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AN ANALYSIS OF CHILDHOOD EXPECTATIONS AND CAREER OUTCOMESN

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An Analysis of Childhood Expectations and Career Outcomes

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Abstract: In this paper we utilise the British *National Child Development Study* to explore the determinants of children's career expectations formed at the age of sixteen. We analyse how such career expectations impact upon human capital accumulation at the same age. We also analyse the extent of any divergence between childhood career expectations and the actual career outcomes experienced by the individuals at three distinct ages in adulthood (23, 33 and 42) as well as the impact of any such divergence on early- and mid-career wage growth. Our findings suggest that career expectations are an important determinant of human capital accumulation, which in turn is a key determinant of occupational status.

Key Words: Expectations; Education; Human Capital; Occupational Status.
JEL Classification: J13; J24

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I. Introduction

Over the past three decades, there has been considerable interest in the economics literature in the determinants of the occupational status of individuals. Such interest is not surprising since as Harper and Haq (1997, p.638) argue '… the occupational attainment of an individual will be a major determinant of their level of consumption, self-esteem, and their general status in society.' In general, the existing research in this area has provided convincing support for the hypothesis that occupational status is largely influenced by human capital investment with educational attainment playing a key role. An interesting issue, which has not attracted much attention in the previous literature, concerns how career expectations influence actual occupational status. The lack of research concerning such issues is surprising since one might expect such expectations to impact upon the extent as well as the nature of human capital investment, which in turn will influence actual career outcomes.

Although individuals' expectations play a central role in economic analysis, empirical literature on the role of expectations at the microeconomic level is relatively scarce. Most of the work in this expanding area of research concerns individuals' financial expectations exploring the motivation behind, for example, spending, saving and investment (see, for example, Brown *et al*., 2005, Das and van Soest, 1999, and Souleles, 2004). One reason for the lack of empirical research on expectations concerns the relative paucity of data in this area, whilst another reason concerns the scepticism of economists over the use of subjective information on expectations drawn from surveys (see Manski, 2004). In this paper, we aim to contribute to this expanding area of research by exploring a different type of expectation, i.e. career expectations, which clearly have implications for human capital accumulation. From a theoretical perspective, human capital investment is largely determined by expected increases in future income. One might predict that the expectations of future income are based on the expected career path that an individual is hoping the human capital investment will lead to.

In order to explore such issues, we analyse the career expectations formed by individuals at the age of sixteen. This is a particularly interesting age to focus on since individuals in the UK education system will be the process of making investments in O level education,[1] considering whether to proceed to 'A' level education and, if so, choosing which subjects to continue studying. We firstly explore the determinants of childhood career expectations and, secondly, we analyse how such career expectations impact upon human capital accumulation at that age. We also analyse the extent of any divergence between childhood career expectations and the actual career outcomes experienced by the individuals at three distinct ages – 23, 33 and 43. The provision of careers guidance is one of the influences we focus on to explain such divergences. Our analysis informs us about the determinants of children's expectations as well as how childhood expectations influence the human capital decision-making process at the age of sixteen and, furthermore, how such decisions eventually impact upon occupational status observed during adulthood.

II. Background

The key question which economists researching the area of occupational attainment have been concerned with over the last three decades is why different individuals enter different occupations. In one of the early studies of occupational choice, Boskin (1974) presents evidence consistent with a human capital approach with an individual weighing up the benefits (e.g. potential earnings) and the costs (e.g. training costs) associated with different occupations. Similar findings are reported by Schmidt and Strauss (1975) who find that factors reflecting human capital – namely experience and education – enhance the probability of being in a professional or white-collar occupation.

[1] O levels (the equivalent of GCSEs grades A to C) were replaced by GCSEs in the 1980s. O levels were taken after 11 years of formal compulsory education and are roughly equivalent to the honours high school curriculum in the US.

In a similar vein, Nickell (1982) explores the impact of human capital variables (such as training, educational qualifications and spells of unemployment) on an individual's occupation using the British *National Training Survey*. The empirical findings indicate that variables capturing human capital are important determinants of occupational status. The findings of Greenhalgh and Stewart (1985) also confirm the role of human capital in determining occupational status, which are also based on analysis of the *National Training Survey*. Schooling, qualifications and job training are associated with higher occupational status for both men and women. Zalokar (1988) focuses on the impact of gender on occupational choice and presents findings based on US data supporting the human capital framework in that women with relatively high levels of participation choose occupations requiring more human capital.

There are a number of studies, which augment the human capital approach by incorporating additional personal characteristics into the empirical framework. Mayhew and Rosewell (1981), for example, explore movements on the Hope-Goldthorpe scale of occupations for a sample of British males drawn from the *Oxford Social Mobility Study*. Education and family background were found to explain levels of occupational attainment but were found to explain only a small amount of movement in occupational attainment. Family background is also incorporated into the study by Miller and Volker (1985) who analyse occupational attainment using the 1973 Australian *Occupational Mobility Survey*. Although controls for family values and culture are included in the empirical analysis, educational attainment is once again found to be an important determinant for first type of job as well as occupational advancement.

Similar findings for a sample of British males derived from the *National Child Development Survey (NCDS)* are reported by Robertson and Symons (1990) who assume that revealed occupation is the consequence of human capital accumulation. Family background as well as relative earnings are found to be important determinants of revealed occupation. Similarly, Crockett (1991) explores the determinants of occupational choice by specifying a wide range of economic and sociological variables including perceived relative demand for graduates

for different occupations derived from a survey of undergraduate students in Western Australia. The results tie in with the human capital approach in that the findings suggest that students will change their career directions in response to changes in relative expected earnings, changes in perceived employment prospects and changes in the perceptions of occupational status.

More recent analysis of graduate occupational choices and, secondly, the decision to become a teacher has been undertaken by Dolton and Mavromaras (1994) who conduct conditional and unconditional probit analysis of current occupational choice in the UK. In the case of the unconditional model, educational attainment, parent's educational attainment and public schooling are found to determine occupational choice. The findings for the conditional model indicate that the higher the predicted relative earnings of non-teachers, the lower is the probability of being a teacher thereby providing further support for the human capital approach.

