

# Dreaming big? Self-valuations, aspirations, networks and the private-school earnings premium

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An important axis of inequality in Britain is the private/state school divide. The success of private schools in Britain in delivering high academic achievements and better-paid jobs has been attributed to these schools engendering high self-evaluations, greater aspirations and social networks. Using recently repaired data on secondary school type from the 1970 British Cohort Study, we find that internal locus of control, aspirations and access to networks, but not self-esteem, are raised by private schooling. Locus of control and aspirations (but not networks or self-esteem) each have modest effects on earnings at age 42. Yet only a small part of the private school earnings premium is accounted for by all these factors. Much of the premium is due, rather, to educational attainments. This evidence suggests that strategies to strengthen self-evaluations or aspirations in state schools will contribute little on their own to the objective of greater equality or social mobility.

*Key words:* Non-cognitive skills, Locus of control, Self-esteem, Pay, Private school, Aspiration, Networks, Social mobility, Inequality  
*JEL classifications:* I24, I26, J24

## 1. Introduction

Often characterised as a ‘liberal market economy’, Britain has evolved pay and skills inequalities that are among the highest relative to other advanced economies (Salverda and Haas, 2014; Green *et al.*, 2015). Among the complex historical factors underpinning this high degree of inequality, one that appears *prima facie* relevant is the close association in Britain between social class and private school attendance (OECD, 2012). The significance of this association lies in the high quality of private schools in Britain, confirmed by a substantive body of research. There is both an educational advantage for those who have attended a private school, and a substantial earnings premium matched by differential attainment of higher-status occupations (Dearden *et al.*, 2002; Naylor *et al.*, 2002; Blanden *et al.*, 2004; Green *et al.*, 2011; Broughton *et al.*, 2014; Crawford and Vignoles, 2014; Sullivan *et al.*, 2014; Macmillan *et al.*, 2015; McKnight, 2015). These advantages are important not just for potential parents

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contemplating investing large sums in private education, but also because the high and rising earnings premium is potentially linked with high and increasing wage inequality and low social mobility in Britain. However, the source of the earnings premium, and its magnitude over the life cycle, are not yet fully accounted for.

This paper contributes new, policy-relevant, evidence on the source and magnitude of the private school earnings premium in mid-career. Private schools' educational advantage is typically attributed to a combination of substantially superior resources, academic selection of pupils from more affluent and stable households, and independent governance. Yet, it is also often held that both the educational and labour market successes are due to more than just academic achievement. The question as to what this extra ingredient might be is aptly put by journalist Cosslett, along with an asserted answer: 'Why do state-school pupils earn less over a lifetime? Because they aren't taught to dream big. Private schools instil their children with a sense of entitlement and confidence that is lacking among state-school pupils'.<sup>1</sup> In effect, it is argued that private schools foster enhanced self-valuation and aspirations that are of value in sustaining the drive for educational attainment and for subsequent success at work—in sociological terms, cultural capital (Horne *et al.*, 2011).<sup>2</sup> The proposed account has an attraction for politicians concerned with social justice, in so far as policies such as formal partnerships between private and state schools that aim to reduce private/state gaps in aspirations and confidence could be less costly than a convergence of educational resources between sectors. Private schools are also thought to offer better opportunities for social networking (either at school or later) that are especially valuable for job searching (Naylor *et al.*, 2002; Ashley *et al.*, 2015). If that is behind the premium, it might be countered by policies to encourage social justice through changed recruitment practices: for example, in May 2016 a Cabinet Office minister urged companies to ask job applicants if they had attended private school, and proposed to institute this practice for recruitment to the civil service.

This paper seeks to provide evidence concerning the links between private schooling and pupils' self-valuations, aspirations and networks that are relevant for the above claims. Specifically, among a cohort of people born in 1970, we first study indicators of self-evaluation, namely self-esteem and locus of control, and indicators of aspirations and networks which may help to capture the constructs of public discourse more precisely. These indicators have been studied within sociology and psychology for a considerable time, and have been applied occasionally within economics and educational studies. Yet there is hitherto little or no formal evidence about how strongly self-evaluations, aspirations and networks are correlated with school type, and whether having a private as opposed to a state education in Britain affects these factors.<sup>3</sup> As for 'old-boy networks', there is only the circumstantial case that success in the world of politics or in certain professions (e.g. law, banking) is disproportionately concentrated among the alumni of independent schools (e.g. Sutton Trust, 2005, 2010).

<sup>1</sup> *New Statesman*, 10 November 2014. Similar sentiments are expressed by other journalists, e.g. Hinsliff (*Guardian*, 19 July 2009) and Monk (*Daily Telegraph*, 21 August 2014).

<sup>2</sup> The negative externalities of this phenomenon are also articulated: 'Some privately educated pupils have a bullish and charmless confidence and can 'asphyxiate the society they move in', the head of a leading independent school has said, following up with 'There are downsides to the overconfidence instilled by an independent education that can repel people' (*Times*, 1 December 2014).

<sup>3</sup> In an adjacent study, Evans and Tilley (2012) provide some formal evidence from the British Social Attitudes Survey that private schools affect political attitudes, but with relatively few controls for social background one cannot be confident that the effect they uncover is causal.

The paper contributes in several ways to our understanding of the role of private schools in British society. First, we investigate whether private school alumni had greater self-esteem, more internal locus of control, loftier aspirations and better perceived access to networks when they were 16 years old. Second, we are able to control for a rich array of salient indicators of social background, and for earlier cognitive and non-cognitive skills. Third, while there is some evidence (see below) of how far locus of control, self-esteem, aspirations and networks affect labour market outcomes, we add to that evidence by examining whether these effects extend to mid-career, and whether they operate independently of formal human capital accumulation. Fourth, we provide estimates of the private school earnings premium in England at age 42, extending previous research that has applied at earlier points in the career; we are also able to control for a richer set of social background and prior cognitive skills measures than previous studies. Finally, in light of these findings, we investigate the extent to which self-esteem, locus of control, aspirations and networks help account for the private schools earnings premium.

We begin in Section 2 with a review of theory and evidence surrounding links between private schools and self-valuations, aspirations and networks, and about their links with subsequent earnings. We set forth the cohort data and indicators in Section 3, present descriptive findings of private/state differences in Section 4, and in Section 5 we present models of the private school effects on self-valuations, aspirations and networks at age 16. Section 6 examines the determinants of pay at age 42, including the type of school attended. Section 7 summarises, states the main policy implication and concludes with a discussion of potential limitations.

## 2. Theories and previous evidence

A growing body of theory and evidence in recent years has found that the conventional human capital indicators—education, cognitive skills measures and work experience—do not fully capture the array of factors that can affect labour market outcomes (Green, 2013). Other productive qualities are referred to variously as ‘non-cognitive skills’, ‘self-valuations’, ‘psycho-social resources’, ‘interactive (or communication) skills’, ‘personality skills’ or ‘personality traits’ (Heckman *et al.*, 2006; Borghans *et al.*, 2008; Almlund *et al.*, 2011). In addition, aspirations and networks are also being recognised as potential determinants of labour market outcomes (Ashby and Schoon, 2010; Loury, 2006).

Consider first the psychological constructs: ‘locus of control’ and ‘self-esteem’. Locus of control captures the extent to which people feel that life events are generally caused by their own actions (internal control) rather than other factors such as fate or chance (external control). Self-esteem is a person’s subjective estimate of his or her own worth. This pair of constructs is of particular interest for several reasons. First, there is evidence that locus of control and self-esteem affect subsequent educational choices and performance (*inter alia* Ross and Broh, 2000; Blanden *et al.*, 2007; Murasko, 2007; Goodman *et al.*, 2011; von Stumm *et al.*, 2009; Piatek and Pinger, 2010; Flouri, 2006; de Araujo and Lagos, 2013). A more internal locus of control and higher self-esteem are thought to be associated with persistence on difficult tasks and harder work, with resulting greater productivity in studying. Second, there is robust evidence that locus of control and self-esteem may be augmented through education (Heckman *et al.*, 2006; de Araujo and Lagos, 2013). Thus, there can be a cumulative self-reinforcing

process, with education leading to greater internal locus of control and/or self-esteem, which in turn enhance subsequent educational achievement. Third, these constructs have long-term beneficial effects, independent of education, on job search, pay and health outcomes (Cebi, 2007; Ellis and Taylor, 1983; Murasko, 2007; Ternouth et al., 2009; Viner and Cole, 2006). Such direct effects have been conceived as either latent qualities (which come into their own in later-life environments) or cumulative qualities (which enhance the developmental aspects of early career experiences and bear fruit later). Locus of control and self-esteem are quite closely related with each other and with other personality indicators, and some of the evidence for their economic importance comes from composite indicators that include them (Heckman et al., 2006; Hall and Farkas, 2011).

