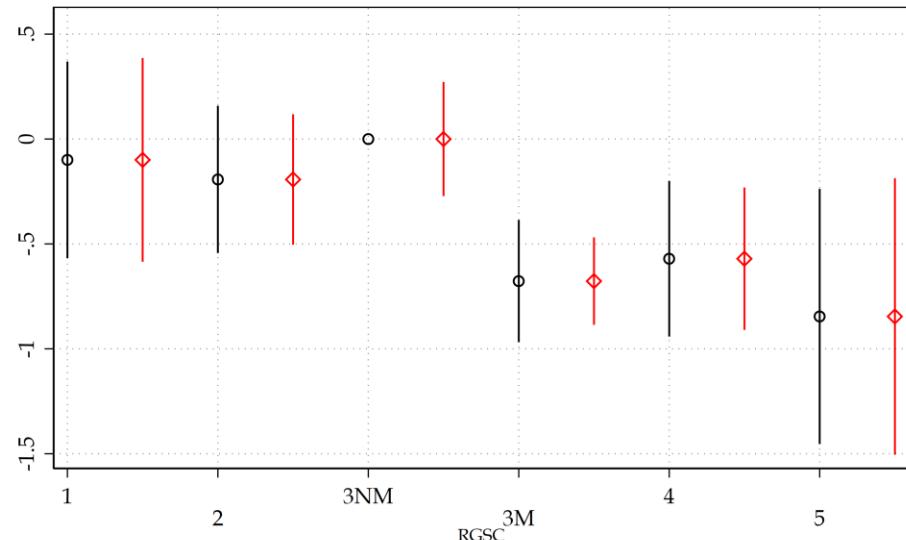
Educational Attainment, Sex, and Housing Tenure also included in Model



Comparative Log Odds and Quasi-variance Statistics by SOC construction of Parental RGSC



○ Log Odds Coefficient    — Log Odds Confidence Intervals  
◆ Log Odds Coefficient    — Quasi-Variance Bounds



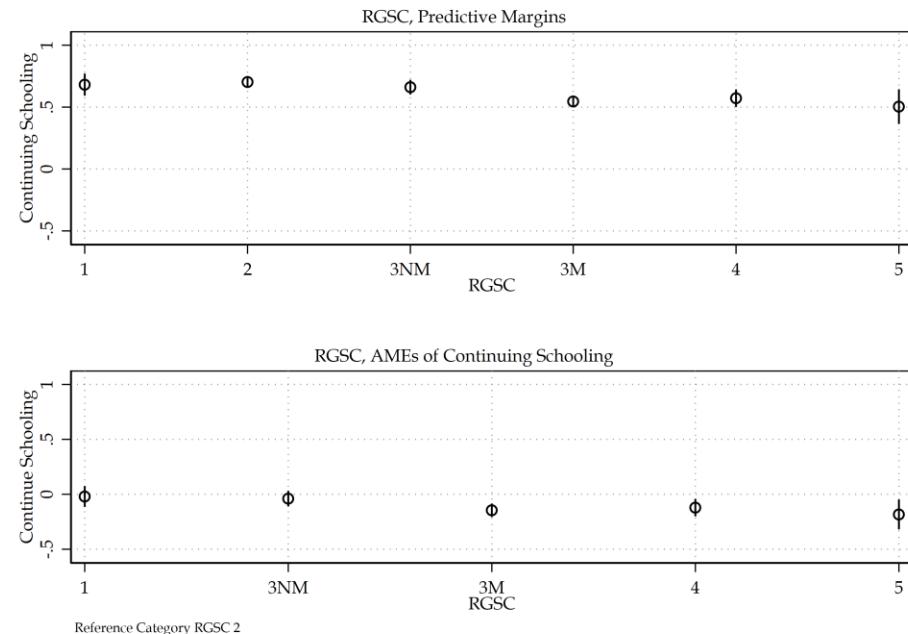
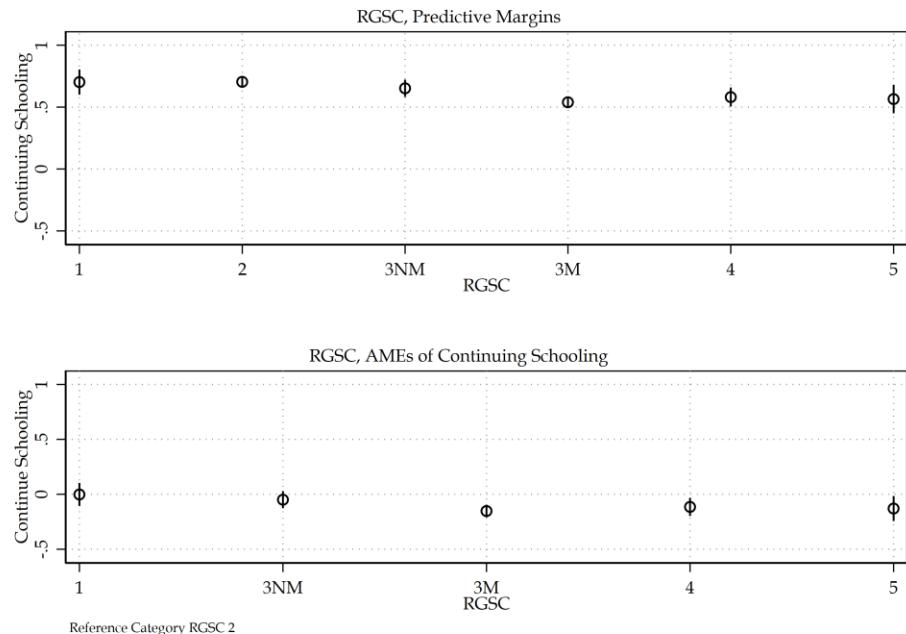
○ Log Odds Coefficient    — Log Odds Confidence Intervals  
◆ Log Odds Coefficient    — Quasi-Variance Bounds

Data Source: BCS, N=1,574

Educational Attainment, Sex, and Housing Tenure also included in Model



### Predictive and Average Marginal Effects of Parental RGSC on Continuing Schooling by SOC Codes

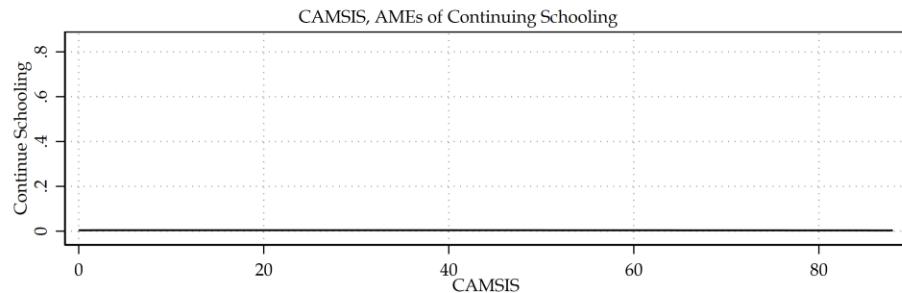
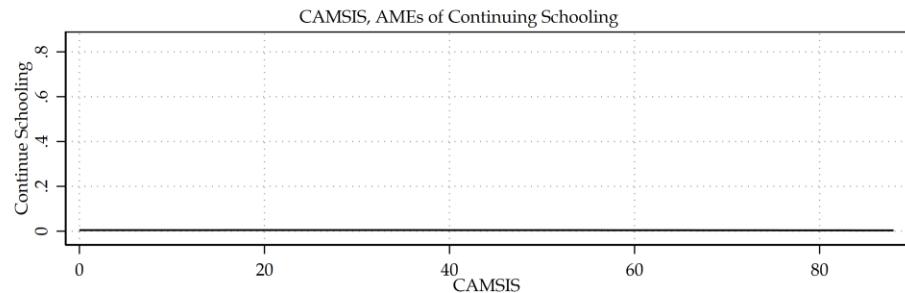
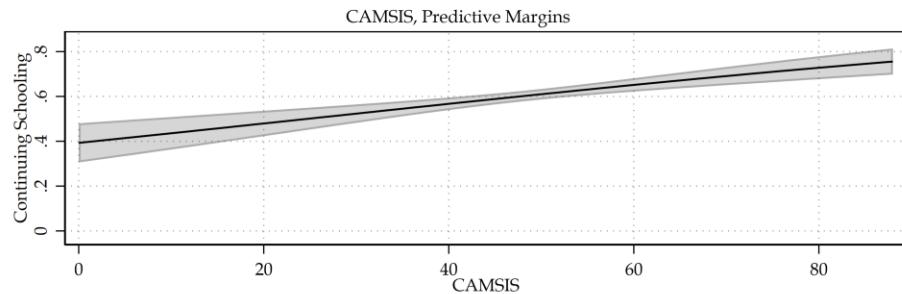
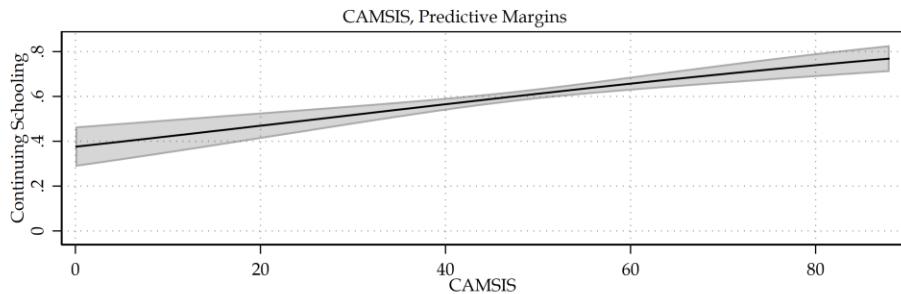


