Gender Differences In Educational Aspirations and Attitudes

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ARC lifecoursecentre
preventing deep disadvantage: realising life's potential

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Research Questions:

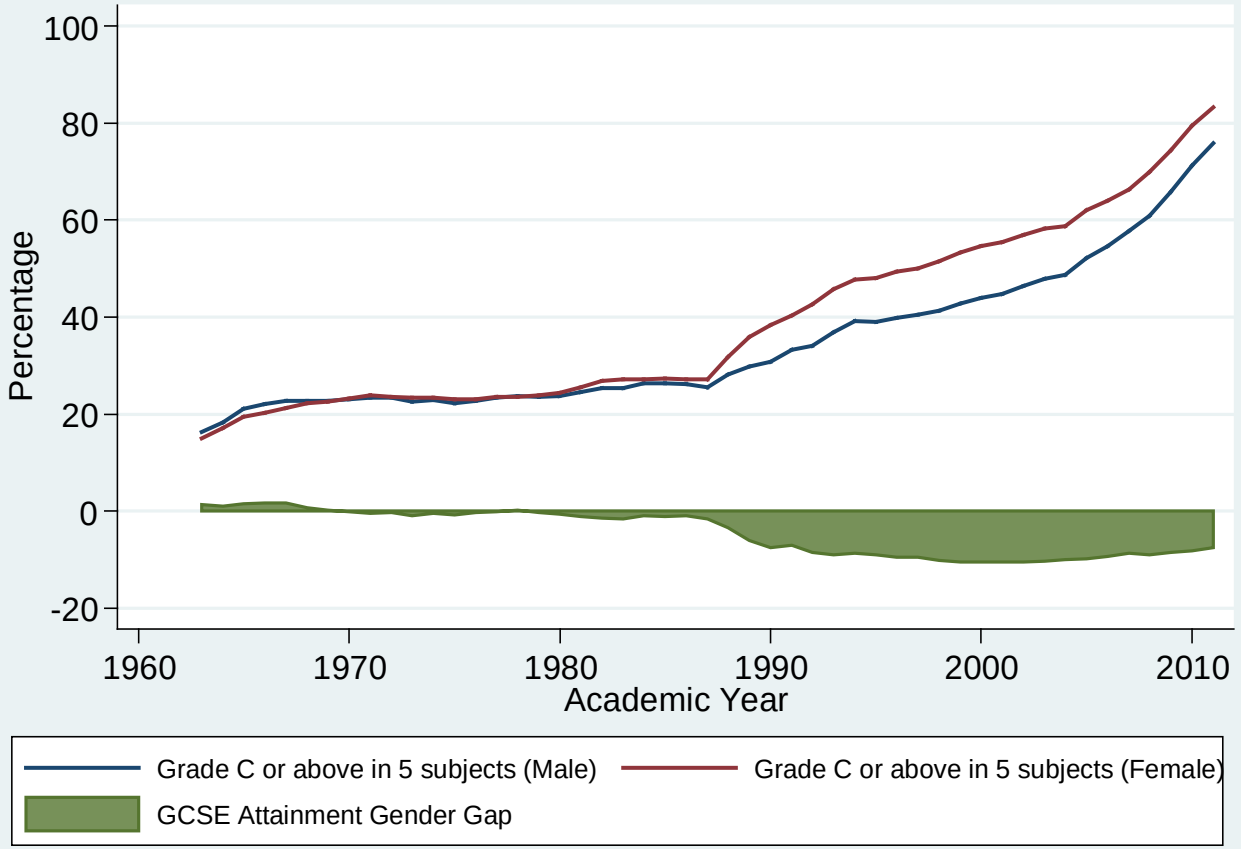
- Are there differences in the educational attitudes and aspirations of boys and girls?
- What factors exacerbate and mitigate such differences?

Motivation:

Large, and growing, gender gap in performance at GCSE level:

- In 2011 83% of girls vs 76% of boys in England achieved at least 5 GCSE exams grade A-C
- Girls have been doing better than boys since the late 80s

Percentage of School leavers achieving 5 or more GCSE/O/CSE grade A/A* to C: Department of Education 1963- 2011



Grade A* was introduced during the 1993/94 academic year.Source: Department for Education.

