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Dreaming Big: Self-Evaluations, Aspirations, High-Valued Social Networks and the Private School Earnings Premium

Francis Green, Samantha Parsons, Alice Sullivan and Richard Wiggins

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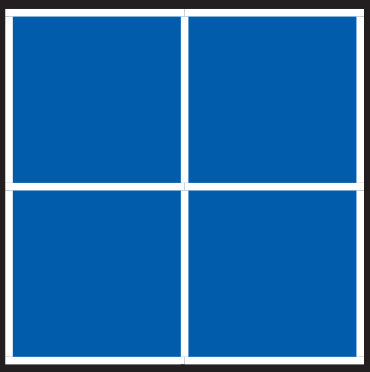

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Abstract

The success of private schooling in Britain in delivering high academic achievements and better jobs has recently been attributed to the schools engendering high aspirations and confidence among their students. However, no empirical evidence has yet been offered to support this diagnosis or the policy implications that may follow. Using recently repaired data on secondary school type from the 1970 British Cohort Study and on cognitive skills at age 16, we investigate the effect of private schools on pupils' self-esteem and locus of control at ages 10 and 16, and on aspirations and high-value network access at age 16. We then examine the effect of these factors on earnings in mid-career and their hypothesised significance for understanding the private-school earnings premium achieved in later life.

We find that private school pupils have substantially higher levels of self-esteem, a more internal locus of control, higher job quality aspirations, higher occupational aspirations, and better perceived access to high-valued networks for job search.

Despite this association, self-esteem is not raised by private schooling, once social background and prior cognitive skills are controlled for. In contrast, there is some evidence that private schools do help to stimulate locus of control, especially at primary level, and to raise aspirations and provide access to networks. This conclusion assumes, however, that remaining unobserved factors affecting both the decision to use the private sector and children's non-cognitive attributes result in only small biases in the coefficients.

We find that, while locus of control and aspirations both have modest effects on pay at age 42, neither self-esteem nor networks are linked to pay in later life. Moreover, only a small part of the private school earnings premium is accounted for by all these non-cognitive factors. Much of the premium is due, rather, to educational attainments. After controlling extensively for post-16 academic attainments, there is no significant residual premium for women. There remains, however, an unexplained pay premium for men.

While research on other non-cognitive attributes and school type is warranted, the main policy implication of these findings is that strategies to strengthen self-esteem, locus of control, aspirations and social networks in the state sector will contribute little to the objective of greater social mobility. Policies should therefore remain focused on narrowing socio-economic gaps in educational achievement.

Key words: non-cognitive skills, wages, locus of control, self-esteem, pay, private school, aspiration, networks, social mobility.

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1. Introduction

It is known that there is a substantial early-career pay premium for those who have been educated at a private school in Britain, matched by differential attainment of higher-status occupations. The premium, which has been increasing, has been found both among graduate populations and among the general adult population; it applies to those who have recently left full-time education as well as to those in their early 30s. Its magnitude and career sustainability are important, not just for potential parents contemplating investing large sums in private education, but also because its hitherto high value is potentially linked with the issue of low social mobility in Britain (Dolton and Vignoles, 2000; Dearden et al., 2002; Naylor et al., 2002; Blanden et al., 2004; Green et al., 2011; Broughton et al., 2014; Crawford and Vignoles, 2014; Macmillan et al., 2015; McKnight, 2015).

The premium is typically attributed to a combination of substantially superior resources, the selection of more able pupils and independent governance, thereby engendering greater academic successes among their pupils. Yet, it is also often held that both the educational and labour market successes are down to more than just academic ability. The question as to what this extra might be is aptly put by Hinsliff when she asks in *The Guardian* newspaper (19/7/2009): "So what is it that private schools do for their pupils that state schools cannot? … is there something special in their ethos?" Heath Monk gives one answer when he opines in the *Telegraph*: "There is a reason that privately educated students tend to achieve more – and it's not because wealthier people are inherently more intelligent. It's because independent schools look beyond exams and explicitly develop cultural capital, character and confidence." (*Daily Telegraph*, 21/8/2014). Similarly, Cosslett declares in the *New Statesman*: "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" (*New Statesman*, 10/11/2014). In effect, what these commentators are arguing is that private schools foster additional non-cognitive attributes 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). In public discourse it is commonly maintained that the pupils of private schools develop greater confidence and higher aspirations than those from state schools, and that these help private-school pupils not only through their educational life

but also in the world of work.[1] In addition the private schools are thought to offer better opportunities for social networking that are especially valuable for job searching (Naylor et al., 2002).

