



# The Intergenerational Transmission of Worklessness in the UK

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PhD thesis

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# Motivation

- Increasing body of literature in the UK on intergenerational transmissions
- Intergenerational (social) mobility has risen up the political agenda in the past five yrs with cross-party support for improvement
- White Paper, Panel on Access to Professions, Social Mobility Czar
- Most of the evidence is based on the intergenerational transmission of earnings
- This research examines the other side of the story; worklessness

# Motivation

- The intergenerational transmission of unemployment (worklessness) has recently entered into the political discussion
- With rising unemployment, increased concern for generations of families who never work
- This research describes some of the key facts about the intergenerational relationship in worklessness in the UK
- Mirror social mobility literature by focusing on
  - a) descriptive trends in long-term intergen worklessness
  - b) the drivers of intergenerational worklessness
  - c) attempt to establish causality

# What's new?

- Adds to the sparse literature in the UK on this issue - last paper to study this was published in 1998
- Introduces new data in this context and enables across-time comparisons
- First attempt to look at the (child-based) drivers of intergenerational worklessness in the UK
- Focus on long-run worklessness in parts 1) and 2)
- Introduce new methodology utilising a shock to employment in an attempt to establish causality

## Main findings...

- There is a large correlation in worklessness across generations which has grown stronger for the more recent cohort
- The relationship remains strong despite controlling for a range of family background characteristics
- Perhaps surprisingly, it is non-cognitive traits in childhood that play the biggest role in driving this relationship, not education or cognitive skills
- Can not (yet) identify a causal relationship

# Outline

- Background literature
- Data
- 1) The intergenerational correlation
- 2) Drivers of intergenerational worklessness
- 3) Causality
- Conclusions

# Background literature

- Intergenerational transmissions can work through a number of different channels
- Becker and Tomes (1979, 1986) first formalised this theoretically in terms of;
  - parents investments in their child's human capital
  - the returns to these investments in the labour market
- These mechanisms can be both causal and indirect
- Ability is the classic indirect channel

# Background literature

## **Potential causal channels**

- Poverty – (*Beaulieu et. al. 2005, Corak et. al. 2000*)
- Tastes and attitudes for work – (*O’Neill and Sweetman 1998, Ekhaugen 2009*)
- Family Stress Model – (*Conger et. al. 2000*)
- Social capital / networks – (*Corak et. al. 2000, Corak and Piraino 2008, Ioannides and Loury 2004*)



# Background literature

## **Descriptive trends**

- In the UK, for a cohort born in 1958, sons from workless fathers were twice as likely to be workless in adulthood as sons from working fathers (*Johnson and Reed 1996, O'Neill and Sweetman 1998*)
- The correlation in the UK for this cohort was 0.20, larger than that seen in Canada or Scandinavia, as in the social mobility literature (*O'Neill and Sweetman 1998, Corak et. al. 2000, Ekhaugen 2009*)

# Background literature

## **Drivers**

- No empirical evidence on potential drivers of worklessness across generations
- In mobility literature, education is the key driver with early cognitive and non-cognitive skills working through final educational attainment (*Blanden, Gregg and Macmillan 2007*)
- In the US, evidence from the Perry Pre-School program suggests non-cognitive traits have causal impact on future employability (*Heckman et. al. 2007*)

## **Causality**

- The magnitude of the correlation in the UK remained in causal estimates but the results were not significant (*O'Neill and Sweetman 1998*)
- Causal link found in the US and Canada but not in Scandinavia or the UK (*Gottschalk 1996, Beaulieu et. al. 2005, Corak et. al. 2000, Ekhaugen 2009*)

# Data - part 1)

## **NCDS**

- Data at birth, 7, 11, 16, 23, 33, 42, 46 for 9,000 sons born March 1958
- Fathers employment measures at 11 (1969) and 16 (1974)
- Sons monthly work history from 16 (1974) to 30 (1988)
- Family characteristics include parental education, age, fathers social class, housing tenure and region all at 11