Motivation (continued):

- Negative educational attitudes and low educational aspirations are often associated with poor academic performance;
- One possible source of gender gaps in academic performance is gender specific attitudes towards and aspirations for education;
- Education is a core determinant of future earnings and life chances;
- Important for policy purposes to identify and target population subgroups likely to have negative attitudes to education;
- Cheaper and easier for policy makers to tackle low aspirations/negative attitudes to education than directly raising attainment itself

Literature:

- (Educational) attitudes and aspirations are positively correlated with subsequent attainment and education-related behaviour (Andrews and Bradley 1997; Chowdry et al. 2011; Khoo and Ainley 2005; Strand 2008).

- Positive educational attitudes and aspirations
  - reduce engagement in deviant and antisocial behaviours (Hirschi 1969; Leblanc 1994; Torstensen 1990);
  - are inversely related with later life outcomes such as benefit receipt and early and lone parenthood among women (Edwards et al. 2001; Moore et al. 1995; Plotnick 1992).

- Raising aspirations of children from disadvantaged backgrounds can reduce the socio-economic gradient in attainment (Chowdry et al. 2011);

Literature:

- Individuals draw their aspirations from the lives, achievements or ideals of those in their Aspirations Window (Ray, 2002)

→Determinants of Aspirations Window: peers, flow of information; role models, (perceived) mobility

- Aspirations: bonds among individual preferences, elements of choice sets that individual consider as relevant and that motivate their actions (Bernard at al. 2014)

→ Forming aspirations implies dismissing some future options

- Challenging to establish a causal link between aspirations and aspired outcomes;

Literature:

- A new literature on aspirations with a focus on developing countries;

- Poverty prevents the formation of aspirations, which contributes to the persistence of disadvantage;

- Social interventions to increase aspirations using role models with positive effects on aspirations and forward looking behaviours:
  - Female political leadership quotas in India effects of parental and female educational aspiration and investment (Beaman et al. 2012)
  - Documentary on how low socio-economic background individuals from rural Ethiopia improved their status without help from gov or NGOs (Bernard et al. 2014);

Data:

- **BHPS**:
  - From 1991 to 2008 has (re)interviewed the same individuals annually, collecting information on their incomes, labour market status, job characteristics, parental background, housing tenure and conditions, household composition, education, health etc.
- **BYP 1994-2008**:
  - rotating panel survey
  - self-completion youth questionnaire that collects information on 11-15 year olds
  - information on children's use of leisure time, their health and health-related behaviour, subjective well-being, their relationship with their families and peers, and aspirations and attitudes towards education and school;

➔Can observe both how children's educational attitudes and aspirations change over time and how they evolve as children age

Outcomes of interest:

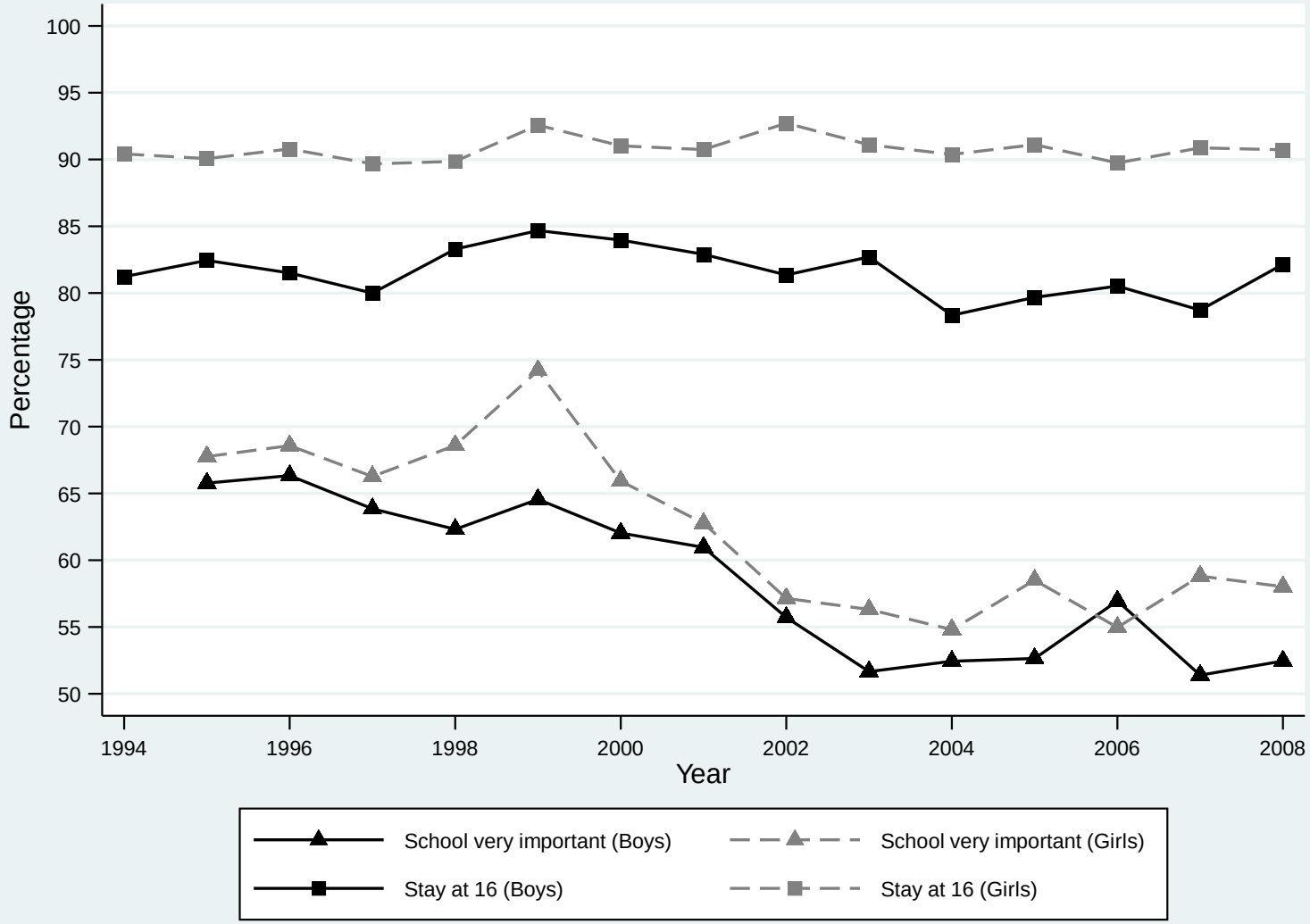
- ATTITUDES:
  - Do well at school (wave 5 onwards) (11-15 year olds): How much does it mean to you to do well at school? very little, a bit, quite a lot, a great deal;
    - Dichotomise: =1 if means a great deal; =0 otherwise
- ASPIRATIONS:
  - Stay in school after 16 (wave 4 onwards) (11-15 year olds): Do you want to leave school when you are 16, or do you plan to go on to sixth form or college? yes, no
    - We invert the variable so that both attitudes and aspirations have a positive connotation

Summary statistics:

- Young people generally show extremely positive attitudes towards education.
  - 60% report that doing well at school means a great deal to them
- Young people generally have high aspirations for further education
  - 87% intend to stay in education at age 16
- Girls report significantly more positive educational attitudes and higher aspirations than boys;

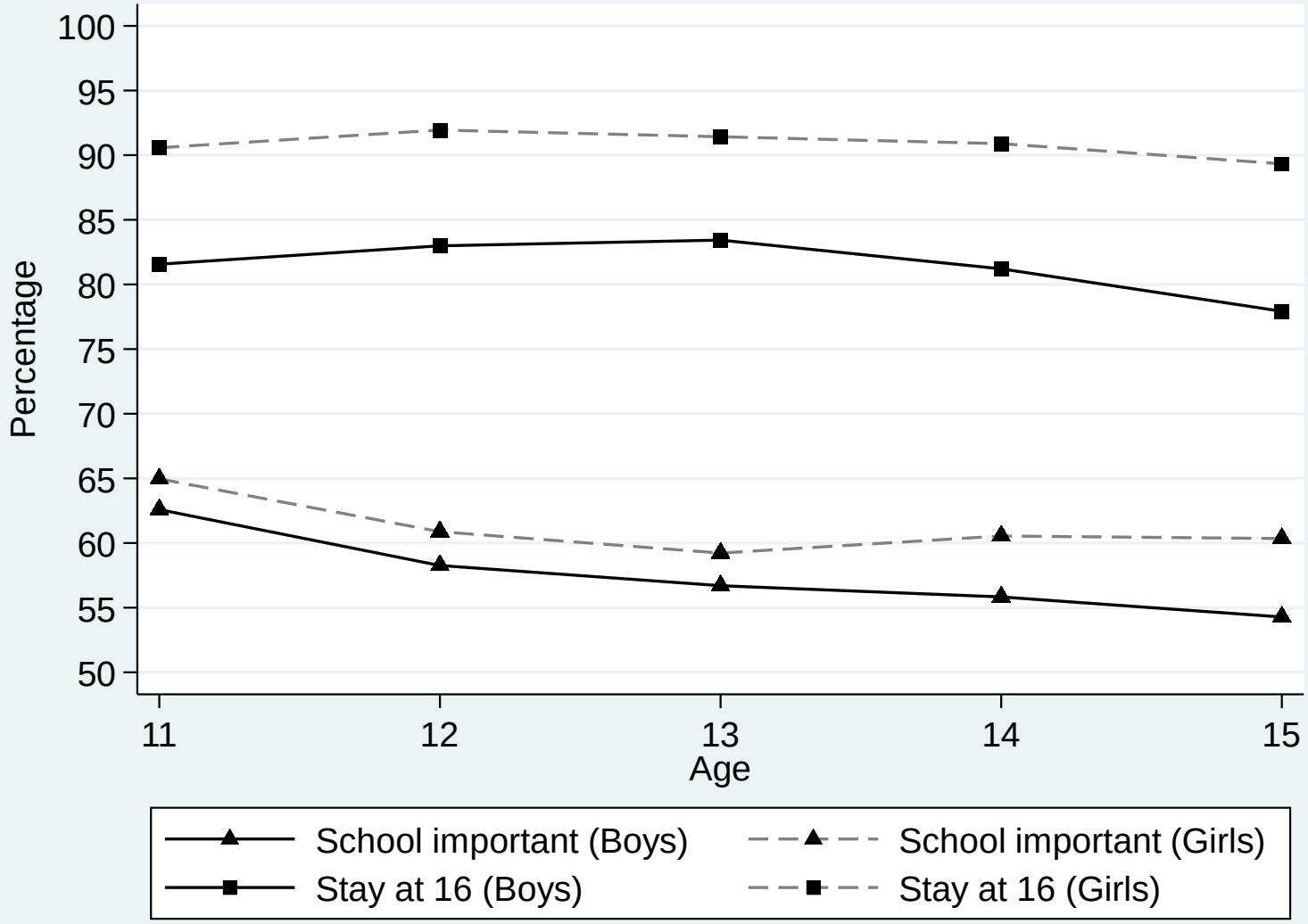
Summary statistics:

Time trends in educational aspirations and attitudes among 11-15 year olds by gender



Summary statistics:

Age trends in educational aspirations and attitudes among 11-15 year olds by gender



Econometric model:

- Estimate the following equation:

$$P_{it}^{*} = X_{it}\alpha + F_{it}\beta + U_{it}\gamma + \overline{X}_{i}a_2 + \overline{F}_{i}a_3 + \overline{U}_{r}a_4 + \eta_i + w_{it}$$

- P_{it}^{*} underlying propensity for child i to hold positive attitudes/ aspirations at time t
- a function of observed child (X_{it}) and family-related (F_{it}) characteristics, the prevailing economic climate (U_{it}), the unobserved (time-invariant) ability of the child and a random error (w_{it}).
- Allow child-specific unobserved effect to be correlated with means of the TVCs (Mundlak 1978; Chamberlain 1984)
- A young person reports a positive educational attitude or aspiration when his propensity crosses a threshold (zero in this case), that is, if P_{it}^{*}>0 and =0 otherwise.

Econometric model:

- Allows us to identify average gender effects on the educational attitudes and aspirations of 11-15 year olds.
- Expand base models by adding interaction terms between gender and other observed characteristics to identify extent to which gender effect sensitive to other factors.
- Note: individual specific unobserved effect may still be correlated with one or more of the time invariant observed characteristics.
- Have also estimated sibling fixed effects logit models, which allow the unobserved individual specific effect to be arbitrarily correlated with observed characteristics in X_{it} , F_{it} and U_{it}.
- Estimates generally consistent with those from the random effects models even though sample sizes much smaller.

Results:

Determinants of educational attitudes and aspirations

RE probit with additional regressors	*Do well at school*		*Stay in school after 16*	
	Coeff	*ME*	*Coeff*	*ME*
Girl	0.152***	0.056	0.836***	0.071
Age 11	0.202***	0.072	0.115	0.010
Age 12	0.075*	0.027	0.249***	0.020
Age 13	0.033	0.012	0.236***	0.019
Age 14	0.036	0.013	0.177***	0.015
Single parent household	-0.057	-0.021	0.137	0.012
Number of siblings	0.005	0.002	0.108*	0.009
Mother's age/10	-0.013	0.005	-0.025	0.002
At least one parent has degree	0.044	0.016	0.958***	0.051
Workless household	-0.272**	-0.102	-0.176	-0.017
Tenant	-0.153	-0.057	0.106	0.009
Low income household	0.037	0.014	0.050	0.004
Both parents in UK after age 15	0.844***	0.243	0.225	0.017
Youth Regional Unemployment Rate	0.024**	0.009	0.027	0.002
Individual means of TVC	Yes		Yes	
Rho	0.497		0.671	
Log-likelihood	-9430		-4497	
N observations	15,501		13,943	
N individuals	4,831		4,859	