This paper seeks to provide evidence concerning the links between private schooling and pupils' non-cognitive attributes that are relevant for the above claims. Specifically, among a cohort of people born in 1970 we first study two indicators of self-evaluation, namely self - esteem and locus of control, and indicators of aspirations, all of which help to capture the constructs of public discourse more precisely. These indicators have been studied within psychology for a considerable time, and have been applied within educational studies, as have indicators of pupil aspirations. Yet there is hitherto little or no evidence about whether private schools affect either self-evaluations or aspirations. 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) or sectors (e.g. finance) is disproportionately concentrated among the alumni of independent schools (e.g. Sutton Trust, 2005, 2010). And even if private school pupils are more "confident" in their outlook, it remains likely that their self-valuations are associated with their upbringing in socially-advantaged families, or with the fact that they have been selected on some measures of ability that afford high self-valuations. Formal evidence of a private school effect on pupils' valuations and aspirations is very limited.[2]

The paper contributes in several ways to our understanding of the role of private schools in British society. First, we investigate for the first time whether private school alumni had greater self-esteem, more internal locus of control, loftier aspirations and better access to networks for job search 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) that locus of control and other self-valuations indeed have some value in the labour market, we seek to add to that evidence by examining whether these effects extend to mid-career, and whether they operate independently of formal human capital accumulation. We examine whether students' age 16 self-valuations, aspirations and networks are associated with earnings at age 42. Fourth, we examine whether the private-public earnings premium is maintained in mid-career. We provide estimates of the private school earnings

[1] 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*, 1/12/2014).

[2] 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.

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 non-cognitive as well as cognitive attributes help to 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 non-cognitive attributes. Section 6 examines the determinants of pay at age 42, including both the school-age non-cognitive attributes and the type of school attended. Section 7 summarises, states our 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 confirmed that skills, conceived broadly as value-producing qualities that can be augmented through investments in learning (Green, 2013), encompass more than the conventional human capital indicators. In addition to education and cognitive skills measures, other qualities that have been found to affect labour market and other outcomes 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). Here we are concerned first with two central 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.

These constructs are 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, there is some evidence that 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 the 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 importance comes from composite indicators that include them (Heckman et al., 2006; Hall and Farkas, 2011).

We are also concerned in this paper with the forward-looking psychological construct, aspiration, which is closely related to ambition, a substratum of conscientiousness, one of the "big five" personality traits. While many pupils from poorer households do have high aspirations there is a distinct, if complex, relationship between aspirations and social class (Baker et al., 2014). As with an internal locus of control and high self-esteem, private schools would expect to draw in pupils with above average aspirations, and to be instrumental in promoting those aspirations further. Moreover, there is good evidence that aspirations matter. For example, Ashby and Schoon (2010) find that career aspirations and "ambition value" are associated with social status and earnings at age 34, even after controlling for educational achievements and for indicators of family socio-economic advantage. Related earlier papers have found links between career aspirations and subsequent career outturns. Croll (2008), for example, reports associations between age 15 occupational aspirations 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) at age 18. Schoon et al. (2007) and Schoon and Polek (2011) report significant associations between British teenagers' aspirations and their later occupational status in their early 30s.

Our final concern is with an aspect of social capital, namely differential access to valued networks that open up channels to highly-rewarded careers (Naylor et al., 2002). Research suggests that some kinds of networks do indeed generate job offers and contribute to labour market success (Loury, 2006), and that often networks are socially graded (Coleman, 1990). Yet the traditional prominence of the "old boy network" in British labour markets was, according to Walford (1986: 207), already declining by the 1980s, as appointments procedures to middle-class jobs were becoming more bureaucratised. Moreover, the sparse evidence on

the network theory of higher earnings in Britain is only partially supportive. Macmillan et al., (2015) found that personal and professional networks, as reported by recent graduates, were only very weakly correlated with school type; moreover, while networks had a small significant impact on attaining a high-status occupation, this effect was orthogonal to the effects of social class and of school type. Marcenaro-Guierrez et al. (2014), by contrast, found that family advice and help with job applications were more prevalent among those from higher social class backgrounds, which would include most private school alumni; but more direct networking help to get jobs through job search and recommendations was not especially associated with social class. Moreover, help from parents in getting a job was found to have no significant association with pay. In this study, the network indicators were backward-looking (from age 42 over the whole previous career) and as such are possibly subject to recall error. Below, we examine the issue from an alternative perspective, that of the perceived network opportunities of 16-year olds prior to their careers.

These self-evaluations, aspirations and valued networks would appear to capture many of the elements that a privileged education might be expected to deliver. The visions and ethos of private schools generally promise superior academic success, including the channel to elite universities, but also emphasise a broad curriculum, an inculcation of "character", and a rich experience including high-quality pastoral care. There is, however, very little evidence on whether non-cognitive attributes are associated strongly with type of school. Studies for the US and for Australia suggest that there is no significant difference between (private) catholic schools and other schools, once prior social background is accounted for (Elder and Jepsen, 2014; Nghiem et al., 2015).[3] Yet the case of British private schools (many of which are also faith-oriented) could be expected to be different, given the close historical link that private schooling has had with social class background (Gathorne-Hardy, 1977).[4] We would expect private schools, some of which are academically selective and almost all of which serve a market of predominantly high-income families, to take in children with greater self-esteem, more internal locus of control, and high aspirations. Given their much greater resources and autonomous governance, private schools may also, from that point on, be expected to be able to further foster the development of these attributes. They are able to provide a more effective academic education, as evidenced through their success with pupils' academic outcomes

[3] Gibbons and Silva (2011) add evidence that catholic faith schools in Britain also have little effect on academic attainment.