Aspiration is a forward-looking psychological construct, closely related to ambition, which is a substratum of conscientiousness (one of the 'big five' personality traits). But aspirations are also linked to information access, and have a distinct, if complex, link to social class (Baker et al., 2014). Moreover, there is good evidence that they matter. For example, Croll (2008) reports associations between occupational aspirations at age 15 and early career outturns for young British people, while Yates et al. (2011) find an association between low aspirations and NEET status (not in employment, education or training). Career aspirations are also associated with social status and earnings in the early thirties, even after controlling for educational achievements and for indicators of family socio-economic advantage (Ashby and Schoon, 2010; Schoon et al., 2007; Schoon and Polek, 2011).

Our final concern is with an aspect of social capital, namely differential access to valued networks that open up channels to highly rewarded careers. Typically, networks are socially graded (Coleman, 1990). Research suggests that some kinds of networks do indeed generate job offers and contribute to labour market success (Loury, 2006). Yet the traditional prominence of the 'old boy network' in British labour markets was, according to Walford (1986, p. 207), already declining by the 1980s, as appointment procedures to middle-class jobs were becoming more bureaucratised. Moreover, the sparse evidence in Britain on the importance of networks for higher earnings is at best only partially supportive (Macmillan et al., 2015; Marcenaro-Guierrez et al., 2014).

Given the close historical link that private schooling has had with social class background (Gathorne-Hardy, 1977), our first hypothesis (H1) is that in British private schools, some of which are academically selective and almost all of which serve a market of predominantly high-income families, the pupils have greater self-esteem, more internal locus of control, higher aspirations and greater network access.

We also hypothesise (H2) that private schools may be instrumental in the further development of these characteristics and in affording valued networks. In addressing this question, we take some note of the heterogeneity among private schools (Graddy and Stevens 2005; Davies and Davies 2014), broadly along the lines of their historically derived status. Thus, the higher-status and wealthier private schools might be more effective than lower-status, poorer private schools (H2a). These hypotheses reflect the (sometimes explicit) visions and ethos of private schools: these generally promise superior academic achievement, but also emphasise a broad curriculum, an inculcation of 'character', a rich cultural and sporting experience bringing leadership and teamworking skills, and high-quality pastoral care. Given their much greater resources, autonomous governance and the peer-group effects spilling over from the milieu of other pupils with high aspirations and self-valuations and alumni friendship networks,

private schools might be expected to be able to foster the development of these broader attributes. They can deliver broader skills, through more targeted learning, a more extensive curriculum and a richer menu of extra-curricular activities than is available in state schools. Given their pupil market, private school teachers can be selected who will be especially cognisant of their pupils' internal locus of control, and able to inculcate aspirations for higher-status situations in society—an approach that would be favoured by parents with high aspirations for their children. [Flouri \(2006\)](#) shows that parental interest does indeed affect children's self-valuations; private schools can be one route through which such influence is channelled.

Further hypotheses, extending the literature, are that childhood self-esteem, locus of control, aspirations and networks each have a long-term impact on earnings in mid-career (H3), while also that the private school earnings premium, conditional on prior skills and social background, persists through to mid-career (H4). These hypotheses then lead to our final hypothesis (H5), central to the policy claims discussed in the introduction, namely that the earnings premium is accounted for by the private/state differences in self-evaluations, aspirations and network access, and in educational attainment.

There is, however, very little evidence on whether self-valuations, aspirations and networks are associated with type of school, nor whether these account for any subsequent advantages of particular school types. Studies for the USA and for Australia find that there is no significant difference in the non-cognitive outcomes of pupils attending (private) Catholic schools and other schools, once prior social background is accounted for ([Elder and Jepsen, 2014](#); [Nghiem \*et al.\*, 2015](#)).<sup>4</sup> Yet the effect of British private schools could be expected to be different, given their specific characteristics, not least that their resources are vastly superior to those of the average British state school.

### 3. Data and indicators

We address these questions using data from the 1970 British Cohort Study (BCS70), which has followed the lives of all those born in England, Scotland and Wales in a single week ([Elliott and Shepherd, 2006](#)). Over the course of cohort members' lives, BCS70 has collected information *inter alia* on health, physical, educational and social development, and economic circumstances. Since their birth, there have been three childhood survey waves at ages 5, 10 and 16, then 5 subsequent waves in adulthood. We use the childhood waves and the latest adulthood wave when cohort members were 42. The outcome and explanatory variables that we use are obtained as follows.

#### 3.1 Schooling

Hitherto, a lack of adequate data about the secondary school attended by BCS70 members has prevented researchers from examining the effects of secondary schooling in the 1980s. Gaps on school-type information have now been filled, by combining data from three sources: the 1986 Head Teacher's Questionnaire; the 1986 School Census and a retrospective question asked in 2012. Where the head teacher variable

<sup>4</sup> [Gibbons and Silva \(2011\)](#) add evidence that Catholic-faith schools in Britain also have little effect on academic attainment. [Green \*et al.\* \(In press\)](#) find that leadership skill requirements are more prevalent in the jobs taken by private school alumni, but that this difference does not account at all for the pay premium.

was missing, we used the 1986 School Census variable, and where both sources were missing we used the retrospective 2012 variable. Within our sample, 28% of information came from the Head Teacher, 29% from the School Census and 43% retrospectively in 2012. We excluded those from Special Needs schools (whether private or state) in the estimations below.

As a check on the reliability of this hierarchical method of classification, we examined outcomes for cases where more than one source is available. Where the Head Teacher and the retrospective responses are both available, private/state classification differences occur for 0.6% of cases (including 6% of the cases where the Head Teacher reported private); where both Census and retrospective indicators are present but not the Head Teacher's, private/state classification differences occur for 0.8% of cases (including 4% of cases where the Census indicated private). There is no separate reliability check for those cases where our only source of information is the retrospective report.

To study potential heterogeneous effects among private secondary schools, we classify whether each is included among those reviewed regularly by *Tatler*, a well-known magazine that serves an especially affluent readership. With around 100 schools, the *Tatler* list includes only what the guide describes as 'top' schools, including all the famous schools in England, which are resource-rich owing to their long histories. The included schools mostly remain the same over the years, and they charge above-median fees.

### 3.2 *Self-esteem*

At ages 10 and 16, cohort members responded to items on the LAWSEQ scale which assessed children's self-esteem with reference to teachers, peers and parents and consisted of 12 items, for example 'Do you feel lonely at school?' and 'Do your parents like to hear about your ideas?' We follow [Davies and Brember \(1999\)](#) and [Murasko \(2007\)](#), scoring 0/1 for each item, including 0 for the small number of 'don't know' responses. (With 11 items at age 10, and 10 items at age 16, there are no more than three such 'don't knows' in 93% of age 10 cases and in 97% of age 16 cases.) Self-esteem is the average score, ranging from 0 to 1.

### 3.3 *Locus of control*

The questionnaires at ages 10 and 16 also included items on the CARALOC scale of perceived achievement control ([Gammage, 1975](#)). Seven out of 16 items refer specifically to school experiences. Examples are 'Do you feel that most of the times it is not worth trying hard because things never turn out anyway?' and 'Do you feel that wishing can make good things happen?' Again following [Murasko \(2007\)](#), after removing distracter questions we coded 0 for 'low' or 'don't know' and 1 for 'high' internal control. Locus of control is the average score, ranging from 0 to 1.