Data Source: BCS, N=1,574, SOC 2000 on left, SOC 90 on right

Educational Attainment, Sex, and Housing Tenure also included in Model



### Predictive and Average Marginal Effects of Parental CAMSIS on Continuing Schooling by SOC Codes

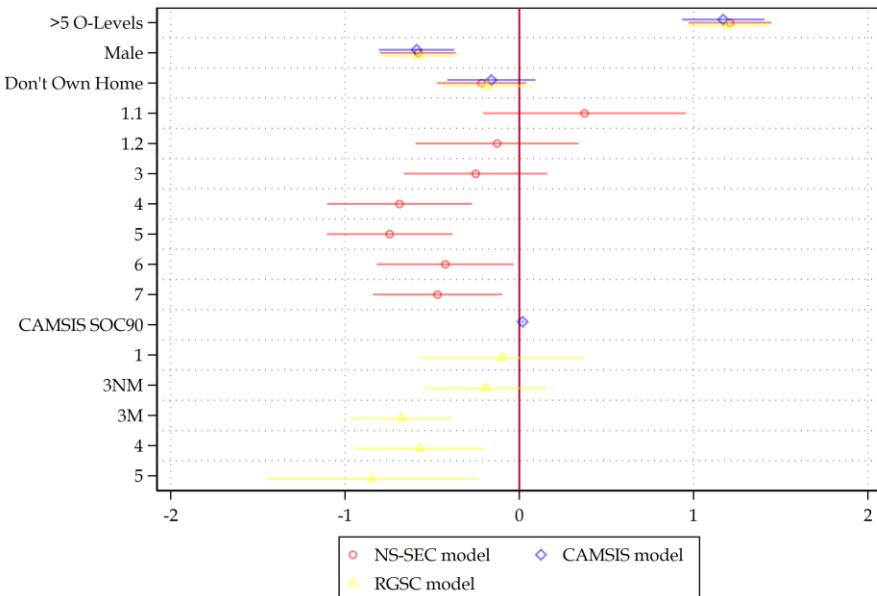
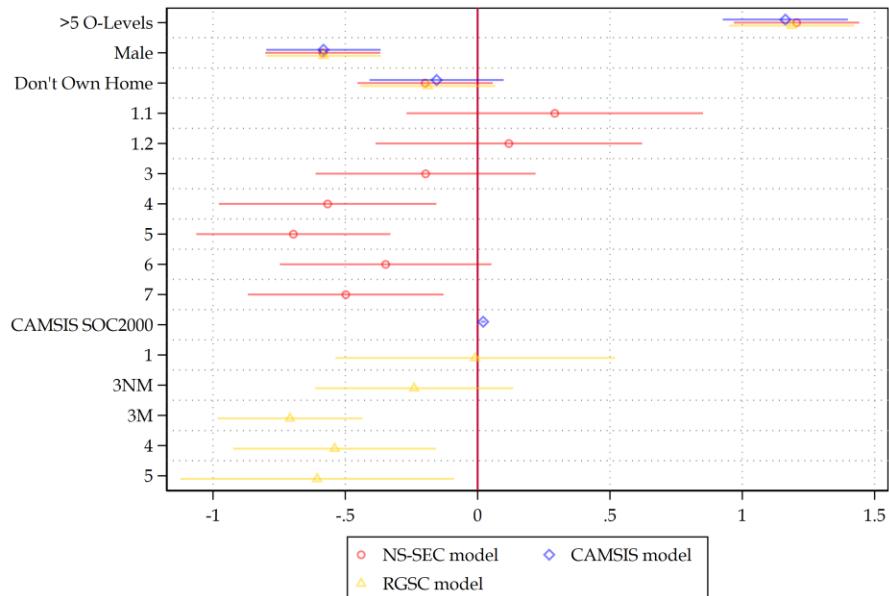


Data Source: BCS, N=1,574, SOC 2000 on left, SOC 90 on right

Educational Attainment, Sex, and Housing Tenure also included in Model



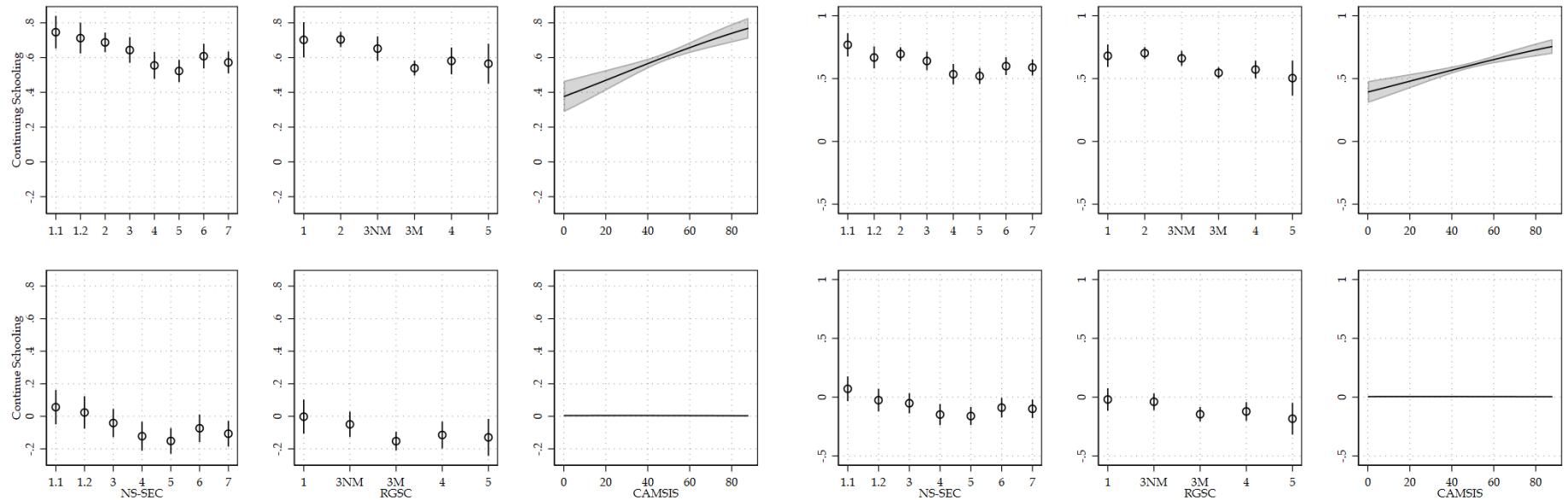
Coefficient Plots of Logistic Regression Results by SOC  
Betas and CIs of Logit model analysing structural impacts on continuing schooling



Data Source: NCDS, N=8,411. SOC2000 on left, SOC90 on right.