## **BCS**

- Data at birth, 5, 10, 16, 26, 30, 34 for 9,000 sons born April 1970
- Fathers employment measures at 10 (1980) and 16 (1986)
- Sons monthly work history from 16 (1986) to 30 (2000)
- Family characteristics include parental education, age, fathers social class, housing tenure and region all at 10

# Data

## Main variables definition

- Fathers defined workless if only ever observed out of work at 11(10) and 16
- Sons defined workless if spend, >6 months, > **a year** or > 2 years in concurrent spells out of work since leaving FT ed until age 30 (NCDS; 1974 -1988, BCS; 1986 - 2000)
- Final samples 4639 and 4646 in NCDS and BCS

## **Drivers of worklessness – BCS cohort only**

### **Childhood characteristics**

- Cognitive / Educational Attainment
  - Early cognition (EPVT 5, copy 5, IQ 10, Maths 10, Reading 10)
  - Later educational attainment (GCSEs, Staying on at 16, 18, A-levels, Degree)
- Non-cognitive skills
  - Early non-cognitive traits (anti-social 5, neurotic 5, hyperactive 10, extrovert 10, application 10 etc)
  - Later behavioural measures (risky behaviours 16, attitudes to school 16, attitudes to work 16, truancy 10/16, social connections 16)

# Descriptive statistics

## Fathers worklessness percentages

	<b>Only workless</b>	<b>Employed &amp; workless</b>	<b>Only employed</b>
NCDS (1969,1974)	2.2	3.5	94.3
BCS (1980, 1986)	4.4	5.2	90.4

# Descriptive statistics

## Sons worklessness (ft ed – 30) percentages

	>6 mths	>12 mths	>24 mths
NCDS (1974-1988)	25.2	14.0	6.5
BCS (1986-2000)	20.1	14.4	8.7

## NEETs? Up to age 24 percentages

	>6 mths	>12 mths	>24 mths
NCDS (1974-1988)	20.7 (82%)	10.5 (75%)	3.6 (55%)
BCS (1986-2000)	16.0 (79%)	11.0 (76%)	6.4 (73%)



## **Sons worklessness for 12 months or more percentages by fathers work experiences**

	<b>Only workless</b>	<b>Employed &amp; workless</b>	<b>Only employed</b>
NCDS (1974-1988)	35.0	21.6	13.2
BCS (1986-2000)	39.3	20.4	12.9

# Intergenerational correlation

$$worklessness_i^{son} = \alpha + \beta worklessness_i^{father} + u_i$$

	>6 mths	>12 mths	>24 mths
NCDS (1974-1988)	0.199 (.049)***	0.215 (.047)***	0.132 (.039)***
BCS (1986-2000)	0.291 (.035)***	0.261 (.034)***	0.234 (.032)***