Connolly *et al*. (1992) who explore barriers to entry to particular occupations focus on the role of labour demand influences. The empirical findings drawn from a sample of British males from the *NCDS* who left school at 16 in 1974 suggest that family background is the key determinant of occupational success with educational attainment being used by employers as entry requirements for certain occupations. Harper and Haq (1997) extend the analysis of Connolly *et al*. (1992) by analysing the occupational attainment of men aged 33 from a sample also drawn from the *NCDS* including those who did not leave school at 16. The findings confirm that family background has an important influence on occupational attainment. Child development was also found to exert an important influence on occupational attainment.

Given that studies in this area are attempting to model individuals' choices, it is apparent that individuals' tastes and preferences are important. Filer (1986) conducts logit analysis to predict which occupation an individual will enter – the novelty of this study is that the survey data derived from a private management consultancy firm contains information about individuals' personalities and tastes. The measures of taste cover aspects such as individuals' preferences over security, power and prestige. Interestingly, there is a significant relationship

between the personality and taste variables and occupational status and, in contrast to other studies, family background does not play an important role but in accordance with other studies gender is found to be a key determinant of occupation.

Individuals' career expectations and aspirations have only played a limited role in the existing literature on observed occupational attainment. One exception is Gupta (1993, 1994) who investigates the role of career aspirations upon occupational attainment for males and females using the American *National Longitudinal Survey of Youth*. To be specific, Gupta (1993, 1994) uses the occupational aspirations of an individual as a proxy for the individual's intention to apply for jobs in specific occupations. The findings indicate that gender differences in occupations are a reflection of both differences in individuals' preferences and differences in employer selection.

Similarly, Harper and Haq (2001) also explore the effect of gender differences in occupational aspirations on the occupational distribution of men and women. The focus concerns the role of career aspirations rather than expectations such that, following Gupta (1993, 1994), occupational aspirations are used as a proxy for an individual's intention to apply for jobs in a particular occupation. The findings suggest that occupational aspirations are an important factor in explaining the unequal distribution of men and women across occupations, concurring with the results of Gupta (1993) for the US.

Other work which has focused on expectations and labour market outcomes includes that of Andrews and Bradley (1997) and Carneiro *et al*. (2003). The former have analysed the choices of school leavers and the demand for training using cross sectional data for a specific region in the UK, Lancashire. Their results indicate that individuals' occupational aspirations are an important factor in influencing the first job destination after compulsory schooling. Carneiro *et al*. (2003) analyse gaps in ability across racial and ethnic groups and find that ethnic minority parents and children are found to have more pessimistic expectations about schooling relative to

white children and their parents when their children are young. At later ages, expectations are found to be more uniform across racial and ethnic groups.

III. Data and Methodology

Our empirical analysis is based on the British *NCDS* which is a panel survey following a cohort of children born during a given week (March 3rd to March 9th) in 1958. This panel study provides a wealth of information relating to family background in addition to the advantages of tracing an individual over a relatively long time horizon and, hence, at various stages of the life cycle. The Survey was conducted at ages 7, 11, 16, 23, 33 and 42.

The *NCDS* is particularly appropriate for our analysis since it provides information pertaining to childrens' expectations about their future careers. To be specific, individuals are asked the following question at the age of sixteen: '*What do you think is likely to be your first full time job?*' We use the answers to this question to construct an eight point index, described in greater detail in Table 1A (Appendix), with expected occupations ranked as follows (responses to each category are shown in italics):

$$O_i^e = \begin{cases} 0 = Farming & 3.20\% \\ 1 = Manual\ worker & 22.25\% \\ 2 = Craftsman & 1.10\% \\ 3 = Armed\ \ forces & 4.57\% \\ 4 = Artistic & 2.35\% \\ 5 = Service & 15.97\% \\ 6 = Clerical & 19.38\% \\ 7 = Professional & 31.19\% \end{cases} \quad (1)$$

where *i* denotes the individual subscript. We excluded those children from our sample who did not answer the above question related to expected first job. The same question is also asked to the individuals' parents and teachers.

We initially explore the determinants of children's career expectations, investigating how factors such as family background, ability, as well as the expectations of the child's teacher and their parents impact upon the occupational expectations of the child by estimating the following ordered probit model:

$$O_i^e = \alpha + \boldsymbol{X}_i\boldsymbol{\beta} + \varepsilon_{1i} \tag{2}$$

where our set of explanatory variables are captured in the matrix $\boldsymbol{X}$. Equation (2) is estimated across individuals as an ordered probit model since the dependent variable, O_i^e, reflects a ranking of occupations from farming through to professional. Such a ranking arguably might reflect social status or, alternatively, the expected income associated with each occupation.[2]

We then take the predicted value of the child's expectations, $\hat{O}_i^e$, and use this to model the number of O levels (the equivalent of GCSEs grades A to C) accumulated by the child at the age of 16. We focus initially on the accumulation of this specific type of education since this is predominately accumulated at age sixteen (i.e. at the age when the individual makes the career prediction). This index ranges from 0 to 10 such that some individuals have no O levels whilst the maximum number of O levels in our sample is ten. We define this type of education accumulated by the child as E_i^{olevel}. Thus, we estimate the following ordered probit model controlling for factors likely to impact upon educational achievement in the matrix $\boldsymbol{Z}$:

[2] Given that the ordering of occupations has been a contentious area in the literature, we have considered alternative modeling techniques. There is, however, a lack of choice based occupation-specific controls that would enable us to estimate a conditional logit model, a technique employed by Dolton and Mavromaras (1994). Moreover, the ordered probit model takes into account that the individual could well have a preference over occupations – this would be consistent with wage data from the 1974 *New Earnings Survey (NES)* which shows that average wages increase as we move up the hierarchy of occupations, as given in equation 1. We have also experimented with a multinomial logit (MNL) specification, but this type model inherently ignores the fact that occupations can be ranked, which would seem implausible given the wage evidence from the 1974 *NES*, rather it assumes that all occupations are considered together and equally by the individual. Furthermore, a number of UK studies investigating occupational status have argued that occupations can be ranked, for example Mayhew and Rosewell (1981) and Greenhalgh and Stewart (1985). One reason for this is that an individual's occupation reflects social status. We have, however, presented a summary of our MNL analysis in Table 4 – these findings will be discussed further in the results section.