Notes: Dependent variable takes value 1 if doing well at school means a great deal/ the child reports wanting to go to college/sixth form and 0 otherwise/if he/she wants to leave school at age 16. All models also include year and region fixed effects. TVC refers to time-varying covariates. Marginal effects are calculated at the sample means from the random effects probit with additional regressors. Standard errors adjusted for clustering are reported in parentheses. Symbols: *** significant at 1% level; ** significant at 5% level; * significant at 10% level.

Investigating heterogeneous gender effects:

- Why might boys and girls have different aspirations/attitudes to education?:
  - Gender role socialisation: children are socialised differently by their parents depending on their gender;
  - Social control: daughters are subject to higher parental supervision than sons;

➔We anticipate that the educational attitudes and aspirations of girls will be more sensitive than those of boys to specific individual, parental and household characteristics such as child's age, parental attitudes and education, parental migration, labour market status and household structure

Results (continued):

Gender effects on educational attitudes and aspirations – estimates from models with interactions with parental education

RE probit with additional regressors	*Do well at school*		*Stay in school after 16*	
	Coeff	*ME*	*Coeff*	*ME*
Girl*At least one parent has degree (β_{g1})	0.195***	0.069	1.634***	0.064
Girl*No parent has degree (β_{g0})	0.153***	0.056	0.864***	0.073
Boy*At least one parent has degree (β_{b1})	0.046	0.017	1.064***	0.058
Boy*No parent has degree (β_{b0})	reference		reference	
p value $\beta_{g1}=\beta_{b1}$	0.106		0.004	
p value $\beta_{g1}=\beta_{g0}$	0.572		0.000	
p value $\beta_{g0}=\beta_{b1}$	0.132		0.131	
Log-likelihood	-9430		-4496	
N observations	15,501		13,943	
N individuals	4,831		4,859	

Notes: Estimates from random effects probit models with additional regressors. See text for details. All models also include controls for age, gender, household type, number of siblings, mother's age, whether living in a workless household, whether living in a low income household, housing tenure, migrant status of parents, year and region indicators. Marginal effects calculated at the sample means. P-value presents results from chi-squared tests of the null hypothesis that the estimated coefficient on the interaction between gender and parents having high educational attainment is equal to that between gender and parents not having high educational attainment. Standard errors adjusted for clustering are reported in parentheses. Symbols: *** significant at 1% level; ** significant at 5% level; * significant at 10% level.

Results (continued):

Gender effects on educational attitudes and aspirations – estimates from models with interactions with parental attitudes

RE probit with additional regressors	*Do well at school*		*Stay in school after 16*	
	Coeff	*ME*	*Coeff*	*ME*
Girl*At least one parent views GCSEs as important (β_{g1})	0.623**	0.236		
Girl*Not view GCSEs as important (β_{g0})	0.500	0.164		
Boy*At least one parent views GCSEs as important (β_{b1})	0.526*	0.200		
Boy*Not view GCSE as important (β_{b0})		reference		
Girl*At least one parent views A-levels as important(γ_{g1})			1.819***	0.177
Girl*Not view A-levels as important (γ_{g0})			0.848***	0.046
Boy*At least one parent views A-levels as important(γ_{b1})			1.077***	0.147
Boy*Not views A-levels as important (γ_{b0})				reference
p value $\beta_{g1}=\beta_{b1}$	0.146			
p value $\beta_{g1}=\beta_{g0}$	0.579			
p value $\beta_{g0}=\beta_{b1}$	0.908			
p value $\gamma_{g1}=\gamma_{b1}$			0.000	
p value $\gamma_{g1}=\gamma_{g0}$			0.000	
p value $\gamma_{g0}=\gamma_{b1}$			0.000	
Log-likelihood	-3467		-1309	
N observations	5,699		4,937	
N individuals	1,413		1,402	

Notes: Estimates from random effects probit models with additional regressors. See text for details. All models also include controls for age, gender, household type, parental education, number of siblings, mother's age, whether living in a workless household, whether living in a low income household, housing tenure, migrant status of parents, parental attitudes to GCSEs/A Levels (as appropriate), year and region indicators. Marginal effects calculated at the sample means. P-value presents results from chi-squared tests of the null hypothesis that the estimated coefficient on the interaction between gender and parents having positive attitudes to education is equal to that between gender and parents not having positive attitudes to education. Uses BHPS data on parental attitudes to education collected at waves 12 and 17. Standard errors adjusted for clustering are reported in parentheses. Symbols: *** significant at 1% level; ** significant at 5% level; * significant at 10% level.