[4] The OECD distinguish between "privately managed" and "publicly managed" schools; there is a high level of socio-economic stratification in the UK between these two categories, and a very high proportion of funding for privately managed schools is private (OECD, 2012).

(Sullivan et al., 2015; Foliano et al, 2014), and one could expect them also to be better at delivering broader skills, through more targeted learning, a more extensive curriculum and a richer menu of extra-curricular activities than is available in state schools, in some cases with an explicit mission to develop leadership skills and other attributes related to locus of control. Given their pupil market, private school teachers might 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 may be one route through which such influence is channelled. Not least, private schools arguably deliver a milieu of other pupils with high aspirations and self-valuations and alumni friendship networks, which are transmittable through peer groups to all private school pupils whatever their backgrounds.

A study of these school-type effects will be directly informative about the role of private schools in Britain. Moreover, these effects may have a bearing on the source of the private school earnings premium. Because career gains tend to be cumulative, through acquired beneficial work experiences, we would expect that the private school advantage persists through careers, something we investigate. But how much, if any, of the differential success is associated with the self-valuations, aspirations and networks that, as we have argued, may have been better developed in the private schools? In addressing this question, we will attempt to take some note of the heterogeneity among private schools (Graddy and Stevens 2005), broadly along the lines of their historically-derived "status" which is related to their relative fees. This differentiation could have some importance if it is the high fees, richer endowments and high-status social background of the pupils that permits schools to be especially effective in developing pupils' self-valuations, aspirations and networks. State schools are also heterogeneous, of course, by we shall treat the latter together, so as to estimate average effects of attending private school relative to state school.

The hypotheses we examine, therefore, are:

H1: Pupils attending a private school in Britain are likely to have higher levels of self-esteem, more internal locus of control, higher aspirations and better access to high-valued networks for labour market success.

H2: The schools themselves help to develop the above values and networks.

H2a: Higher-status private schools deliver the self-valuations, aspirations and networks more effectively than lower-status private schools.

H3: Childhood self-esteem, locus of control, aspirations and networks, each have a long-term impact on earnings in mid-career.

H4: The private school earnings premium, conditional on prior skills and social background, persists through to mid-career.

H5: The premium is accounted for by the private/state differences in self-evaluations, aspirations and network access, and in educational attainment.

3. Data and Indicators

We address these questions using data from the 1970 British Cohort Study (BCS70), which has followed the lives of a cohort born in England, Scotland and Wales in a single week of 1970 (Elliott and Shepherd 2006). Over the course of cohort members' lives, the BCS70 has collected information on health, physical, educational and social development, and economic circumstances among other factors. Since the birth survey in 1970, there have been eight survey waves at ages 5, 10, 16, 26, 30, 34, 38 and 42. The rest of this section describes the outcome and explanatory variables to be used in the analyses.

Schooling

Hitherto, a lack of adequate secondary school data for the BCS70 has prevented researchers from examining the effects of secondary schooling in the 1980s. The age 16 survey employed sixteen separate survey instruments, and unfortunately coincided with a teachers' strike which affected the completion of those instruments, including cognitive tests that were administered via schools (Dodgeon 2008). This led to substantial instrument non-response, though the overall response and representativeness of the sample at this wave was good (Mostafa and Wiggins 2015). Gaps on school information have now been filled, using a combination of recall data and historical administrative data.[5] At the same time, we have repaired some of the data on cognitive skills at age 16.

Information on school name as well as type enabled us to tap in addition the potential heterogeneity among private secondary schools. For this purpose, we use as an index whether the school is included among those reviewed regularly by *Tatler*, a well-known magazine that serves an especially affluent readership. The *Tatler* list comprises around 100 schools, mostly with fees in the upper half of the spectrum, including all the famous schools in England.

[5] We have deposited these variables for wider use at the UK Data Archive.

Special schools, whether private or state, are excluded from the analysis.

Self-Evaluations

Self-esteem – At ages 10 & 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 & Brember (1999) and Murasko (2007), scoring 0/1 for each item, including 0 for the small number of "don't know" responses. Self esteem is the average score, ranging from 0 to 1.

Locus of control

The questionnaires also included items on the CARALOC scale of perceived achievement control (Gammage, 1975). Seven out of sixteen items refer specifically to school experiences. Example items 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.

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". We selected for our indicator those attributes that *prima facie* relate to labour market success: "high earnings", "promotion prospects", "interesting job" and "challenging" job. We take the average response to these as a scale, and normalise it 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.[6]

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 simple dummy variable according to

[6] This indicator captures the aspiration for a job with a combination of high extrinsic and intrinsic rewards. Ashby and Schoon (2010) combine the responses to just two of these ("promotion prospects" and "challenging job"), to make their indicator of "ambition value", in their analysis of gender differences. An exploratory factor analysis which we carried out using all 16 job quality facets is not very decisive in reducing them to a small number of factors with clear interpretations and covering all facets. We chose our 4-item-based indicator to include all the job facets listed that embraced a relatively broad concept of a high-quality job.

whether the first choice response was to follow a "professional [career] (needing a degree)" or a career in "Managing/Nursing/Teaching". Following Ashby and Schoon (2010), however, we note that a small proportion of those who responded in this way also indicated that they intended to leave education at age 16. Such an aspiration is unrealistic and ill-informed. We therefore compute a dummy variable "realistic occupational aspiration", combining the occupational aspiration with the stated intention to stay on at school after 16.