$$E_i^{olevel} = \gamma + \boldsymbol{Z}_i\boldsymbol{\lambda} + \phi\hat{O}_i^e + \varepsilon_{2i} \quad (3)$$

Our modelling procedure allows expectations to influence human capital accumulation rather than human capital accumulation to influence expectations since in 1974 (the survey year at age 16) O level results were published in August whilst the respondents were interviewed before March and examinations were taken in May/June. Hence, the expectations were formed before the respondents took the examinations and, hence, before they had access to the examination results.

To investigate how childhood occupational expectations and initial human capital impact upon actual observed occupational status based on the same ranking as the expectations index, we then model the actual occupation, O_i^a, of the individual when aged 23 (for this age we use the information specifically relating to the individual's first job), 33 and 42 as follows:

$$O_i^a = \varphi + \boldsymbol{G}_i\boldsymbol{\psi} + \pi_1\hat{E}_i^{olevel} + \pi_2 E_i^{new} + \mu O_i^e + \varepsilon_{3i} \quad (4)$$

i.e. we estimate three occupational attainment equations at each stage of the life cycle – 23, 33 and 42. To allow actual occupational status to be determined by more recently accumulated human capital, we include E_i^{new}, which represents human capital accumulated after the age of sixteen up until the relevant age in adulthood, i.e. 23, 33 or 42. We also allow for job training to include an additional facet to the type of human capital accumulated.

Summary statistics of all the variables used in the empirical analysis are given in Table 1B (Appendix). Controls entering the occupational expectation equation (i.e. equation 2) via the matrix $\boldsymbol{X}$ include the expectations of the child's school teacher(s) and parents with respect to the child's first job.[3] We are also able to control for how the school perceives both the mother's and father's interest in the child. This is defined as a four-point index ranging from zero (little

[3] Each expectation is defined according to equation 1.

interest) through to three (overly concerned) and is observed when the child is aged 7, 11 and 16. We also control for how often both the child (at the age of 11) and his/her parents use a library. We also include dummy variables controlling for financial difficultly, defined from parents reporting financial difficulties when the child is aged 7 and controls for whether the child received free school meals at ages 11 and 16. We are also able to proxy the child's attitude towards school, by controlling for how often the child is absent from school at ages 7, 11 and 16 as given by the number of half days missed. In order to proxy ability, we include the individual's scores attained in reading and mathematics tests at ages 7, 11 and 16, as well as an academic motivation scale.[4] Finally, we include controls for how often the individual reads at the age of 16, and for his/her parents' concern over his/her educational achievements.

Recent interest in the determinants of educational success has focussed on the relationship between school quality and academic performance and it is this literature that we draw upon to specify our educational attainment equation (i.e. equation 3). Indeed, the explanatory variables contained in $\boldsymbol{Z}$ largely build upon the specifications of Deaden *et al*. (2002) and Dustman *et al*. (2003).

We adopt one of the standard measures of school quality – the number of pupils per teacher in the school at both the primary (i.e. pre age 11) and secondary (i.e. post age 11) stages of education. We also include dummy variables to control for whether, at the age of 16, the individual attends a secondary modern school, a technical school or a comprehensive school (i.e. non selective and state run). We also control for whether the individual attended a single sex school at age 16. Other controls include whether the school lacks library, sports or other facilities

[4] The academic motivation scale is derived from the individuals response to eight questions, in particular: whether school is deemed a waste of time; whether they are quiet in class and get on with their work; whether homework is boring; whether it is difficult to keep their mind on work; whether schoolwork is never taken seriously; whether they dislike school; whether there is any point in planning for the future; and whether they are willing to help their teachers. The responses to each question are ranked from '1' very true through to '5' not true at all. The overall academic motivation scale is thus ranked 1 through to 40, where 40 means that the individual has replied 'not true' to each of the eight questions.

– factors excluded by Deardon *et al*. (2002), but which might impinge upon educational attainment.

We incorporate a variety of controls for family background given that it may influence educational attainment through a number of different channels – for example, through time inputs or financial resources (see Ermisch and Francesconi, 2001). Family background variables include parents' occupation, household size, and the number of older and younger siblings – the latter variables being incorporated to explore the argument of Becker (1981) that parental attention declines as family size increases and to also explore the hypothesis that birth order is important. To further proxy for family resources, we include a dummy variable indicating whether the individual has a private room for studying at age 16. We also condition on whether the child has been in trouble with the police by the time they are 16 and whether they have been truant from school. To control for ability we include the teachers rating of reading, oral, creative and numerical ability at the age of 7, each defined as an index ranging from zero (poor) through to four (very good).

In modelling actual occupational attainment, i.e. equation 4, we focus on various measures of human capital given the overwhelming support for the human capital approach in the existing literature. Thus, we control for endogenised human capital at sixteen $\hat{E}_i^{olevel}$, taken from the predictions of equation 3 and human capital accumulated by the age of 23, 33 or 42, E_i^{new}, ranging from zero (no education) through to seven (higher degree). Other controls in the matrix $\boldsymbol{G}$ include regional dummies (to capture differences in labour demand across regions), the number of times the individual has been unemployed and the number of training courses undertaken.

Given that our data set includes both career expectations as a child and actual occupations attained as an adult, we are able to investigate how these expectations tie in with the actual occupation that the individual is employed in at their first job as well as the occupational status

observed at aged 33 and 42. To be specific, there are 64 possible combinations that can arise for each age observed in adulthood, as shown in Tables 2A and 2B (Appendix).