### 3.4 *Age 16 aspirations*

We use two approaches, distinguishing between aspirations for particular facets of jobs, which we refer to as 'job quality aspirations', and aspirations for high-status occupations. For the first approach, students were asked what matters to them in a job. They could tick up to 16 attributes, indicating for each whether it 'matters very much',

‘matters somewhat’ or ‘doesn’t matter’. Exploratory factor analysis gave a five-factor solution, with the first factor loading most on aspects of the job associated with high-status and high-quality jobs (Green and Mostafa, 2013): high earnings, promotion prospects, interesting job, challenging job, long-term security, training, challenging job and chance to travel. Our scale averaged the responses to these variables, and was normalised to range from 0 (none of the above matter) to 1 (all matter very much), capturing the extent to which it matters to them to aim for a highly rewarding job. Ashby and Schoon (2010) combine the responses to just two of these (‘promotion prospects’ and ‘challenging job’), excluding all others, to make their indicator of ‘ambition value’ in their analysis of gender differences. In our scale the excluded items—regular hours, make things, quiet life, work with figures, not work too hard, work for self, work in open, understanding boss, help others—which loaded onto other factors, are all interpretable as job preferences rather than as aspects of high-skilled, high-status jobs. Our findings were robust to several variations on the scale, including the first factor score, an alternative factor analysis with two factors chosen (using either the first factor score or a linear average of high-loading variables), an alternative that included ‘work for myself’ and alternatives that excluded some items: each of these produced a similar pattern of results to those shown below.

For the second approach, respondents were asked to give their first choice in a list of 16 jobs/occupations/careers they would want to do in life, plus any number of ‘might do’ responses; or they could answer ‘can’t decide’. We use a dummy variable according to whether the first-choice response was to follow a ‘professional [career] (needing a degree)’ or a career in ‘Managing/Nursing/Teaching’. We follow Ashby and Schoon (2010), however, by focusing on realistic aspirations. Thus, a small proportion (disproportionately from lower social class backgrounds) of those who responded in this way also indicated that they intended to leave education at age 16, indicating that their aspirations were unrealistic. This is consistent with findings in the literature that, among marginalised groups, what children expect to achieve in education or a later occupation is liable to fall short of their aspirations (Cook *et al.*, 1996; Kirk *et al.*, 2012). We therefore compute a dummy variable ‘realistic occupational aspiration’, combining the occupational aspiration with the stated intention to stay on at school after 16.

### 3.5 *Network access*

At age 16, after stating their aspirations respondents were asked, ‘Once you need to get a job, do your parents or anyone you know have a contact(s) who might be able to help you?’ to which they could give a yes/no answer. Since it is access (via social networks) to good jobs that we wish to capture, we combine the responses with the above ‘realistic occupational aspiration’ indicator to generate an indicator of ‘high-value network access’.

### 3.6 *Earnings*

Earnings at 42 are measured conventionally as hourly pay for employees and as hourly earnings for the self-employed.

### 3.7 *Other covariates*

Several controls for social background are included in the analyses. These are: parents’ highest education level (age 5), parent’s social class (Registrar General’s classification)

(at birth), mother's age at respondent's birth, duration of breastfeeding, birth order, birth weight, region of birth (13 categories), ethnicity (7 categories), whether in owner-occupied house (age 5), overcrowding (age 5), age 10 introversion score, household income at age 10, mother's and father's interest in child's education (age 10), whether in receipt of free school meals at age 10 (a widely used indicator of social deprivation) and broadsheet newspaper in household (age 10).

Cognitive skills scores are also important control variables, and in what follows we use the test scores at ages 5, 10 and 16. For the age 16 scores, the cohort members also took nine cognitive tests. However, because that survey wave unfortunately coincided with a teachers' strike, which affected the completion of some of those instruments, including the cognitive tests that were administered via schools (Dodgeon 2008), six of these tests were never extracted from the forms. Nevertheless, a scanned archive with approximately 6,000 missing student score forms was available. These included otherwise unexploited information on several dimensions of comprehension (4 scales, 58 items in total) and verbal reasoning (17 items), as well as non-verbal reasoning, captured by the British Ability Scales Matrices test (5 items) (Elliott, 1996). We have extracted these scales and assessed them for satisfactory reliability and validity.

### 3.8 Samples

We exploit information from all of the childhood waves of the study, including the age 16 wave. While BCS70 is generally considered to be of high quality, issues of data quality remain to be addressed, especially those associated with attrition and, notwithstanding our data recovery programme, item non-response.<sup>5</sup> By the ninth wave (2012), nearly a third of the original sample of 17,284 had dropped out of the study; another 50% had dropped out of the study for at least one wave but returned subsequently and only 20% had participated in every wave (Mostafa and Wiggins, 2015). The age 16 years sample remains broadly representative for a number of key characteristics, namely for gender, mother's and father's age of leaving full-time education, biological parenthood, ethnicity and residence in England. Nevertheless, to base our analysis only upon those with full information for every wave would risk a serious loss of information and sample representativeness. Hence we adopted a similar strategy to that recommended by Carpenter and Kenward (2013) and, for each modelled outcome variable, we apply multiple imputation to handle any item missingness for those cases who had complete observations on the outcome and the key explanatory variable (school type).

We conducted the analyses separately for males and females, since the history of girls' private schools has been rather different from that of boys. Most private secondary schools have been single sex till quite recently, and the ethos of boys' and girls' schools would arguably still have been different in the middle of the 1980s, with consequent different emphases on non-academic matters.

## 4. Descriptive analysis

In order to address hypothesis H1, we first undertake a descriptive analysis. It is a simple issue: do privately educated pupils have higher self-evaluations, greater aspirations

<sup>5</sup> For a full analysis of the samples up to age 30, see Plewis *et al.* (2004).



and superior access to high-valued networks, compared with state-educated pupils? The findings in Table 1 strongly support the hypothesis. At age 10, children at private primary schools (termed ‘prep schools’ in Britain) had a more internalised locus of control and greater self-esteem than children from state schools. The difference is very substantial in the case of locus of control, being 61% of a standard deviation; for self-esteem, at 32% of a standard deviation, the contrast is still notable. Are such school-type differences still evident at 16? Looking at the second panel, the private/state differences at age 16 are, in relative terms, somewhat smaller than they were at age 10, yet still substantial: 58% of the standard deviation of locus of control and 15% for self-esteem. We also examined whether the *Tatler* school alumni were different from those who had been at non-*Tatler* schools. The table shows that the point estimates for *Tatler* private schools are all higher than for non-*Tatler* private schools. Yet the difference is statistically significant only for locus of control and then not for females.

The third panel examines private/state differences in aspirations. At age 16, private school pupils also had significantly greater job-quality aspirations. Moreover, those from *Tatler* schools aspired even more than other private school students for a high job quality. Much higher proportions of private school alumni than of state school alumni—73% compared with 29%—aspired to a professional or managerial job.

The final panel examines perceived social network access at 16. The first three columns present the proportions with access to a family member who respondents felt could help them get the sort of job they want. Again as predicted in H1, in their perceptions the private school students had much better access, and the *Tatler* students better than the non-*Tatler* students. The differences are again large: thus, whereas some 30% of state school students had network access, this was true of 50% of all private school students, and 70% of *Tatler* school students. The final three columns examine the key variable, high-value network access. As can be seen, the private school advantage—and beyond that the *Tatler* school advantage—are again striking: high-value network access was thought to be available at one extreme to 61% of *Tatler* private school pupils, and to just 16% of state school pupils at the other.

