Youth Transitions and Economic Activity: A Re-examination of NCDS data

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Outline

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

A (very short) literature review

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

National Childhood Development Study (NCDS)

- 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

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?

Overall Research Question

- What are the patterns of social inequality in youth transitions?

- How do Structural Inequalities influence choice and opportunities in the transition from school-to-work?

Proposed model

- Economic Activity
- Educational Attainment
- Sex
- Housing Tenure
- Semi-dominance NS-SEC

	n	%
Economic Activity of Respondent on September when they are 16		
Employment	3,217	38.25%
Non-Traditional Education	744	8.85%
School	2,551	30.33%
Training/Apprenticeships	1,641	19.51%
Unemployment and OLF	258	3.07%
Educational Attainment O-levels		
Less than 5 O-Levels	5,426	64.51%
Five or more 5 O-Levels	2,985	35.49%
Sex of Respondent		
Female	4,215	50.11%
Male	4,196	49.89%
Housing Tenure of Respondent when Child		
Own Home	4,045	48.09%
Don't Own Home	4,366	51.91%
NS-SEC Social Class of Parent when Respondent Child SOC2000		
Large Employers and higher managerial occupations	261	3.10%
Higher professional occupations	410	4.87%
Lower Managerial and professional occupations	1,038	12.34%
Intermediate occupations	805	9.57%
Small employers and own account workers	1,024	12.17%
Lower supervisory and technical occupations	1,372	16.31%
Semi-routine occupations	1,485	17.66%
Routine occupations	2,016	23.97%
RGSC Social Class of Parent when Respondent Child SOC2000		
Professional	362	4.30%
Managerial and Technical	1,720	20.45%
Skilled non-manual	905	10.76%
Skilled manual	3,501	41.62%
Partly skilled	1,205	14.33%
Unskilled	718	8.54%

	Mean	SD
CAMSIS Score of Parent when Respondent Child SOC2000	44.57	13.63
n		8411

Data Source: NCDS [Sweeps 0-4]

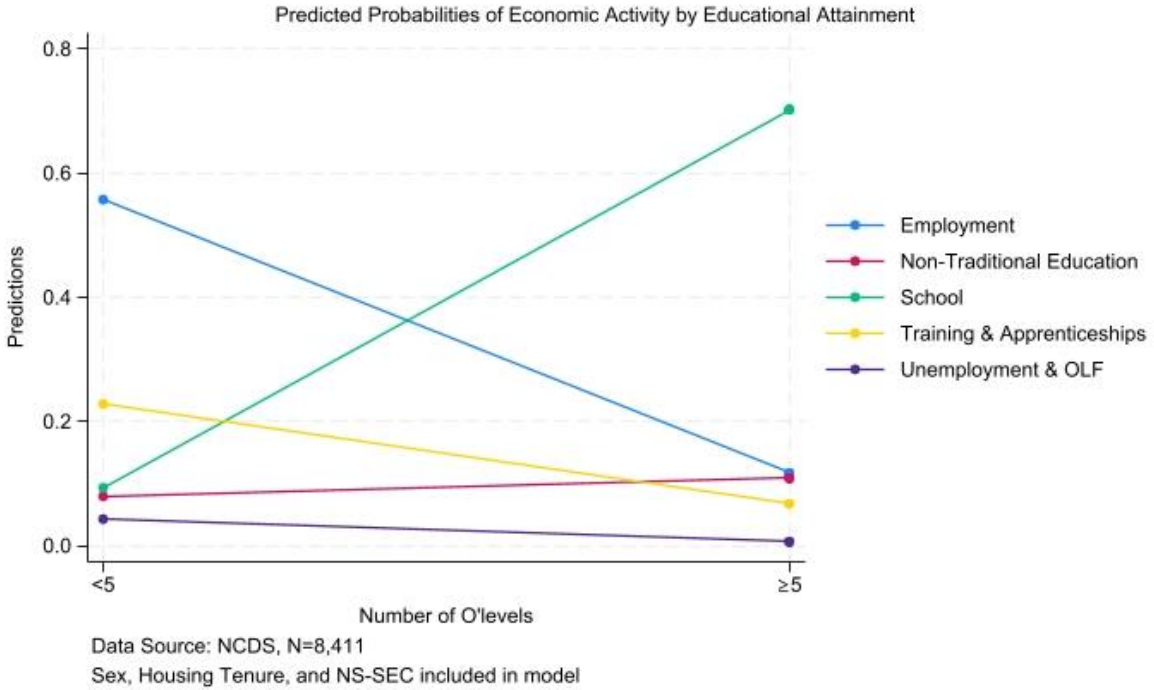
The Model

- Multinominal Logistic Regression
  - Employment is Reference Category for DV
- N=8,411
- Predicted Probabilities and Quasi-variance used to graph results
- See supplements on Github: https://github.com/Scott0atley/YouthTransitions/tree/main/Q-Step to look at full models