It is apparent from the diagonal of Table 2B that over 46% of our sample accurately predicts the occupational status of their first job. If we compare this to the forecasting accuracy of teachers and parents, we find that 36% of parents accurately forecast their child's future job and 40% of teachers predict their pupil's first job. Furthermore, assuming the index set out in equation (1) is increasing in occupational status, the shaded area of the matrix below the diagonal represents those combinations of expectations and realisations associated with 'under-achievement' relative to their career expectations at the age of sixteen whilst the shaded area below the diagonal represents 'over-achievement'. In the Appendix we present three histograms (Figures 1 to 3) showing the distribution of $\left(O_i^a - O_i^e\right)$ at ages 23, 33 and 42. It is apparent that the distribution is increasingly skewed towards 'over-achievement' as the life cycle progresses.

An interesting line of inquiry is to explore whether there are any systematic differences between those who accurately predict their first job, those who 'under-achieve' and those who 'over-achieve'. We focus on the provision of career guidance and advice in schools in order to determine whether differences in expected and actual careers can be explained by differences in the provision of such advice within schools. Given that resource allocation decisions have to be made with respect to the provision of career guidance, the relationship between the provision of career advice and any divergence between expected and actual occupations should be of interest to policy-makers. We conduct multinomial logit analysis where the dependent variable is defined as follows:

$$d_i^{a-e} = \begin{cases} 0 = No\ Divergence & \Rightarrow O_i^a - O_i^e = 0 \\ 1 = Under\ Achievement & \Rightarrow O_i^a - O_i^e < 0 \\ 2 = Over\ Achievement & \Rightarrow O_i^a - O_i^e > 0 \end{cases} \quad (5)$$

In our set of explanatory variables we include those variables used to explain the expected occupation and human capital accumulated at school, as contained in the matrices $\boldsymbol{X}$ and $\boldsymbol{Z}$. We also incorporate a variety of controls in a matrix $\boldsymbol{C}$ controlling for the career guidance received by the individual. Specifically, we include dummy indicators for whether the individual had received any careers advice by the age of 23, the resources devoted to careers guidance in the individual's school, the number of teachers at the individual's who were qualified to give career guidance and the source of the most influential careers advice received by the individual (including teachers; government careers service; job/skill centres; family or friends; works personnel manager; or a private careers consultant). Our estimating equation is given by:

$$d_i^{a-e} \equiv \left(O_i^a - O_i^e\right) = \tau + \boldsymbol{X}_i\boldsymbol{\eta} + \boldsymbol{Z}_i\boldsymbol{\kappa} + \boldsymbol{C}_i\boldsymbol{\Omega} + \varepsilon_{4i} \tag{6}$$

To summarise, our primary concerns so far are; to ascertain the determinants of a child's career expectations (equation 2); to explore how these expectations impact upon educational attainment (i.e. the sign and significance of ϕ in equation 3); to explore the role of education acquired at 16, post-school education and the child's occupational expectations in influencing actual occupational status (i.e. the sign and significance of π_1, π_2 and μ in equation 4); and to explore the accuracy of career predictions by focusing on the provision of career guidance (i.e. the sign and significance of $\boldsymbol{\Omega}$ in equation 6).

Finally, we explore whether the presence of any systematic differences between those who accurately predict their first job, those who 'under-achieve' and those who 'over-achieve', impinges upon the individual's wage growth. Wage growth is defined as $\Delta W_i \equiv \log\left(W_i^{t_2} - W_i^{t_1}\right)$ and is considered between the ages of 23 (t_1) and 33 (t_2) and between 33 (t_1) and 42 (t_2). From equation 5 above, we define two dummy variables as follows:

$$Under_i = \begin{cases} 1 \;\; if \;\; d_i^{a-e} < 0 \\ 0 \;\; otherwise \end{cases} \tag{7}$$

$$Over_i = \begin{cases} 1 \;\; if \;\; d_i^{a-e} > 0 \\ 0 \;\; otherwise \end{cases} \tag{8}$$

with:

$$\Delta W_i = \xi + \boldsymbol{H}_i\boldsymbol{\Theta} + \nu_1 Under_i + \nu_2 Over_i + \varepsilon_{5i} \tag{9}$$

The controls entering the matrix $\boldsymbol{H}$ include gender, ethnicity, occupation, region, education, number of spells of unemployment, number of training sessions, a quadratic in tenure and firm size, where all variables described so far (excluding gender and ethnicity) relate to the base year, i.e., for the first wage growth horizon, characteristics at the age of 23 and, for the second wage growth horizon, characteristics at the age of 33. Of particular interest here is whether an incorrect prediction for the individual's first job has any impact upon subsequent wage growth. The omitted category in our analysis includes those individuals who accurately predict their first job. For example, an individual who under predicts the occupational status of his/her first job may experience higher wage growth than an individual who made a correct prediction, *ceteris paribus*, if both individuals are in the same occupation by t_2 simply because the first individual started from a lower wage point, i.e. the role of 'catch-up'.

IV. Results

Our empirical results are set out in Tables (3)-(8) of the Appendix.

Occupational Expectations

The estimated coefficients and marginal effects from our ordered probit regression analysis of equation (2) are set out in Table 3. It is apparent that the expectations of school teachers and parents impact significantly and positively upon the occupational expectations of children. Interestingly, the marginal effects show that the positive significance is driven by the positive impact of expectations (for both school teachers and parents) upon the highest two occupational categories. Indeed for the occupational groups farming through to services, the expectations of

parents and teachers of the child's most likely occupation have a negative impact. Consequently, from these results, it would seem that, in the words of Barr (2004) p. 313, '… the expectations of children are formed largely on the experience of their parents.'[5] Evidence of gender stereotyping is also apparent, with males significantly more likely than females to report expectations of lower occupational status than females. This result is driven by the negative impact of being male upon the highest two occupational rankings, as shown by the marginal effects. Other findings of note include the positive impact of the mother's interest in the child at 7, the father's interest in the child at 16 – indicating a role reversal in such influences, the degree of library use by the child at age 11, maths and reading scores (consistent with the findings of Harper and Haq, 2001), academic motivation and the frequency with which the child reads, all at the age of 16. Predictors of low expectations include absence from school at ages 11 and 16, whether the child was in receipt of free school meals at age 16 and the degree of parental concern over school achievements at age 16.