Results (continued):

Gender effects on educational attitudes and aspirations – estimates from models with interactions with child's age

RE probit with additional regressors	*Do well at school*		*Stay in school after 16*	
	Coeff	*ME*	*Coeff*	*ME*
Girl*Age 11 (β_{g11})	0.371***	0.129	0.948***	0.051
Girl*Age 12 (β_{g12})	0.251***	0.089	1.108***	0.056
Girl*Age 13 (β_{g13})	0.189***	0.067	1.096***	0.056
Girl*Age 14 (β_{g14})	0.251***	0.088	1.131***	0.056
Girl*Age 15 (β_{g15})	0.227***	0.080	0.950***	0.049
Boy*Age 11 (β_{b11})	0.258***	0.092	0.218**	0.019
Boy*Age 12 (β_{b12})	0.122**	0.044	0.334***	0.028
Boy*Age 13 (β_{b13})	0.100*	0.036	0.314***	0.026
Boy*Age 14 (β_{b14})	0.047	0.017	0.191**	0.017
Boy*Age15		reference		reference
p value $\beta_{g11}=\beta_{b11}$	0.072		0.000	
p value $\beta_{g12}=\beta_{b12}$	0.038		0.000	
p value $\beta_{g13}=\beta_{b13}$	0.161		0.000	
p value $\beta_{g14}=\beta_{b14}$	0.001		0.000	
p value $\beta_{g11}=\beta_{g12}$	0.027		0.116	
p value $\beta_{g11}=\beta_{g13}$	0.001		0.147	
p value $\beta_{g11}=\beta_{g14}$	0.040		0.080	
p value $\beta_{g11}=\beta_{g15}$	0.019		0.982	
p value $\beta_{g12}=\beta_{g13}$	0.255		0.910	
p value $\beta_{g12}=\beta_{g14}$	0.998		0.826	
p value $\beta_{g12}=\beta_{g15}$	0.682		0.133	
p value $\beta_{g13}=\beta_{g14}$	0.266		0.733	
p value $\beta_{g13}=\beta_{g15}$	0.518		0.151	
p value $\beta_{g14}=\beta_{g15}$	0.674		0.067	
p value $\beta_{b11}=\beta_{b12}$	0.011		0.153	
p value $\beta_{b11}=\beta_{b13}$	0.004		0.254	
p value $\beta_{b11}=\beta_{b14}$	0.000		0.757	
p value $\beta_{b12}=\beta_{b13}$	0.672		0.808	
p value $\beta_{b12}=\beta_{b14}$	0.169		0.085	
p value $\beta_{b13}=\beta_{b14}$	0.331		0.133	
Log-likelihood	-9429		-4542	
N observations	15,501		13,943	
N individuals	4,831		4,859	

Notes: Estimates from random effects probit models with additional regressors. See text for details. All models also include controls for household type, parental education, number of siblings, mother's age, whether living in a workless household, whether living in a low income household, housing tenure, migrant status of parents, year and region indicators. Marginal effects calculated at the sample means. P-value presents results from chi-squared tests of the null hypothesis that the estimated coefficient on the interaction between gender and age do not differ as specified in each case. Standard errors adjusted for clustering are reported in parentheses. Symbols: *** significant at 1% level; ** significant at 5% level; * significant at 10% level.

Conclusions:

- Clear gender differences in educational attitudes and aspirations:
  - girls report more positive attitudes and higher aspirations than boys;
- However boys are generally more sensitive than girls to positive household characteristics and family background;
  - Counters gender socialisation and social control theories
- Parental attitudes to education are an important determinant of child's educational aspirations.
  - Interventions to improve parental attitudes of teenage boys in less affluent households could improve their aspirations and potentially reduce the gender gap in attainment.