## 5. Modelling the effects of private schooling

The remaining hypotheses entail the proposition that school type has causal impacts on our outcome variables, and with observational data this poses considerable difficulties. The choice to go private, in a system of universal free state education, depends on family income, preferences and beliefs in private education’s efficacy—factors which may themselves be related to children’s self-evaluations, aspirations, networks and labour market outcomes. Direct experimentation is impossible in these circumstances. Possible instruments might be an indicator of parents’ political ideology, or proximity to a grammar school, while quasi-experimental factors that change the price of private education include the Assisted Places Scheme (Power *et al.*, 2003). However, such factors may also be partly conditional on school recruitment policies and on endogenous location. Moreover, in most surveys (including BCS70) the relevant information is unavailable or yields far too few instrumental cases to read off private school effects. Set against these common difficulties, the cohort data include an unusually rich array of social background and prior ability indicators. We can therefore control for the potential confounding effects of these variables, though we cannot be sure that there are no remaining elements of endogeneity bias. Our approach, therefore, is to estimate

**Table 1.** *Self-valuations aspirations and network access of private and state school pupils*

Age 10	Locus of control			Self-esteem		
	Males	Females	All	Males	Females	All
State school	0.497	0.470	0.484	0.639	0.588	0.614
Private school	0.625***	0.586***	0.607***	0.705***	0.651***	0.680***
All	0.500	0.473	0.487	0.641	0.590	0.616
Standard deviation	0.191	0.198	0.195	0.198	0.216	0.209
<i>n</i>	5556	5227	10783	5579	5243	10822
Age 16	Locus of control			Self-esteem		
	Males	Females	All	Males	Females	All
State school	0.648	0.630	0.637	0.694	0.692	0.693
Private school	0.756***	0.757***	0.757***	0.715	0.738**	0.726**
<i>of which</i>						
Non-Tatler	0.741	0.755	0.749	0.701	0.735	0.718
Tatler	0.809 <sup>s</sup>	0.779	0.799 <sup>s</sup>	0.765	0.753	0.760
All	0.656	0.636	0.645	0.696	0.694	0.695
Standard deviation	0.204	0.209	0.207	0.218	0.212	0.215
<i>n</i>	1,842	2,566	4,408	1,705	2,282	3,987
Age 16	Job quality aspiration			Realistic occupational aspiration		
	Males	Females	All	Males	Females	All
State school	0.689	0.679	0.684	0.269	0.312	0.294
Private school	0.721**	0.746***	0.734***	0.756***	0.697***	0.725***
<i>of which</i>						
Non-Tatler	0.708	0.733	0.722	0.735	0.677	0.703
Tatler	0.765 <sup>s</sup>	0.843 <sup>sss</sup>	0.794 <sup>sss</sup>	0.828	0.833	0.830 <sup>s</sup>
All	0.692	0.683	0.687	0.304	0.333	0.321
Standard deviation	0.168	0.178	0.174	0.460	0.471	0.466
<i>n</i>	1,879	2,585	4,464	1,841	2,614	4,455
Age 16	Any network access			High-value network access		
	Males	Females	All	Males	Females	All
State school	0.354	0.273	0.305	0.156	0.154	0.155
Private school	0.556***	0.446***	0.500***	0.435***	0.348***	0.391***
<i>of which</i>						
Non-Tatler	0.474	0.434	0.452	0.359	0.323	0.339
Tatler	0.767 <sup>sss</sup>	0.538	0.698 <sup>sss</sup>	0.633 <sup>sss</sup>	0.538	0.605 <sup>sss</sup>
All	0.369	0.282	0.317	0.176	0.164	0.169
Standard deviation	0.483	0.450	0.465	0.381	0.370	0.374
<i>n</i>	1,488	2,226	3,714	1,488	2,226	3,714

*Notes:* The base for each panel is all those with non-missing data for school type and attribute. Locus of control and self-esteem each have a maximum range of 0 to 1. Job quality aspiration: average responses to aspiration for job with high earnings, promotion prospects, interesting job, challenging job, long-term security, training, challenging job, chance to travel, normalised to range 0 to 1. Realistic occupational aspiration: proportion who say that they want a professional or managerial job, and who want to stay at school beyond 16 to do A levels. Any network access: proportion who say that there is a parent or someone they know who can help get them the job that they want in life. High-value network access: proportion who say that the job they want in life is a professional or managerial job, and that there is a parent or someone they know who can help get them a job. \*, \*\* or \*\*\* indicate the private/state school difference is significant at 10, 5 or 1%. \$, \$\$ or \$\$\$ indicate the Tatler/non-Tatler school difference is significant at 10, 5 or 1%.

the determinants of self-evaluations, aspirations and network access in a conventional multi-variate framework. The importance of these factors in determining earnings is then accounted for conventionally by comparing successive models of earnings determination that first exclude then include them as explanatory factors.

Given that multiple imputation has been used for some variables, we present estimates derived from 20 alternative imputation outcomes, using the Stata multiple estimation routines, with robust standard errors.

Hypotheses H2 and H3 are addressed in Tables 2 to 4. Table 2 presents the effects of attending a private primary school on age 10 locus of control and self-esteem. Columns 1 and 3 show again that children in private primary schools have greater internal locus of control and more self-esteem than children in state primary schools. The raw differences are large, restating the descriptives of Table 1. Column 2 shows that, for both males and females, the estimated impact of private schooling on locus of control is smaller than the raw difference, though still positive and significant, after controlling for prior cognitive skills and key social background indicators. The controls have the expected signs (details available on request): greater cognitive skills, higher parental education, higher social class, older mother, higher birth order, greater birth weight and homeownership each significantly raise locus of control for one or both sexes. With the controls in place, the difference in locus of control between the private school and state school child is 0.37 of a standard deviation for males, and 0.17 for females. In contrast, the self-esteem coefficient is small and insignificant, once the controls are introduced, indicating that all of the raw differences noted in Table 1 are associated with the different characters of the children that go to private primary schools. Thus, H2 is supported for primary private schooling in respect of locus of control, but not in respect of self-esteem.

Table 3 addresses the same hypotheses in respect of secondary schooling. Here we see a somewhat similar picture in respect of private schooling and self-esteem at age 16:

**Table 2.** *Determinants of age 10 self-evaluations*

	(1)	(2)	(3)	(4)
	Locus of control	Locus of control	Self-esteem	Self-esteem
<i>Males</i>				
Private school	0.128*** (0.0142)	0.0700*** (0.0144)	0.0662*** (0.0156)	0.0251 (0.0164)
Controls	No	Yes	No	Yes
R <sup>2</sup>	0.011	0.110	0.003	0.044
Observations	5556	5556	5579	5579
<i>Females</i>				
Private school	0.116*** (0.0171)	0.0337* (0.0185)	0.0631*** (0.0195)	0.0121 (0.0206)
Controls	No	Yes	No	Yes
R <sup>2</sup>	0.008	0.121	0.002	0.038
Observations	5,227	5,227	5,243	5,243

*Notes:* Control variables are parents' highest education level, parent's social class, mother's age at respondent's birth, breastfeeding, birth order, birth weight, region of birth (13 categories), ethnicity (7 categories), age 5 cognitive skills, whether in owner-occupied house age 5, overcrowding age 5. The R<sup>2</sup> statistic is the mean from 20 imputations. Standard errors in parentheses; \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$

**Table 3.** Determinants of age 16 self-evaluations

	(1)	(2)	(3)	(4)	(5)	(6)
	Locus of control	Locus of control	Locus of control	Self-esteem	Self-esteem	Self-esteem
<i>Males</i>						
School type (ref. State)						
Private, not <i>Tatler</i>	0.0930*** (0.0191)	0.0068 (0.0207)	0.0058 (0.0211)	0.0068 (0.0233)	-0.0406 (0.0248)	-0.0372 (0.0254)
<i>Tatler</i>	0.1610*** (0.0229)	0.0498** (0.0251)	0.0395 (0.0255)	0.0711* (0.0432)	0.00964 (0.0460)	0.0126 (0.0442)
Locus of control at 10			0.178*** (0.0298)			
Self-esteem at 10						0.204*** (0.0296)
Controls	No	Yes	Yes	No	Yes	Yes
$R^2$	0.020	0.126	0.126	0.002	0.0909	0.111
Observations	1,842	1,842	1,842	1,705	1,705	1,705
<i>Females</i>						
School-type (ref. State)						
Private, not <i>Tatler</i>	0.125*** (0.0149)	0.0352** (0.0167)	0.0342** (0.0167)	0.0430** (0.0196)	-0.00317 (0.0215)	-0.00596 (0.0215)
<i>Tatler</i>	0.150** (0.0593)	0.0311 (0.0565)	0.0259 (0.0555)	0.0612 (0.0523)	0.00134 (0.0511)	0.00272 (0.0521)
Locus of control at 10			0.171*** (0.0236)			
Self-esteem at 10						0.140*** (0.0223)
Controls	No	Yes	Yes	No	Yes	Yes
$R^2$	0.019	0.106	0.106	0.003	0.062	0.079
Observations	2,566	2,566	2,566	2,282	2,282	2,282

*Notes:* Controls comprise parents' highest education level, parent's social class, mother's age at respondent's birth, breastfeeding, birth order, birth weight, regional dummies, ethnicity, age 5 and age 10 cognitive skills, whether in owner-occupied house age 5, overcrowding age 5, age 10 introversion score, household income at age 10, mother's and father's interest in child's education, whether in receipt of free school meals (age 10), broadsheet newspaper in household (age 10). The  $R^2$  statistic is the mean from 20 imputations. Standard errors in parentheses; \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$

compared with state school pupils, private school pupils of both sexes have substantially higher self-esteem, reconfirming the descriptive picture in Table 1, but this association is entirely eliminated once one controls for the child's social background. There is a significant degree of persistence, in that higher self-esteem at 10 is associated with greater self-esteem at 16 (column (6)). There is also a degree of persistence with locus of control (column (3)), but the findings differ between the sexes. For males, controlling for social background eliminates the significant effects of school type. For females, the estimated effect on locus of control of private schooling is reduced from the raw difference by almost three-quarters but remains statistically significant at 0.034, that is, 0.16 of the standard deviation.

