



Influence of family environment and child gender on academic achievement

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Research relevance

- Outcomes and achievements in adulthood are closely linked to cognitive competencies developed in childhood. More specifically:
 - Good cognitive abilities are associated with educational attainment later in life
 - and indirectly (that is, through education) with higher wages.



Introduction

- Main focus is on the extent to which social (economic) factors impact on children's educational outcomes, and whether boys and girls are affected differently

Will also explore the impact of:

- Family context/processes
- Child characteristics



Introduction

- Reviews by Feinstein *et al.* (2008) and Shonkoff and Phillips (2000) describe the powerful influences of family resources and social capital on children's educational attainment, evident in the strong associations between children's educational attainment and SES.
- Notion of 'intergenerational persistence' - life chances of children are closely related to the socio-economic characteristics of their families, such as parental income, socio-economic status (SES) and parental education.



Possible mechanisms

- Traditional assumption - environmental effects impact on all children in the same way, but more recent hypotheses point to environment having differential effects on children.
- Increased attention has been given to the interaction of gender and social class (Duru-Bellat, 2004).
- Implication is that social factors such as social class may modify the relationship between gender and educational achievement - suggesting a need to test data for the presence of interactions between gender and social factors (Gibb, Fergusson & Horwood, 2008).



Possible mechanisms

- So, rather than considering overall gender differences in educational achievement, we should consider ‘**which boys**’ and ‘**which girls**’ are underachieving (Epstein et al., 1998; Kleinfeld, 1998; Praat, 1999; Mensah & Kiernan, 2010; Tinklin et al., 2001).



Possible mechanisms

- Parenting behaviours, as well as the parent-child relationship - important for children's intellectual development and can be affected negatively by economic deprivation (Kiernan & Huerta, 2008).
- Child's own characteristics – e.g., emotional and behavioural difficulties are linked to poorer cognitive outcomes (DfES, 2004) and can be impacted by SES (Shneiders et al, 2003).
- Intellectual self-concept has also been shown to have direct and indirect effects on subsequent achievement (Marsh & Martin, 2011), possibly affected by social class.



The Current Study

- Data from Growing Up in Ireland – The National Longitudinal Study of Children in Ireland is the first study of its kind ever to be carried out in Ireland and its principal objective is to describe the lives of Irish children, to establish what is typical and normal as well as what is atypical and problematic
- 9-year data used here - 8568 households



Research questions

- Is household social class associated with child educational outcomes at age 9?
- Are the effects of social class different for boys and girls?
- Is this relationship associated with other economic related factors such as mother's education and income?
- Can relationship be explained by other family context variables?
- Do child's own characteristics contribute to educational outcomes?



Child Outcome Measure

- **Academic achievement**
 - Drumcondra Reading (vocabulary) and Maths tests
 - Completed in group-settings within the school
 - Tests developed for Irish school children



Other Measures

Family economic measures

- *Household Social Class* was derived from occupation. We used the following categories in the current analyses: Professional managers; Non manual/skilled manual; Semi-skilled/unskilled manual; unemployed
- *Maternal education* – primary education or no education; secondary education; degree or postgraduate degree
- *Equivalised income* makes meaningful comparisons between households on their income, household size and structure possible. In this analysis equivalised income quintiles are used



Other measures

Family context measures

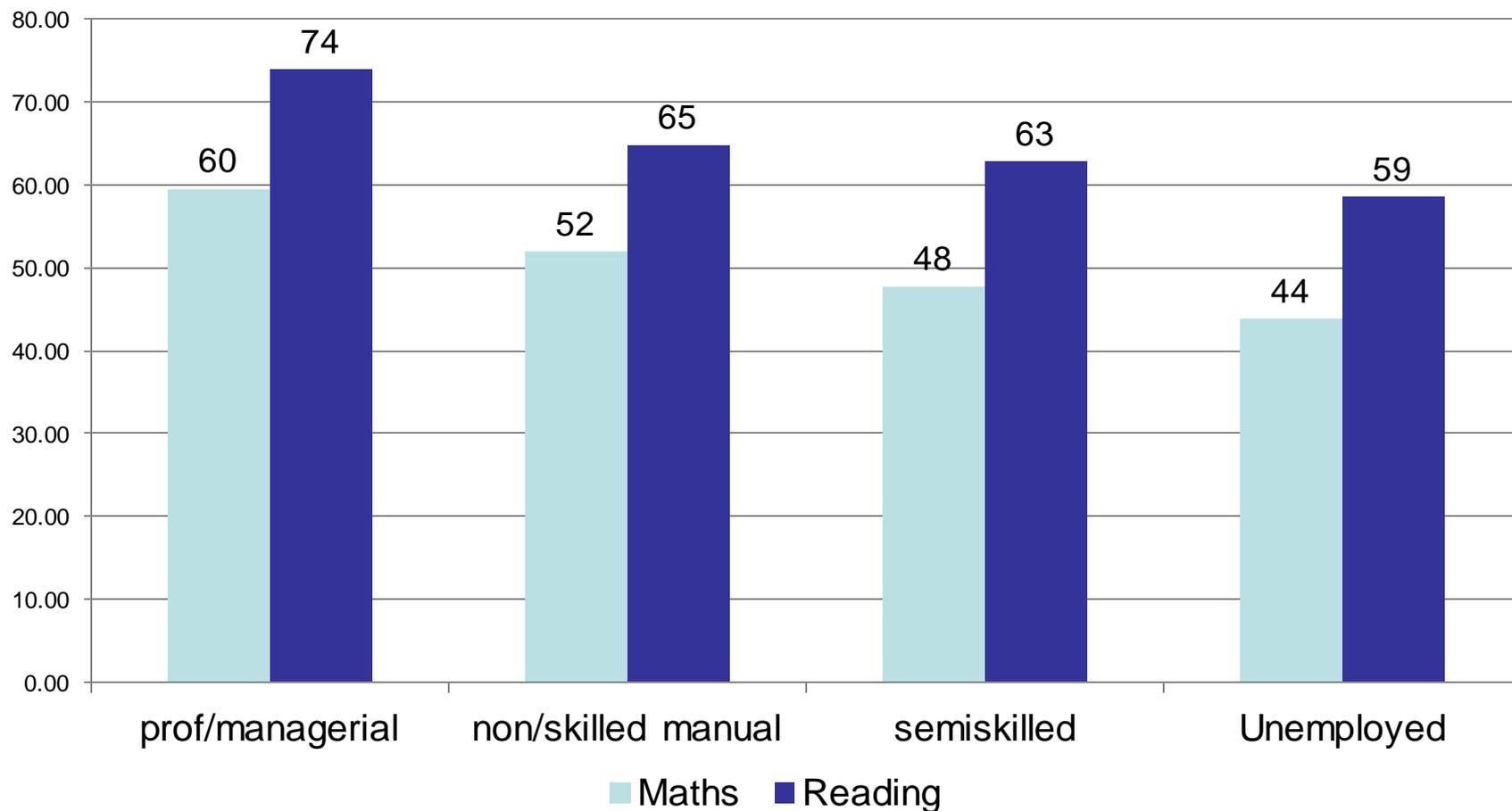
- *Mother's age, number of children, immigrant status, neighbourhood safety, maternal depression, main language spoken in the home, parental aspirations, access to books, meeting teacher, family relationships*