THANKS

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APPENDIX

Mean of explanatory variables by child's educational attitudes and aspirations

Variable	*Doing well at school means a great deal*		*Wants to stay in school after 16*	
	Yes	*No*	*Yes*	*No*
Girl	0.508	0.471	0.528	0.332
Age11	0.226	0.188	0.198	0.198
Age12	0.215	0.214	0.209	0.187
Age13	0.193	0.205	0.202	0.182
Age14	0.194	0.205	0.208	0.208
Single parent household	0.193	0.240	0.202	0.258
Number of siblings	1.115	1.081	1.071	1.157
	(1.036)	(1.016)	(1.003)	(1.089)
Mother's age/10	3.900	3.910	3.932	3.802
	(0.883)	(0.929)	(0.905)	(0.858)
At least one parent has degree	0.177	0.167	0.200	0.055
Workless household	0.042	0.048	0.037	0.080
Tenant	0.270	0.310	0.251	0.453
Low income household	0.251	0.291	0.242	0.362
Both parents in UK after age 15	0.014	0.005	0.012	0.006
Youth regional unemployment rate	13.619	13.312	13.651	13.548
	(3.000)	(2.761)	(3.042)	(2.813)

Notes: Standard deviations reported in parenthesis

Gender effects on educational attitudes and aspirations – estimates from models with interactions with child's age

RE probit with additional regressors	*Do well at school*		*Stay in school after 16*	
	Coeff	*ME*	*Coeff*	*ME*
Girl*Age 11 (β_{g11})	0.371***	0.129	0.948***	0.051
Girl*Age 12 (β_{g12})	0.251***	0.089	1.108***	0.056
Girl*Age 13 (β_{g13})	0.189***	0.067	1.096***	0.056
Girl*Age 14 (β_{g14})	0.251***	0.088	1.131***	0.056
Girl*Age 15 (β_{g15})	0.227***	0.080	0.950***	0.049
Boy*Age 11 (β_{b11})	0.258***	0.092	0.218**	0.019
Boy*Age 12 (β_{b12})	0.122**	0.044	0.334***	0.028
Boy*Age 13 (β_{b13})	0.100*	0.036	0.314***	0.026
Boy*Age 14 (β_{b14})	0.047	0.017	0.191**	0.017
Boy*Age15		reference		reference
p value $\beta_{g11}=\beta_{b11}$	0.072		0.000	
p value $\beta_{g12}=\beta_{b12}$	0.038		0.000	
p value $\beta_{g13}=\beta_{b13}$	0.161		0.000	
p value $\beta_{g14}=\beta_{b14}$	0.001		0.000	
p value $\beta_{g11}=\beta_{g12}$	0.027		0.116	
p value $\beta_{g11}=\beta_{g13}$	0.001		0.147	
p value $\beta_{g11}=\beta_{g14}$	0.040		0.080	
p value $\beta_{g11}=\beta_{g15}$	0.019		0.982	
p value $\beta_{g12}=\beta_{g13}$	0.255		0.910	
p value $\beta_{g12}=\beta_{g14}$	0.998		0.826	
p value $\beta_{g12}=\beta_{g15}$	0.682		0.133	
p value $\beta_{g13}=\beta_{g14}$	0.266		0.733	
p value $\beta_{g13}=\beta_{g15}$	0.518		0.151	
p value $\beta_{g14}=\beta_{g15}$	0.674		0.067	
p value $\beta_{b11}=\beta_{b12}$	0.011		0.153	
p value $\beta_{b11}=\beta_{b13}$	0.004		0.254	
p value $\beta_{b11}=\beta_{b14}$	0.000		0.757	
p value $\beta_{b12}=\beta_{b13}$	0.672		0.808	
p value $\beta_{b12}=\beta_{b14}$	0.169		0.085	
p value $\beta_{b13}=\beta_{b14}$	0.331		0.133	
p value $\beta_{g11}=\beta_{b12}$	0.000		0.000	
p value $\beta_{g11}=\beta_{b13}$	0.000		0.000	
p value $\beta_{g11}=\beta_{b14}$	0.000		0.000	
p value $\beta_{g12}=\beta_{b12}$	0.908		0.000	
p value $\beta_{g12}=\beta_{b13}$	0.016		0.000	
p value $\beta_{g12}=\beta_{b14}$	0.001		0.000	
p value $\beta_{g13}=\beta_{b11}$	0.276		0.000	
p value $\beta_{g13}=\beta_{b12}$	0.292		0.000	
p value $\beta_{g13}=\beta_{b14}$	0.026		0.000	
p value $\beta_{g14}=\beta_{b11}$	0.910		0.000	
p value $\beta_{g14}=\beta_{b12}$	0.044		0.000	
p value $\beta_{g14}=\beta_{b13}$	0.018		0.000	
p value $\beta_{g15}=\beta_{b11}$	0.006		0.000	
p value $\beta_{g15}=\beta_{b12}$	0.112		0.000	
p value $\beta_{g15}=\beta_{b13}$	0.053		0.000	
p value $\beta_{g15}=\beta_{b14}$	0.006		0.000	
Log-likelihood	-9429		-4542	
N observations	15,501		13,943	
N individuals	4,831		4,859	

Notes: Estimates from random effects probit models with additional regressors. See text for details. All models also include controls for household type, parental education, number of siblings, mother's age, whether living in a workless household, whether living in a low income household, housing tenure, migrant status of parents, year and region indicators. Marginal effects calculated at the sample means. P-value presents results from chi-squared tests of the null hypothesis that the estimated coefficient on the interaction between gender and age do not differ as specified in each case. Standard errors adjusted for clustering are reported in parentheses. Symbols: *** significant at 1% level; ** significant at 5% level; * significant at 10% level.