# Intergenerational correlation

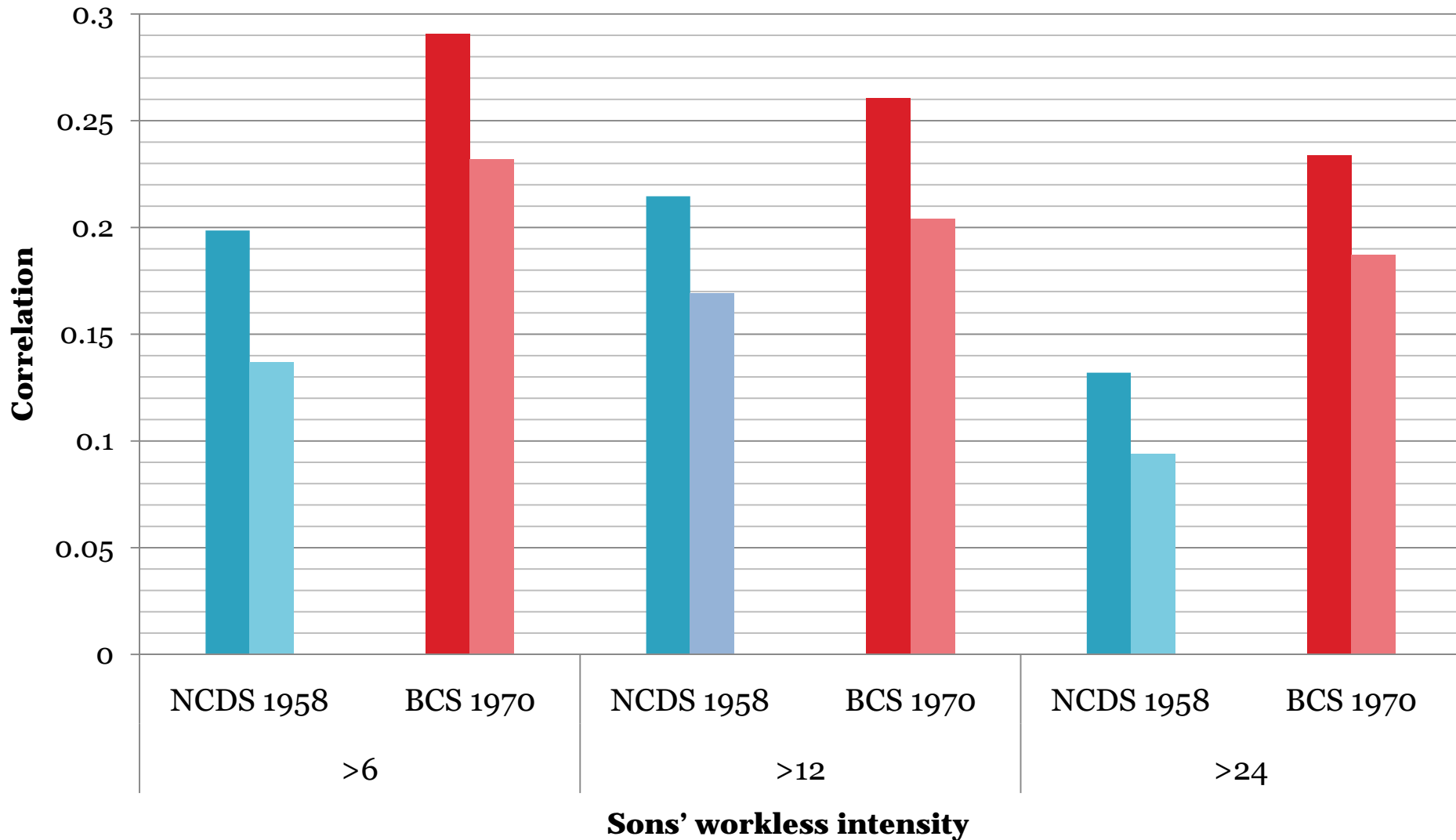
$$w_i^{son} = \alpha + \beta w_i^{father} + \mathbf{X}_i^{parents} \gamma + u_i$$

	>6 mths	>12 mths	>24 mths
NCDS (1974-1988)	0.137 (.051)***	0.160 (.028)***	0.094 (.040)***
BCS (1986-2000)	0.232 (.037)***	0.204 (.035)***	0.187 (.033)***

$\mathbf{X}_i^{parents}$  = parents' education, fathers' social class, housing tenure, region, quadratic age controls

# Intergenerational correlation

**Conditional on  $X_i^{parents}$**



# Drivers

$$w_i^{son} = \alpha + \beta w_i^{father} + u_i$$

The intergenerational relationship can be split into two parts

$$1) ed_i^{son} = \sigma + \lambda w_i^{father} + e_i$$

The relationship between potential mechanism and fathers' worklessness

$$2) w_i^{son} = \eta + \gamma ed_i^{son} + \delta w_i^{father} + \varepsilon_i$$