Child measures

- *emotional and behavioural difficulties, child's intellectual self-concept, SEN, chronic illness*

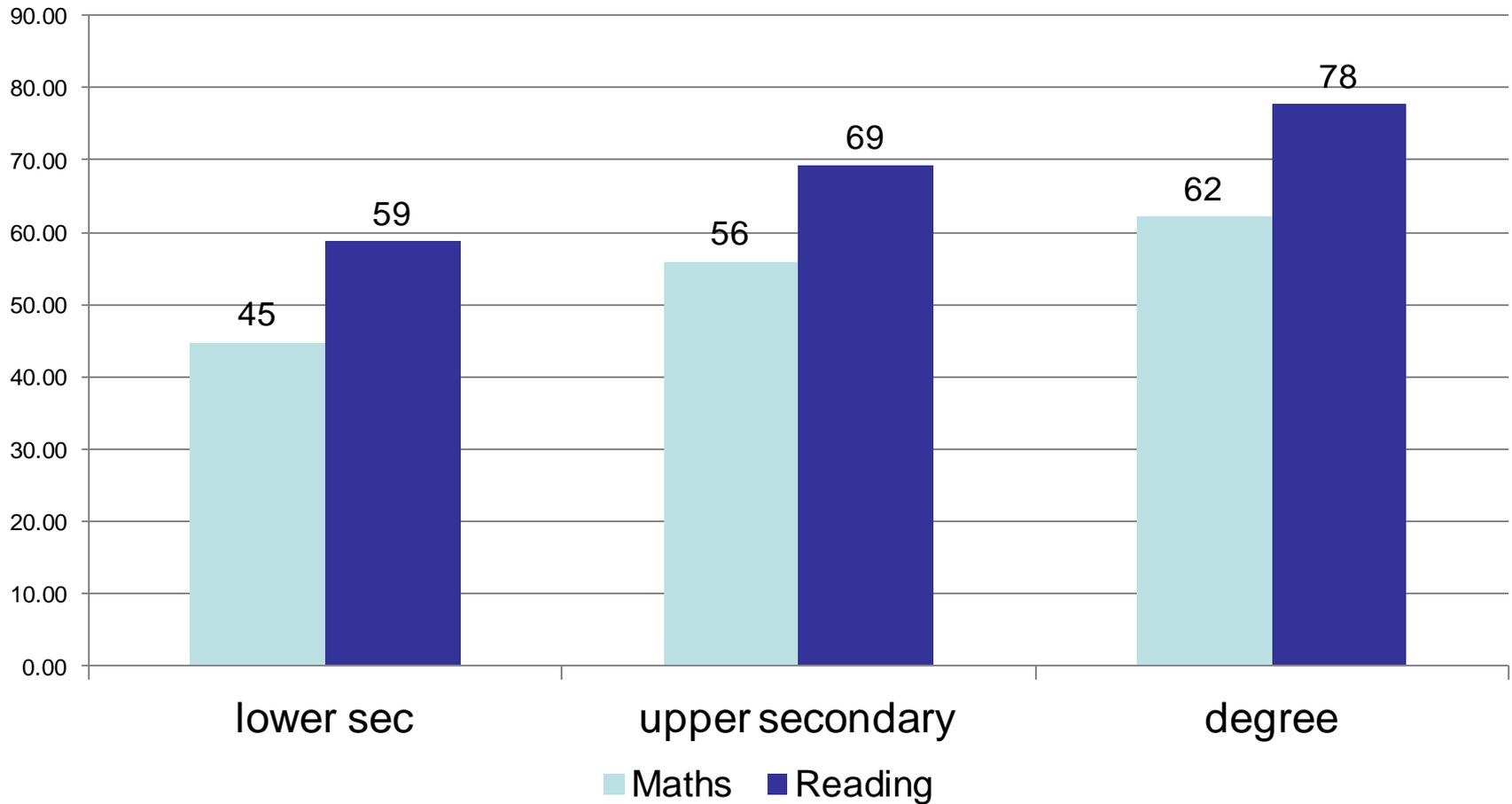


Social Class and academic achievement



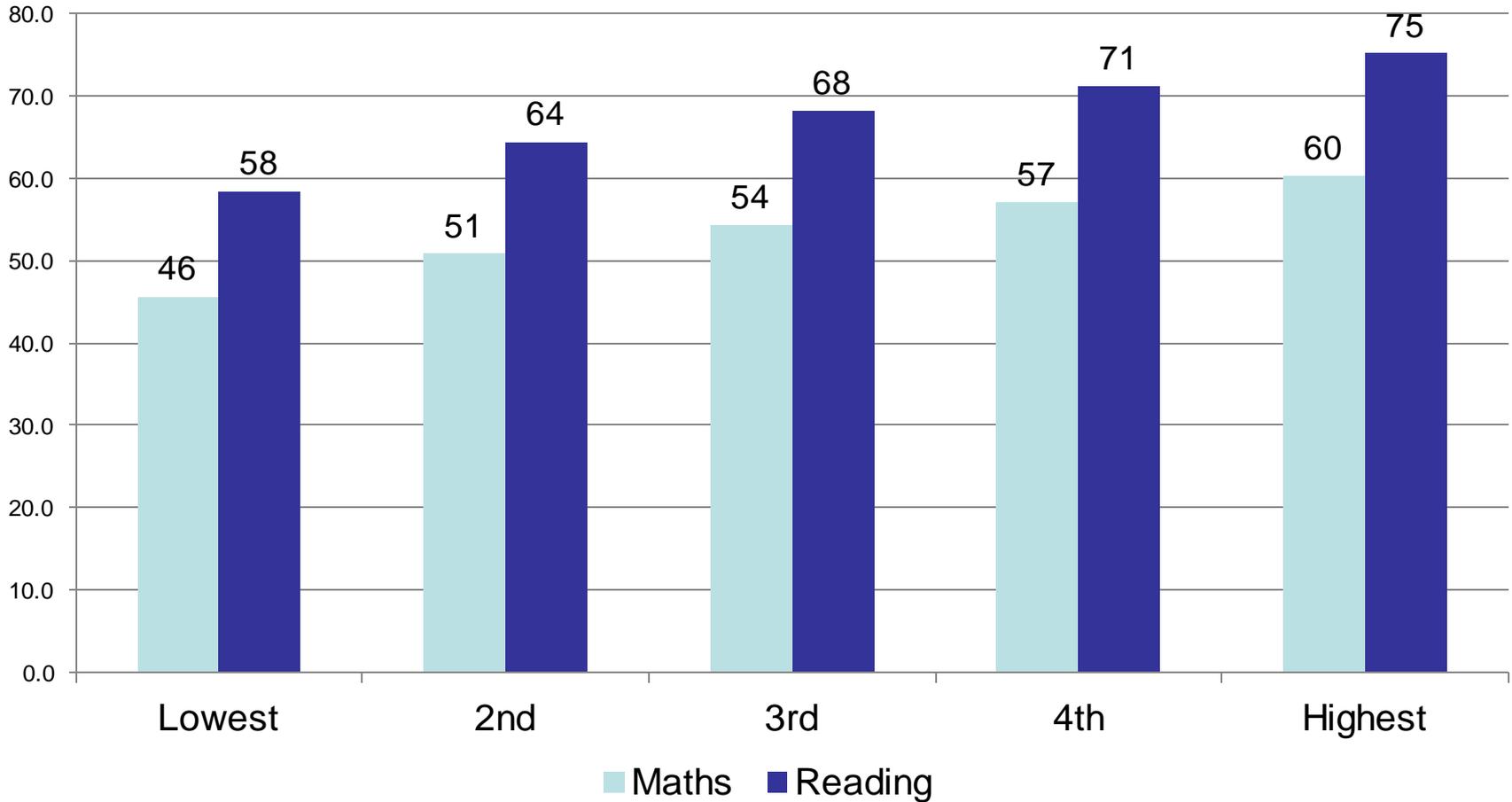


Maternal Education and academic achievement



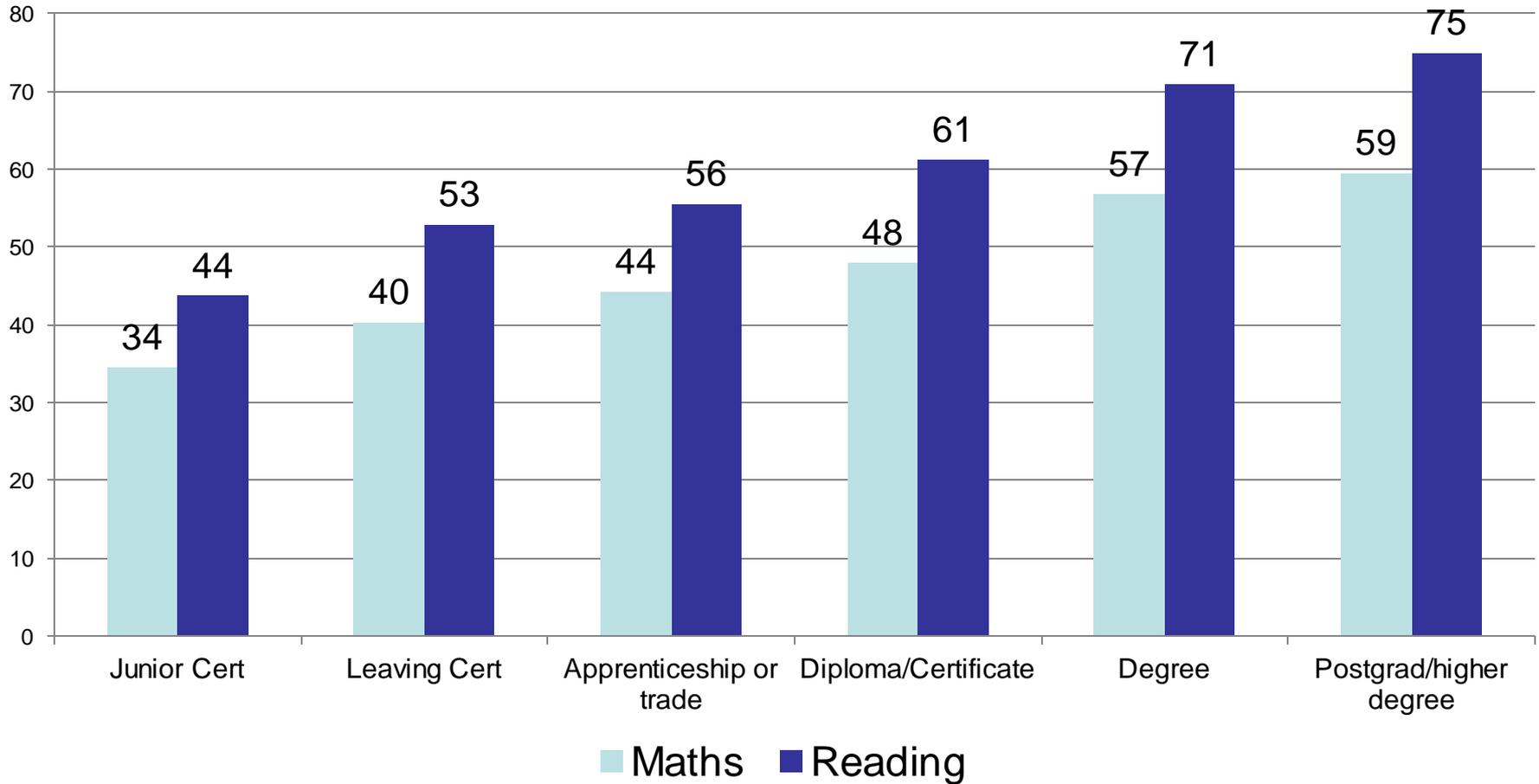


Income and academic achievement



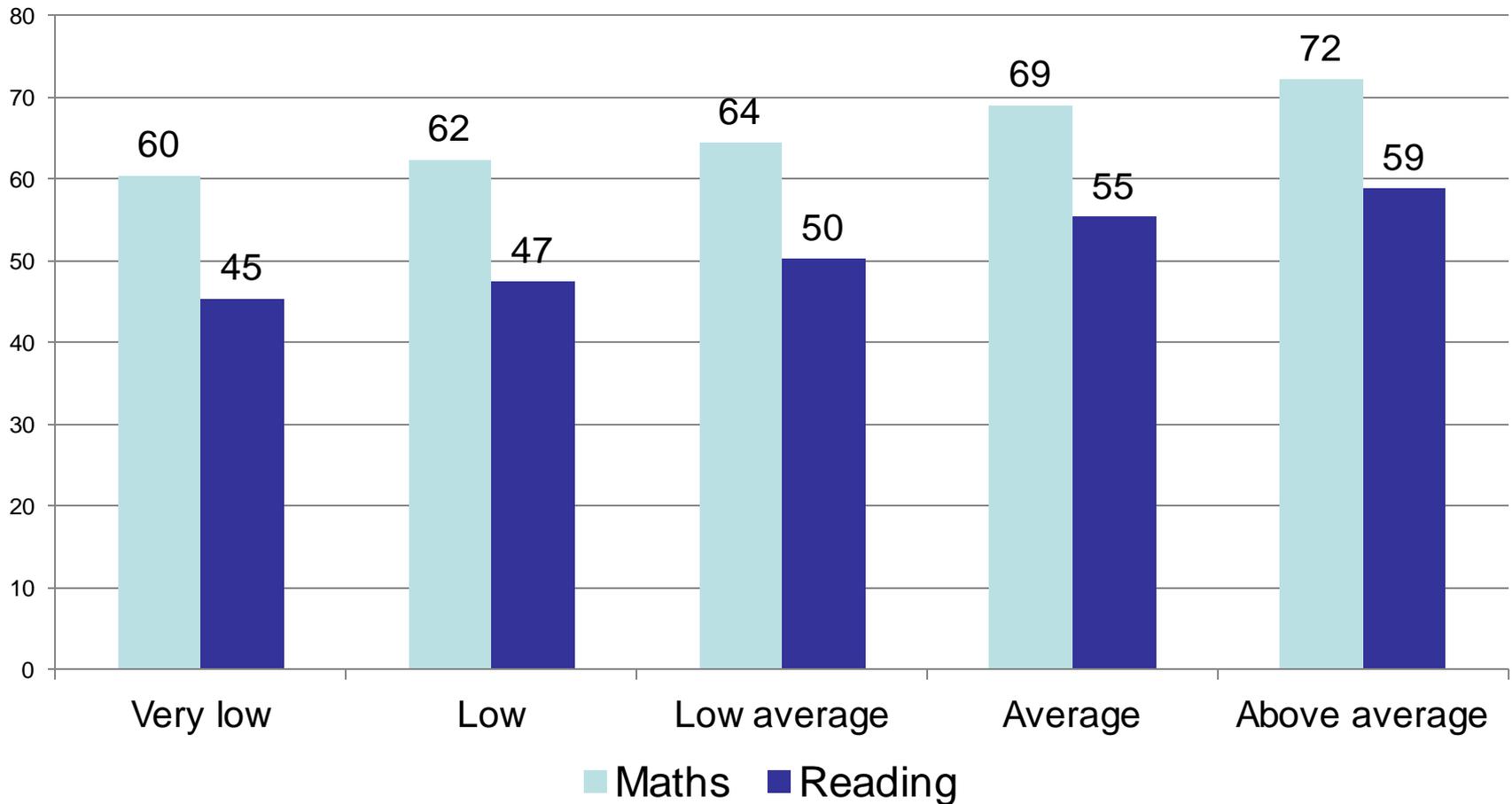


