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Social Mobility and the Professions

This report sets out to illustrate the origin of family incomes and abilities
of those entering into the Professions across time. It is for submission to
the Panel for Fair Access to the Professions.

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1. Introduction

As part of the new White Paper on Social Mobility, Alan Milburn MP has been appointed to Chair a new panel on 'Fair access to the Professions' which aims to examine potential barriers that prevent fair access to the best paid jobs. Previous evidence on this subject by the Sutton Trust (2005)[1] examined the change in educational characteristics of those entering into the legal profession from 1988/89 to 2005. They found that over half of the partners at leading law firms, three quarters of judges and two thirds of barristers had attended private school despite only 7% of the total population attending private school. This would suggest there are some very serious barriers to entry into the law profession. A number of professions were singled out for criticism in recent reports with Milburn stating in an article for the Sunday Times that 'too few youngsters from comprehensive schools were becoming lawyers, doctors or army officers'[2]. This research aims to examine the family income and cognitive ability in childhood of those who go on to a number of different professions in adulthood. To achieve this, I compare the average family incomes and abilities in childhood of those that go on to these different professions using the two British Birth Cohorts, the National Child Development Survey (NCDS) born in 1958, and the British Cohort Study (BCS) born in 1970. This will give an indication of whether different professions are socially graded, whether these have changed across time and whether this may be driven by differences in ability across individuals. In the next section I will discuss the cohort data used followed by the main findings relating to income and ability. I will end with some brief conclusions. The findings suggest that professions such as law and medicine have large social gradients compared to other professions such as teaching and nursing and that these gradients have grown over time. Although those from these highly socially graded professions exhibit higher ability than those from the other professions, the gradient in ability appears to decline across time. There appears to be a widening social gap in entry to the top professions regardless of the ability of the individual.

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[1] http://www.suttontrust.com/reports/Comparison_educational_backgrounds.pdf
[2] http://www.timesonline.co.uk/tol/news/politics/article5489213.ece

2. Data

Both cohort studies began with around 18,000 babies born in a particular week in March 1958 in the NCDS and a particular week in April 1970 in the BCS. There is information available on the individuals in the NCDS at birth, 7, 11, 16, 23, 33 (1990), 42 and 46 and in the BCS at birth, 5, 10, 16, 26, 30 and 34. In this analysis comparable information is used from data at ages 11 (1969), 16 (1974) and 33 (1990) in the NCDS and 10 (1980), 16 (1986) and 34 (2004) in the BCS. I assume by the age of 33/34 that most individuals have entered into their chosen profession.

The origins of the individuals' are measured by their family income at the age of 16. In the NCDS, the data is banded for mother's income, father's income and other income, with an average of the midpoints of all three categories used as a final measure. In the BCS, a continuous income variable is generated by fitting a Singh-Maddala distribution to the data using maximum likelihood estimation, which is particularly helpful in allocating an expected value for those in the open top category. The measure is further adjusted by a gross to net transformation and child benefit is imputed for each family. There is some concern regarding measurement problems in the NCDS given that the 3 day week of 1974 occurred at the same time as the survey. If people were reporting their reduced income rather than their usual income, this could lead to a bias downwards of the incomes reported. Grawe (2005) considered this problem and found the 3 day week to have little effect on the reporting of income in the NCDS. Blanden (2005) also considers issues regarding the measurement of the income variables and finds little evidence of differential measurement error in either cohort.

The destination of the individuals' is measured by using information on their occupation at age 33/34 from the reported standard occupational classification. The main professions considered are doctors, lawyers, lecturers, teachers (Primary and Secondary), bankers, artists, stock brokers, engineers, scientists and other medical professions, journalists, nurses and accountants. There is a change in the occupational classification used across the two cohorts with the information on destination occupation in the NCDS given by the SOC 90 code whereas in the BCS this is given by the SOC 2000 code. However, these differences are easily dealt with using a

coding document which reports both codes. Information on 'Other professionals' was obtained from the social class groupings at the same age comprising all other professional occupations not analysed separately here. Unlike previous work on income mobility that uses earnings as the destination outcome this work considers both girls and boys. Given the data problems concerning female labour participation and fertility, earnings may not be reported at certain points in time for some women so they are usually not included in the analysis. Occupations are reported much more frequently however as it is possible to still have an occupation despite taking a break from the labour market so this is much less of a problem in this analysis.