And the relationship between this potential mechanism and the future employability of the son in adulthood

# Drivers

Sub 1) into 2) assuming  $Cov(e_i, \varepsilon_i) = 0$

$$w_i^{son} = \eta + (\sigma + \lambda w_i^{father})\gamma + \delta w_i^{father} + \varepsilon_i$$

$$w_i^{son} = \eta + \sigma\gamma + (\lambda\gamma + \delta)w_i^{father} + \varepsilon_i$$

$$\frac{\partial w_i^{son}}{\partial w_i^{father}} = \lambda\gamma + \delta \Rightarrow \beta = \lambda\gamma + \delta$$

The intergenerational correlation is therefore a sum of

the part associated with the mechanism ( $\lambda\gamma$ ) and the direct workless component ( $\delta$ )

# Drivers - BCS cohort only

## ➤ Building by stages across childhood

	<b>Age 5</b>	<b>+ Age 10</b>	<b>+ Age 16</b>
Non cognitive	2.72	7.26	8.85
Cognitive	8.29	6.47	4.48
<b>Total % accounted for</b> $\left(\frac{\lambda\gamma}{\beta}\right)$	<b>11.01</b>	<b>13.73</b>	<b>13.33</b>

## ➤ In contrast to the mobility literature, the majority of the correlation that can be accounted for $\left(\frac{\lambda\gamma}{\beta}\right)$ is working through non-cognitive traits

# Conditional Drivers - BCS cohort

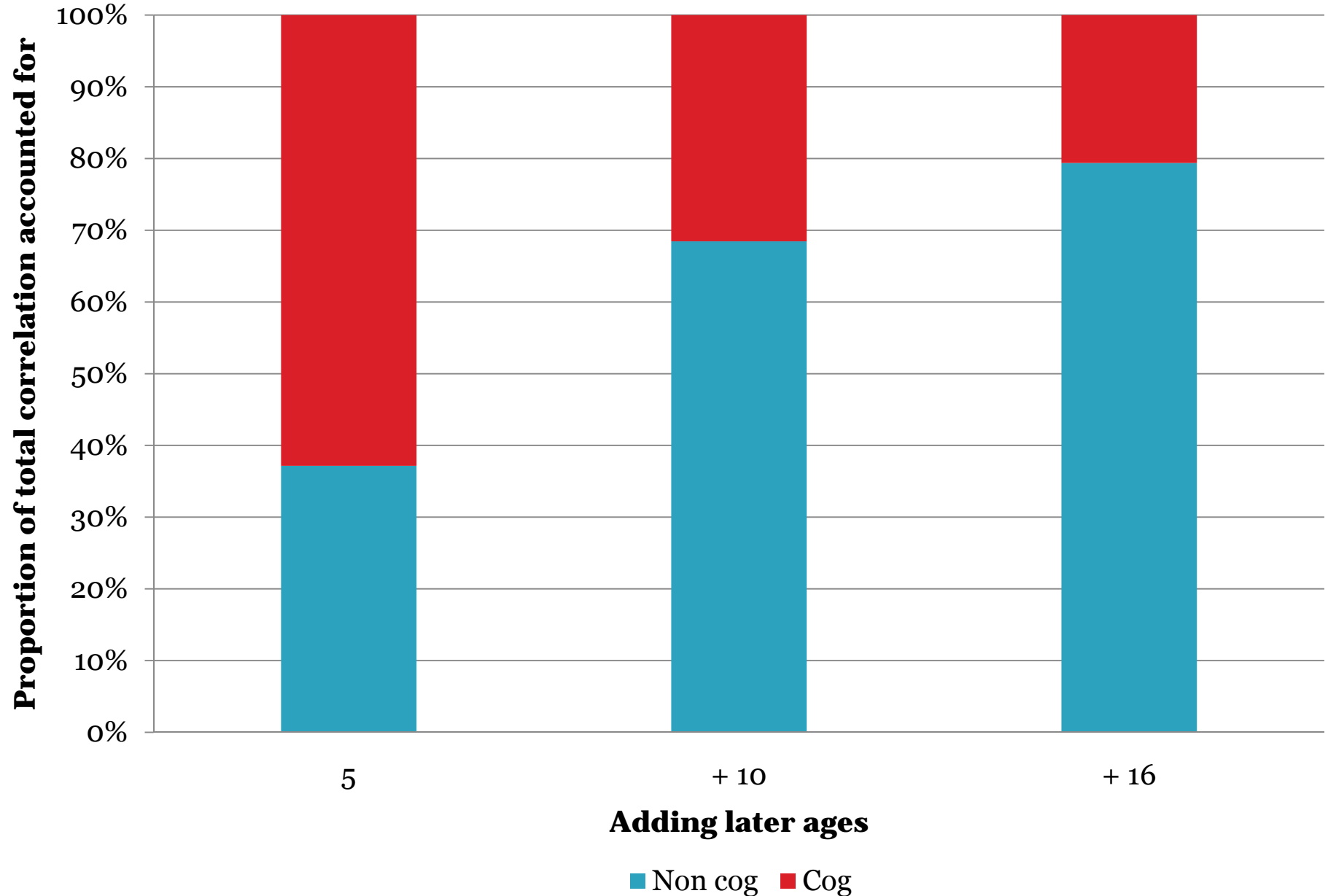
- Again, building by stages across childhood