Parental aspirations and academic achievement





Intellectual self-concept and academic achievement





Analytical strategy

For all models:

Base Model: Household social class only (+ gender of child)

Add education of mother and household income

Add additional family context (family structure, mum age, neighbourhood safety, parental involvement in education)

Final Model: Child related variables (chronic illness, SEN, intellectual self-concept, emot/behav difficulties)

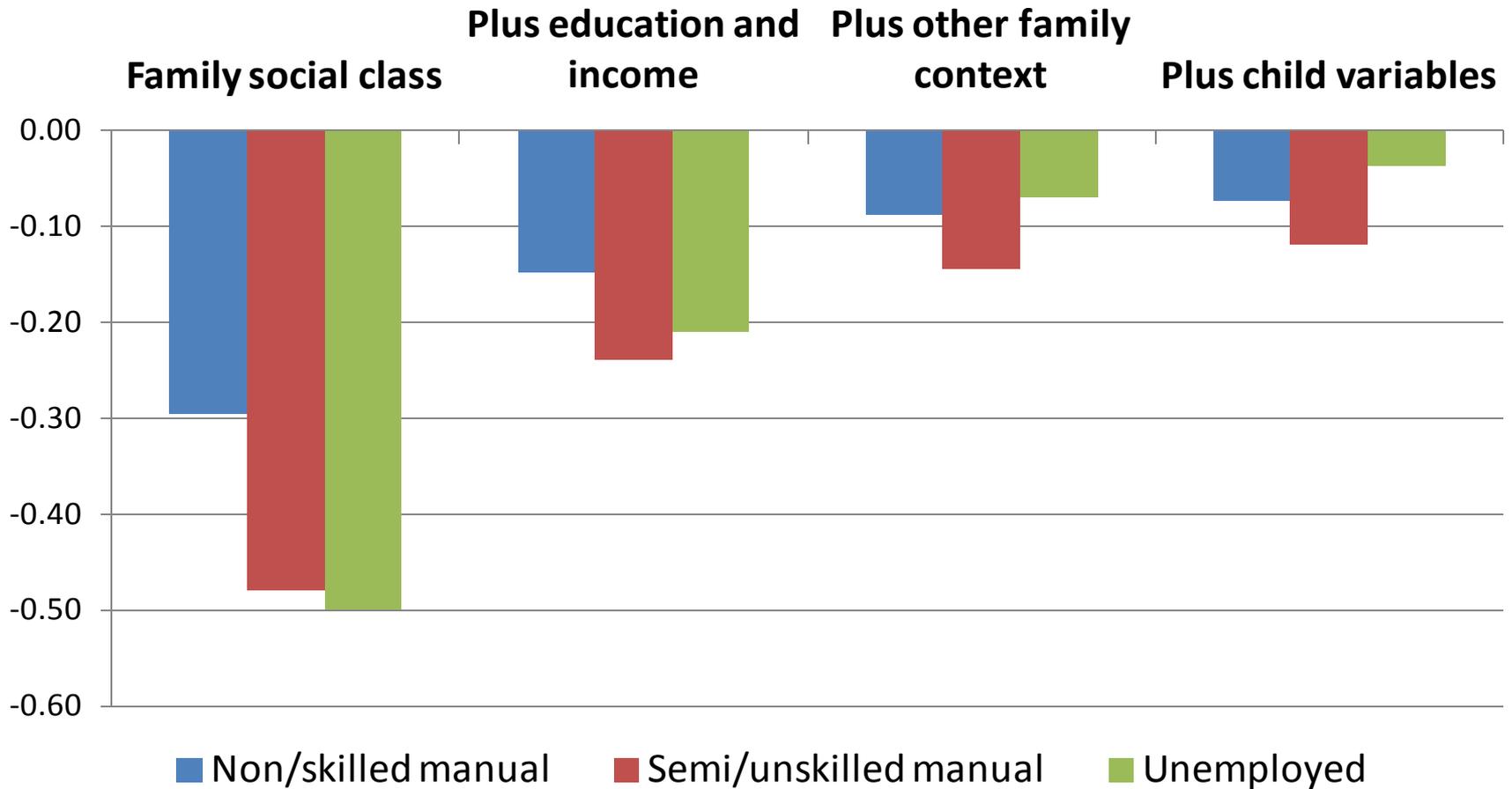
Controlled for Deis status and gender mix of school as seen as important in context of exploring SES and gender

Test interaction between gender and social class (using separate models)

Graphs present co-efficients from models



Family Social Class and Maths scores



Reference group is Professional/managerial



Summary of findings for Maths

- In line with previous research, disadvantage in terms of family social class signalled poorer educational attainment for children – although lowest social class became non-significant when family context variables were added to the model
- Positive effects were also particularly apparent for mother's education.
- Being in the lowest income quintile was also associated with poorer outcomes in terms of maths.

