Growing Up in Ireland
National Longitudinal Study of Children

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What you do versus who you are: Home learning activities, social origin and cognitive skills among young children in Ireland

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Motivation

- Social gradients in cognitive outcomes visible from an early age, pre-school.
- Early childhood is a crucial period of cognitive development (Melhuish, 2010).
- Both psychological and sociological accounts have suggested that home learning environment (HLE) may play an important role.
- Paper blends insights from literature on home learning environment and social origins in an attempt to understand social inequality in early cognitive outcomes .

Multiple dimensions of social origin

- Social origin often measured in different ways – social class (Erikson and Goldthorpe, 1992); education; income (Smeeding et al., 2011); status (Chan, 2010)

- Yet different indicators of social origin are not interchangeable and have an independent and distinct effect on a child's educational attainment (Bukodi and Goldthorpe, 2013).

- May play a different role at different stages of life-course
  - economic resources & mothers education especially important in early childhood (Erola et al, 2016; Duncan et al. 2000)
  - Parental education in upper secondary (Breen & Jonsson, 2005)
  - Social status and networks in transition to work (Erola, 2009)

What is the Home Learning Environment?

- Definition: “Measures taken in the home to encourage children’s learning” (*e.g. Reynolds & Hesketh, 2012)*
- Early Home Learning Index seven activities e.g. reading with child, teaching child numbers etc. (Hunt et al. 2011)
- Others measures refer to learning resources in the home (books, materials)
- Sometimes extended to structural characteristics, such as family composition, housing, and to factors such as parental educational beliefs and expectations (Anders et al. 2012)
- HLE positively associated with child cognitive outcomes *(Bradley, 2002; Bus et al 1995; Whitehurst et al, 1999; Brooks, 2000).*

Dimensions of social origin & cognitive outcomes

- Financial Resources
  - Investment in educationally beneficial materials, experiences, services (Duncan et al 1998)
  - Family stress model: poverty affects parental well-being and practices
- Educational Resources
  - Concerted cultivation (Lareau & Weininger) - structured activities for children vs natural growth
  - Knowledge/access to information on quality of childcare
  - Parents cognitive skills
- Class
  - Health behaviours – breastfeeding, smoking ,diet
  - Beliefs and expectations for children
  - Status and networks

Research Questions

1. To what extent do childhood cognitive outcomes vary by different dimensions of social origin (measured by social class, education and income)?

2. Does the home learning environment help to account for the social gradient in *childhood cognitive outcomes* at age 5 when all dimensions of social origin are considered?

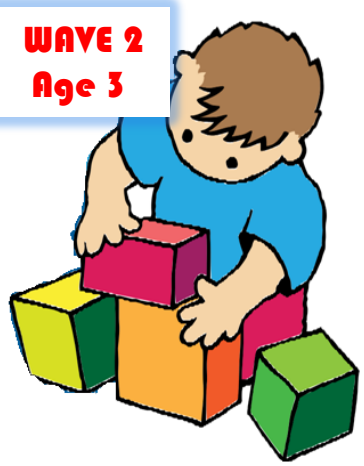
3. Do home learning activities have more beneficial effect for children from disadvantaged (compensatory)? Or opposite – better quality interactions/resources for advantaged?

The Growing Up in Ireland Infant Cohort

WAVE 1
Age 9m

2008 (11,134)
•Parents interview (face-to-face)
• child physical measures

WAVE 2
Age 3



2011 (9,793)
•Parents interview
• carer questionnaires
•Cognitive tests,
•Physical measures, fiine and gross motor skills

WAVE 3
Age 5

2013 (9,001)
•Parent interview inc age of school start
•**COGNITIVE TEST**
•Teacher questionnaires

Measuring Cognitive Development and Social Origin

- Cognitive Development Measure (Age 5)
  - British Ability Scales (Early Years)
  - Administered by interviewer
  - Naming vocabulary: child asked to name everyday objects from pictures . Range 20-80, Mean score 55.4 (SD=12). Standardised t-scores
- Social Origin measures:
  - Social class (family) professional, managerial & technical, non-manual, skilled manual; semi/unskilled; never worked
  - Mothers education – third level degree/ third level non degree/ upper secondary/lower secondary
  - Income – family equivalised income quintile; also include those missing on income

Home Learning Environment (Age 3)

1. **Home Learning Activities (scale)**

   On how many days in an average week does anyone at home
   - read to child
   - help child learn the ABC or alphabet
   - help child learn numbers or counting
   - help child learn songs, poems or nursery rhymes
   - play games [board games, jigsaws, card games etc] with child
   - paint, draw, colour, or play with play-doh at home
   - **Response 0 to 7 days**
   - **Scale: alpha .70 potential range (0 to 42)**

2. Number of books in the home (pre-coded categories). Robustness check

Research Questions and Considerations

1. To what extent does childhood cognitive outcomes, vary by different dimensions of social origin(measured by class, education and income)?

Analysis

- Model social origin with individual components then together
- Add HLE scores ; do they mediate social origin gradient in vocab scores at 5?
- Assess influence of activities in the home on vocab scores – gross and net (final model)
- Interactions between HLE and social origin measures. Can HLE compensate for disadvantaged background?