Table 1 – Q-Step Appendix

Results

Educational Attainment

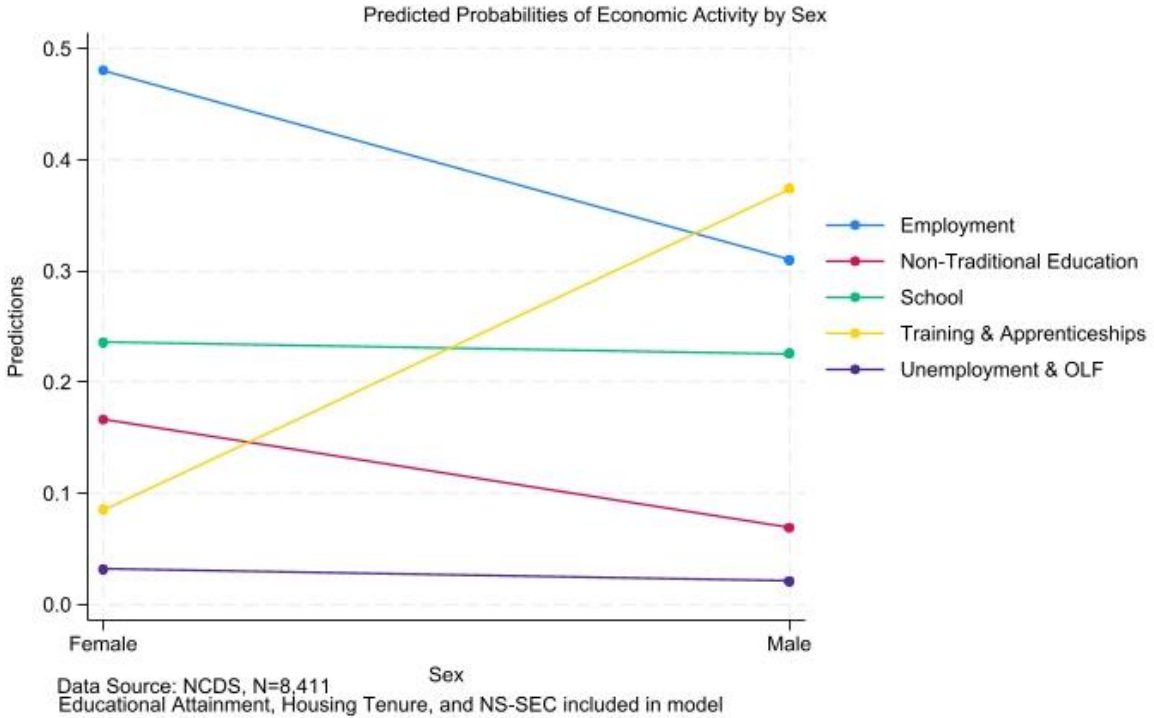


https://github.com/Scott0atley/YouthTransitions/tree/main/Q-Step

Table 1 – Q-Step Appendix

Results

Sex



https://github.com/Scott0atley/YouthTransitions/tree/main/Q-Step

Results

Housing Tenure