Educational Attainment, Sex, Housing Tenure, and Social Stratification Measures included in Model

Predictive and Average Marginal Effects of Social Stratification Measures on Continuing Schooling by SOC  
 Predictive margins across row one, AMEs across row two



Data Source: BCS, N=1,574

Educational Attainment, Sex, and Housing Tenure also included in Model. Reference Category for AMEs for NS-SEC=2 and RGSC=2.

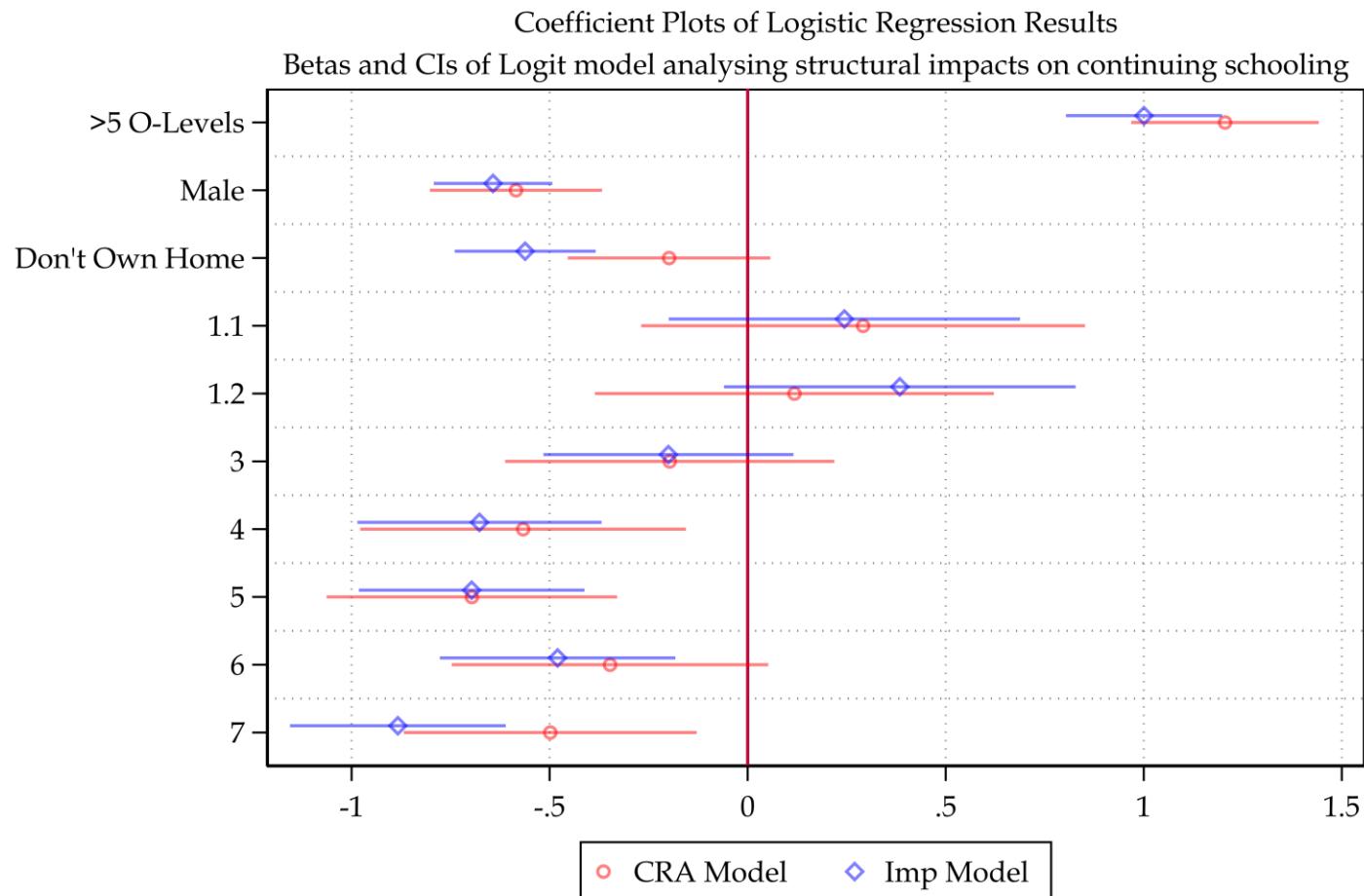


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# BCS Multiple Imputation

N	Percent Complete (%)	Educational Attainment	Economic Activity	Housing Tenure	NS-SEC	Sex
1575	14	✓	✓	✓	✓	✓
3860	34	✓		✓	✓	✓
2806	25			✓	✓	✓
1109	10		✓	✓	✓	✓
387	3	✓	✓	✓		✓
<b>Total =</b>						
<b>11,261</b>						

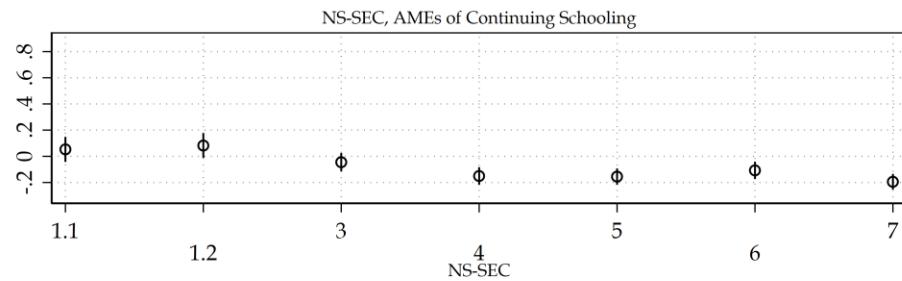
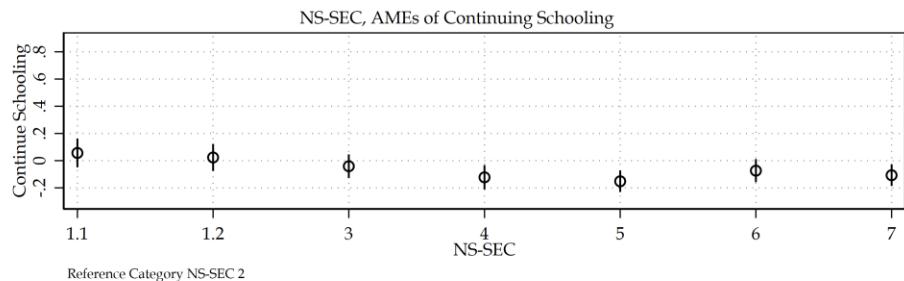
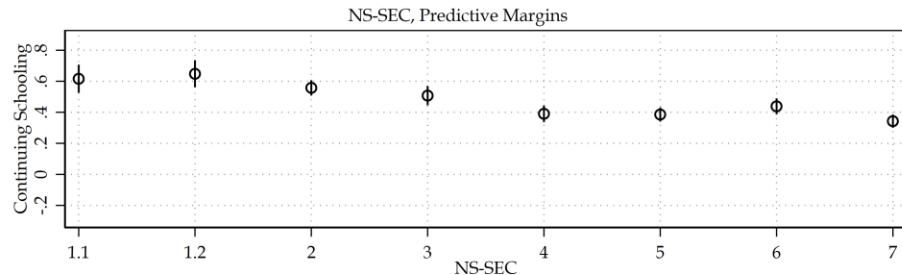
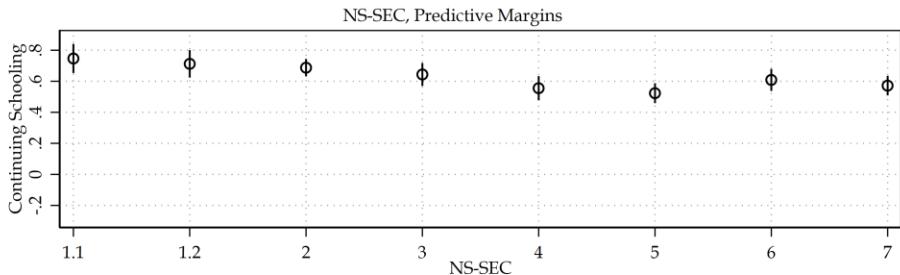