When considering the level of ability in childhood across the professions the ability measures used are from information at ages 11 and 10 in the NCDS and BCS respectively. In both cohorts the children took part in a reading and maths test, while in the NCDS they completed a general ability test and in the BCS the British Ability Scale test (BAS), both of which are close to an IQ test. The cognitive tests are used on a comparative basis in Galindo-Rueda and Vignoles (2005) and Blanden, Gregg and Macmillan (2007).

3. Results

3.1 Family income and the professions

To begin by considering the average monthly family income at age 16 by individual's destination occupation at age 33 and 34 in the NCDS and BCS respectively, table 1 indicates that all of the professions considered comprise individuals from families with average family incomes at 16 higher than the sample average. Individuals who went on to become doctors and lawyers in the NCDS cohort came from families with an average income of just under £600 more than the sample average at age 16. In the BCS, the average family income of those who became doctors or lawyers was £900 more than the sample average. Individuals that became nurses on the other hand came from families with an average family income at 16 of under £100 more than the sample average in the NCDS, around 4%, and £150 or 10% more than the average in the BCS. Interestingly, those who went onto become scientists or other medical professions such as dentists or veterinaries came from families with income much less

than those of future doctors in both cohorts, with average monthly incomes of £450 less than doctors' families in the NCDS and £700 less in the BCS. Doctors who were born in 1958 came from families with incomes 42% greater than the average compared to only 7% for scientists and other medicines. For those born in 1970 this had increased to 63% and only 16% respectively. Those who went onto become accountants that were born in 1958 came from families with incomes no different from the average but those who went onto become accountants that were born in 1970 came from families with around £600 or 40% more a month than the average family. Similarly those who were born in 1958 that went on to become journalists came from families with income less than £100 more than average but for those born in 1970, this difference had increased to over £600. Those who entered into top professions not discussed here came from families with incomes far less than most of those singled out in this analysis - around 14% more than average and 17% more than average for those born in 1958 and 1970 respectively.

Table 1 Average monthly net family income (Pounds) at age 16 by destination occupation at age 33/34[3]

Profession	NCDS (Born 1958)		BCS (Born 1970)	
	£	% diff from average	£	% diff from average
Doctors	1939.60	42.52	2322.50	62.70
Lawyers	1902.35	39.78	2345.93	64.34
Lecturers and Professors	1642.79	20.71	1588.10	11.25
Teachers	1610.27	18.32	1671.04	17.06
Bankers	1536.59	12.90	1880.88	31.76
Artists, Musicians, Writers	1532.84	12.63	1541.88	8.02
Stock Brokers and Traders	1513.88	11.24	1623.50	13.73
Engineers (Civil / mechanical)	1483.40	9.00	1670.81	17.05
Scientists and other medicine	1467.48	7.83	1653.04	15.80
Journalists and broadcasters	1436.02	5.52	2033.11	42.43
Nurses	1411.31	3.70	1573.46	10.23
Accountants and actuaries	1364.82	0.28	2002.10	40.26
Other professionals	1558.51	14.52	1671.90	17.12
Whole sample	1360.96		1427.46	

Figure 1 illustrates the differences in the average incomes of each profession compared to the sample average at age 16. The income gradients across the

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[3] For sample sizes see Appendix Table A1

professions are clearly large and pronounced. Those born in 1958 who became lawyers had 40% higher family income at 16 than the average individual. Those born in 1970 that went onto become lawyers had 65% higher family income than the average individual, an increase of 25% across time. If this is compared to engineers born in 1958 who had family incomes 8% higher than average at 16 and 16% higher than average for those born in 1970, an 8% increase, or to stock brokers, their family incomes were 11 and 13% higher than the average across the cohorts, an increase of only 2%, the highest socially graded professions appear to have become even more socially graded across time.