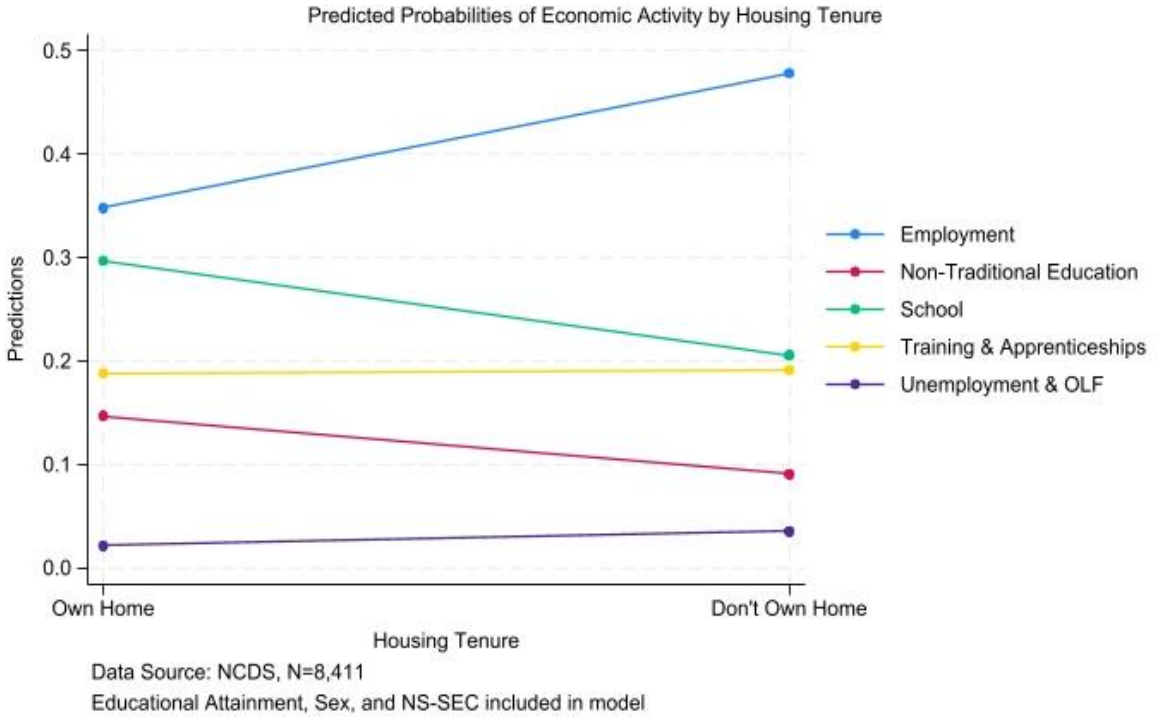


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Table 1 – Q-Step Appendix

Results

NS-SEC

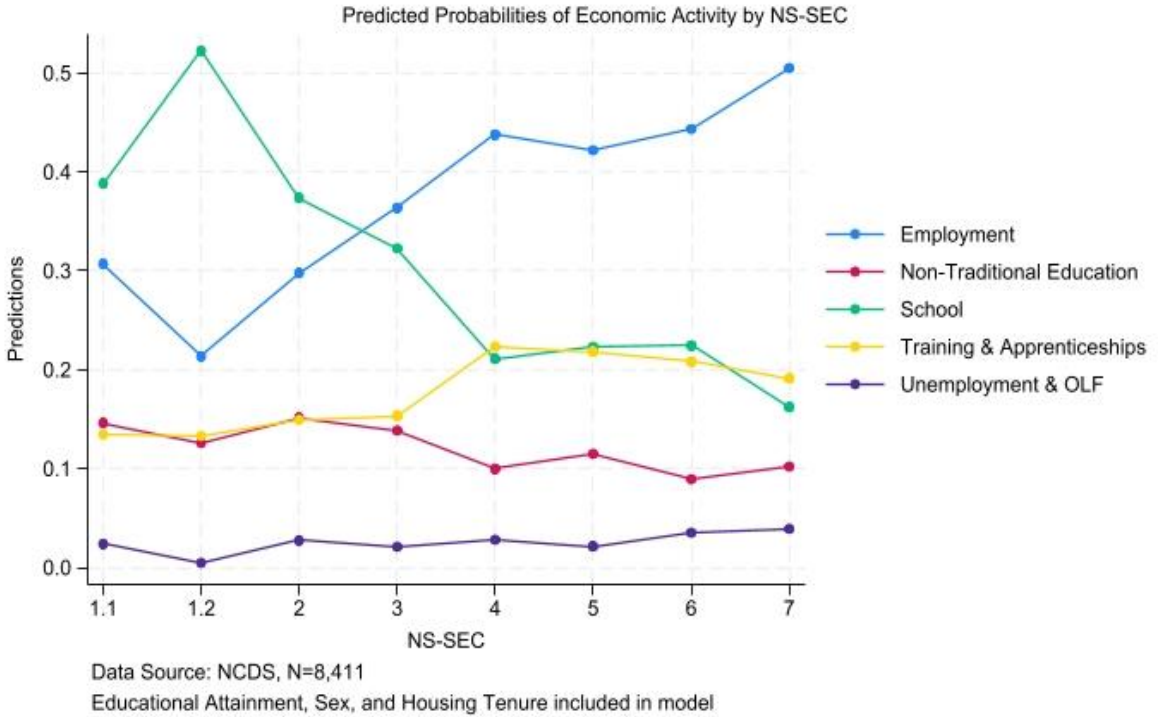

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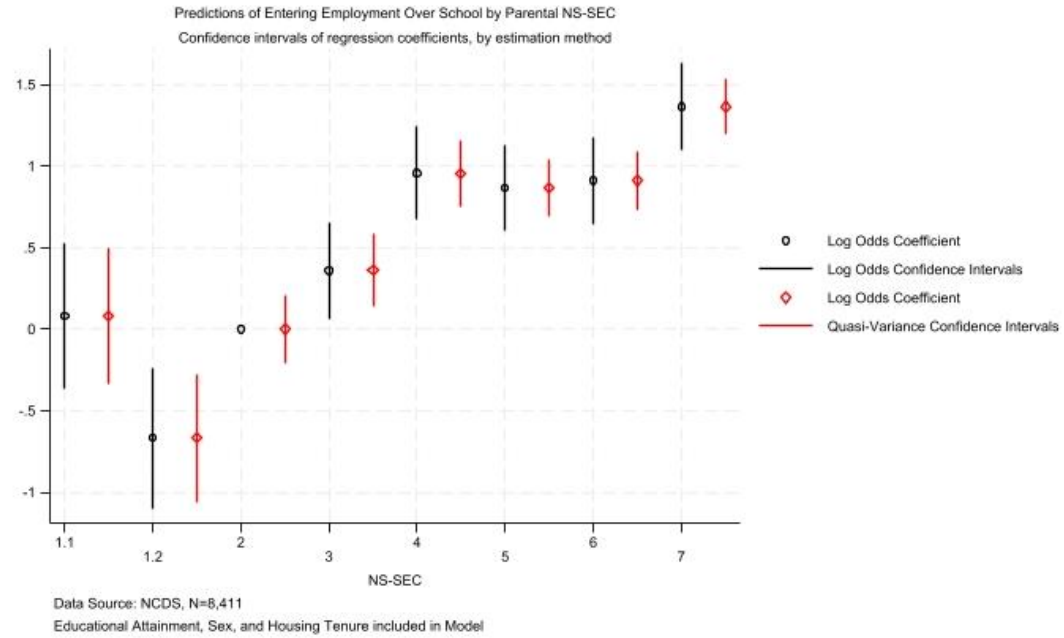
Table 1 – Q-Step Appendix