Data Source: BCS

Educational Attainment, Sex, Housing Tenure, and Social Stratification Measures included in Model



### Predictive and Average Marginal Effects of Parental NS-SEC on Continuing Schooling CRA versus MI Models



Data Source: NCDS  
Educational Attainment, Sex, and Housing Tenure also included in Model



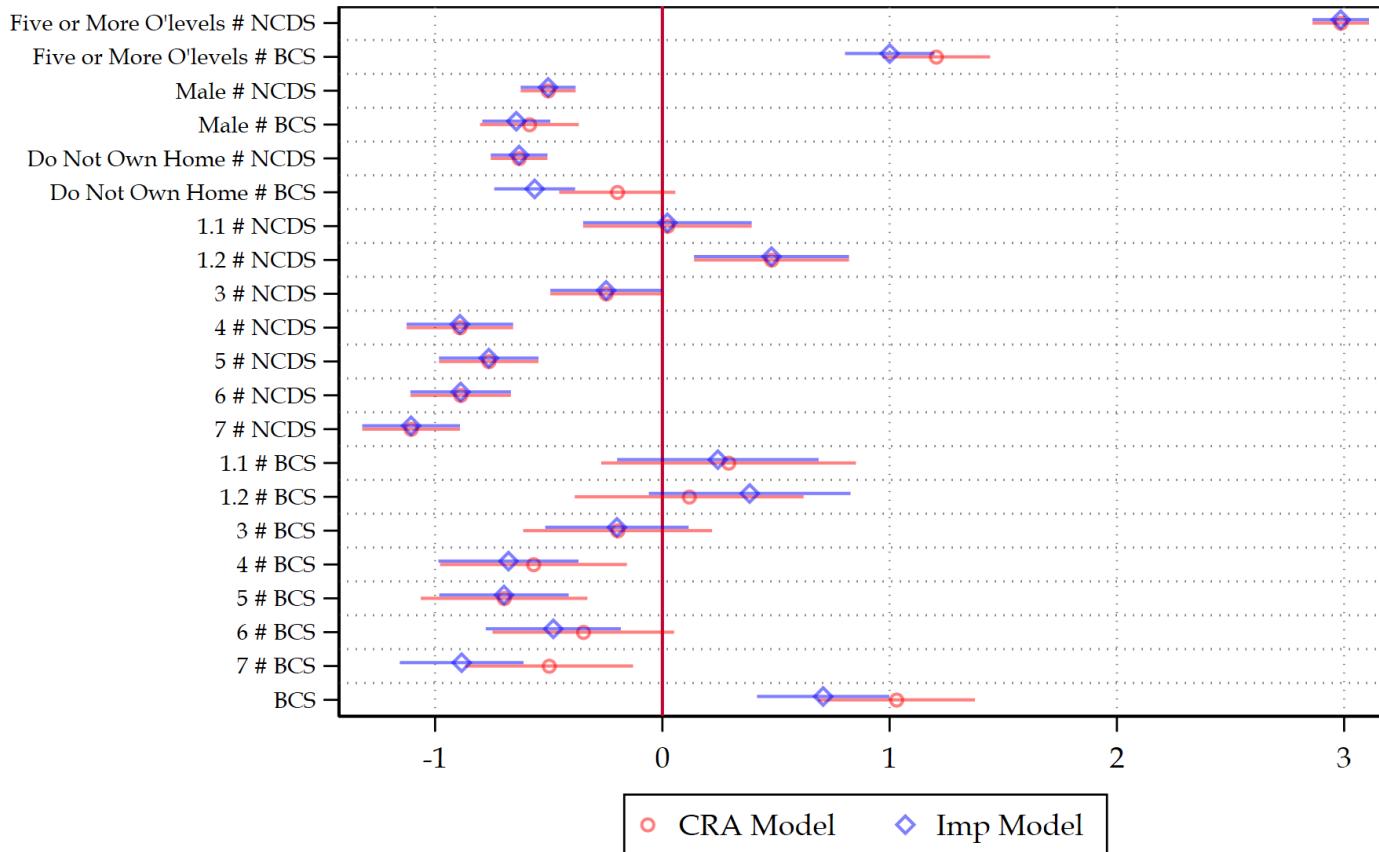
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# A Return to Pooled Analysis

### Coefficient Plots of Logistic Regression Results

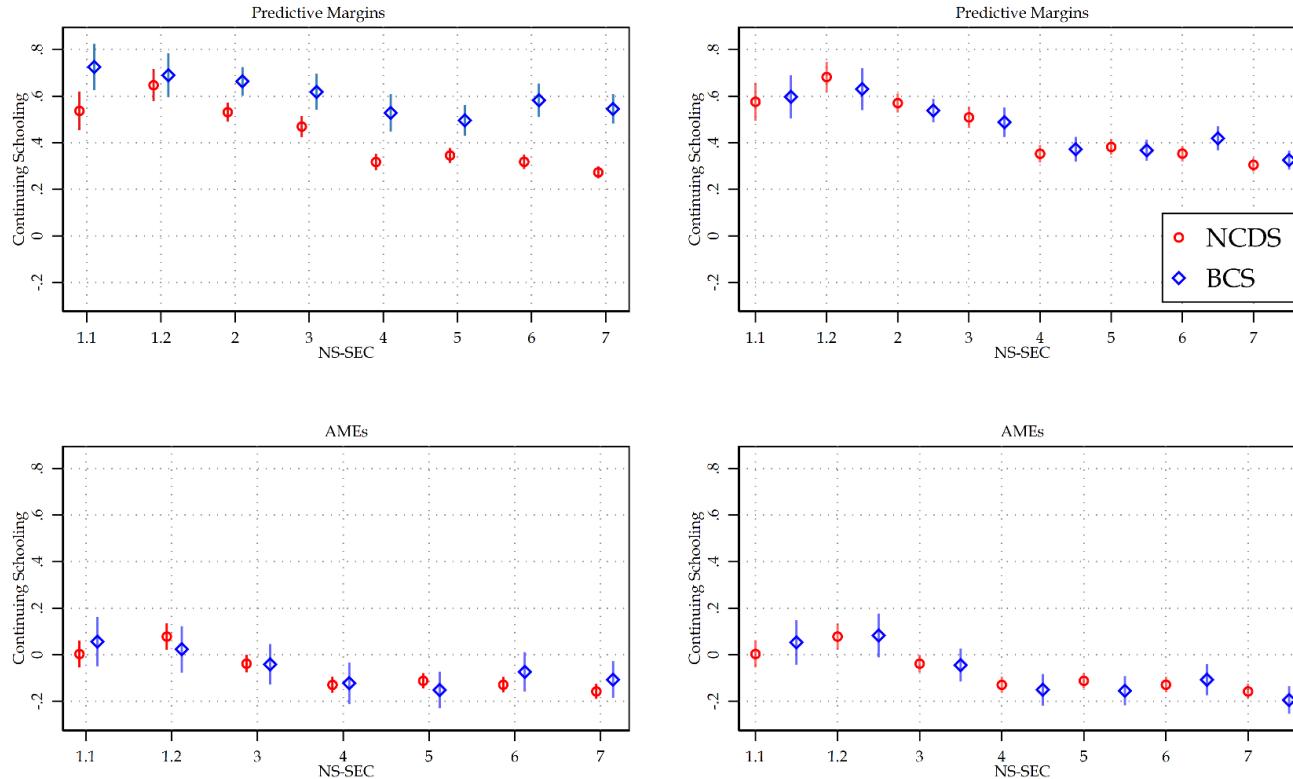
Betas and CIs of Logit model analysing structural impacts on continuing schooling