Figure 1 Percentage differences from the sample average monthly net family income at age 16 by destination occupation at age 33/34
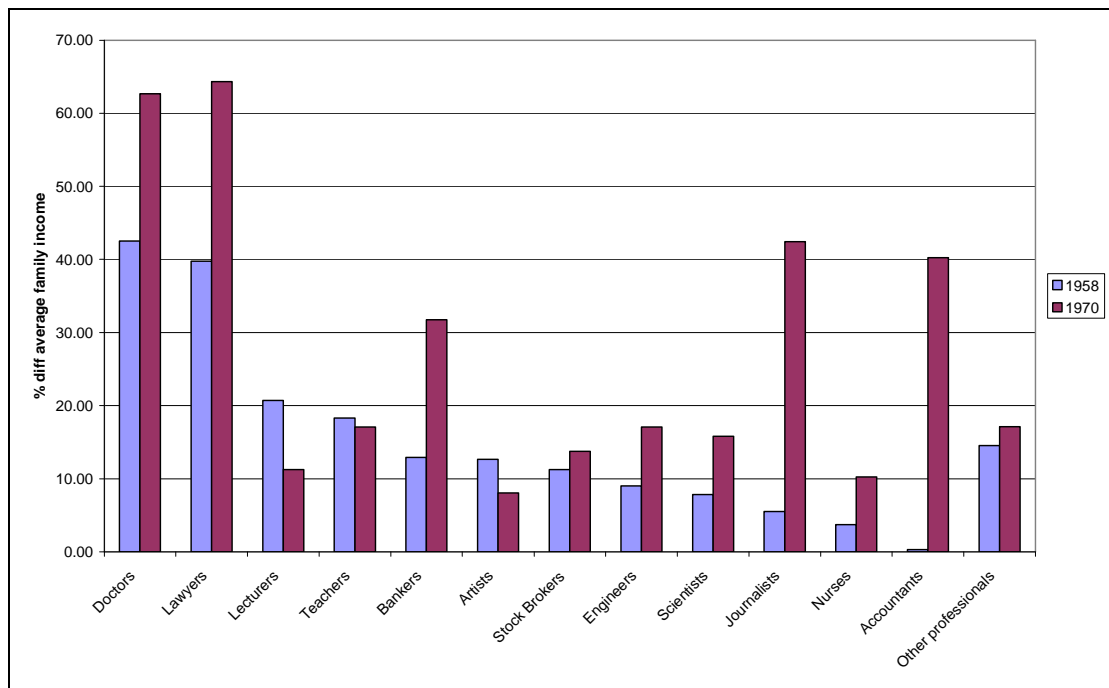

There are some exceptions to this however. Journalists, bankers and accountants born in 1958 came from families with average family incomes of only 0-10% higher than the average compared to those born in 1970 who incomes 30-40% above the average, an average increase of 20-30%. These occupations appear to have become highly socially graded occupations across the time frame observed from a base of a relatively equal occupation to the sample average for those born in 1958. Out of all of the professions considered lecturing, teaching and artists are the only professions that exhibit a small decrease in the family income gradient between the two cohorts. In the

case of teachers, this is possibly due to the rewards offered in the past decade to attempt to increase the number of teachers in the labour force including help with training costs and bursaries to live off of whilst in training.

3.2 Ability and the professions

It is interesting to then consider whether this income gradient appears to be driven by the fact that those from higher income families have higher ability and are therefore more likely to train in more skilled professions than others. Figure 2 illustrates the percentage differences from the sample average IQ test score at age 11 and 10 in the NCDS and BCS respectively.