Results

NS-SEC
Log odds versus Quasi-variance



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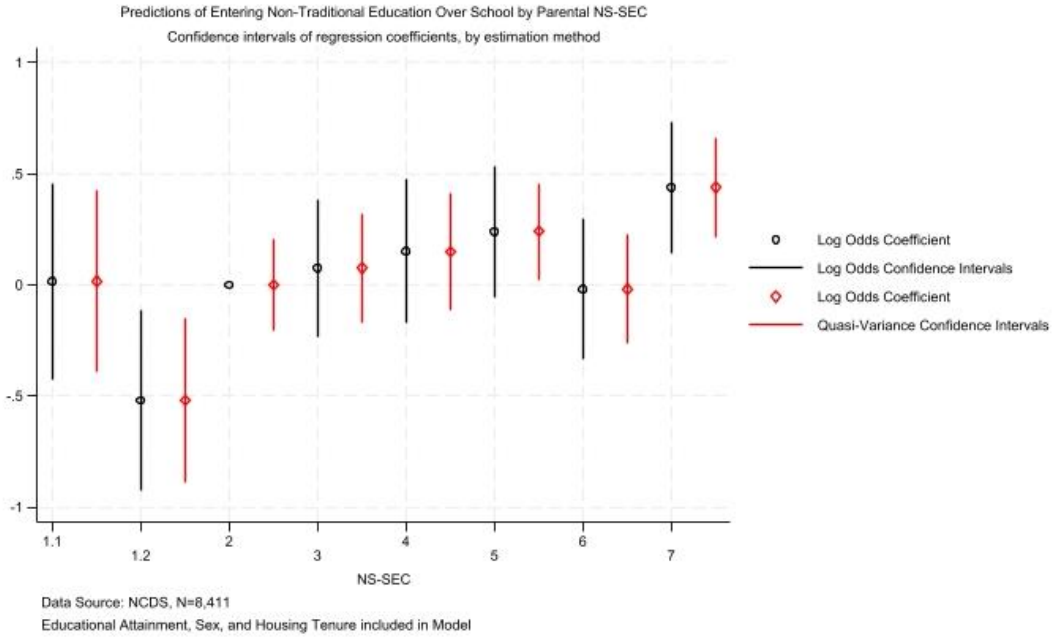

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Table 1 – Q-Step Appendix

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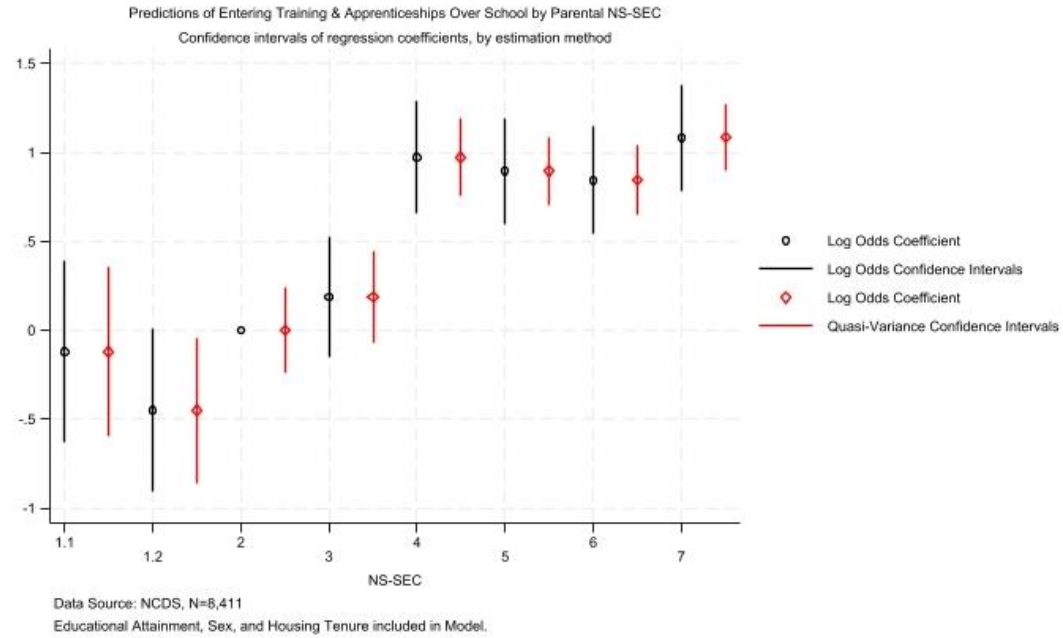

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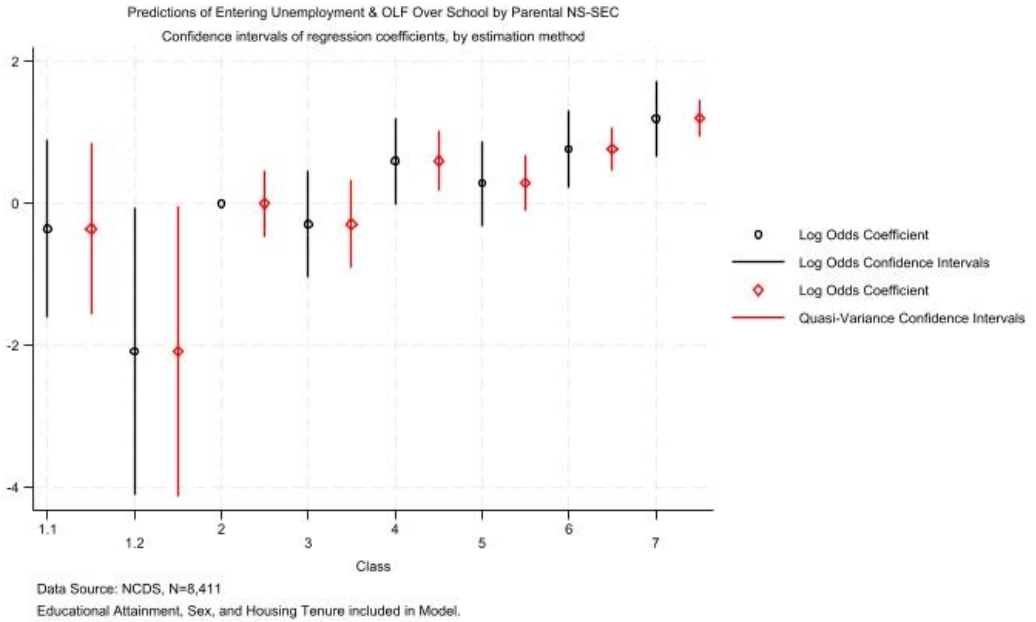