Network Access

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.[7] Since it is access (via social networks) in particular 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".

Earnings

Earnings at 42 are measured conventionally as the log of hourly pay, there being no available data on self-employed earnings. Restricting the sample to employees introduces a potential source of bias.

Other covariates

Several controls for social background are included in the analyses: parents' highest education level, parents' social class, overcrowded house at age 5, mother's age when respondent born, duration of breastfeeding, whether first born, birth weight, ethnicity, whether family owned house when aged 5; region of birth; 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), and whether a broadsheet (high quality newspaper) was available in the home (age 10), and age 10 introversion score.

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, but six of these tests were never extracted from the forms, again because of the school strike. However, a scanned archive with approximately 6,000 missing student score forms was available. These included otherwise unexploited information on several dimensions of

[7] This indicator is positively associated with the backward-looking network measures studied by Marcenaro-Guierrez et al. (2014). Thus, the mean number of forms of network help with job-getting ever received, as perceived at age 42, is 0.55 for those responding "no" at age 16, but 0.86 for those responding "yes".

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. Other, conventional, control variables are noted in the tables below.

Finally, we also include detailed indicators of educational attainment at 16 or later. These are the standardised age 16 exam score; number of A-C grade A levels; highest level of "facilitating" A levels (where "facilitating" delineates subjects accepted as challenging by universities); highest educational qualification level; if degree: subject (3-categories), whether at an elite university, and degree grade (whether upper second or first) all interacted.

Despite our data recovery programme, because we exploit information from all of the childhood waves of the study, including the age 16 wave, the problem of missing data must be addressed. We do this using multiple imputation methods (Mostafa and Wiggins, 2015). In each model the dependent variable is entered with only non-imputed data, as is the key explanatory variable of interest, school type. Otherwise, covariates are imputed where missing.

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 and superior access to high-valued networks, compared with state-educated pupils?

The results are given in Tables 1 to 3. At age 10, only a small proportion (3.0%) of the sample was at prep school (the British term for a private primary school). Table 1 shows that, at this age, these prep school children 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.

Table 1 Self-Evaluations of Age 10 Private and State School Pupils in Britain in 1980

	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
n	5556	5227	10783	5579	5243	10822

Notes.
Base is all those with non-missing self-evaluation data. The proportion private is 3.0%
Primary-level private schools in Britain are termed "prep schools".
Locus of control and self-esteem each have a maximum range of 0 to 1.
*** indicates the private/state school difference is significant at 1%.

Are such school-type differences still evident when the students had reached 16 and when a lot more (6.1%) were attending private school? Looking at Table 2 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 and15% for self esteem. We also examined whether the *Tatler* school alumni were different from those who had been at non-*Tatler* listed 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.

Table 2 Self-Evaluations of Age 16 Private and State School Pupils in Britain in 1986

	Locus of Control			Self-Esteem		
	Boys	Girls	All	Boys	Girls	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**
of which						
Non-Tatler	0.741	0.755	0.749	0.701	0.735	0.718
Tatler	0.809$	0.779	0.799$	0.765	0.753	0.760
All	0.656	0.636	0.645	0696	0.694	0.695
Standard Deviation	0.204	0.209	0.207	0.218	0.212	0.215
n	1,842	2,566	4,408	1,705	2,282	3,987

Notes.
Base for each column is all those with non-missing self-evaluation data; the proportion private is 6.23%.
Locus of control and self-esteem each have a maximum range of 0 to 1.
*, ** 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%.

Table 3 examines the private/state differences in aspirations. First, it can be seen that private school alumni had at age 16 significantly greater job quality aspirations than state school alumni. Moreover, those from *Tatler* schools aspired more than other private school students for a high job quality. Second, significantly higher proportions of private school alumni than of state school alumni aspired to a professional or managerial job.

Table 3 Aspirations of Age 16 Private and State School Pupils in Britain in 1986

	Job Quality Aspiration			Realistic Occupational Aspiration		
	Boys	Girls	All	Boys	Girls	All
State school	0.631	0.619	0.624	0.269	0.312	0.294
Private school	0.673**	0.685***	0.679***	0.756***	0.697***	0.725***
of which						
Non-*Tatler*	0.659	0.668	0.664	0.735	0.677	0.703
Tatler	0.723	0.813$$	0.756$$$	0.828	0.833	0.830$
All	0.632	0.624	0.627	0.301	0.329	0.317
Standard Deviation	0.211	0.222	0.217	0.459	0.470	0.466
n	2,075	2,783	4,858	2,038	2,827	4,865

Notes.
Base for each column is all those with non-missing data on school type and on aspirations. The proportion private is 6.1%.
Job Quality Aspiration: average of job aspirations for: high earnings, promotion prospects, an "interesting job" and a "challenging" job; 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.
*, ** 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%.