Figure 2 Percentage differences from the sample average IQ test score at age 11/10 by destination occupation at age 33/34
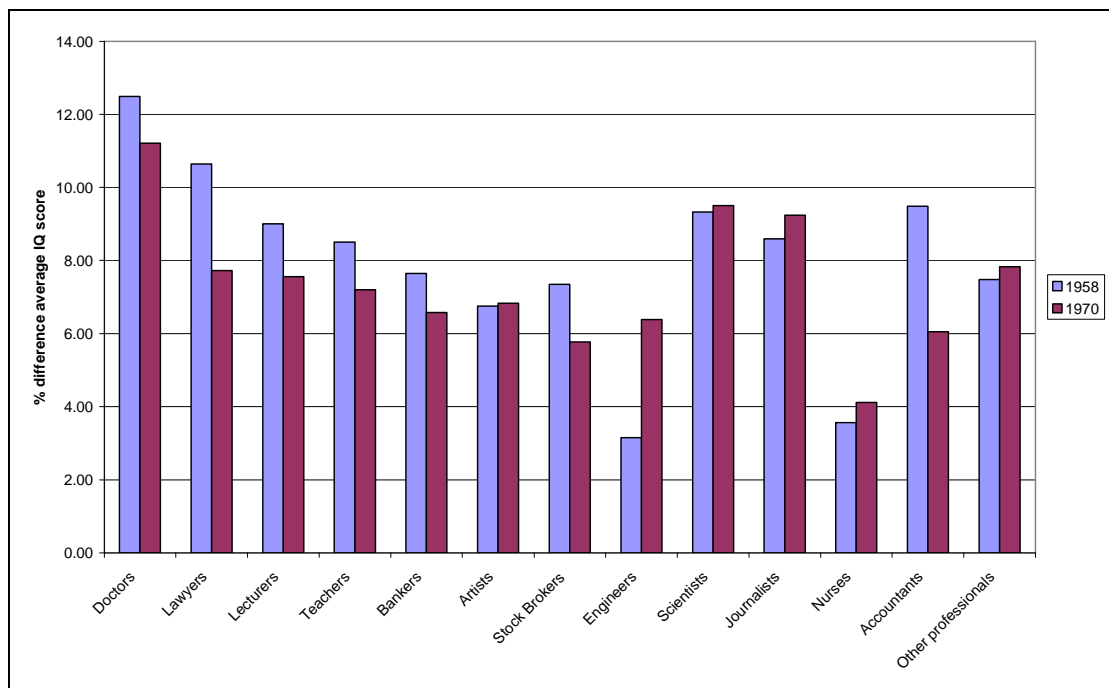
As can be seen from this graph, unlike the trend in income where the differences between the incomes of the professions of interest and those of the sample average were growing across time, the differences in IQ test scores decreased across time. Those who went on to become lawyers and doctors looked more similar to the sample average in terms of IQ scores for those born in 1970 than those born in 1958. For journalists, bankers and accountants that saw the largest increases in family incomes compared to the sample average across the two cohorts, journalists faired marginally

better in IQ scores across time but not to the extent the income gradient suggests whilst bankers and accountants also saw decreases in their IQ scores compared to the average. This effect is particularly pronounced for accountants. This appears to suggest that while the income gradient was rising for the top professions, the ability gradient was declining, so those entering some of the top professions analysed here were increasingly more from better off families but also increasingly less of higher ability than the sample average[4].

Those who became engineers and nurses, two professions with the lowest average family incomes across the groups analysed and the lowest IQ scores for those born in 1958, appear to buck this trend with the average IQ scores for these two professions increasing across time. When considering other professions in the top social class 'Other professionals' in each cohort also appear to have increasing IQ scores compared to the average across cohorts, suggesting that the professions not discussed here are less unequal than those singled out.

Figure 3 and figure 4 combine the information on income and ability by plotting the income gradients of the IQ test scores in the NCDS and BCS respectively for the entire sample. The separate points show the average ability scores and family income by some of the occupation groups considered. A point to note is that some of the professions had to be omitted from this graph as they looked so similar. There are a large number of professions exhibiting similar characteristics in terms of origin income and ability and some clear outliers to this trend. As can be seen from figure 2, for all occupations considered, the individuals who entered into these professions all exhibited higher than average IQ test scores (average IQ test score for the sample standardised to 100). Those who went onto become doctors and lawyers perhaps unsurprisingly also scores higher than those who became artists or nurses.

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[4] These patterns are repeated when using maths and reading test scores instead of IQ.