https://github.com/Scott0atley/YouthTransitions/tree/main/Q-Step

Substantive Findings

- Structural inequalities matter (prior research confirms this already)
- They matter for different avenues of choice and opportunity (Here is the slightly new stuff)
- Other structural inequalities like housing tenure matter but not as much as social class & sex (New Structuralism isn't evident in NCDS cohort)
- Educational Attainment has the strongest influence on continuing in school (Intuitively obvious)

Sensitivity Analysis of Social Stratification measures

- Does the use of a certain social stratification measure impact the substantive findings of this model?

- To assess this: Sensitivity Analysis

- Three models
  - (1) NS-SEC
  - (2) CAMSIS
  - (3) RGSC

Table 2 – Q-Step Appendix

Substantive Findings

- NS-SEC and RGSC models are substantively identical

- CAMSIS model is statistically significant across categories with zero substantive significance

Model	NS-SEC	CAMSIS	RGSC
Number of observations	8411	8411	8411
McFadden's R^2	0.25	0.25	0.25
McFadden's Adjusted Pseudo R^2	0.24	0.24	0.24
Cox-Snell Pseudo R^2	0.49	0.49	0.49
Nagelkerke Pseudo R^2	0.53	0.52	0.52
AIC	17431.50	17414.46	17454.71
BIC	17741.14	17555.21	17708.05

https://github.com/Scott0atley/YouthTransitions/tree/main/Q-Step

Table 3 – Q-Step Appendix

Sensitivity analyses of SOC codes

- So far, I have been using a SOC 2000 construction of social stratification measures
- How accurately does a SOC 2000 construction of NS-SEC represent the social landscape of the 1958 cohort?
- Would an earlier SOC construction, say SOC 90 be a more suitable construction to use?

Sensitivity analyses of SOC codes

- Would an earlier SOC construction, say SOC 90 be a more suitable construction to use?

- Back to RQs:
- How have patterns and trends in youth transitions changed over time?

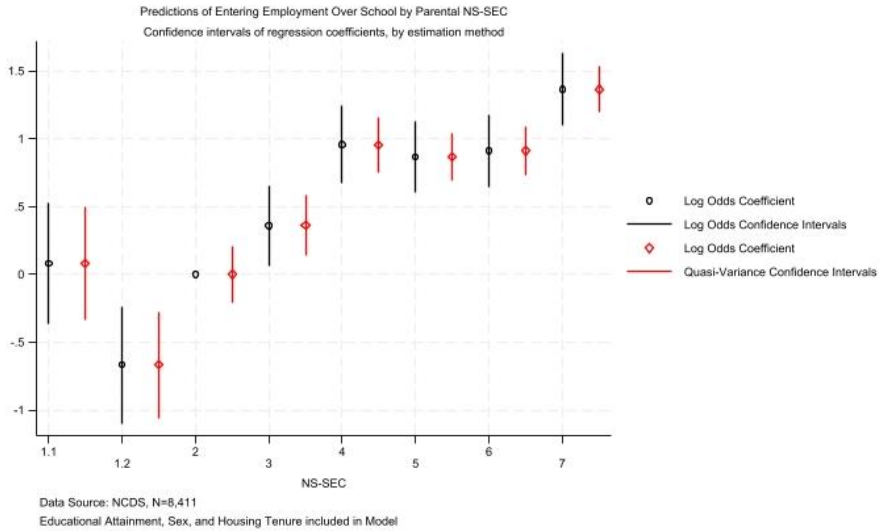
- How have the social processes that underpin youth transitions changed over time?