Data Source: NCDS & BCS

Educational Attainment, Sex, Housing Tenure, and Social Stratification Measures included in Model

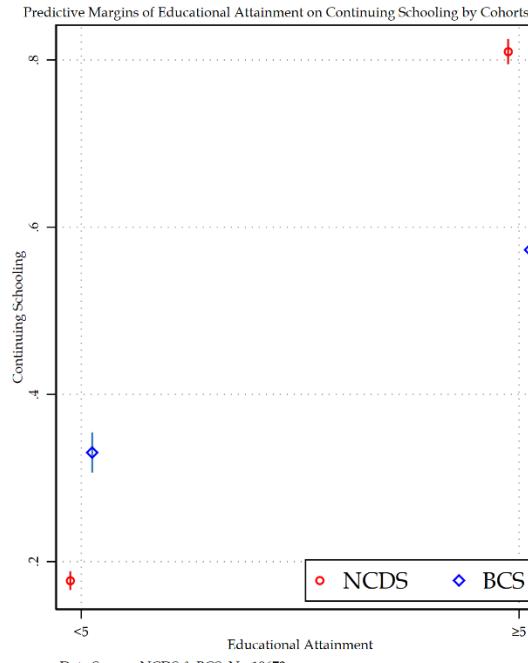
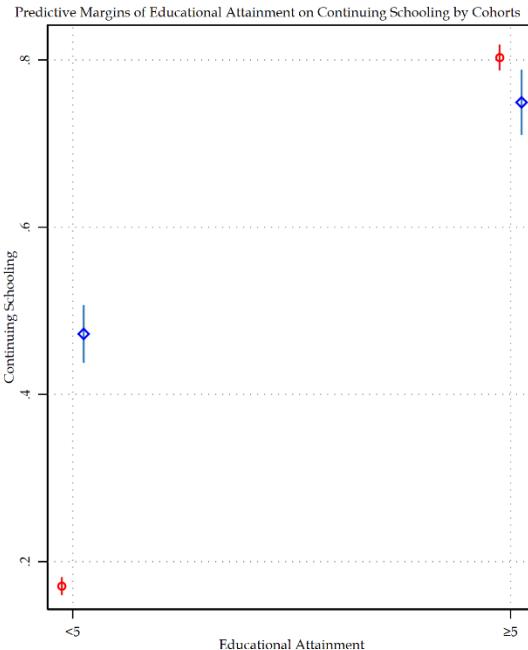
Predictive and Average Marginal Effects of NS-SEC on Continuing Schooling by Cohorts  
 CRA versus MI models



Data Source: NCDS & BCS, Reference Category NS-SEC 2 for AMEs

Educational Attainment, Sex, Housing Tenure, and Cohort interactions also included in Model.

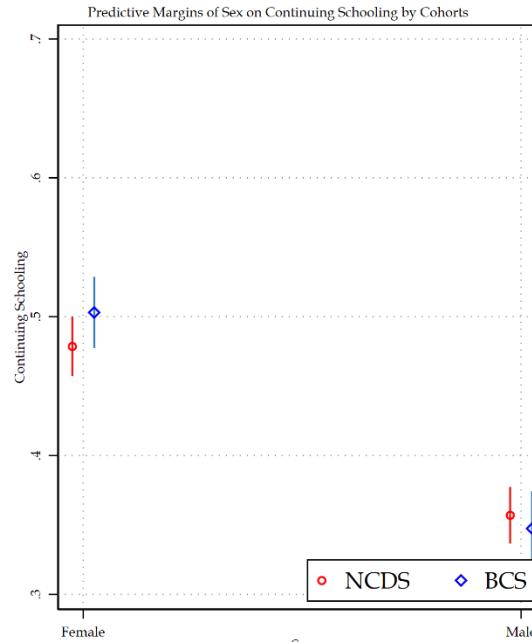
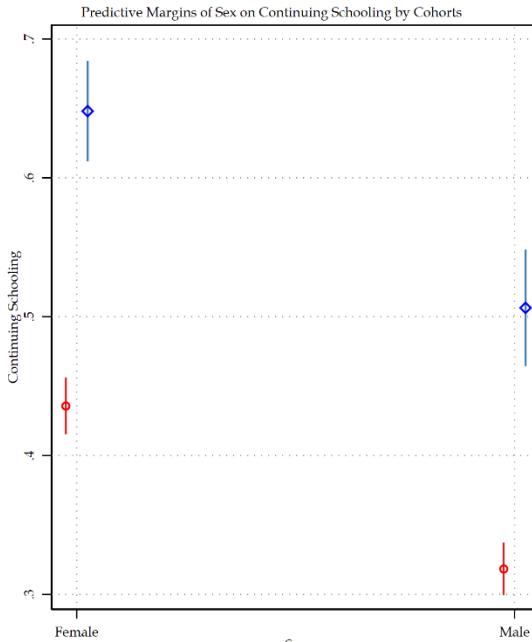
Predictive Margins of Educational Attainment on Continuing Schooling by Cohorts  
CRA versus MI models



Data Source: NCDS & BCS  
Sex, Housing Tenure, NS-SEC, and Cohort interactions also included in Model.

### Predictive Margins of Educational Attainment on Continuing Schooling by Cohorts

CRA versus MI models

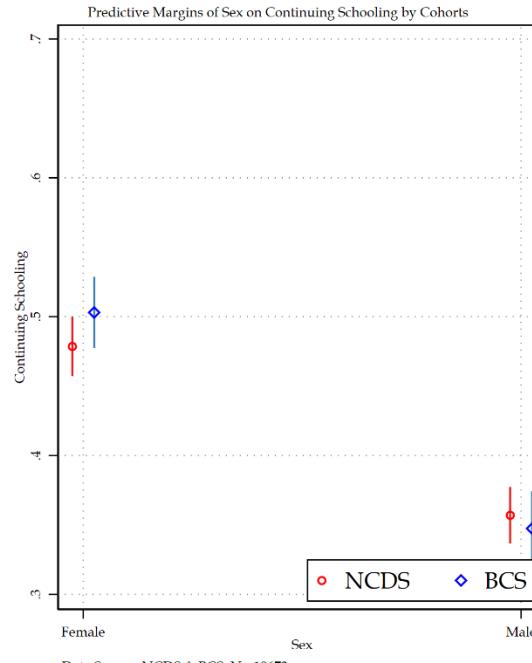
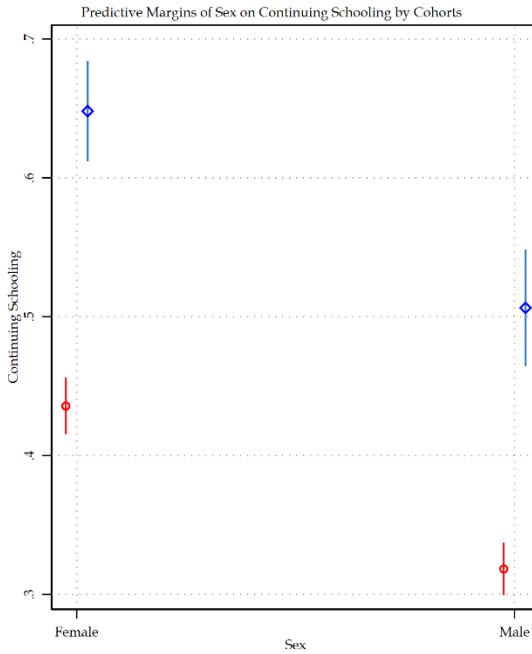


Data Source: NCDS & BCS

Sex, Housing Tenure, NS-SEC, and Cohort interactions also included in Model.