Table 4 examines 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. It can be seen that, again as predicted in H1, the private school students had much better access, and the *Tatler* students better than the non-I students. The differences are again large: thus, whereas some 30% of state school students had network access, this was true of 50% of private school students (and 70% of *Tatler* school students).

Network access *per se*, however, may aid job search but not necessarily access to high-quality jobs. The final three columns of Table 4 examine the key variable, high-value network access, that is, networks that channel into a high-valued job (as indicated by their occupational

aspiration). As can be seen, the private school advantage – and beyond that the *Tatler* school advantage – are again striking: high-value network access was available at one extreme to 61% of *Tatler* private school pupils, and to just 16% of state school pupils at the other.

Table 4 Social Network Access of Age 16 Private and State School Pupils in Britain in 1986

	Any Network Access			High-Value Network Access		
	Boys	Girls	All	Boys	Girls	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***
of which						
Non-*Tatler*	0.474	0.434	0.452	0.359	0.323	0.339
Tatler	0.767$$$	0.538	0.698$$$	0.633$$$	0.538	0.605$$$
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
n	1,488	2,226	3,714	1,488	2,226	3,714

Notes.
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%.

We carried out these analyses separately for males and females, as well as in aggregate, since in addition to the common issue that the endogeneity of women's labour market participation might shape the findings, the history of girls' private schools has been rather different from that of boys. Most secondary private 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-cognitive skills. The tables show that there are some gender differences in self-evaluations, aspirations and network access. Below, we continue therefore with separate estimates for males and females; nevertheless, while in many cases they are statistically significant the gender differences are much smaller than the private/state differences.

5. Modelling the effects of private schooling

The remaining hypotheses entail the proposition that school type has causal impacts, and with observational data this poses 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; in addition most private schools are selective, so recruitment to particular schools (though less so to the sector as a whole) depends on academic and other aptitudes. All these may themselves be related to children's self-evaluations, aspirations, networks, and labour market outcomes. Direct experimentation is impossible in these circumstances of choice. A possible instrument would be an indicator of parental preference, as partially revealed for example in sibling's school type. Quasi-experimental factors that change the price of private education include the Assisted Places Scheme (Power et al., 2003), and regional variations including proximity to grammar schools. However, these factors are also partly conditional on school recruitment policies and on endogenous location. Moreover, in most surveys, including BCS70, the relevant information is unavailable, or yield far too few instrumental cases to read off private school effects.

Set against these common difficulties, the cohort data has the great advantage of being able to include a very rich array of indicators covering the main variables that are likely to affect private school selection, related to social background and ability. We can therefore control for the potential confounding effects of these variables on our outcomes of interest. Our approach, therefore, is to estimate the determinants of self-evaluations, aspirations and network access in a conventional multi-variate framework, using regression and logit analyses as appropriate. Similarly, the determinants of pay at age 42 are modelled in a conventional log wage equation with the cognitive and non-cognitive skills variables included along with other augmented controls. 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 5 to 7, in turn for primary and for secondary schooling. Tables 5a and 5b presents the effects of attending a prep school (that is, a private primary school) on locus of control and self-esteem. Columns 1 and 3 show again that children in prep 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 several key social background indicators (listed in the table notes). 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 home ownership 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 prep schools. In short, H2 is supported for primary private schooling in respect of locus of control, but not in respect of self-esteem.

Table 5a Determinants of Age 10 Boys' Self-Evaluations

	(1) Locus of Control	(2) Locus of Control	(3) Self-Esteem	(4) Self-Esteem
Private School	0.128***	0.0700***	0.0662***	0.0251
	(0.0142)	(0.0144)	(0.0156)	(0.0164)
CONTROLS	NO	YES	NO	YES
R^2	0.011	0.110	0.003	0.044
Observations	5556	5556	5579	5579

Notes.
Control variables are parents' highest education level, parent's social class, mother's age at respondent's birth, breast feeding, 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^2 statistic is the mean from 20 imputations.

Table 5b Determinants of Age 10 Girls' Self-Evaluations

VARIABLES	(1) Locus of Control	(2) Locus of Control	(3) Self-Esteem	(4) Self-Esteem
Private School	0.116***	0.0337*	0.0631***	0.0121
	(0.0171)	(0.0185)	(0.0195)	(0.0206)
CONTROLS	NO	YES	NO	YES
R^2	0.008	0.121	0.002	0.038
Observations	5,227	5,227	5,243	5,243

Notes.
As for Table 5a.

Tables 6a and 6b address the same questions at age 16. Here we see a very similar picture in respect of private schooling and self-esteem: private school pupils of both sexes indeed have substantially higher self-esteem, reconfirming the descriptive picture in Table 3; but this association is entirely eliminated once one controls for multiple facets of the child's social

background (as noted in the Table). Of interest is that 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 attending secondary private schooling is reduced from the raw difference by almost three quarters but remains statistically significant.