Taken together, these results tell us that the impact of private schooling on self-evaluations is relatively limited, and that most of the differences between private and state school children arise from their prior circumstances and different characteristics.

Nevertheless, private schools do have a notable impact on locus of control at the primary stage of education, which then persists; further effects at the secondary level are small for females and insignificant for males.

Table 4 examines the effects of private secondary schooling on age 16 job-quality aspirations, occupational aspirations and high-valued networks. Columns (1), (3) and (5) reconfirm the descriptive findings of Table 1: in respect of all three variables there are substantial differences between privately educated and state-educated children. After controlling for prior cognitive skills and social background variables, the job-quality aspirations lead remains for those at *Tatler* private schools. Yet for those at private schools not in the *Tatler* group, job-quality aspirations are not significantly raised above those of observably similar state school children. In terms of aspirations for top occupations—in management and the professions—private schools are associated with much higher probability of aspiring at age 16 to a top occupation, even with all the social background controls. Finally, there are large effects of private schooling on the age 16 perception of having access to a high-value social network; introducing all the background controls only reduces the estimated coefficient by a relatively small amount. The effects are especially strong in respect of the *Tatler* private schools.<sup>6</sup>

**Table 4.** Determinants of age 16 aspirations and high-value social network access

	(1)	(2)	(3)	(4)	(5)	(6)
	Job quality aspiration	Job quality aspiration	Realistic occupation aspiration	Realistic occupation aspiration	High-value network access	High-value network access
<i>Males</i>						
School type (ref. State)						
Private, not <i>Tatler</i>	0.0188 (0.0158)	0.000126 (0.0173)	2.021*** (0.231)	1.149*** (0.281)	1.110*** (0.248)	0.767*** (0.285)
<i>Tatler</i>	0.0759*** (0.0226)	0.0591** (0.0269)	2.568*** (0.495)	1.021* (0.564)	2.236*** (0.386)	1.621*** (0.442)
Controls	No	Yes	No	Yes	No	Yes
R <sup>2</sup>	0.009	0.055	0.075	0.256	0.044	0.086
Observations	1,879	1,879	1,841	1,841	1,488	1,488
<i>Females</i>						
School type (ref. State)						
Private, not <i>Tatler</i>	0.0536*** (0.0142)	0.0226 (0.0154)	1.532*** (0.195)	0.483** (0.228)	0.967*** (0.223)	0.585** (0.238)
<i>Tatler</i>	0.164*** (0.0381)	0.117*** (0.0390)	2.401*** (0.634)	1.056* (0.621)	1.860*** (0.560)	1.419** (0.577)
Controls	No	Yes	No	Yes	No	Yes
R <sup>2</sup>	0.009	0.055	0.035	0.235	0.015	0.044
Observations	2,585	2,585	2,614	2,614	2,226	2,226

Notes: Columns (1) and (2) are OLS regression estimates, columns (3) to (6) logit estimates. For controls, see Table 3. Standard errors in parentheses; \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$

<sup>6</sup> We also tried including the age 10 measures of self-esteem and locus of control since these are potentially associated with aspirations at that age and later networks. However, their inclusion made very little difference to the estimates in Table 4.

It might be argued that, just as there is heterogeneity among private schools, within the state sector grammar schools are selective and hence might induce similar effects to private schools if academic selectivity, rather than other private school characteristics, was the key to the impact on locus of control, aspirations or networks. We therefore repeated the above models (results not shown here), including a grammar school dummy variable. We found no significant positive effects of grammar school education, once social background controls are included, on locus of control, self-esteem, job-quality aspiration or high-valued network access. In most cases, the private school outcomes were distinct from those for the grammar schools. The only case where grammar schools appeared to have a positive significant effect was for girls, in respect of their occupational aspiration for a managerial or professional job, relative to their counterparts at comprehensive schools.

## 6. Models of the effects of age 16 self-evaluations, aspirations and high-value networks on hourly earnings at age 42

The findings so far presented strongly confirm the public perception (hypothesis H1) that pupils from private and state schools differ strongly in their self-evaluations, aspirations and access to networks. Yet the hypothesis that the schools themselves engender these differences (H2) is only partially supported. The question next arises: do these factors have an effect on earnings, and if so are such effects strong enough to account for any or all of the private school earnings premium? Thus we now turn to the effects of age 16 self-valuations, aspirations and networks on hourly earnings (if in employment) at age 42. We estimate OLS regressions with log hourly earnings as the dependent variable. Our earnings data are naturally missing for those not in employment. Among those that were employed (85%), 93% provided information on their earnings. The results are presented in Table 5.

Each column presents model estimates that address our hypotheses. The relationship of the self-valuations, aspirations and networks with earnings is considered in columns (1) and (2). Column (1) includes only these attributes. It shows that, among both sexes, those who have at age 16 a higher locus of control, higher aspirations for good-quality jobs and higher occupational aspirations have greater earnings at age 42. In contrast, neither the 16-year-olds' self-esteem nor their social networks add significantly to their earnings at age 42. Column (2) shows that the effects still hold after controlling for a rich set of prior social background controls and prior cognitive skills. The controls have the usual predicted effects. Thus the hypothesis is supported that locus of control and aspirations raise earnings at 42, whether directly or indirectly via higher educational achievement. In the case of aspirations, one can note that the controls reduce the estimated effect by less than half, while raising  $R^2$  considerably.

Column (3) estimates the private school earnings premium at age 42 (H4). It shows the private school effect on earnings, controlling for the same rich set of social background controls. The effect is substantial, with the point estimate greater for men than for women. This large effect is consistent with findings from earlier studies, and shows that the earnings premium persists into mid-career, supporting hypothesis H4. *Ceteris paribus*, after converting from logs the estimates indicate that private school males (females) earn 34% (21%) more than similar persons educated at a state school at age 16.

Column (4) addresses the role that the self-evaluations, aspirations and network variables play in accounting for the private school earnings premium (H5). It includes

**Table 5.** *The effects of self-evaluations, aspirations and high-value networks at age 16 on log hourly earnings at age 42*

	(1)	(2)	(3)	(4)	(5)
<i>Males</i>					
Self-esteem at 16	0.114*	0.0576		0.0619	0.0651
	(0.0682)	(0.0637)		(0.0623)	(0.0591)
Locus of control at 16	0.375***	0.164**		0.160**	0.0470
	(0.0822)	(0.0783)		(0.0782)	(0.0752)
Job quality aspiration	0.371***	0.258***		0.256***	0.200**
	(0.0941)	(0.0960)		(0.0965)	(0.0866)
Realistic occ. aspiration	0.314***	0.187***		0.180***	-5.87e-05
	(0.0353)	(0.0356)		(0.0357)	(0.0370)
High-valued network	0.0795	0.0494		0.0255	0.0656
	(0.0684)	(0.0647)		(0.0657)	(0.0587)
Private school			0.294***	0.248***	0.171***
			(0.0588)	(0.0583)	(0.0560)
Controls					
Prior	No	Yes	Yes	Yes	Yes
Other (age 16 or later)	No	No	No	No	Yes
R <sup>2</sup>	0.111	0.202	0.184	0.209	0.293
Observations	3,108	3,108	3,108	3,108	3,108
<i>Females</i>					
Self-esteem at 16	0.0667	0.0277		0.0292	0.0352
	(0.0626)	(0.0583)		(0.0575)	(0.0540)
Locus of control at 16	0.324***	0.155**		0.149**	0.0284
	(0.0715)	(0.0675)		(0.0677)	(0.0648)
Job quality aspiration	0.309***	0.204***		0.199***	0.0949
	(0.0750)	(0.0746)		(0.0745)	(0.0674)
Realistic occ. aspiration	0.328***	0.203***		0.200***	0.0632*
	(0.0326)	(0.0334)		(0.0334)	(0.0346)
High-valued network	0.00704	-0.00761		-0.0154	0.0107
	(0.0519)	(0.0510)		(0.0510)	(0.0489)
Private school			0.187***	0.142**	0.0688
			(0.0572)	(0.0576)	(0.0548)
Controls					
Prior	No	Yes	Yes	Yes	Yes
Other (age 16 or later)	No	No	No	No	Yes
R <sup>2</sup>	0.120	0.196	0.170	0.215	0.312
Observations	3,028	3,028	3,028	3,028	3,028