### Predictive Margins of Educational Attainment on Continuing Schooling by Cohorts

CRA versus MI models

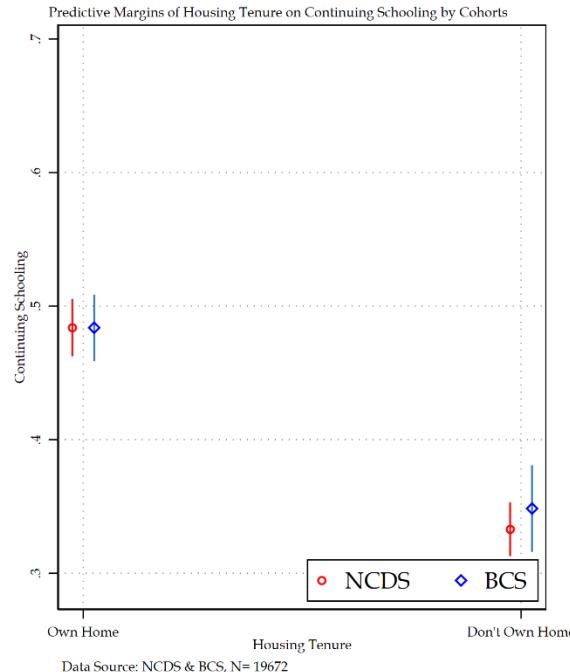
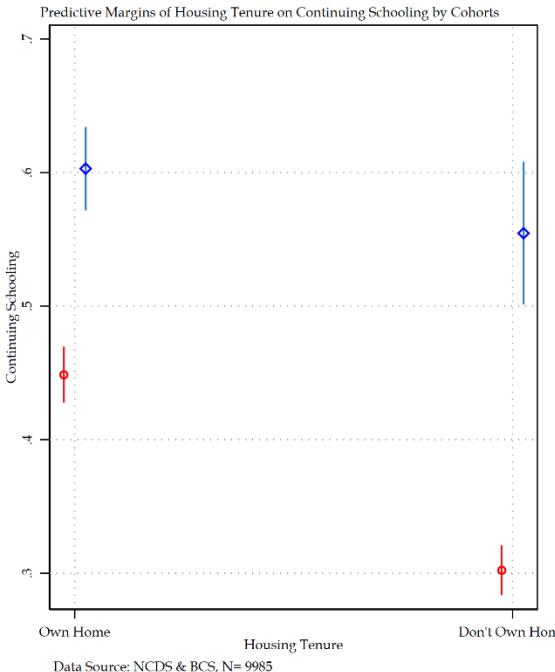


Data Source: NCDS & BCS

Sex, Housing Tenure, NS-SEC, and Cohort interactions also included in Model.

### Predictive Margins of Educational Attainment on Continuing Schooling by Cohorts

CRA versus MI models



Data Source: NCDS & BCS

Sex, Housing Tenure, NS-SEC, and Cohort interactions also included in Model.



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# Conclusions



## Conclusions

- Structures matter – though some cohort dependent
- Social Stratification measures and SOC codes are sensitivity to time
- Handling missing data is important



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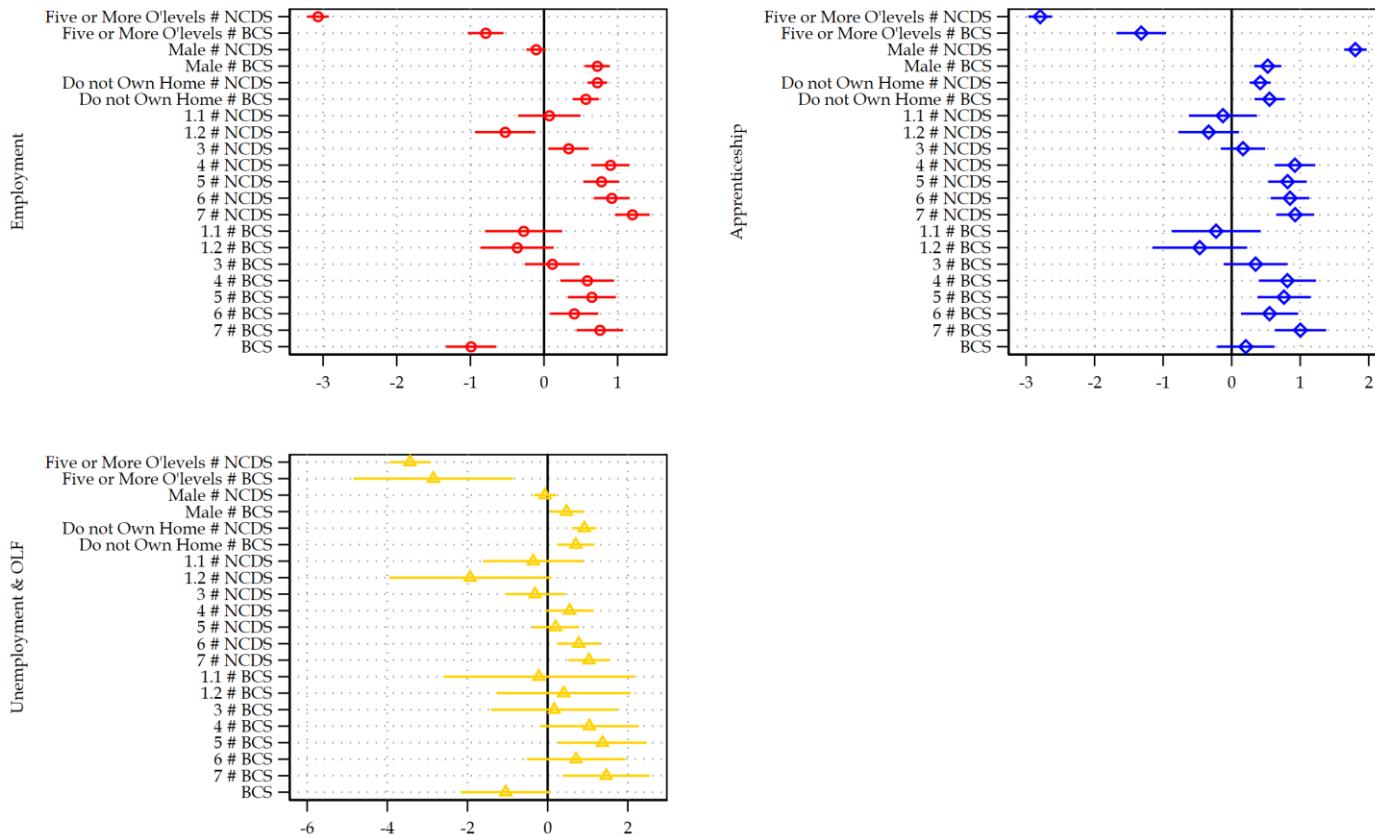
# Youth's First Destination



## Critique and Expansion

- Treating youth transitions like a binary is useful but naïve
- Instead of looking at youth's first transition, let us look at their first destination
- Same analytical sample
  - De-dummying dependent variable
  - Economic Activity after mandatory schooling: Employment, Continuing Schooling (REF), Apprenticeship, Unemployment + OLF