Human Capital at Age Sixteen

Our ordered probit regression results pertaining to equation (3) modeling the actual human capital accumulated by the child at the age of 16, as proxied by number of 'O levels', is set out in Table (4) Panel A. We estimate two specifications, one in which occupational expectations are assumed exogenous, the other in which they are assumed to be endogenously determined by equation (2). The estimated coefficients across the two specifications are remarkably robust and broadly confer with the results of Dearden *et al*. (2002). In both cases being male, attending a single-sex school at age 16 and having had high teacher ratings of reading, creative, and numerical (but not oral) ability at age 7, all impact significantly and positively upon the number of O levels obtained. Also, and very surprisingly, being in a school that lacked library facilities at age 16 impacts significantly and positively on the number of O levels acquired. It might be the

[5] This is further reinforced by the fact that parental occupational dummies are jointly significant (not shown for brevity), although this is driven largely by the father's occupational status rather than that of the mother.

case that recognition that the school library is lacking in library facilities indicates a concern for academic matters.

In contrast, being in a comprehensive or secondary modern rather than a grammar school impacts significantly negatively on the number of O levels acquired, a common finding in the literature. Similarly, parental pressure to leave school at age 16, having been in trouble with the police at age 16, having truanted from school at the age of 16 or having lived in a large household at the age of 7, all reduce the expected number of O levels acquired, *ceteris paribus*. Interestingly, pupil-teacher ratios at the age of 11 and 16 have no statistical impact on the number of O levels obtained, a finding in concurrence with Dearden *et al*. (2002) but at odds with Dustman *et al*. (2003).[6] Finally, whether career expectations are assumed to be determined exogenously or endogenously, they both impact positively on the actual number of O levels acquired. In addition, the influence from expectations is highly statistically significant.[7]

We also investigated the impact of occupational expectations on human capital attainment at 16 without imposing a ranking across occupations. Thus, endogenous career expectations were predicted from a MNL model of occupational expectations with five occupational dummy variables included in the human capital equation reflecting the occupational expectations as predicted from the MNL model.[8] For exogenous expectations, the dummy variables included in the human capital equation reflected the dependent variable from the MNL model. These results, which are summarised in Panel B of Table 4, show the estimated

[6] One possible reason for this difference is that Dustman *et al*. (2003) estimate the number of O levels obtained by tobit analysis, implying that truncation is important, whereas in this paper we employ an ordered probit model following Deardon *et al*. (2002) and have controls for ability and family background. Given the nature of the dependent variable, i.e. an ordered index, an ordered probit model seems to be particularly appropriate.

[7] We also investigated the impact of the child's occupational aspirations on human capital accumulation at 16 rather than career expectations. To be specific, occupational aspirations are obtained from the following question *'what would you like to be your first full-time job?'* We then coded aspirations into the same 8 occupational groups as expectations. To model aspirations we used the same model as in Table 3, but replaced parents' expectations with parents aspirations for their child's occupation (teachers expectations were omitted as there is no corresponding teacher question for occupational aspirations for their pupils). In terms of all the covariates there was little change to those results found in Table 3, the impacts and those variables of significance were as previously found with the effect of career aspirations being largely in line with that of career expectations. Full results are available from the authors on request.

[8] Results of modeling occupational expectations via a multinomial logit framework are available from the authors upon request.

coefficient for each of the expected occupational dummy variables. In the human capital equation, the estimated coefficients of the expected occupation dummy variables were generally positive and significant with farming, manual work and craftsmen being the reference group. Reassuringly, this concurs with the results from the ordered probit specification with higher level occupational expectations having a positive impact on human capital attainment at the age of 16. Furthermore, the estimated coefficient on the dummy variable controlling for professional occupations – arguably the 'highest' occupational expectation – has, in general, a relatively large positive estimated coefficient.

Actual Occupational Status

Our ordered probit regression results of the respondent's actual occupational status at the ages of 23, 33 and 42, i.e. equation 4, are set out in Tables 5 and 6. Being male is characterized by a significantly large and negative estimated coefficient on occupational status for all three ages in adulthood. Focusing on the results of occupational status at the age of 23, this negative impact is driven by males being less likely to achieve the highest occupational categories, as shown by the marginal effects. Post-16 educational qualifications, the number of training courses attended, predicted human capital at age 16 and occupational expectations all impact positively on occupational status at all three ages. This latter effect at the age of 23 is driven by the impact of expectations on the highest two occupational groups as shown by the marginal effects. The fact that occupational expectations impact on first job destination ties in with the findings of Andrews and Bradley (1997), who model the first destination of individuals after completing compulsory schooling, where career aspirations are significant. The number of unemployment spells and the number of employers, however, impact negatively upon occupational status at the ages of 23 and 33 respectively. Thus, our findings, in general, support the role of human capital influences in determining occupational outcomes and, hence, tie in with the existing literature on observed occupational status.

Actual and Expected Occupational Status

The estimated coefficients of our multinomial logit model, employed to analyse the divergence between the actual occupational status of the respondent's first job and the occupational status the respondent expected at the age of 16, i.e. equation 6, are set out in Table 7. The estimated coefficients for 'Under-Achievement' and 'Over-Achievement' are presented with the reference category being 'No-Divergence' (i.e. an accurate career prediction at age sixteen).

It is apparent that high parental and/or school teacher's expectations increase the probability that the respondents will 'under-achieve', and reduce the probability that they will 'over-achieve', rather than enter the occupation predicted at the age of 16. Thus, it would seem that, at least for some types of individual, parents' and teachers' expectations may have the opposite effect to that intended. The number of times the respondent has been unemployed by the age of 23 significantly raises the probability that they will diverge in both directions from their anticipated career path. Again, this is surprising – one might envisage unemployment spells leading to relative under-achievement, but perhaps not to over-achievement.