Figure 3 IQ income gradients from the NCDS by occupation
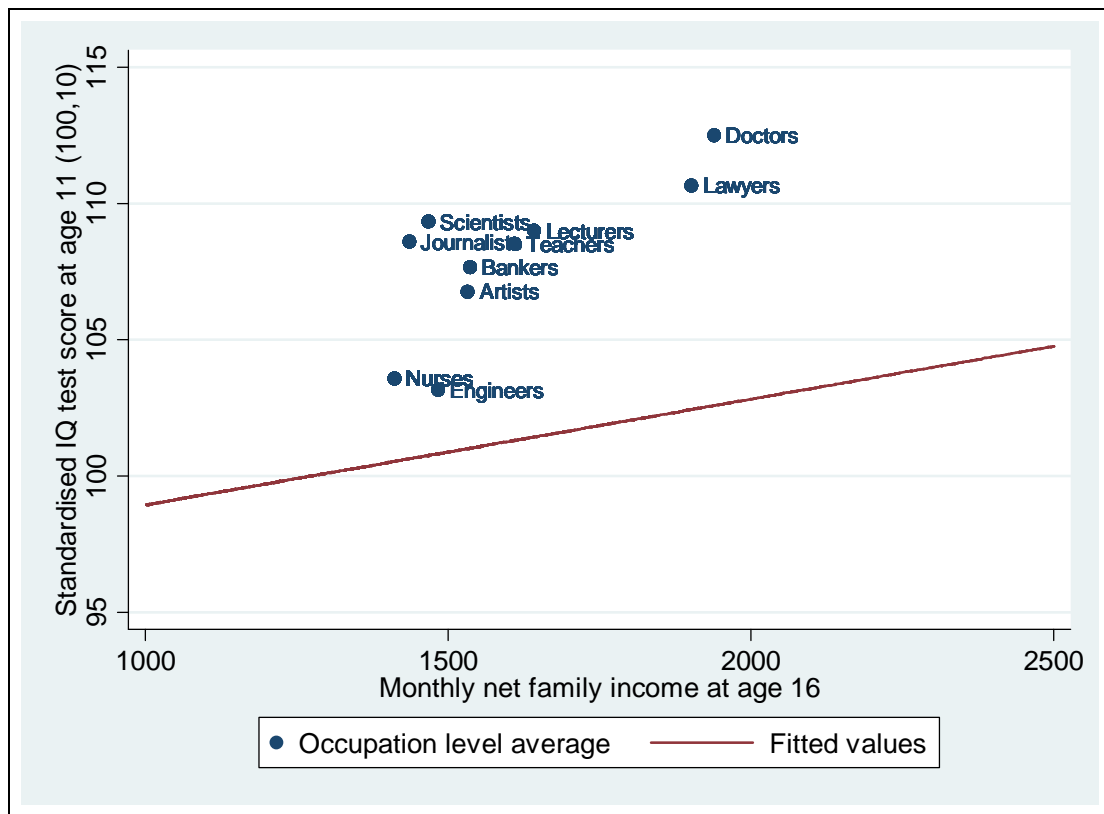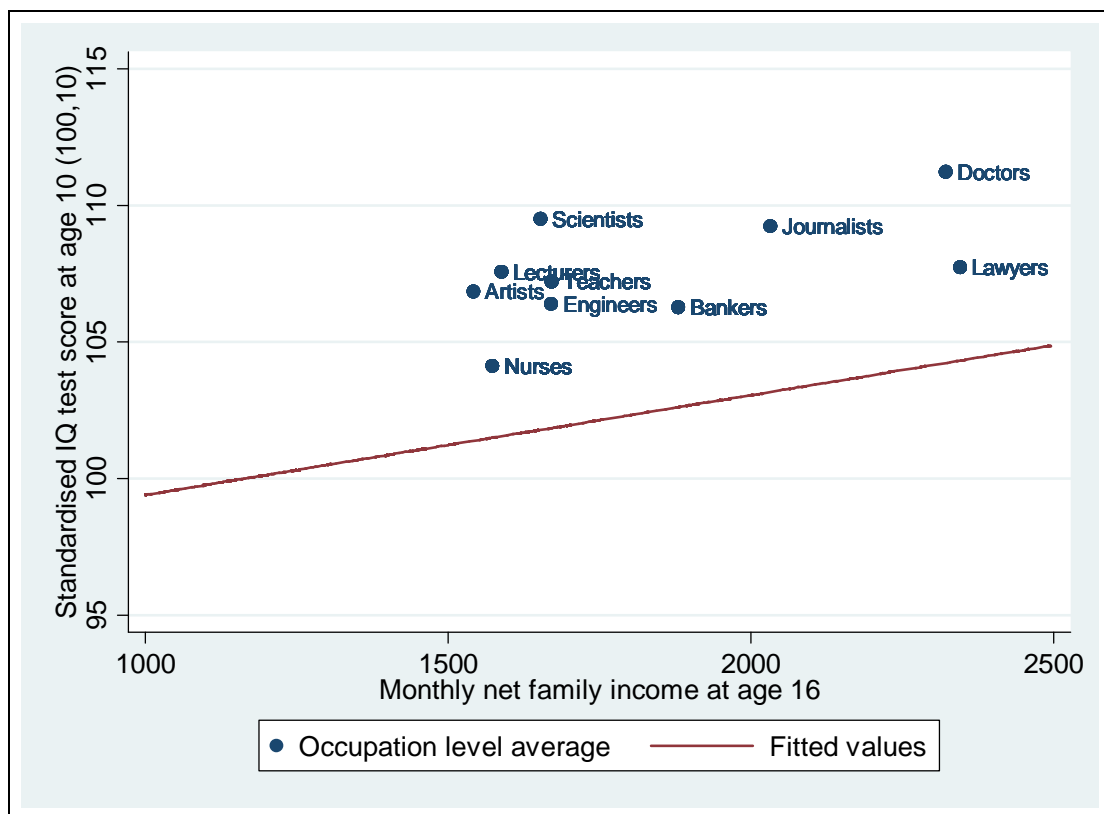