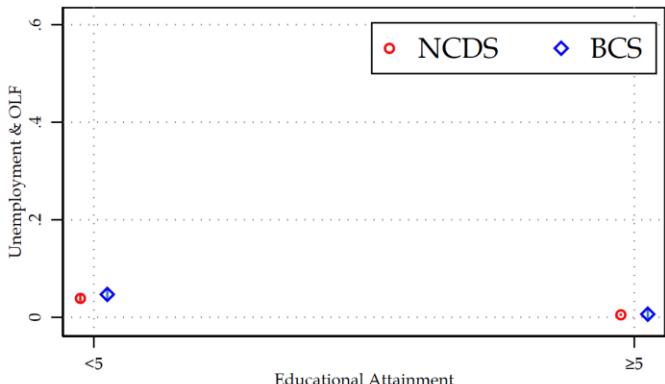
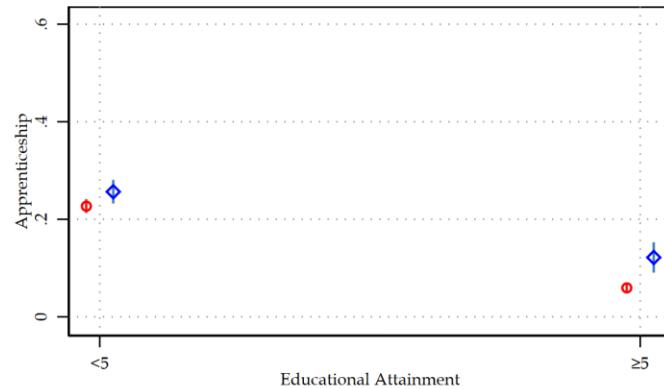
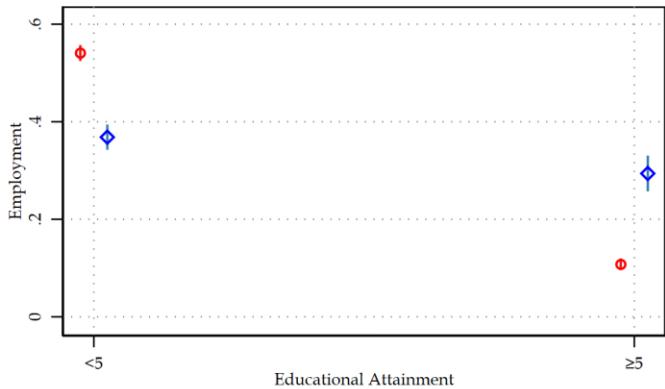
Coefficient Plots of Multinomial Logistic Regression Results  
Betas and CIs of Mlogit model analysing structural impacts on youth's first destination



Data Source: NCDS & BCS, N= 19672. BCS Cohort conditionally imputed.

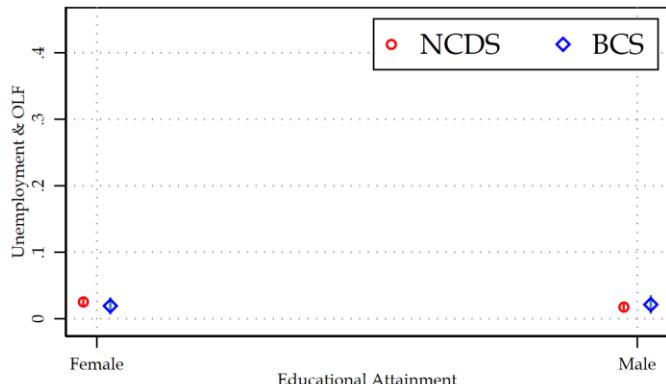
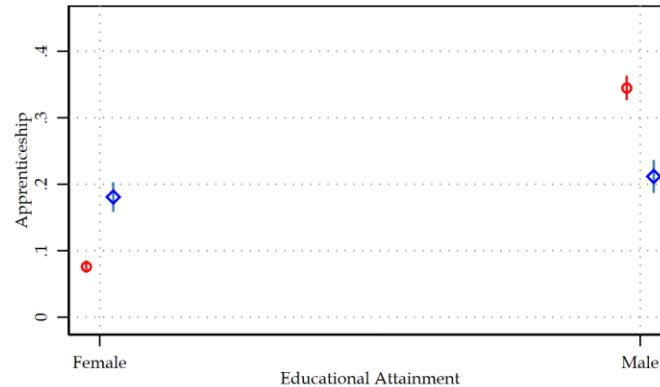
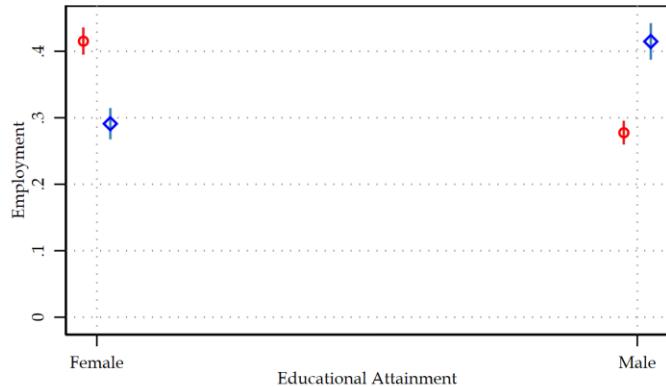
Educational Attainment, Sex, Housing Tenure, NS-SEC, and Cohort interactions included in Model

Predictive Margins of Educational Attainment by Cohorts  
Multnominal logistic regression using continuing schooling as the reference category



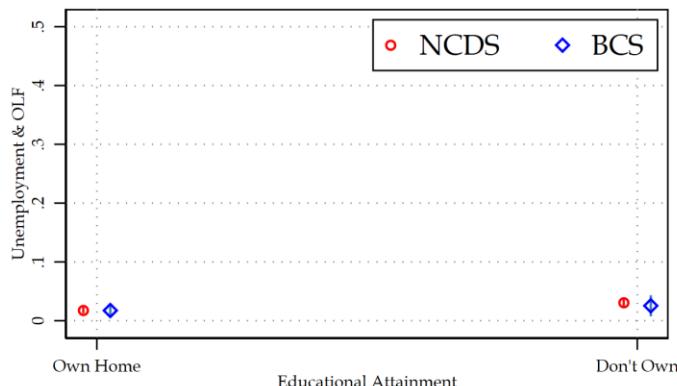
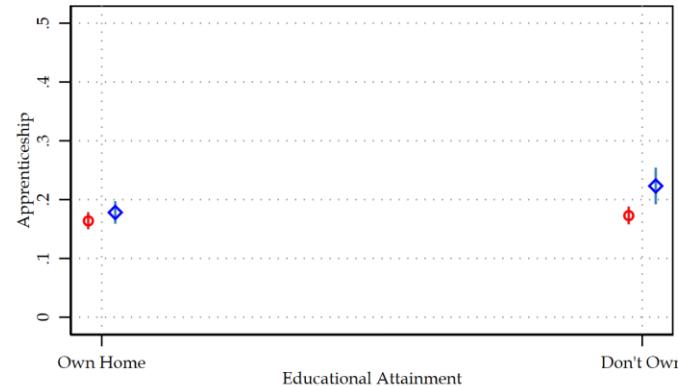
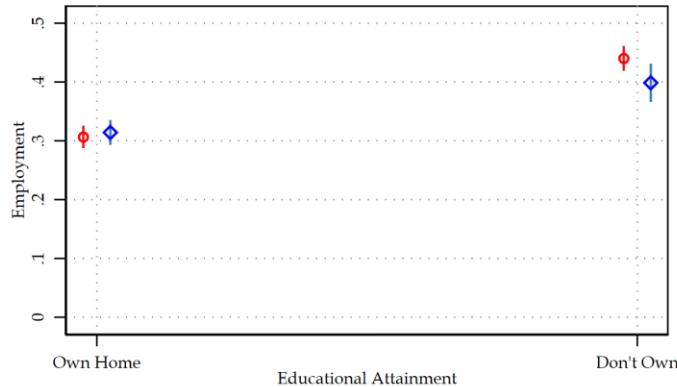
Data Source: NCDS & BCS, N= 19672. BCS Cohort conditionally imputed.  
Sex, Housing Tenure, NS-SEC, and Cohort interactions also included in Model.

Predictive Margins of Sex by Cohorts  
Multnominal logistic regression using continuing schooling as the reference category



Data Source: NCDS & BCS, N= 19672. BCS Cohort conditionally imputed.  
Educational Attainment, Housing Tenure, NS-SEC, and Cohort interactions also included in Model.