*Notes:* Prior controls (i.e. relating to before secondary school) are: cognitive skills at ages 5 and 10; age 10 introversion score; social background (parents' highest education level, parent's social class, overcrowded house at age 5, mother's age when respondent born, duration of breastfeeding, birth weight, ethnicity (7 categories), whether family owned house when aged 5; region of birth (13 categories); birth order, household income at age 10, mother's and father's interest in child's education, whether in receipt of free school meals (age 10), broadsheet newspaper in household (age 10). Other controls at age 16 or later are: cognitive skills at age 16; standardised age 16 exam score; number of A-C grade A levels; highest level of 'facilitating' A levels; highest education qualification level; if degree: subject (3 categories), whether elite university, and degree grade (whether upper second or first) all interacted; proportion of time employed. The dependent variable and school status are unimputed; other variables are imputed from birth and early childhood data for missing cases; these estimates exclude Scotland (for whom the education data is incomplete). The R<sup>2</sup> statistic is the mean from 20 imputations.

these variables, alongside the private schools indicator. Compared to column (3), there are modest reductions in the point estimate of the private school indicator (0.29 to 0.25 for men, 0.19 to 0.15 for women). These reductions imply that only a relatively small part of the private school advantage can be accounted for by our self-valuation

variables together with aspirations and networks. In effect, H5 is only weakly supported. At the same time, however, the effects of locus of control and of aspirations (both types) remain significant, with only minor changes in the magnitudes shown in column (2).

Since the self-valuations, aspirations and networks are insufficient to account for the private school earnings premium, we pursue further the source of this premium in column (5). A substantive part of the effects of school type, self-evaluations and aspirations is expected to derive from their impacts on subsequent educational performance (which have been demonstrated in previous research (e.g. Sullivan *et al.*, 2014)). Some part could also derive from possible impacts on subsequent work experience. Thus column (5) adds a full set of indicators of subsequent educational performance from 16 onwards. These are the standardised age 16 exam score; number of A-C grade A levels (usually taken at age 18); highest level of ‘facilitating’ A levels (where ‘facilitating’ delineates subjects accepted as challenging by universities); highest educational qualification level; if degree: a three-way interacted classification by subject (3 categories), whether at an elite university, and whether achieved a good grade (a ‘first’ or ‘2.1’)—comprising 12 categories in total. For work experience we include an indicator, derived from work histories, of the proportion of the months since age 16 spent in work.<sup>7</sup> We ask: to what extent does the inclusion of these additional covariates account for the estimate of the private school indicator?

For men we find that, even after allowing for all the many prior controls, including cognitive skills, and for the indicators of their subsequent human capital development, there remains a statistically significant private school earnings premium of 0.17 log points (18%). For women, however, the estimate is only 0.07 log points and is not very precise, to the extent that it is not significantly different from zero. Thus, for women we cannot reject the hypothesis that all of the impact of private schooling for women is accounted for by their social background, prior cognitive skills, their self-valuations and aspirations and their educational achievements and work experience.

Column (5) addresses again the role played by the students’ 16-year-old self-evaluations, aspirations and networks (H3). Comparing with column (4), it can be seen that much of their impact on earnings later in life is accounted for by subsequent human capital accumulation. Thus, locus of control has no statistically significant residual direct effect, once subsequent educational achievements are controlled for—a finding consistent with earlier evidence that the effects of locus of control on social status attainment are fully mediated by educational attainment (von Stumm *et al.*, 2009). However, some direct effects remain: job-quality aspirations for males and occupational aspirations for girls retain a significant if small direct effect. As a robustness check, we also included some other age 42 control variables (namely marital status, dummies for current region of residence, and an indicator of self-reported health). Though our preferred model excludes these since they could be construed as endogenous, that is, an outcome of the quality of schooling received, their inclusion did not notably alter the size or change the statistical significance of the coefficients.

<sup>7</sup> We use the provided indicator measuring the proportion of months in work up to age 38, judging this to be the best approximation to the equivalent variable for age 42, since the latter is not available in the public dataset.



In the above models we have treated private school and state school status each as single categories, so that the premium estimates are average differences between the two sectors. However, it might be argued that, since many private schools are academically selective, their alumni should therefore be compared specifically with those who had attended grammar schools. Therefore, in an alternative model (not shown here) we investigated the significance of heterogeneity within each of the state and private sectors, by including a grammar school indicator within the state sector and our indicator of *Tatler* magazine status within the private sector. While there are some differences in the point estimates between sectors, once all human capital achievement indicators are included, the grammar school indicator carries a statistically insignificant effect, and the conditional private school premium for men remains positive and statistically greater than the coefficient on the grammar school indicator. Within the private sector, the differences between the *Tatler* and other schools were also statistically insignificant.

In another extension we limited the sample to those drawn from the top three social classes (Professional, Managerial and Technical, Skilled Non-Manual) who could realistically expect to choose between state and private school. Those in the other social classes cannot opt for private schooling unless in receipt of rare full bursaries (and less than 2% did so). We found a similar pattern of findings for this restricted sample, showing a private school association with age 42 income that was not significantly different from those reported in Table 5 for the whole sample. Similarly, the finding holds when we restrict the sample to the upper half of the age 10 household income distribution. There were too few cases of private school attendance to carry out a similar analysis for those in other social classes or in the lower half of the age 10 household income distribution.

As a final extension we also investigated whether private school effects were modified according to whether respondents were employees or self-employed (bearing in mind that this variable could be regarded as an endogenous outcome). Including a dummy variable for self-employment in the models of Table 5 resulted in no significant alteration to the parameter estimates; similarly, estimates obtained from a sample of purely employees were not significantly different from those of Table 5.

## 7. Conclusion

An understanding of the complex anatomy of inequality is an important complement to research at the macro-societal level of growing socio-economic inequalities in the modern era. An important axis of inequality in Britain is the private/state school divide, and this paper has aimed to contribute evidence on the effects of this divide on earnings, and its implications for policy. We have investigated the proposition that, compared with state school pupils in Britain, private school pupils are ‘taught to dream big’ and do well because of that—a commonly held view in public discourse. Our findings, based on a representative survey of a 1970-born cohort which collected information suitable for testing a precise statement of this proposition, are nuanced.

Our first conclusion is that, compared with state school children, private school children had much higher levels of locus of control and self-esteem, more lofty aspirations and better access to high-valued social networks. Thus far, the findings confirm widely held, though hitherto undocumented, perceptions.

Second, in terms of self-esteem, it is not the schools themselves that instilled the private school children's high self-esteem, either at 10 or 16; rather, the children arrived with the social advantages and/or cognitive skills that are associated with greater self-esteem. These observed covariates also explained the majority of the private school association with locus of control. Yet there remains some evidence that private primary schools did have a notable causal impact on locus of control at 10, and that secondary private schools raised the aspirations and afforded high-valued network access as perceived by the 16-year-old children. A caveat to this latter conclusion is that there could be remaining biases associated with unobserved determinants of school type, despite the rich controls for social background.

Third, cohort members' age 16 locus of control and aspirations have significant associations with earnings at age 42, even after multiple controls for social background are introduced. This finding is consistent with earlier studies, extending them to the mid-career stage. Neither self-esteem nor high-valued networks, however, had any significant effects on earnings in mid-career. Self-esteem's lack of effect on earnings is consistent with the findings of [de Araujo and Lagos \(2013\)](#) for the USA. With respect to networks we must conclude either that, consistent with [Marcenaro-Guierrez et al. \(2014\)](#), social networks are not important in the long run once human capital and other variables are accounted for, or that our variable and theirs are poor measures of potentially valuable social connections.