Other results of note include the following. The dummy variable indicating whether the individual has 'ever had careers advice by the age of 23' significantly increases the probability that the individual will 'under-achieve' rather than accurately predict his/her first occupation. In contrast, rating the advice received by the government careers service and / or family and friends as the most influential careers advice received reduces the probability that the individual will under-achieve rather than accurately predict their occupational status. The fact that government careers advice has a positive impact upon those who under-achieve at the age of 23 in 1981 is interesting given the current policy focus in the new millennium upon careers education and guidance in the UK.[9] Interestingly, to-date there is no single, nationally recognised professional

[9] Head teachers must ensure that their school provides programmes of careers education to all pupils, working in conjunction with the Government's *Connexions Service*. Connexions is the Government's support service for all young people between the ages of 13 to 19. Head teachers working in conjunction with Connexions must ensure that pupils have access to guidance materials and a wide range of up-to-date reference materials pertaining to careers education and careers opportunities. Interestingly, in light of our findings, one of the core eight principles of

qualification for careers education and guidance in the UK – possibly a reason why the impact of school teacher influence and the number of teachers at school giving careers advice are insignificant. However, the Government has developed a framework, *The Careers Education Support Programme*, setting out the minimum content of courses required for professional development to ensure a level of consistency. At the time of our sample, careers advice received at school would have been given by teachers whose training in careers guidance, if any had been received, would have differed across Local Education Authorities and schools in terms of content and quality. It is only twenty years on that the policy debate has realised the importance of providing universal support for pupils from the age of 13 in terms of careers information and guidance.

Does a Divergence between Actual and Expected Occupational Status affect Wage Growth?

Finally, we investigate the effect of 'career-divergence' on wage growth, i.e. equation 9. The results are presented in Table 8. Two specifications are presented, one for wage growth over the ages 23-33 and one for wage growth over the ages 33-42. The key result here is that 'under-achievers' are seen to exhibit significantly higher wage growth over the first decade of their working life, *ceteris paribus*. Although this effect appears to peter out by the time the respondent is in his/her early thirties, perhaps illustrating a tendency for some under-achievers to 'catch up.'

Our findings exhibit several typical labour market characteristics, with wage growth over both horizons being significantly higher for males and graduates. Note that although males enjoy significantly higher wage growth over both periods, the impact is very large for early wage growth, diminishing somewhat as respondents reach their thirties.

Several variables are seen to either impact on 'early' wage growth or to 'kick-in' after the age of 33. For example, possession of Nursing / Teaching, Diploma, or O level qualifications impacts significantly on early (i.e. age 23-33) but not later (i.e. age 33-42) wage growth. There

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Connexions is raising aspirations i.e. setting high expectations for students. For more details see *The Connexions Service and Schools*, May 2000, DfEE 0078/2000.

are also negative returns to job tenure in early but not later wage growth. This finding may seem surprising but we are estimating a wage growth rather than a wage levels equation. A level qualifications, in contrast, appear to exert a delayed effect on wage growth. Most intriguingly, firm size and the number of training courses attended impact positively on early wage growth, but negatively upon later wage growth.

V. Final Comments

The question as to what determines success in the labour market is one of paramount importance. Mounting evidence suggests that an individual's level of consumption, self-esteem, social-status, and even happiness depend to a large extent on not just the income, but also on the social status, associated with occupational attainment. As to the determinants of occupational attainment, the existing literature largely supports the human capital approach, with educational attainment playing a key role. But the acquisition of human capital is itself a reflection of more ethereal factors such as drive, motivation, and aspiration. In this paper, we focus on the interesting, yet largely untouched, role of childhood career expectations. We explore the effects of such expectations on actual labour market performance in order to ascertain whether high expectations help or hinder actual occupational attainment and/or subsequent wage growth.

Our findings suggest that the attitudes of parents and school teachers are important determinants of a child's labour market expectations and that these expectations impact favourably on both the acquisition of human capital whilst at school and on the social status of the individual's occupation on leaving school. There is some evidence, however, that parental expectations can 'back-fire', with high expectations increasing the probability that the respondent will 'under-achieve' and enter an occupation with a lower social status than that predicted. However, the outlook for such 'under-achievers' is not all bad – there is some evidence that they 'catch-up' in terms of wage growth relative to their non-underachieving counterparts.