Table 6a Determinants of Age 16 Boys' Self-Evaluations

VARIABLES	(1) Locus of Control	(2) Locus of Control	(3) Locus of Control	(4) Self-Esteem	(5) Self-Esteem	(6) Self-Esteem
Private, not *Tatler* school	0.0930***	0.0068	0.0058	0.0068	-0.0406	-0.0372
	(0.0191)	(0.0207)	(0.0211)	(0.0233)	(0.0248)	(0.0254)
Tatler school	0.161***	0.0498**	0.0395	0.0711*	0.00964	0.0126
	(0.0229)	(0.0251)	(0.0255)	(0.0432)	(0.0460)	(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

Standard errors in parentheses;
*** p<0.01, ** p<0.05, * p<0.1

Notes.

Controls comprise parents' highest education level, parent's social class, mother's age at respondent's birth, breast feeding, 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.

Table 6b Determinants of Age 16 Girls' Self-Evaluations.

VARIABLES	(1) Locus of Control	(2) Locus of Control	(3) Locus of Control	(4) Self-Esteem	(5) Self-Esteem	(6) Self-Esteem
Private, not *Tatler* school	0.125***	0.0352**	0.0342**	0.0430**	-0.00317	-0.00596
	(0.0149)	(0.0167)	(0.0167)	(0.0196)	(0.0215)	(0.0215)
Tatler school	0.150**	0.0311	0.0259	0.0612	0.00134	0.00272
	(0.0593)	(0.0565)	(0.0555)	(0.0523)	(0.0511)	(0.0521)
Locus of Control at 10			0.171***			
			(0.0236)			
Self-Esteem at 10						0.140***
						(0.0223)
CONTROLS	NO	YES	YES	N0	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

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Notes. See Table 6a.

Table 7a Determinants of Age 16 Boys' Aspirations and High-Value Social Network Access

VARIABLES	(1) Job Quality Aspiration	(2) Job Quality Aspiration	(3) Realistic Occupation Aspiration	(4) Realistic Occupation Aspiration	(5) High-Value Network Access	(6) High-Value Network Access
Private						
Not *Tatler* school	0.0282	0.00310	2.021***	1.149***	1.110***	0.767***
	(0.0215)	(0.0229)	(0.231)	(0.281)	(0.248)	(0.285)
Tatler school	0.0926***	0.0646**	2.568***	1.021*	2.236***	1.621***
	(0.0282)	(0.0328)	(0.495)	(0.564)	(0.386)	(0.442)
CONTROLS	NO	YES	NO	YES	NO	YES
R^2	0.004	0.035	0.075	0.256	0.044	0.086
Observations	1,879	1,879	1,841	1,841	1,488	1,488

Notes: Columns (1) and (2) are OLS regression estimates, columns (3) to (6) logit estimates. For controls, see Table 6a.

Table 7b Determinants of Age 16 Girls' Aspirations and High-Value Social Network Access

VARIABLES	(1) Job Quality Aspiration	(2) Job Quality Aspiration	(3) Realistic Occupation Aspiration	(4) Realistic Occupation Aspiration	(5) High-Value Network Access	(6) High-Value Network Access
Private						
Not *Tatler* school	0.0494***	0.0186	1.532***	0.483**	0.967***	0.585**
	(0.0191)	(0.0205)	(0.195)	(0.228)	(0.223)	(0.238)
Tatler school	0.194***	0.145**	2.401***	1.056*	1.860***	1.419**
	(0.0597)	(0.0612)	(0.634)	(0.621)	(0.560)	(0.577)
CONTROLS	NO	YES	NO	YES	NO	YES
R^2	0.007	0.045	0.035	0.235	0.015	0.044
Observations	2,585	2,585	2,614	2,614	2,226	2,226

Notes: see Table 7a.

Tables 7a and 7b examine the effects of private schooling on 16-year-olds' job quality aspirations, occupational aspirations and high-valued networks. Columns (1), (3) and (5) reconfirm the descriptive findings of Tables 3 and 4: in respect of all three variables there are substantial differences between the 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 boys or girls 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 probability 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 – for both boys and girls – in respect of the *Tatler* private schools.

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 other private school aspects, 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 (including nursing), relative to their counterparts at comprehensive schools.

In another robustness check, we noted that while overall sample response at the age 16 wave was representative (Mostafa and Wiggins, 2014), amidst a complex set of instruments the response to some questionnaires was not fully representative, there being for example somewhat more females than males. It is possible that this unrepresentativeness associated with some questions was associated with the school strike which affected some schools more than others. To address this, we computed weights, as the inverse of the estimated probability of participating in the relevant questionnaire for each of the non-cognitive attributes analysed in this section.[8] If re-estimating the models, using these weights, were to result in substantially different coefficient estimates, it would cast doubt on the adequacy of the model specifications. We carried out this re-estimation, and can report that the resulting estimates are close to those presented so far in Tables 5 to 7.