Determinants of educational attitudes and aspirations (FE models)

FE logit	*Do well at school* *Coeff*	*Stay in school after 16* *Coeff*
Girl	0.238***	1.130***
Age 11	0.084	-0.140
Age 12	-0.066	0.127
Age 13	-0.071	0.220**
Age 14	0.004	0.258**
Single parent household	-0.247**	0.001
Number of siblings	0.074	0.083
Workless household	-0.491***	-0.021
Tenant	-0.032	0.158
Low income household	0.116	0.122
Youth Regional Unemployment Rate	-0.003	0.029
Log-likelihood	-5178	-1890
N observations	11,931	5,312
N individuals	1,604	767

Notes: Dependent variable takes the value 1 if doing well at school means a great deal/ the child reports wanting to go to college/sixth form and 0 otherwise/if he/she wants to leave school at age 16. All models also include year and region fixed effects. Standard errors are reported in parentheses. Symbols: *** significant at 1% level; ** significant at 5% level; * significant at 10% level.

Gender effects on educational attitudes and aspirations - estimates from models with interactions with parental education (FE models)

FE logit	*Do well at school* *Coeff*	*Stay in school after 16* *Coeff*
Girl*At least one parent has degree	0.669***	1.226***
Girl*No parent has degree	0.210***	1.157***
Boy*At least one parent has degree	0.307	0.427
Boy*No parent has degree		reference
Log-likelihood	-5175	-1889
N observations	11,931	5,312
N individuals	1,604	767

Notes: Estimates from fixed effects logit models. All models also include controls for age, household type, parental education, number of siblings, whether living in a workless household, whether living in a low income household, housing tenure, and year indicators. Standard errors are reported in parentheses. Symbols: *** significant at 1% level; ** significant at 5% level; * significant at 10% level.

Gender effects on educational attitudes and aspirations – estimates from models with interactions with parental (FE models)

FE logit	*Do well at school* *Coeff*	*Stay in school after 16* *Coeff*
Girl*At least one parent views GCSEs as important	-0.239	
Girl*Not view GCSEs as important	0.170	
Boy*At least one parent views GCSEs as important	-0.452	
Boy*Not view GCSE as important	reference	
Girl*At least one parent views A-levels as important		1.250***
Girl*Not view A-levels as important		1.422***
Boy*At least one parent views A-levels as important		0.089
Boy*Not views A-levels as important		reference
Log-likelihood	-1840	-503
N observations	4,423	1,458
N individuals	652	233

Notes: Estimates from fixed effects logit models. All models also include controls for age household type, number of siblings, whether living in a workless household, whether living in a low income household, housing tenure, parental attitudes to GCSEs/A Levels (as appropriate), year and region indicators. Uses BHPS data on parental attitudes to education collected at waves 12 and 17. Standard errors are reported in parentheses. Symbols: *** significant at 1% level; ** significant at 5% level; * significant at 10% level.

Gender effects on educational attitudes and aspirations - models with interactions with child's age (FE models)

FE logit	*Do well at school* *Coeff*	*Stay in school after 16* *Coeff*
Girl*Age 11	0.345***	0.956***
Girl*Age 12	0.212**	1.273***
Girl*Age 13	0.152	1.448***
Girl*Age 14	0.318***	1.585***
Girl*Age 15	0.326***	1.405***
Boy*Age 11	0.143	0.066
Boy*Age 12	-0.023	0.296**
Boy*Age 13	0.024	0.341**
Boy*Age 14	0.015	0.320**
Boy*Age15		reference
Log-likelihood	-5176	-1886
N observations	11,931	5,312
N individuals	1,604	767

Notes: Estimates from fixed effects logit models. All models also include controls for household type, number of siblings, whether living in a workless household, whether living in a low income household, housing tenure, year and region indicators. Standard errors are reported in parentheses. Symbols: *** significant at 1% level; ** significant at 5% level; * significant at 10% level.