1. How do childhood cognitive outcomes vary by different dimensions of social origin?

OLS regression of vocabulary scores at Age 5

Parental	Education	Class	Income
Ref:PCG Degree			
Lower secondary	-4.92***		
Upper secondary	-2.86***		
Third level non-degree	-1.03***		
Ref:professional-managerial			
Non manual			
Skilled/unskilled manual			
Never worked/missing			
Ref: highest income			
Lowest quintile			
Second quintile			
Third qunitile			
Fourth qunitile			
Missing income			
R-squared	0.15		
Observations			

*** p<0.01, ** p<0.05, * p<0.1; N =8,581.

Source: Own calculations based on the GUI.

Controls: child's gender and first language (english or not)

How do childhood cognitive outcomes vary by different dimensions of social origin?

OLS regression of vocabulary scores at Age 5

Parental	Education	Class	Income
Ref:PCG Degree			
Lower secondary	-4.92***		
Upper secondary	-2.86***		
Third level non-degree	-1.03***		
Ref:professional			
Managerial-technical		-0.62	
Non manual		-1.91***	
Skilled/unskilled manual		-3.41***	
Never worked/missing		-7.25***	
Ref: highest income			
Lowest quintile			
Second quintile			
Third qunitile			
Fourth qunitile			
Missing income			
R-squared	0.15	0.16	

*** p<0.01, ** p<0.05, * p<0.1 ; N=8,581

Source: Own calculations based on the GUI.

Controls: child gender and first language

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Ref: highest income			
Lowest quintile			-4.52***
Second quintile			-3.66***
Third qunitile			-1.94***
Fourth qunitile			-0.47
Missing income			-3.47***
R-squared	0.15	0.16	0.15

*** p<0.01, ** p<0.05, * p<0.1; N=8581

Source: Own calculations based on the GUI.

Controls: child gender and first language

1. How do childhood cognitive outcomes vary by different dimensions of social origin?

OLS regression of vocabulary scores at Age 5

Parental	Education	Class	Income	Origins
Ref:PCG Degree				
Lower secondary	-4.92***			-2.52***
Upper secondary	-2.86***			-1.44***
Third level non-degree	-1.03***			-0.42
Ref:professional				
Managerial-technical		-0.62		-0.21
Non manual		-1.91***		-0.46
Skilled man/unskilled		-3.41***		-1.19**
Never worked/missing		-7.25***		-4.31***
Ref: highest income				
Lowest quintile			-4.52***	-2.10***
Second quintile			-3.66***	-1.81***
Third qunitile			-1.94***	-0.88*
Fourth qunitile			-0.47	-0.01
Missing income			-3.47***	-2.16***
R-squared	0.15	0.16	0.15	0.17

*** p<0.01, ** p<0.05, * p<0.1; N =8581

Source: Own calculations based on the GUI.

Controls: child gender and first language

2. Do Home Learning Activities influence the social gradient vocab at age 5?

		Origins	HLE
Ref:PCG Degree	Third non-degree	-2.52***	-2.23***
	Upper second	-1.44***	-1.22***
	Lower second	-0.42	-0.32
Ref:professional	Never worked	-4.32***	-4.42***
	Unskill & skilled manual	-1.19**	-1.26**
	non-manual	-0.46	-0.55
	managerial & tech	-0.20	-0.32
Ref: highest income	Bottom quintile	-2.09***	-2.07***
	Second quintile	-1.81***	-1.71***
	Third quintile	-0.88*	-0.80*
	Fourth quintile	-0.01	0.08
	Missing income	-2.15***	-2.10***
Ref: Highest HLE	HLA quint1 (lowest)		-3.66***
quintile	HLA quint2		-1.48***
	HLA quint3		-1.21***
	HLA quint4		-0.51
Constant		58.36	59.83
Observations		8,581	8,581

Includes controls for child gender and first language

3. Do HLAs have a compensating effect?

	(1) Income	(2) Add HLA	(3) Add interact	(4) Add ed & class
Ref: top inc quintile				
Lowest quintile	-4.52***	-4.35***	-9.06***	-6.42***
Quintile 2	-3.66***	-3.41***	-5.25***	-3.30*
Quintile 3	-1.94***	-1.77***	-5.38***	-4.27**
Quintile 4	-0.47	-0.31	-1.63	-1.03
Missing income	-3.47***	-3.34***	-8.62***	-7.09**
HLA continuous		0.18***	0.09**	0.09**
Ref: top quintile*HLA				
Lowest quintile*HLA			0.16***	0.15***
Quintile 2*HLA			0.06	0.05
Quintile 3*HLA			0.12**	0.12**
Quintile 4*HLA			0.04	0.04
Missing*HLA			0.18*	0.17*
Constant	57.87***	52.79***	55.30***	55.82***
Observations	8,581	8,581	8,581	8,581
R-squared	0.15	0.17	0.17	0.18

***** p<0.01, ** p<0.05, * p<0.1**

Conclusions

- Pronounced differences in vocabulary in Ireland even at age 5
- Relatively strong independent effects for each social origin measure on vocabulary score at age 5
- HLA varies by social origin but only helps explain small part of education diffs and none of income or social class effects.
- Some compensatory effect of HLA on vocab scores of children from low income households. No such finding for low education or low social class.
- Next steps – repeat with books in home?

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Thank you!

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