	<b>Age 5</b>	<b>+ Age 10</b>	<b>+ Age 16</b>
Non cognitive	2.52	6.37	7.66
Cognitive	4.26	2.93	1.99
<b>Total % accounted for</b> $\left(\frac{\lambda\gamma}{\beta}\right)$	<b>6.66</b>	<b>9.30</b>	<b>9.65</b>

- The background controls knock out some of the cognitive mechanism but do little to the non-cognitive component



# Conditional Drivers



# Conditional Drivers

## **Important factors**

- Characteristics driving intergenerational transmission ( $\lambda\gamma$ )
  - **Copy 5, EPVT 5, Application 10, Hyperactive 10, Extrovert 10, Maths 10, Work 16, Trouble with the law at 16, Negative attitudes to school 16, Parent job contacts 16, GCSEs 16**
- In addition, there are some characteristics that do not play a role in this decomposition as they are not associated with fathers' worklessness but are strongly associated with future worklessness ( $\gamma$ )
  - **Truancy 10, Truancy 16, Smoking 16, Risky behaviours 16**

# Causality?

## 1981 recession

$$w_i^{son} = \alpha + \beta w_i^{father} + \mathbf{X}_i^{parent} \gamma + \mathbf{z}_i + v_i$$

$$u_i = \mathbf{z}_i + v_i \quad \text{Cov}(w_i^{father}, u_i) \neq 0$$

- Classic omitted variable bias
- Mobility literature has always struggled to say anything causal about whether it is actually income that impacts on future earnings
- It is interesting from a policy perspective to attempt to identify if it is actually work that causes workless spells in the next generation

# Causality?

## 1981 recession

- Use an instrumental variables approach
- Utilise the impact of the 1981 recession
  - The recession was unanticipated
  - It hit certain industries much harder than others
  - The hard hit industries saw large falls in employment from 1980 to 1983
- Define instrument as an indicator of those working in the hardest hit industries before the recession (1980)

# Causality?

## 1981 recession

- These father's were at a higher risk of workless spells in 1986 than those father's in non-hit industries due to an exogenous shock, *given no selection into industry*

$$w_i^{father} = \sigma + \chi \mathbf{hit}_i + \mathbf{X}_i^{parent} \gamma + u_i$$

$$w_i^{son} = \alpha + \beta \hat{w}_i^{father} + \mathbf{X}_i^{parent} \lambda + e_i$$