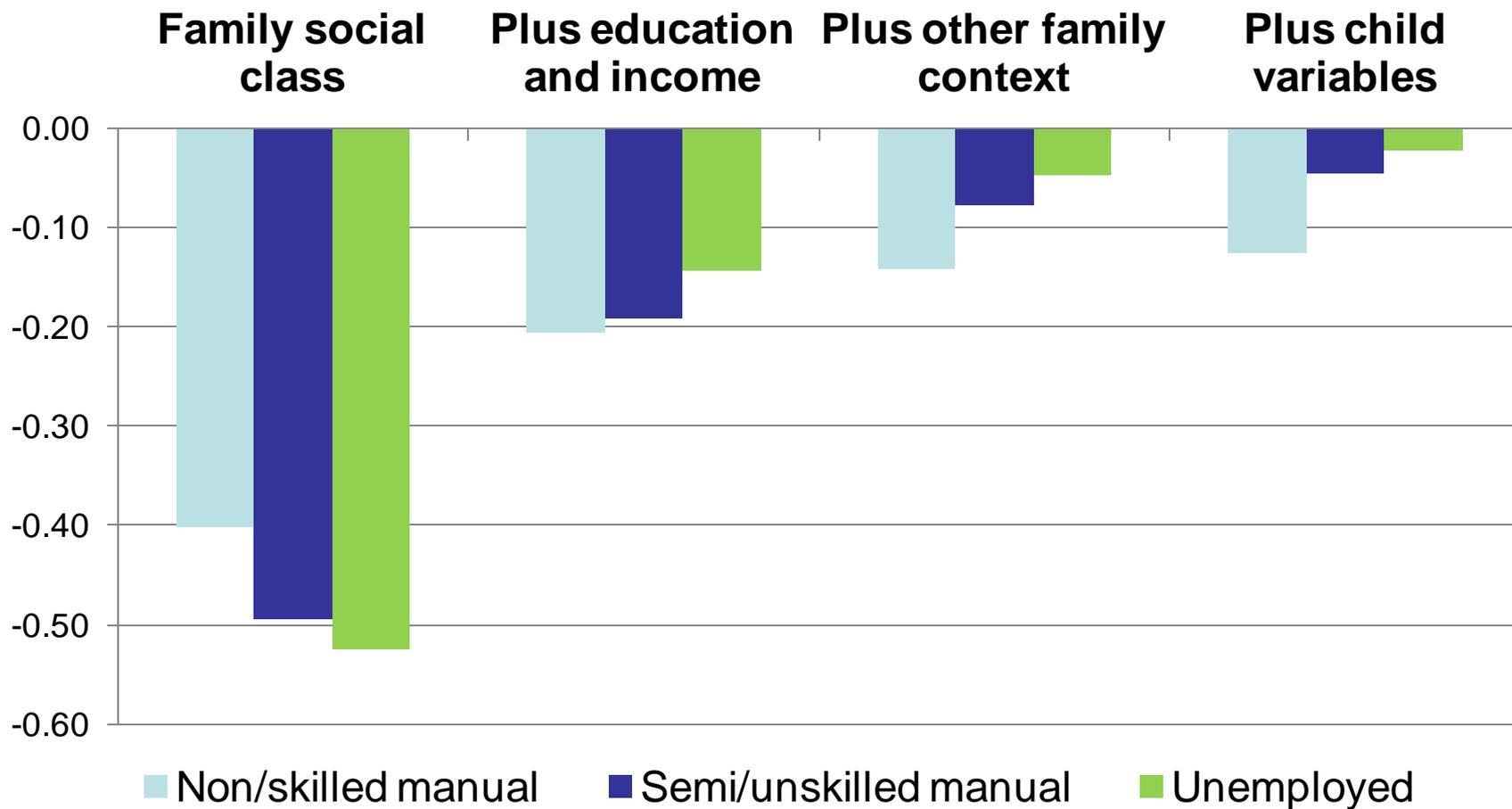


Summary of findings for Maths

- **Elsewhere in the final model, the following variables were associated with achievement in Maths**
 - Boys relative to girls
 - Mother's age
 - Number of books in the home - +ve effect
 - Parental aspirations for the child
 - Emotional difficulties - -ve effect
 - Intellectual self-concept - +ve effect
 - SEN



Family Social Class and Reading scores



Reference group is Professional/managerial



Summary of findings for Reading

Similar to maths for the economic variables

- Non-manual/skilled manual social class associated with poorer educational attainment for children compared to prof/managerial (as opposed to maths where semi-unskilled manual remained sig.)
- Mother's education strong positive effect.
- Being in the lowest income quintile was also associated with poorer outcomes in terms of reading.