Table 3 – Q-Step Appendix

Comparative Results

Employment Over School

SOC2000



SOC90

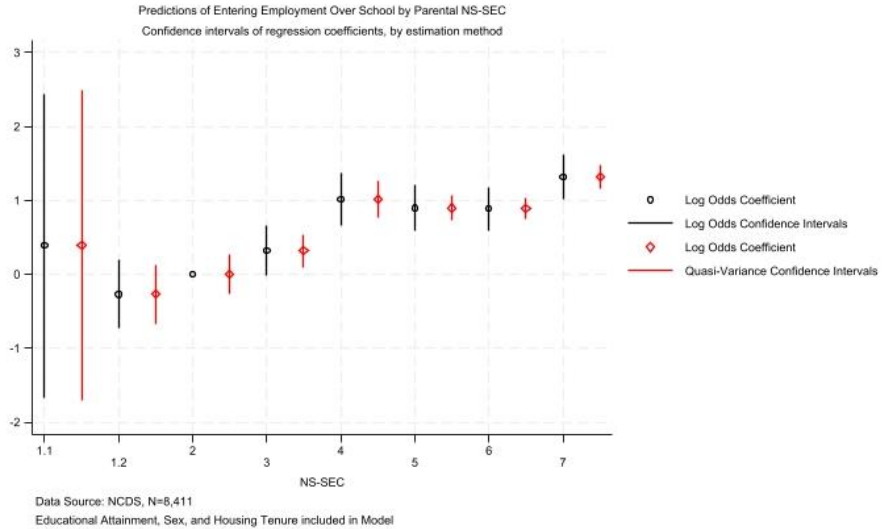


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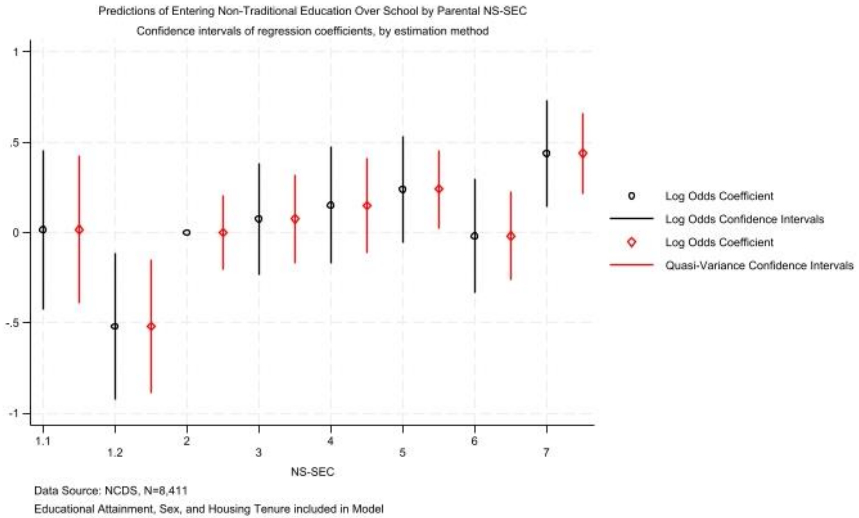
Table 3 – Q-Step Appendix

Comparative Results

Non-Traditional Education Over School

SOC2000



SOC90

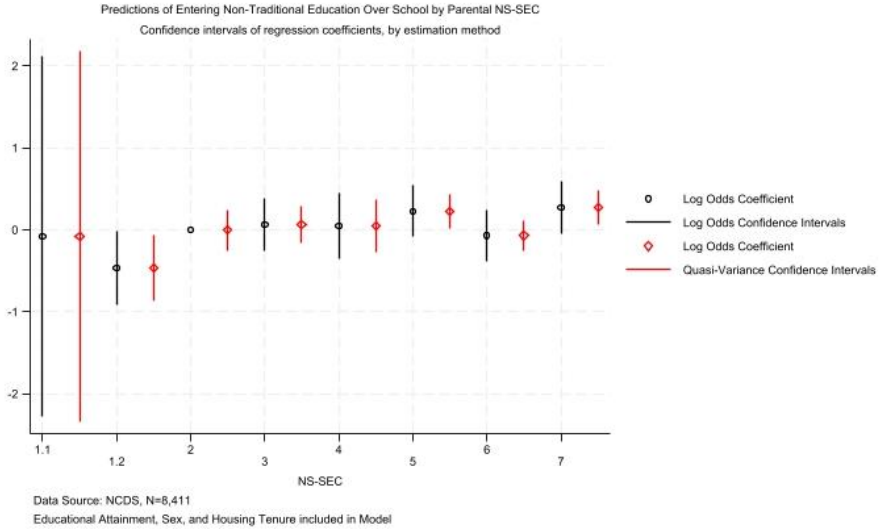


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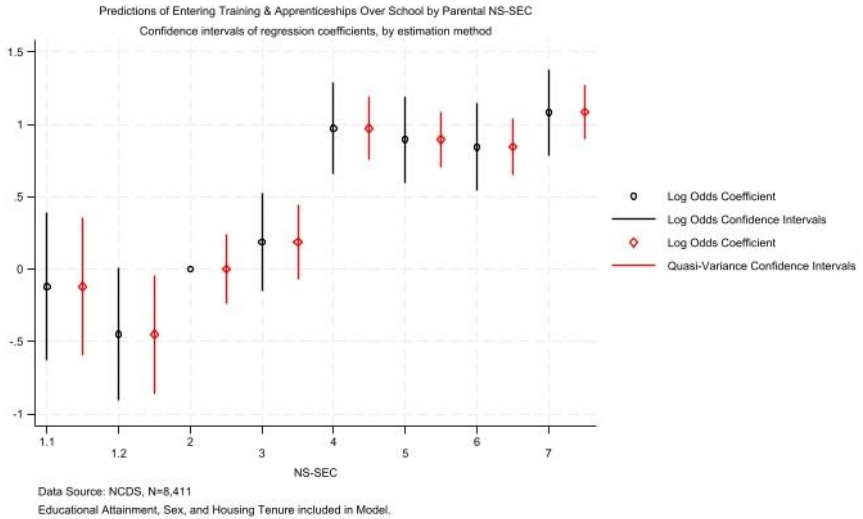
Table 3 – Q-Step Appendix