# Causality?

## **1981 recession**

- The crucial assumption for identifying causality is that the hit and the non-hit group are identical in terms of characteristics (obs. and unobs.) – *Exclusion Restriction*
- Some concern that there is selection into harder hit industries – form of matching applied to the data to minimize differences in observable characteristics
- Working in these hard hit industries in 1980 must also predict workless spells in 1986 – *Relevance assumption*

# Causality?

## **1981 recession**

- This methodology requires that the father was observed in work in 1980 (90% of previous sample)
- Therefore attempts to capture causality in a **less permanent form of worklessness**
- Fathers now defined as workless if not observed in work at 16
- Those without an industry code at 10 dropped from the sample – sons workless rates very similar to total sample across outcomes

## Less permanent worklessness

### ➤ Sons worklessness for >12mths by fathers experiences (matched sample)

	Only workless	Employed & workless	Only employed
BCS (1986-2000)	N/A	17.1	12.2

### ➤ Intergenerational Correlation (matched sample)

	>6 mths	>12 mths	>24 mths
Uncond.	0.043 (.017)***	0.049 (.014)***	0.047 (.011)***
Cond.	0.018 (.017)	0.026 (.015)*	0.030 (.012)***



# Instrumental Variables

## ➤ **IV results (matched sample)**

	<b>First Stage</b>	<b>F-test</b>	<b>Second stage</b>
Uncond.	0.081 (.020)***	16.90	0.243 (.189)
Cond.	0.076 (.020)***	15.02	0.209 (.195)

# Conclusion

- This research adds to the sparse literature on intergenerational worklessness in the UK by
  - Introducing a new birth cohort for those born in the UK in 1970
  - First look at examining the drivers of the persistence in worklessness across generations
  - Attempts to establish causality in the relationship

# Conclusion

- There is a large intergenerational correlation of worklessness in the UK which has got stronger across time, consistent with the mobility literature
- This appears to be driven more by 'soft skills' than educational attainment and cognitive ability
- There is no identifiable causal relationship in the correlation

# Policy implications

- Despite the lack of causality the trend in the correlation is concerning
- We know that there is an increasing issue with NEEThood, exacerbated by current employment trends - these spells also have scarring effects
- Next step, potential pilot study identifying the early indicators of later NEETs

# Policy implications

- The focus on attainment may not be enough. Causal evidence in the US links low non-cog ability to less employability in adulthood. Supportive evidence of this trend here.
- This worryingly also seems to be associated with coming from workless households