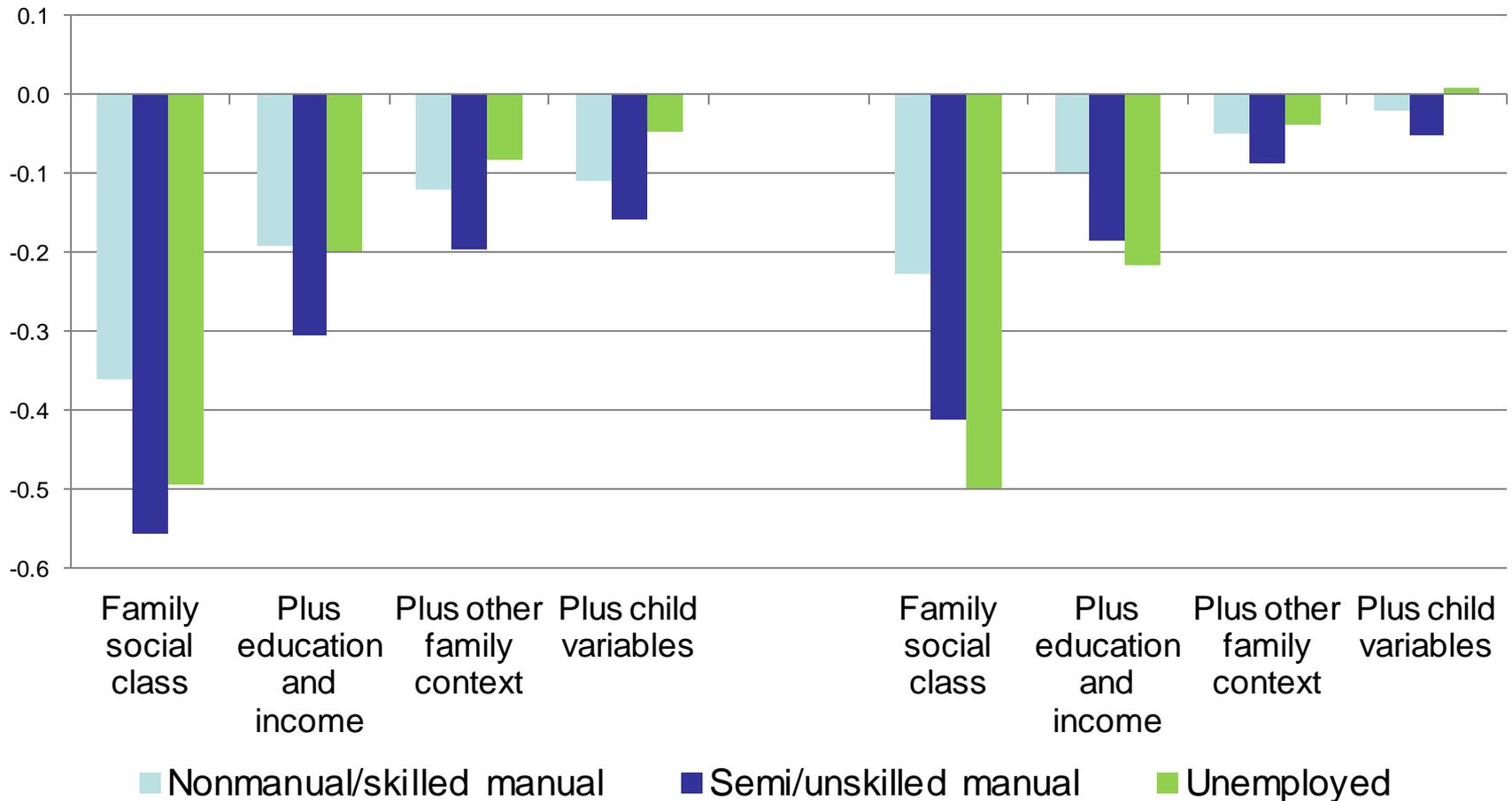


Summary of findings for Reading

- **Elsewhere in the final model, the following variables were associated with academic achievement (Reading scores)**
 - Mother's age positively associated with outcomes
 - Number of books in the home
 - **Maternal depression**
 - **Being born abroad –ve effect**
 - **Speaking English in the home +ve effect**
 - **Number of children –ve effect**
 - Parental aspirations for the child have +ve effect
 - Emotional difficulties –ve effect
 - Intellectual self-concept +ve effect
 - SEN –ve effect