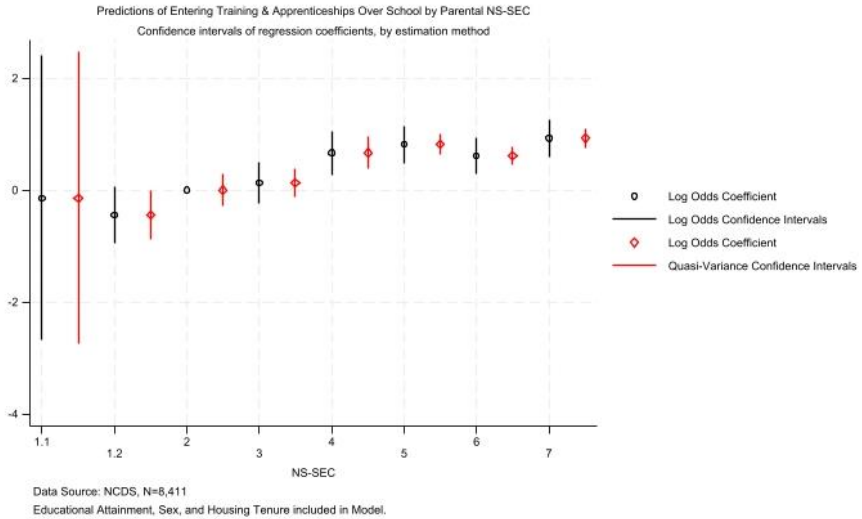
Comparative Results

Training & Apprenticeships Over School

SOC2000



SOC90



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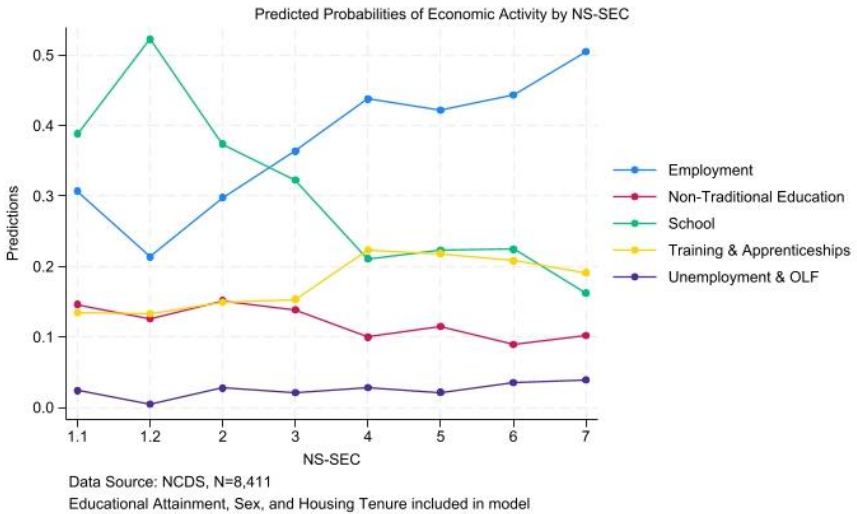
Comparative Results

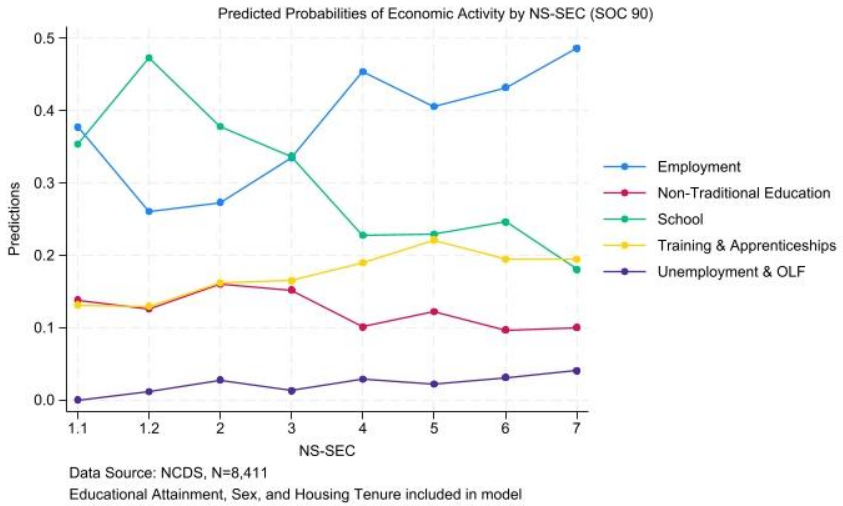
Marginal Effects – NS-SEC

Table 3 – Q-Step Appendix

SOC2000



SOC90



https://github.com/Scott0atley/YouthTransitions/tree/main/Q-Step

Goodness-of-fit Statistics

Model	SOC2000	SOC90
Number of observations	8411	8411
McFadden's R^2	0.25	0.24
McFadden's Adjusted Pseudo R^2	0.24	0.24
Cox-Snell Pseudo R^2	0.49	0.49
Nagelkerke Pseudo R^2	0.53	0.52
AIC	17431.50	17499.93
BIC	17741.14	17809.57

Handling Missing Data in the NCDS

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

How to handle missing data?