# Appendix

# Appendix

# Data

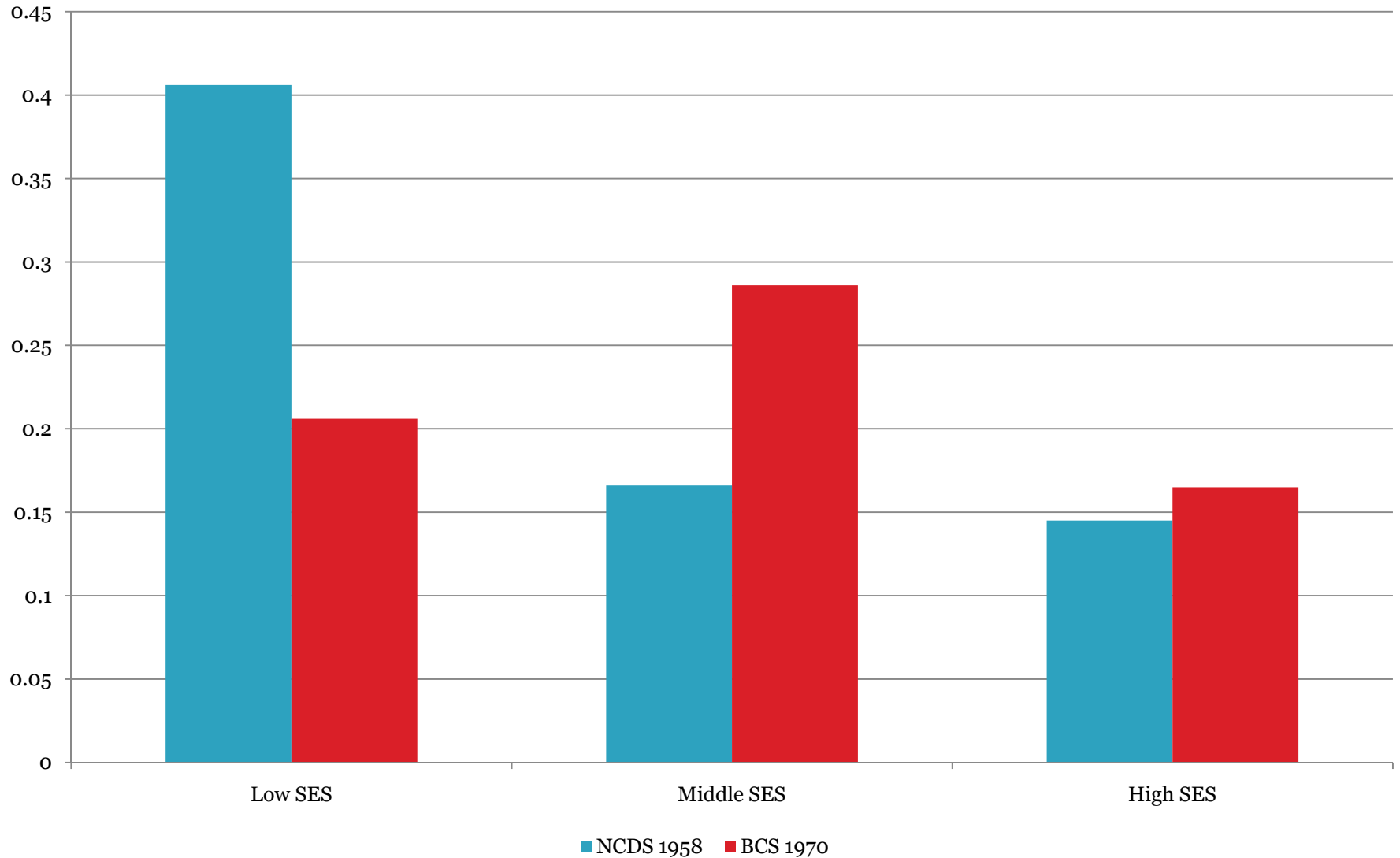
## Attrition?

	<b>Cohorts</b>	<b>FES</b>
NCDS		
1969	2.74	2.90
1974	5.35	3.70
BCS		
1980	4.34	4.18
1986	12.22	9.36

- Comparing the workless rates of the father-son pair sample to the workless rates from the Family Expenditure Survey (FES) for fathers with similar aged children

# Intergenerational correlation

## Non-linear effects?





# Conditional Drivers

$$1) w_i^{son} = \alpha + \beta w_i^{father} + \mathbf{X}_i \gamma + u_i$$

$$2) ed_i^{son} = \sigma + \lambda w_i^{father} + \mathbf{X}_i \mu + e_i$$

$$3) w_i^{son} = \eta + \gamma ed_i^{son} + \delta w_i^{father} + \mathbf{X}_i \pi + \varepsilon_i$$

This should move us closer to the assumption  $Cov(e_i, \varepsilon_i) = 0$

$$w_i^{son} = \eta + (\sigma + \lambda w_i^{father} + \mathbf{X}_i \mu) \gamma + \delta w_i^{father} + \varepsilon_i$$

$$w_i^{son} = \eta + \sigma \gamma + (\lambda \gamma + \delta) w_i^{father} + \mathbf{X}_i (\mu \gamma + \pi) + \varepsilon_i$$

$$\frac{\partial w_i^{son}}{\partial w_i^{father}} = \lambda \gamma + \delta \Rightarrow \beta = \lambda \gamma + \delta$$