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

The above findings strongly confirm the public perception (our 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, and even then only on the assumption that remaining unobserved sources are not strongly correlated with the selection process. There are modest effects on girls' locus of control and somewhat larger effects on aspirations and on high-valued network access.

The question then arises: whatever their origin, do these non-cognitive attributes have an effect on pay, and if so are such effects enough to account for any or all of the private school earnings premium? Thus we now turn to the effects of our key age 16 variables on labour market success later in life, as indicated by their hourly pay (if in employment) at age 42. We estimate OLS regressions with log hourly pay as the dependent variable. The results are presented in Table 8 (8a for men, 8b for women). Each column presents model estimates that address our hypotheses.

[8] The estimated probabilities were derived from probit models of participation on socio-economic characteristics at birth.

Table 8a The effects of men's self-evaluations, aspirations and high-value networks at age 16 on log hourly pay at age 42.

	(1)	(2)	(3)	(4)	(5)
Self-esteem at 16	0.121	0.0646		0.0704	0.0818
	(0.0781)	(0.0729)		(0.0725)	(0.0661)
Locus of control at 16	0.399***	0.168*		0.165*	0.0549
	(0.0929)	(0.0860)		(0.0864)	(0.0834)
Job quality aspiration	0.128***	0.0928***		0.0905***	0.0721**
	(0.0352)	(0.0347)		(0.0345)	(0.0340)
Realistic occ. aspiration	0.418***	0.261***		0.252***	0.0291
	(0.0407)	(0.0407)		(0.0408)	(0.0458)
High-valued network	0.0705	0.0334		0.00430	0.0449
	(0.0684)	(0.0660)		(0.0648)	(0.0637)
Private school			0.294***	0.248***	0.166***
			(0.0588)	(0.0582)	(0.0563)
CONTROLS					
Prior	NO	YES	YES	YES	YES
Posterior	NO	NO	NO	NO	YES
R^2	0.117	0.204	0.185	0.211	0.286
Observations	3,108	3,108	3,108	3,108	3,108

Notes

Prior controls 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)). Posterior controls 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. 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^2 statistic is the mean from 20 imputations.

Table 8b The effects of women's self-evaluations, aspirations and high-value networks at age 16 on hourly pay at age 42.

	(1)	(2)	(3)	(4)	(5)
Self-esteem at 16	0.0674	0.0272		0.0289	0.0364
	(0.0677)	(0.0670)		(0.0657)	(0.0613)
Locus of control at 16	0.325***	0.136*		0.130*	0.0298
	(0.0724)	(0.0712)		(0.0704)	(0.0679)
Job quality aspiration	0.0993***	0.0664**		0.0647**	0.0303
	(0.0325)	(0.0321)		(0.0317)	(0.0305)
Realistic occ. aspiration	0.385***	0.241***		0.237***	0.0619*
	(0.0333)	(0.0337)		(0.0340)	(0.0356)
High-valued network	0.00854	-0.00641		-0.0163	0.0182
	(0.0539)	(0.0535)		(0.0541)	(0.0520)
Private school			0.189***	0.146**	0.0536
			(0.0577)	(0.0583)	(0.0563)
CONTROLS					
Prior	NO	YES	YES	YES	YES
Posterior	NO	NO	NO	NO	YES
R^2	0.119	0.196	0.170	0.199	0.282
Observations	3,028	3,028	3,028	3,028	3,028

Notes.
As for Table 8a.

The relationship of the non-cognitive attributes to pay 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 pay at age 42. However, it turns out that neither the 16-year-olds' self-esteem nor their social networks linked to getting a high-valued job add significantly to their pay at age 42, once the other non-cognitive attributes are controlled for. 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 pay at 42, whether directly or 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 pay premium at age 42 (H4). It shows the private school effect on pay, 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 pay 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 pay premium (H5). It includes 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 suggest that only a relatively small part of the private school advantage can be accounted for by these variables. 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 non-cognitive attributes are insufficient to account for the private school pay 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). Thus Column (5) adds a full set of indicators of subsequent educational performance from 16 onwards. For those that proceed to university we include details of the subject group, type of university (elite or other) and grade of final classification (whether at least upper second class honours), which we interact to allow for a rich array of outcomes. We ask: to what extent does the inclusion of these indicators in the regression account for the estimate of the private school indicator?

For men, we find a similar result from earlier research, namely that, even after allowing for all the many prior controls including cognitive skills, and for fine-tuned posterior indicators of their subsequent human capital achievements, there remains a statistically significant private school pay premium of 0.17 log points. This finding is consistent with earlier studies that have also found this residual ("unexplained") effect. For women, however, the estimate is only 0.05 log points, not significantly different from zero. Thus, for women we do not reject the hypothesis that all of the large impact of private schooling for women is accounted for by their social background, prior cognitive skills, their non-cognitive attributes, and their educational achievements. Indeed, even without the non-cognitive attributes, the private school effect is insignificant once all educational achievements are included (not shown in the table). For women, there appears to be no need to invoke other explanations to account for the impact of private education.