- Multiple Imputation versus FIML

Table 1: Simulation Regression Models Using a MCAR 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	-0.18 ***	-0.18 ***	-0.18 ***	-0.26 ***	-0.26 ***	-0.18 ***	-0.18 ***	-0.17 ***	-0.18 ***	-0.18 ***
	(0.02)	(0.02)	(0.02)	(0.01)	(0.01)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
Independent Variable 2	-0.19 ***	-0.19 ***	-0.20 ***	-0.26 ***	-0.26 ***	-0.20 ***	-0.19 ***	-0.19 ***	-0.20 ***	-0.20 ***
	(0.02)	(0.02)	(0.02)	(0.01)	(0.01)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
Independent Variable 3	-0.19 ***	-0.19 ***	-0.20 ***	-0.06 ***	-0.06 ***	-0.20 ***	-0.20 ***	-0.20 ***	-0.19 ***	-0.19 ***
	(0.02)	(0.02)	(0.02)	(0.01)	(0.01)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
Intercept	1.15 ***	1.15 ***	1.16 ***	1.29 ***	1.31 ***	1.16 ***	1.15 ***	1.15 ***	1.16 ***	1.16 ***
	(0.02)	(0.02)	(0.03)	(0.02)	(0.01)	(0.03)	(0.02)	(0.02)	(0.02)	(0.02)
Number of observations	1000	1000	512	1000	1000	512	1000	1000	1000	1000
AIC	-1245.53	819.95	-649.50	-1125.29	-1125.41	-649.50	825.34			
BIC	-1225.90	844.49	-632.55	-1105.65	-1105.78	-632.55	894.05			
Adjusted R-squared	0.80		0.81	0.78	0.78	0.81		.	.	.

***** p<.001, ** p<.01, * p<.05**

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

Table 2: 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	-0.18 ***	-0.18 ***	-0.11 ***	-0.16 ***	-0.27 ***	-0.27 ***	-0.21 ***	-0.17 ***	-0.17 ***	-0.17 ***
	(0.02)	(0.02)	(0.02)	(0.02)	(0.01)	(0.01)	(0.02)	(0.02)	(0.02)	(0.02)
Independent Variable 2	-0.19 ***	-0.19 ***	-0.12 ***	-0.17 ***	-0.27 ***	-0.27 ***	-0.22 ***	-0.18 ***	-0.19 ***	-0.19 ***
	(0.02)	(0.02)	(0.02)	(0.01)	(0.01)	(0.01)	(0.02)	(0.02)	(0.02)	(0.02)
Independent Variable 3	-0.19 ***	-0.19 ***	-0.14 ***	-0.23 ***	0.03	0.03	-0.16 ***	-0.21 ***	-0.20 ***	-0.20 ***
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
Intercept	1.15 ***	1.15 ***	0.81 ***	1.11 ***	1.29 ***	1.29 ***	1.23 ***	1.12 ***	1.13 ***	1.14 ***
	(0.02)	(0.02)	(0.04)	(0.02)	(0.02)	(0.02)	(0.03)	(0.02)	(0.02)	(0.02)
Number of observations	1000	1000	513	1000	1000	1000	1000	1000	1000	1000
AIC	-1245.53	819.95	-696.98	-1290.15	-1098.29	-1098.29	792.03			
BIC	-1225.90	844.49	-680.02	-1270.52	-1078.66	-1078.66	860.74			
Adjusted R-squared	0.80		0.31	0.81	0.77	0.77		.	.	.

***** p<.001, ** p<.01, * p<.05**

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

NCDS Handling Missing Data

- With that segway dealt with…

- MI chosen over FIML for the NCDS

Table 4 – Q-Step Appendix

Predictors of Non-response
(Silverwood et al 2021)

Predictors of non-response

CENTRE FOR LONGITUDINAL STUDIES

	NR sweep 1 (age 7)	NR sweep 2 (age 11)	NR sweep 3 (age 16)	NR sweep 4 (age 23)	NR sweep 5 (age 33)	NR sweep 6 (age 42)	NR BM sweep (age 44)	NR sweep 7 (age 46)	NR sweep 8 (age 50)	NR sweep 9 (age 55)
Sweep 0 (birth)	3	1	1	4	3	3	5	3	3	6
Sweep 1 (age 7)		5	3	3	5	1	5	4	3	4
Sweep 2 (age 11)			1	4	3	3	1	3	2	2
Sweep 3 (age 16)				4	4	3	4	4	4	5
Sweep 4 (age 23)					5	2	1	2	3	2
Sweep 5 (age 33)						5	4	2	3	5
Sweep 6 (age 42)							5	3	5	2
BM sweep (age 44)								3	3	1
Sweep 7 (age 46)									1	1
Sweep 8 (age 50)										3
Total	**3**	**6**	**5**	**15**	**20**	**17**	**25**	**24**	**27**	**31**

12

https://github.com/Scott0atley/YouthTransitions/tree/main/Q-Step

Table 4 – Q-Step Appendix

Substantive Findings

- Substantively identical between CRA and MI models

Concluding Remarks

- How do Structural Inequalities influence choice and opportunities in the transition from school-to-work?
- 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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References

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- Silverwood, R. *et al.* (2021) 'Handling missing data in the National Child Development Study: User guide (Version 2).'

Thank You

- Any Questions?