Fourth, the estimated private school hourly earnings premium at age 42 is 34% for men, 21% for women, indicating that the substantial premium found in studies relating to earlier career stages persisted through to mid-career.

Fifth, the findings *do not* support the widely held view that the labour market advantages enjoyed by private school alumni can be traced largely to their different self-valuations, aspirations or social networks. Only a relatively small part is associated with these factors.

An implication of the above for any policy aimed at narrowing the private/state earnings gap in the cause of greater social cohesion is that strategies to raise self-esteem, locus of control and aspirations in the state sector are unlikely to be greatly effective. Such policies might be attractive, because they do not have to address the large resource differences between sectors. In this vein, the Labour government schools minister in 2007 wanted more private schools to 'sponsor' state schools, which it was claimed might transfer their 'educational DNA'. Under a very different regime, but with parallel sentiments, the Conservative prime minister opined that people from poorer households and ethnic minorities needed help to 'get them to think that they can get all the way to the top' (*Guardian*, 13 November 2013; see also [Kynaston and Kynaston, 2014](#)). Yet our results imply that a realistic policy that might affect self-esteem, locus of control and aspirations of state school pupils by some fraction of a standard deviation could be expected to have only small effects on subsequent earnings. Even more so, policies to widen job access networks would make no difference, according to our evidence. Rather, the results suggest that social cohesion strategies should continue to focus on the considerable educational disadvantages of state school pupils relative to private school pupils.

Of course, such policy implications derived from life-course research may need to be qualified in the light of changing circumstances. Private schools have considerably enhanced their offer since 1986 when our sample was 16, trebling their fees and broadening their intakes to tap the global demand for high-quality English-language education. Graduate recruiters have become sophisticated in their use of psychometric tools

as filters and more demanding of non-cognitive attributes, and labour markets have become more unequal. Private/public differences among current-generation 16-year-olds may be more salient when they enter the labour market, and the age 42 earnings premium greater, than for the 1970-born cohort.

Beyond the issues of remaining endogeneity bias noted earlier, there are three further qualifications to note. First, while we have found small or no effects on earnings from some of our key variables, it could be that we have poor measures of them: measurement error would cause downward bias in the estimates. It is possible that a better indicator of network availability, captured at a later age when private school pupils were entering the labour market, would have more predictive power. Second, we have had to deploy multiple imputation methods in a number of cases, in order to avoid the problem of too-small samples with complete information. Moreover, while a large majority of respondents yielded earnings information—more than in most surveys—there could be remaining elements of attrition and selection bias in our estimates. Finally, we have only shown the effects, or lack of effects, from these particular self-evaluations and aspirations. Yet there may be other school-associated self-evaluations, not observed in the surveys, which deliver labour market advantages. For example, recent qualitative research found that recruiting firms in law, accountancy and finance stressed the importance of ‘talent’, comprising both academic excellence and non-cognitive attributes such as confidence and persuasiveness that are only partially captured by our survey indicators (Ashley *et al.*, 2015). Future research could examine other potentially relevant attributes in a comparative school context, such as ‘psychological entitlement’, and sporting, artistic or creative skills (Campbell *et al.*, 2004; Horne *et al.*, 2011; Lunn and Kelly, 2015). When adapted to work, such attributes might be the ones that give privately educated men their edge in the labour market.

## Bibliography

- Almlund, M., Duckworth, A. L., Heckman, J. J. and Kautz, T. D. 2011. *Personality Psychology and Economics*, National Bureau of Economic Research, NBER Working Paper 16822
- Ashby, J. S. and Schoon, I. 2010. Career success: the role of teenage career aspirations, ambition value and gender in predicting adult social status and earnings, *Journal of Vocational Behavior*, vol. 77, 350–60
- Ashley, L., Duberley, J., Sommerlad, H. and Scholarios, D. 2015. *A Qualitative Evaluation of Non-Educational Barriers to the Elite Professions*, London, Social Mobility and Child Poverty Commission
- Baker, W., Sammons, P., Siraj-Blatchford, I., Sylva, K., Melhuish, E. C. and Taggart, B. 2014. Aspirations, education and inequality in England: insights from the Effective Provision of Pre-School, Primary and Secondary Education Project, *Oxford Review of Education*, vol. 40, no. 5, 525–42
- Blanden, J., Goodman, A., Gregg, P. and Machin, S. 2004. Changes in intergenerational mobility in Britain, in Corak, M. (ed.), *Generational Income Mobility in North America and Europe*, Cambridge University Press, Cambridge
- Blanden, J., Gregg, P. and Macmillan, L. 2007. Accounting for intergenerational income persistence: noncognitive skills, ability and education, *Economic Journal*, vol. 117, C43–C60
- Borghans, L., ter Weel, B. and Weinberg, B. A. 2008. Interpersonal styles and labor market outcomes, *Journal of Human Resources*, vol. 43, no. 4, 815–58
- Broughton, N., Ezeyi, O., Hupkau, C., Keohane, N. and Shorthouse, R. 2014. *Open Access: An Independent Evaluation*, London, Social Market Foundation

- Campbell, W. K., Bonacci, A. M., Shelton, J., Exline, J. J. and Bushman, B. J. 2004. Psychological entitlement: interpersonal consequences and validation of a self-report measure, *Journal of Personality Assessment*, vol. 83, no. 1, 29–45
- Carpenter, J. and Kenward, M. G. 2013. Chapter 2 in *Multiple Imputation and Its Application*, Wiley & Sons Ltd., Statistics in Practice, Chichester, UK
- Cebi, M. 2007. Locus of control and human capital investment revisited, *Journal of Human Resources*, vol. 42, no. 4 (Fall), 919–32
- Coleman, J. S. 1990. *Foundations of Social Theory*, Cambridge, MA, Harvard University Press
- Cook, T. D., Church, M. B., Ajanaku, S., Shadish, W. R., Kim, J.-R. and Cohen, R. 1996. The development of occupational aspirations and expectations among inner-city boys, *Child Development*, vol. 67, 3368–85
- Crawford, C. and Vignoles, A. 2014. 'Heterogeneity in Graduate Earnings by Socio-Economic Background', IFS Working Paper WS14/30
- Croll, P. 2008. Occupational choice, socio-economic status and educational attainment: a study of the occupational choices and destinations of young people in the British Household Panel Survey, *Research Papers in Education*, vol. 23, 243–68
- Davies, J. and Brember, I. 1999. Reading and mathematics attainments and self-esteem in years 2 and 6—an eight-year cross-sectional study, *Educational Studies*, vol. 25, no. 2, 145–57
- Davies, P. and Davies, N. M. 2014. Paying for quality? Associations between private school income, performance and use of resources, *British Educational Research Journal*, vol. 40, no. 3, 421–40
- de Araujo, P. and Lagos, S. 2013. Self-esteem, education, and wages revisited, *Journal of Economic Psychology*, vol. 34, 120–32
- Dearden, L., Ferri, J. and Meghir, C. 2002. The effect of school quality on educational attainment and wages, *Review of Economics and Statistics*, vol. 84, no. 1, 1–20
- Dodgeon, B. 2008. *Guide to the Dataset: BCS70 16-Year Follow-Up: APU Arithmetic Test*, London, Centre for Longitudinal Studies
- Elder, T. and Jepsen, C. 2014. Are Catholic primary schools more effective than public primary schools?, *Journal of Urban Economics*, vol. 80, 28–38
- Elliott, C. D. 1996. *The British Ability Scales II*, Windsor, Berkshire, NFER-NELSON Publishing Company
- Elliott, J. and Shepherd, P. 2006. Cohort profile: 1970 British Birth Cohort (BCS70), *International Journal of Epidemiology*, vol. 35, 836–43
- Ellis, R. A. and Taylor, M. S. 1983. Role of self-esteem within the job search process, *Journal of Applied Psychology*, vol. 68, no. 4, 632–40
- Evans, G. and Tilley, J. 2012. Private schools and public divisions: the influence of fee-paying education on social attitudes, in Park, A., Clery, E., Curtice, J., Philips, M. and Utting, D. (eds.), *British Social Attitudes 28*, London, Sage.
- Flouri, E. 2006. Parental interest in children's education, children's self-esteem and locus of control, and later educational attainment: twenty-six-year follow-up of the 1970 British Birth Cohort, *British Journal of Educational Psychology*, vol. 76, 4155
- Gammage, P. 1975. *Socialisation, schooling and locus of control*, PhD thesis, Bristol University
- Gathorne-Hardy, J. 1977. *The Public School Phenomenon, 597–1977*, London, Hodder and Stoughton
- Gibbons, S. and Silva, O. 2011. Faith primary schools: better schools or better pupils?, *Journal of Labor Economics*, vol. 29, 589–635
- Goodman, A., Gregg, P. and Washbrook, E. 2011. Children's educational attainment and the aspirations, attitudes and behaviours of parents and children through childhood in the UK, *Longitudinal and Life Course Studies*, vol. 2, no. 1, 1–18
- Graddy, K. and Stevens, M. 2005. The impact of school inputs on student performance: a study of private schools in the United Kingdom, *Industrial & Labor Relations Review*, vol. 58, no. 3, 435–51
- Green, A., Green, F. and Pensiero, N. 2015. Cross-country variation in adult skills inequality: why are the Anglophone countries so unequal?, *Comparative Education Review*, vol. 59, no. 4, 595–618
- Green, F. 2013. *Skills and Skilled Work: An Economic and Social Analysis*, Oxford, Oxford University Press