Figure 4 IQ income gradients from the BCS by occupation

Although the overall sample income gradient of IQ changes very little across the two cohorts, illustrated by the similar fitted values for the whole sample, the positioning of the individual occupations considered do change across time. As seen in table 1, all occupations considered came from increasingly better off families in the BCS than in the NCDS, seen by a shift to the right of all occupations in figure 4 compared to figure 3. However, when considering the IQ levels of the occupations considered, there is a clear trend towards the sample average line moving from figure 3 to figure 4. Those who went onto become doctors, lawyers and bankers born in 1958 had higher IQ test scores than those that entered the same professions who were born in 1970. Somewhat reassuringly, doctors and scientists and other medical professions exhibit the highest IQ test scores across the two periods.

4. Conclusions

The evidence suggests that those that go on to become lawyers and doctors were from substantially richer families than those that went on to become engineers or nurses and compared to the sample average at age 16. More worryingly, this trend appears to have worsened for many of the professions considered for those born in 1970 compared to those born in 1958, with the gaps in family income between the top professions and the sample average increasing over time. The average family income of a future lawyer went from being 40% more than the average family income in the sample to 65% more than the average family income in the sample in the later cohort. Evidence on the ability levels of these individuals suggests that whilst those who became doctors and lawyers were of higher ability than the sample average, this trend appear to have decreased across time. Similarly, those that entered into the professions that saw the largest increases in social gradients across time, journalists, bankers and accountants experienced at best only small marginal increases in IQ test scores compared to the average. This would suggest that there is a widening social gap in entry to the top professions. Some of the top professions are increasingly being filled by individuals that look less different to the average in terms of ability and more different to the average in terms of family income.

References

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Web based

http://www.timesonline.co.uk/tol/news/politics/article5489213.ece

'The educational backgrounds of the UK's top solicitors, barristers and judges'
http://www.suttontrust.com/reports/Comparison_educational_backgrounds.pdf

Appendix

Table A1 Sample sizes for those with family income at 16 and occupational
information at 33/34

Profession	NCDS (Born 1958)	BCS (Born 1970)
Doctors	29	29
Lawyers	32	34
Lecturers	147	87
Teachers	175	129
Bankers	46	78
Artists	89	21
Stock Brokers	35	25
Engineers	33	22
Scientists	39	28
Journalists	34	20
Nurses	173	86
Accountants	22	77
Other professionals	119	95
Whole sample	8862	7151