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Appendix

Table 1A: Description of Occupational Groups used in Analysis

Occupation	*Detailed Description*
Farming	Farmer; work on father's farm; farm manager or worker.; Fisherman ; Forester; game keeper; Working with animals e.g. working in stables; vet's assistant; Gardener; grounds man; smallholders
Manual Worker	Building and construction trades; bricklayer; plasterers; masons and other building labourers; painter and decorators; plumbers; roof felter; carpet fitter; sign writer.; Engineering allied trades workers e.g. motor mechanic; auto engineer; fitter; sheet metal worker; steel erectors; metal plate workers; machine tool setters and operators; electrician; welders; gas fitters; Printing and paper workers; Wood workers and carpenters and joiners; Leather workers; Textile workers; machinist; Warehouseman; storekeepers; packers; bottlers; Other industrial manual workers, including labourers if not classified elsewhere; Miners
Craftsman	Butchers, bakers; Silversmith and jewelers; Tailors and dressmakers, cobblers; Glassblowers, glassmakers; Stonemason; Other craftsmen e.g. musical instrument makers
Armed Forces	All members of Armed forces
Artistic	Painters; sculptor and related creative artistic; Design/commercial art e.g. fashion/fabric design, advertising; Actors; Musicians; singer and dancer; Journalist; writer; Stage manager; TV producer/director; Sportsman (cricket, football, tennis etc.) includes professional coaches; Model; Commentator; Disc Jockey
Service	Policemen; security guards; Fire brigade; ambulance; Postmen, rounds men; railway porters; lift operators; porters; dustmen; Drivers; drivers' mates; Salesman and commercial traveling; buyers; demonstrators; Catering and domestic workers; cooks; waiters; barmen and canteen assistants; countermands; housekeeper; maid; home helps and related service workers. Air hostess; laundry workers.; Shop workers and assistants; petrol-pump attendants; window dressers; Caretaker; cleaners etc.
Clerical	Secretary; shorthand typist; typists; Specified council clerical or office work e.g. clerk book-keeper; cashier; clerical officer (civil service or local government); filing clerk; wages clerk; telephonist or other "office" jobs; receptionists; Banking/insurance other than managerial; postmaster; Office machine operators; punch card operators
Professional	Professional/semi-professional/managerial and technical occupation; University teaching and research; Teaching of all other types (e.g. further education, secondary and primary schools); Barristers; solicitors; chartered accountants; architects; surveyors; estimators; actuaries; Medicine; dentistry and veterinary surgeon; Airline pilot; ships officers; Other scientific professional occupations; geologist; statistician; sociologist; psychologist; chemists; scientists; professional engineers and research workers engaged in development work in industry.; Nursing and Ancillary medical workers and social welfare and related workers e.g. nurses engaged m general hospital work; chiropodists; nursing and public health fields; health visitors; mid-wives; occupational therapist; speech therapist; physiotherapist; dental nursing and auxiliaries. Social workers and assistants. Probation officers and community workers. Nursery nurses; working with children; Dietician. Administration; management and organization including the provision of business services e.g. personnel management administration or executive in central or local government; trade union official; company director; export manager; production manager; business or industrial management; going into or learning the family business (not farming) advertising agent; auctioneer; bank manager; company secretary, estate agent ; market research executive; public relations consultant, stockbroker; librarian; estate agents; politician; town planning; diplomatic service; interpreter; hotel manager.; Draughtsman (architectural or engineering); tracer; technical drawing and other "technical" work e.g. computer programmers; cardiographer; pharmacist, photographer; radio and T.V. Cameramen; air traffic control; Cartographer; radiographer; optician; laboratory assistants; Priests and missionaries; nuns and monks

Table 1B: Summary Statistics

	Variable	*Definition*	*Mean*	*S. Dev*	*Min*	*Max*
O_i^e	Childs occupational expectation made at 16	Index, see text (0=farming, 1=manual,…,7=profession)	4.6445	2.4304	0	7
X	School teachers Expectation	Index, see text (0=farming, 1=manual,…,7=profession)	3.7366	3.0315	0	7
X	Parents Expectation	Index, see text (0=farming, 1=manual,…,7=profession)	3.3329	3.2641	0	7
X	Male	Dummy variable 0=female, 1=male	0.4433	0.4968	0	1
X	Mother's interest in child aged 7	Index of Mother's interest, 0=little, 1=some, 2=very, 3=overly	1.9167	1.0778	0	3
X	Fathers interest in child aged 7	Index of fathers interest, 0=little, 1=some, 2=very, 3=overly	1.3110	1.2495	0	3
X	Mother's interest in child aged 11	Index of Mother's interest, 0=little, 1=some, 2=very, 3=overly	1.1057	0.8918	0	3
X	Father's interest in child aged 11	Index of Father's interest, 0=little, 1=some, 2=very, 3=overly	0.8444	0.8927	0	3
X	Mother's interest in child aged 16	Index of Mother's interest, 0=little, 1=some, 2=very, 3=overly	1.0912	0.8641	0	3
X	Father's interest in child aged 16	Index of Father's interest, 0=little, 1=some, 2=very, 3=overly	0.9664	0.8944	0	3
X	Library use aged 11	Index of library use 0=never, 1=sometimes, 2=often	1.0792	0.8850	0	2
X	Mother's library use aged 11	Dummy variable 0= not used library, 1=used library	0.3886	0.4875	0	1
X	Father's library use aged 11	Dummy variable 0= not used library, 1=used library	0.3675	0.4822	0	1
X	Family financial problems aged 7	Dummy variable 0=no problems, 1=problems	0.0476	0.2129	0	1
X	Free school meals aged 11	Dummy variable 0=no free meals, 1=free meals	0.0663	0.2488	0	1
X	Free school meals aged 16	Dummy variable 0=no free meals, 1=free meals	0.0613	0.2400	0	1
X	Absence from school aged 7	Number of half days absent	21.0095	25.9137	0	272
X	Absence from school aged 11	Number of half days absent	13.6708	20.0702	0	388
X	Absence from school aged 16	Number of half days absent	13.4149	19.1127	0	156
X	Math score aged 7	Index, problem arithmetic test score	4.9070	2.7537	0	10
X	Reading score aged 7	Index, Southgate reading test score	22.4044	9.1796	0	30
X	Math score aged 11	Index, mathematics test score	16.4937	10.9956	0	40
X	Reading score aged 11	Index, reading comprehension test score	15.1597	7.6828	0	35
X	Math score aged 16	Index, mathematics comprehension test score	26.2483	6.5593	0	35
X	Reading score aged 16	Index, reading comprehension test score	13.4063	6.9137	0	31
X	Academic Motivation aged 16	Index, academic motivation scale	18.2582	6.8194	0	40
X	Frequency child reads aged 16	Index, 0=never, 1=hardly ever, 2=sometimes, 3=often	1.8974	0.8849	0	3
X	Parental concern aged 16	Index, concern over child's school achievements	1.5169	1.0851	0	5
	OBSERVATIONS (equation 2)	4,647				
E_i^{olevel}	Total number of O levels at 16	Number of O levels (grade A-C) and/or CSE grade 1s	2.2141	2.6607	0	10
Z	Pupil-Teacher ratio aged 11	Number of school pupils divided by number of teachers	20.5871	12.2084	0	50

Table 1B: Summary Statistics (Continued)