- Green, F., Henseke, G. and Vignoles, A. 2016. Private schooling and labour market outcomes, *British Educational Research Journal*, <http://onlinelibrary.wiley.com/doi/10.1002/berj.3256/pdf>
- Green, F., Machin, S., Murphy, R. and Zhu, Y. 2011. The changing economic advantage from private schools, *Economica*, vol. 79, 658–79
- Green, F. and Mostafa, T. 2012. *Trends in Job Quality in Europe: A Report Based on the Fifth European Working Conditions Survey*, Luxembourg, Publications Office of the European Union
- Hall, M. and Farkas, G. 2011. Adolescent cognitive skills, attitudinal/behavioral traits and career wages, *Social Forces*, vol. 89, no. 4, 1261–85
- Heckman, J. J., Stixrud, J. and Urzua, S. 2006. The effects of cognitive and noncognitive abilities on labor market outcomes and social behaviour, *Journal of Labor Economics*, vol. 24, no. 3, 411–82
- Horne, J., Lingard, B., Weiner, G. and Forbes, J. 2011. ‘Capitalizing on sport’: sport, physical education and multiple capitals in Scottish independent schools, *British Journal of Sociology of Education*, vol. 32, no. 6, 861–79
- Kirk, C. M., et al. 2012. Exploring the educational aspirations—expectations gap in eighth grade students: implications for educational interventions and school reform, *Educational Studies*, vol. 38, no. 5, 507–19
- Kynaston, D. and Kynaston, G. 2014. Education’s Berlin Wall, *New Statesman*, 31 January–6 February, 22–29
- Loury, L. 2006. Some contacts are more equal than others: informal networks, job tenure, and wages, *Journal of Labor Economics*, vol. 24, no. 2, 299–318
- Lunn, P. D. and Kelly, E. 2015. Participation in school sport and post-school pathways: evidence from Ireland, *National Institute Economic Review*, vol. 232, May, R51–R66
- Macmillan, L., Tyler, C. and Vignoles, A. 2015. Who gets the top jobs? The role of family background and networks in recent graduates’ access to high-status professions, *Journal of Social Policy*, vol. 44, 487–515
- Marcenaro-Guierrez, O., Micklewright, J. and Vignoles, A. 2014. ‘Social Mobility and the Importance of Networks: Evidence for Britain’, London, UCL Institute of Education, Centre for Longitudinal Studies’, CLS Working Paper 2014/10
- McKnight, A. 2015. *Downward Mobility, Opportunity Hoarding and the ‘Glass Floor’*, London, Social Mobility and Child Poverty Commission
- Mostafa, T. and Wiggins, R. 2015. The impact of attrition and non-response in birth cohort studies: a need to incorporate missingness strategies, *Longitudinal and Life Course Studies*, vol. 6, no. 2, 131–46
- Murasko, J. E. 2007. A lifecourse study on education and health: the relationship between childhood psychosocial resources and outcomes in adolescence and young adulthood, *Social Science Research*, vol. 36, 1348–70
- Naylor, R., Smith, J. and McKnight, A. 2002. Why is there a graduate earnings premium for students from independent schools?, *Bulletin of Economic Research*, vol. 54, no. 4, 315–39
- Nghiem, H. S., Nguyen, H. T., Khanam, R. and Connelly, L. B. 2015. Does school type affect cognitive and non-cognitive development in children? Evidence from Australian primary schools, *Labour Economics*, vol. 33, 55–65
- OECD. 2012. *Public and Private Schools: How Management and Funding Relate to Their Socio-Economic Profile*, Paris, OECD Publishing
- Piatek, R. and Pinger, P. 2010. ‘Maintaining (Locus of) Control? Assessing the Impact of Locus of Control on Education Decisions and Wages’, IZA Discussion Paper No. 5289
- Plewis, I., Calderwood, L., Hawkes, D. and Nathan, G. 2004. ‘Changes in the NCDS and BCS70 Populations and Samples over Time’, Centre for Longitudinal Studies Technical Report, London, Institute of Education
- Power, S., Edwards, T., Whitty, G. and Wigfall, V. 2003. *Education in the Middle Class*, Buckingham, Open University Press
- Ross, C. E. and Broh, B. A. 2000. The roles of self-esteem and the sense of personal control in the academic achievement process, *Sociology of Education*, vol. 73, no. 4, 270–84
- Salverda, W. and Haas, C. 2014. Earnings, employment, and income inequality, pp. 49–81 in Salverda, W., Nolan, B., Checchi, D., Marx, I., McKnight, A., Toth, I. G. and van de Werfhorst, H. (eds.), *Changing Inequalities in Rich Countries*, Oxford, Oxford University Press

- Schoon, I., Martin, P. and Ross, A. 2007. Career transitions in times of social change: his and her story, *Journal of Vocational Behavior*, vol. 70, 78–96
- Schoon, I. and Polek, E. 2011. Teenage career aspirations and adult career attainment: the role of gender, social background and general cognitive ability, *International Journal of Behavioral Development*, vol. 35, no. 3, 210–17
- Sullivan, A., Parsons, S., Wiggins, R., Heath, A. and Green, F. 2014. Social origins, school type and higher education destinations, *Oxford Review of Education*, vol. 40, no. 6, 739–63
- Sutton Trust. 2005. The educational background of the UK's top solicitors, barristers and judges, [http://www.suttontrust.com/wp-content/uploads/2005/05/Comparison\\_educational\\_backgrounds.pdf](http://www.suttontrust.com/wp-content/uploads/2005/05/Comparison_educational_backgrounds.pdf), accessed 6 July 2015
- Sutton Trust. 2010. The educational backgrounds of government ministers, <http://www.suttontrust.com/wp-content/uploads/2010/05/Ministerseducationalbackgrounds2010-final.pdf>, accessed 6 July 2015
- Ternouth, A., Collier, D. and Maughan, B. 2009. Childhood emotional problems and self-perceptions predict weight gain in a longitudinal regression model, *BMC Medicine*, vol. 7, no. 46
- Viner, R. and Cole, T. 2006. Who changes body mass between adolescence and adulthood? Factors predicting change in BMI between 16 years and 30 years in the 1970 British Birth Cohort, *International Journal of Obesity*, vol. 30, 1368–74
- von Stumm, S., Gale, C. R., Batty, G. D. and Deary, I. J. 2009. Childhood intelligence, locus of control and behaviour disturbance as determinants of intergenerational social mobility: British Cohort Study 1970, *Intelligence*, vol. 37, 329–40
- Walford, G. 1986. *Life in Public Schools*, Methuen
- Yates, S., Harris, A., Sabates, R. and Staff, J. 2011. Early occupational aspirations and fractured transitions: a study of entry into 'NEET' status in the UK, *Journal of Social Policy*, vol. 40, no. 3, 513–34