Column (5) also 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 pay later in life is accounted for by subsequent human capital accumulation. Thus, locus of control appears to have 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 long-term effect, even after controlling for educational achievements.

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 many private schools are academically selective and their alumni should therefore be compared specifically with those who had attended academically selective state schools, namely 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 statistically insignificant. We do not necessarily conclude that within-private-sector heterogeneity is irrelevant; rather, the number of cases in our age 42 sample with complete earnings data are too small to generate sufficiently precise estimates.

It might also be argued that the direct effects of the non-cognitive attributes could have been dissipated by mid-career. We therefore re-estimated the models of Tables 8a and 8b, but instead looked at the outcome of hourly pay at age 30. The findings (not shown here), which apply to an overlapping but different sample of those who responded at that wave and were in employment, show the same pattern as above: no impacts from self-esteem or from network access on pay at 30, but some direct effects of locus of control and aspirations, which account for just a small part of the private school pay premium.

7. Conclusion.

In this paper 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 among education commentators. 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 private school children, as expected, had very much higher levels of locus of control and of self-esteem than state school children at age 10, and that this pattern was repeated among the somewhat larger, though still minority group of private school pupils at age 16. The private school pupils at that point also had substantially higher job quality aspirations, occupational aspirations and access to high-valued social networks. There is some evidence of differentiation among private schools, with those listed in *Tatler* magazine, generally the older and more expensive schools, having in most cases the greater edge. Thus far, our findings are in line with widely held perceptions.

Second, it is not the schools themselves that instilled such high self-esteem, either at 10 or 16; rather, it is that the pupils in attendance arrived with 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 prep schools did have a causal impact on locus of control at 10, and that secondary private schools affected girls' locus of control at 16, and raised the aspirations of both boys and girls, and afforded high-valued network access as perceived by the 16-year-old children. This latter conclusion depends on potential remaining biases associated with unobserved determinants of school type.

Third, cohort members' age 16 locus of control and aspirations have significant associations with their pay at age 42, even after multiple controls for social background are introduced. Both of these are consistent with earlier findings in the literature, and extend them to the mid-career stage. Neither self-esteem nor high-valued networks, however, had any significant effects on pay in mid-career. Self-esteem's lack of effect on pay is consistent with the findings of de Araujo and Lagos (2013) for the United States. With respect to networks, we 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 the potential social connections that are valuable for getting started on a well-paid career.

Fourth, the estimated private school hourly pay premium at age 42 is 34% for men, 21% for women, indicating that the substantial premium found in studies relating to earlier career points 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 appears to be associated with these factors. In fact the largest role is evidently played by post-16 educational and cognitive skills attainments. When these are controlled for, the remaining pay premium for privately educated women is statistically insignificant; for men there remains an unaccounted premium of 18%.

An implication of the above for any policy aimed at narrowing the private/state pay 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.[9] Yet our results imply that even a realistic policy that might affect non-cognitive attributes in state school pupils by some fraction of a standard deviation could be expected to have only small effects on subsequent pay. 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. The source of private schools' advantage remains primarily their ability to deliver better academic performance; the extent to which this is a consequence of their far superior resources, rather than their independence from government, should be a focus of future research.

Of course, such policy implications derived from lifecourse research 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 much more unequal. It might thus be argued that the private/public differences among current-generation 16-year-olds may be more salient when they enter the labour market and the age 42 pay premium greater, than for the 1970-born cohort.

[9] 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".

Beyond the issues of selection bias noted above, there are some further qualifications to our analyses and these policy implications that need to be noted. First, while we have found small or no effects on pay from some of our key variables, it could be that we have poor measures of them, either because of the scales, or because of the items in the questionnaires. Measurement error would cause downward bias in the estimated coefficients of the self-evaluation, aspiration and network indicators, and in the extent to which these could account for the private school effect. It is possible, in particular, that a better indicator of network availability, acquired at a later age when private school pupils were entering the labour market, would have more predictive power. Our age 16 network indicator had no explanatory power, but it may be a poor indicator of how social connections work for a young person's advantage.

Second, 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 industry 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 psychological constructs in a comparative school context, for example "psychological entitlement" (Campbell et al., 2004). Other potentially-relevant non-academic skills include leadership skills and sporting, artistic or creative skills that, when adapted to work, may give privately-educated pupils an advantage in the labour market (Horne et al., 2011; Lunn and Kelly, 2015).

Third, while we have focused only on employees at age 42, it is conceivable that private education might prepare students better for self-employment, and that self-evaluations, aspirations and networks could enable privately educated self-employed entrepreneurs to be more successful; if so, our estimates of the earnings premium would be somewhat downward biased. Finally, while most of our indicators of post-16 achievement are good conventional indicators of human capital, it is conceivable that our control for university type might conceal a channel for differential network access that by association is favourable for the privately-educated. If, for example, high-level graduate recruiters only search among elite university graduates, this may be an efficient method of sorting on ability as reported by many employers, but it could also be a latent channel for class differentiation. Formal tests for such processes are currently lacking.

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