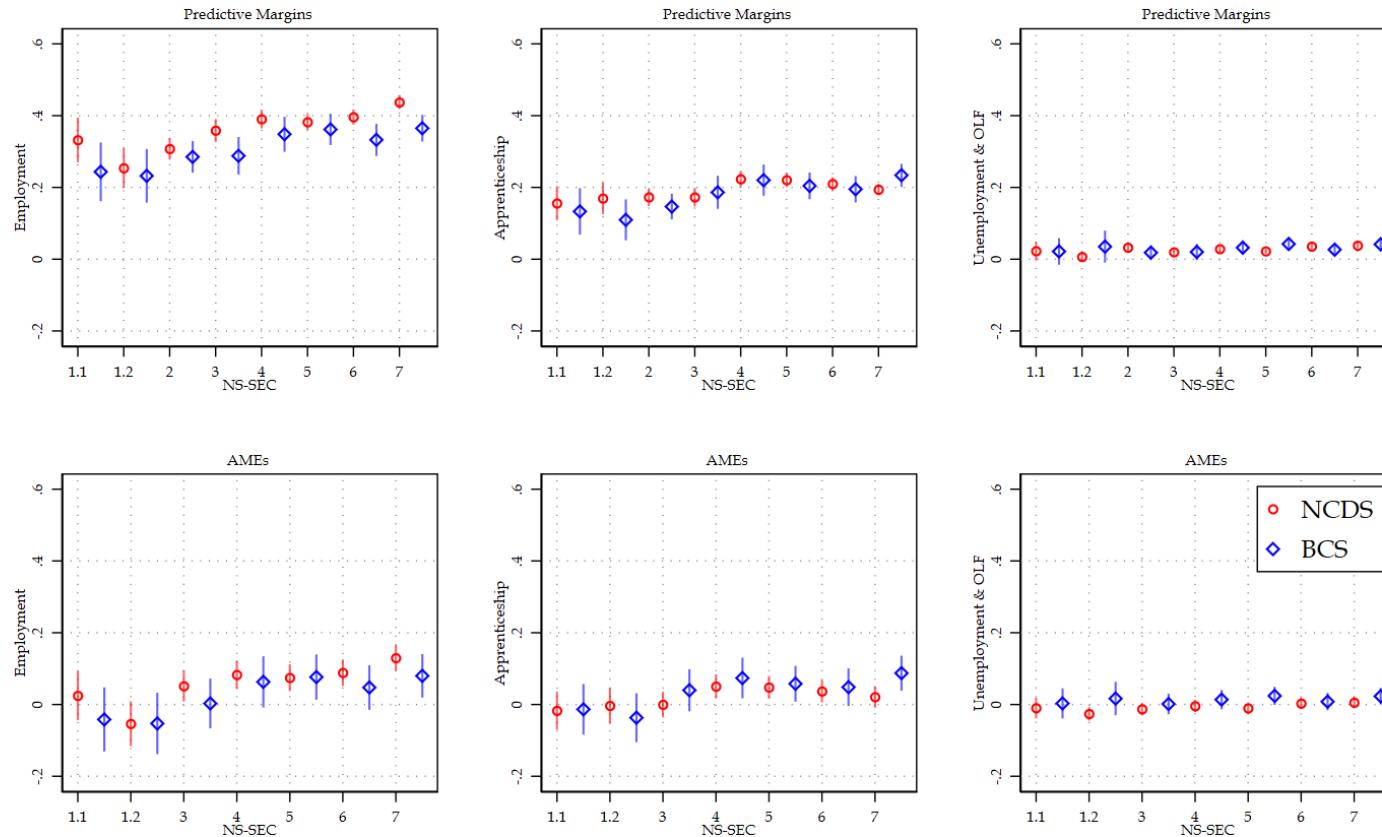
Predictive Margins of Housing Tenure by Cohorts  
Multnominal logistic regression using continuing schooling as the reference category



Data Source: NCDS & BCS, N= 19672. BCS Cohort conditionally imputed.  
Educational Attainment, Sex, NS-SEC, and Cohort interactions also included in Model.

# Predictive and Average Marginal Effects of NS-SEC on Youth's First Destination by Cohorts

Multinomial logistic regression using continuing schooling as the reference category



Data Source: NCDS & BCS, Reference Category NS-SEC 2 for AMEs. BCS Cohort conditionally imputed.

Educational Attainment, Sex, Housing Tenure, and Cohort interactions also included in Model.



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# Conclusions



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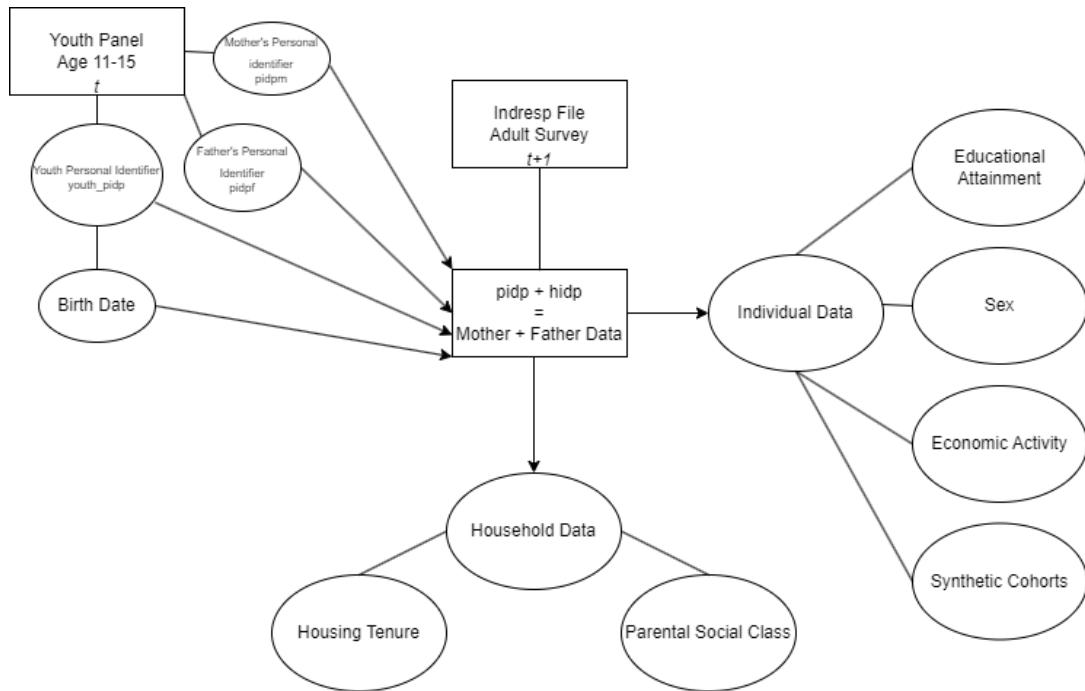
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# Synthetic Cohorts



## Synthetic Cohorts

- Youth Transition black hole – the 1980s/90s
- Solution: Construct Synthetic Cohorts using BHPS and UKHLS data



Synthetic Cohort Year (BHPS only)	n	%
1995	154	4.28
1996	178	4.95
1997	156	4.34
1998	149	4.14
1999	194	5.39
2000	185	4.14
2001	268	7.45
2002	302	8.40
2003	272	7.56
2004	265	7.37
2005	302	8.40
2006	313	8.70
2007	319	8.87
2008	271	7.53
2009	269	7.48
Total	3597	100



## Concluding Remarks

- Different structural inequalities have varying levels of influence on an individual's transition from school-to-work dependent on the type of transitional category that individual enters.
  - Sensitivity analysis presents some interesting takeaways for further research
  - Handling missing data is important, but the 'good' methods you choose from are not so much
-



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- Power, C. and Elliott, J. (2006) ‘Cohort profile: 1958 British birth cohort (National Child Development Study)’, *International Journal of Epidemiology*, 35(1), pp. 34–41. Available at: <https://doi.org/10.1093/ije/dyi183>.
- Silverwood, R. *et al.* (2021) ‘Handling missing data in the National Child Development Study: User guide (Version 2).’



Thank You

- Any Questions?