Social Class differences in Maths by Child Gender



Reference group is Professional/managerial

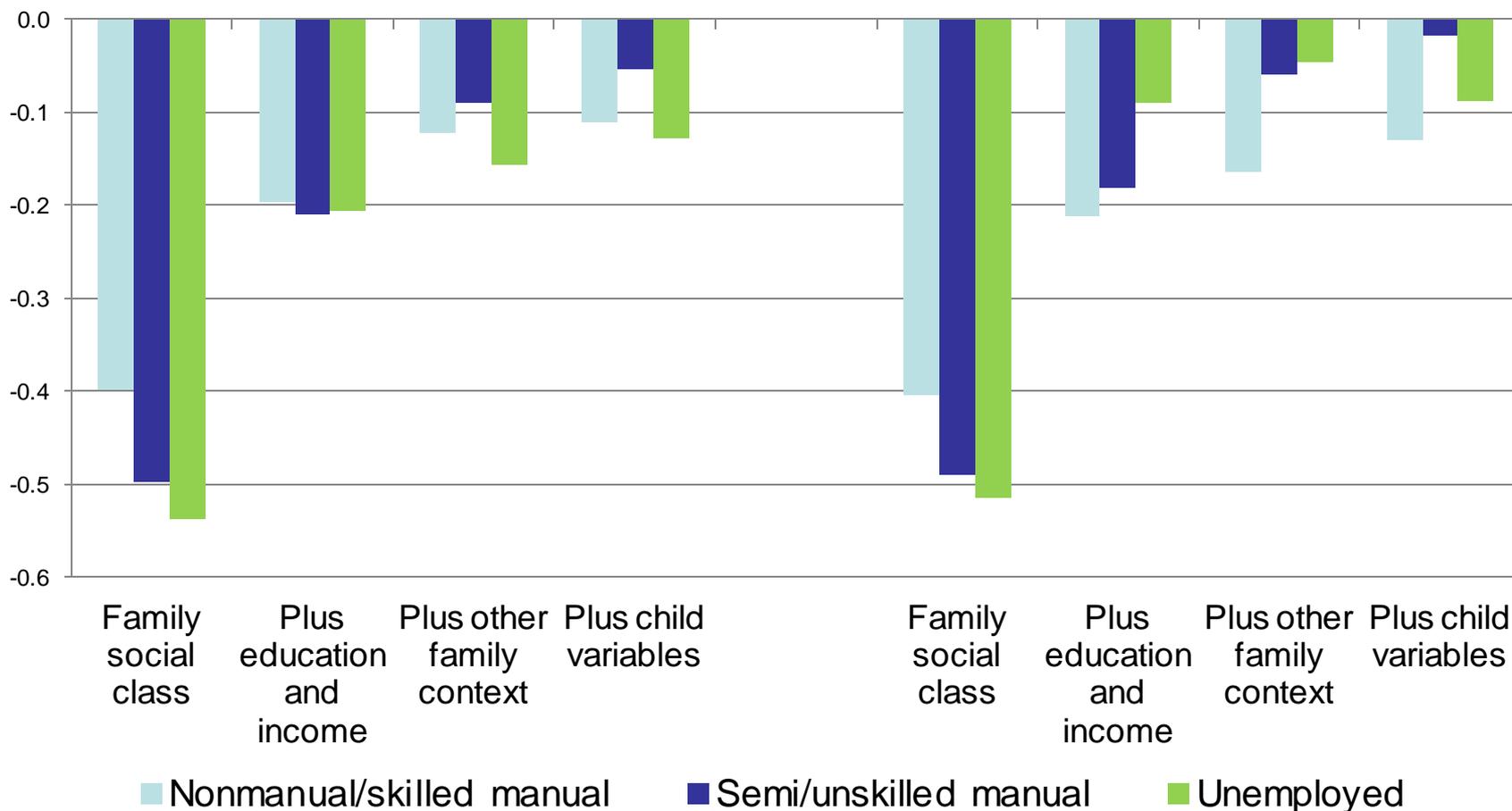


Maths

	Boys		Girls	
	B	S.E.	B	S.E.
Nonmanual/Skilled Manual	-.117	.037**	-.024	.035
Semi-skilled/Unskilled Manual	-.165	.060**	-.065	.051
Unemployed	-.055	.076	-.005	.067
Higher Secondary	.216	.039***	.195	.035***
Degree	.296	.053***	.247	.050***
Lowest income quintile	-.180	.060**	-.097	.056
Second income quintile	-.076	.052	-.062	.050
Third income quintile	-.098	.048*	-.023	.047
Fourth income quintile	-.054	.047	.067	.045
Maternal age	.012	.003***	.014	.003***
Neighbourhood safety	.003	.009	-.015	.008^
Books >30	.186	.052***	.135	.058*
Books 10-30	.106	.052*	.009	.059
Maternal depression	-.009	.058	-.103	.049*
Parental aspirations	.119	.014***	.092	.014***
Intellectual self-concept	.044	.005***	.047	.005***
Emotional difficulties	-.044	.009***	-.038	.008***
SEN	-.563	.049***	-.519	.051***



Social Class differences in Reading by Child Gender



Reference group is Professional/managerial



Reading

	Boys		Girls	
	B	S.E.	B	S.E.
Nonmanual/Skilled Manual	-.113	.038**	-.134	.037***
Semi-skilled/Unskilled Manual	-.053	.062	-.031	.053
Unemployed	-.133	.077	.076	.071
Higher Secondary	.137	.040***	.124	.037***
Degree	.359	.054***	.332	.053***
Lowest income quintile	-.073	.061	-.235	.059***
Second income quintile	-.047	.053	-.036	.052
Third income quintile	-.085	.049	-.066	.049
Fourth income quintile	.009	.048	.036	.048
Maternal age	.010	.003**	.019	.003***
Born Abroad, Non-Irish Nationality	-.183	.082*	-.075	.076
English mainly spoken in the home	.286	.095**	.135	.089
Number of children in household	-.039	.015**	-.049	.014***
Books >30	.350	.053***	.382	.062***
Books 10-30	.131	.053**	.131	.063*
Maternal depression	-.147	.059**	-.032	.052
Parental aspirations	.142	.014***	.133	.014***
Intellectual self-concept	.035	.006***	.036	.005***
Emotional difficulties	.003	.009	-.028	.008***
SEN	-.742	.050***	-.763	.054***



Conclusions

- As expected family socioeconomic factors impact strongly on children's educational outcomes, however this was clearly attenuated by other family and child variables.
- Evidence of gender*SES interactions and these findings are important in helping to identify '**which boys**' and '**which girls**' – alluded to earlier.
- Current work highlights advantage in exploring other mechanisms, for example parents' mental wellbeing, and parent-child relationships which have been relatively under researched to date.



Conclusions

- As expected, child factors are also very important – intellectual self-concept, emotional difficulties and special educational needs have all been highlighted as particularly important factors in educational achievement in the current work.



Future directions

- Next step to look at gender differences within each social class.
- Since other potential interactions have been identified, future work will be important in attempting to unpick some the processes identified.
- Previous research has also shown a mutually reinforcing relationship between intellectual self-concept and achievement - the use of longitudinal data from the next wave of **GUI** will help to explore this theory.



THANK YOU