	Variable	*Definition*	*Mean*	*S. Dev*	*Min*	*Max*
Z	Pupil-Teacher ratio aged 16	Number of school pupils divided by number of teachers	16.4444	3.4613	0	35
Z	Happy at school aged 7	Dummy, 0=not happy, 1=happy	0.8504	0.3567	0	1
Z	School lacks library facilities aged 16	Dummy, 0=doesn't lack, 1=lacks	0.2148	0.4107	0	1
Z	School lacks sports facilities aged 16	Dummy, 0=doesn't lack, 1=lacks	0.3252	0.4685	0	1
Z	School lacks science facilities aged 16	Dummy, 0=doesn't lack, 1=lacks	0.2262	0.4184	0	1
Z	School lacks other facilities aged 16	Dummy, 0=doesn't lack, 1=lacks	0.8091	0.3930	0	1
Z	Room for homework aged 16	Dummy, 0=no room available, 1=room available	0.8952	0.3063	0	1
Z	Comprehensive school	Dummy, 0=other 1=comprehensive	0.5713	0.4949	0	1
Z	Secondary modern school	Dummy, 0=other 1=secondary modern	0.2109	0.4080	0	1
Z	Technical college	Dummy, 0=other 1=technical college	0.0058	0.0760	0	1
Z	Younger siblings aged 16	Number of younger siblings	0.9587	1.2046	0	10
Z	Older siblings aged 16	Number of older siblings	0.9148	1.3012	0	12
Z	Been in trouble with police aged 16	Dummy, 0=never, 1=yes	0.0495	0.2169	0	1
Z	Parent wishes child to leave school aged 16	Dummy, 0=stay, 1=leave	0.1724	0.3777	0	1
Z	Attends single sex school aged 16	Dummy, 0=mixed, 1=single sex	0.2518	0.4341	0	1
Z	Teachers rating of oral ability aged 7	Index, 0=poor, 1=below average, 2=average, 3=good, 4=v. good	2.0374	1.0724	0	4
Z	Teachers rating of reading ability aged 7	Index, 0=poor, 1=below average, 2=average, 3=good, 4=v. good	2.0286	1.0540	0	4
Z	Teachers rating of creative ability aged 7	Index, 0=poor, 1=below average, 2=average, 3=good, 4=v. good	1.7857	0.9406	0	4
Z	Teachers rating of numerical ability aged 7	Index, 0=poor, 1=below average, 2=average, 3=good, 4=v. good	1.7999	0.9701	0	4
Z	Truant from school aged 16	Dummy, 0=never, 1=truant	0.0684	0.2525	0	1
Z	Household size aged 7	Number in household	4.3944	2.1862	0	16
	OBSREVATIONS (equation 3)	4,647				
O_i^a	Occupational attainment at 23 (first job)	Index, see text (0=farming, 1=manual,…,7=profession)	4.3040	2.3716	0	7
O_i^a	Occupational attainment at 33[#]	Index, see text (0=farming, 1=manual,…,7=profession)	5.4029	2.3901	0	7
O_i^a	Occupational attainment at 42[##]	Index, see text (0=farming, 1=manual,…,7=profession)	6.3467	2.2036	0	7
E_i^{new}	Highest educational qualification by the age of 23	Index, 0=none, 1=O level/CSE, 2=A level, 3=vocational, 4=diploma, 5=nursing/teaching, 6=degree, 7=higher degree	1.2147	1.8089	0	7

Table 1B: Summary Statistics (Continued)

	Variable	*Definition*	*Mean*	*S. Dev*	*Min*	*Max*
E_i^{new}	Highest educational qualification by the age of 33#	Index, 0=none, 1=O level/CSE, 2=A level, 3=vocational, 4=diploma, 5=nursing/teaching, 6=degree, 7=higher degree	1.5425	1.7871	0	7
E_i^{new}	Highest educational qualification by the age of 42##	Index, 0=none, 1=O level/CSE, 2=A level, 3=vocational, 4=diploma, 5=nursing/teaching, 6=degree, 7=higher degree	1.6996	1.9268	0	7
G	North (aged 23)	Dummy, 0=other, 1=lives in North	0.1050	0.3066	0	1
G	North West (aged 23)	Dummy, 0=other, 1= lives in North West	0.1889	0.3915	0	1
G	York and Humberside (aged 23)	Dummy, 0=other, 1= lives in York and Humberside	0.0846	0.2783	0	1
G	West Midlands (aged 23)	Dummy, 0=other, 1= lives in West Midlands	0.0565	0.2309	0	1
G	East Midlands (aged 23)	Dummy, 0=other, 1= lives in East Midlands	0.0928	0.2902	0	1
G	East Anglia (aged 23)	Dummy, 0=other, 1= lives in East Anglia	0.0663	0.2489	0	1
G	South West (aged 23)	Dummy, 0=other, 1= lives in South West	0.0352	0.1842	0	1
G	South East (aged 23)	Dummy, 0=other, 1= lives in South East	0.0869	0.2818	0	1
G	Wales (aged 23)	Dummy, 0=other, 1= lives in Wales	0.0644	0.2456	0	1
G	Scotland (aged 23)	Dummy, 0=other, 1= lives in Scotland	0.1055	0.3072	0	1
G	Number of times unemployed (aged 23)	Number of times unemployed since left school/ FT education	0.6574	1.0256	0	8
G	Number of training courses (aged 23)	Number of training courses	0.5149	0.9979	0	8
	OBSERVATIONS (equation 4)	4,267*[all covariates and age 23 dependents]*, # 4,316*[age 33 dependents]*, ## 3,923*age 42 dependents]*				
C	Ever had careers advice by the age of 23	Dummy, 0=never, 1=careers advice by age of 23	0.4800	0.4997	0	1
C	Teacher gave most influential advice	Dummy, 0=other, 1=teacher most influential	0.1022	0.3029	0	1
C	Government careers service gave most influential advice	Dummy, 0=other, 1=government careers service most influential	0.1507	0.3578	0	1
C	College/University gave most influential advice	Dummy, 0=other, 1=college/university most influential	0.0335	0.1800	0	1
C	Job/Skill centre gave most influential advice	Dummy, 0=other, 1=job/skills centre most influential	0.0103	0.1010	0	1
C	Family/Friends gave most influential advice	Dummy, 0=other, 1=family/friends most influential	0.0848	0.2787	0	1
C	Personnel manager gave most influential advice	Dummy, 0=other, 1=personnel manager at work most influential	0.0075	0.0863	0	1
C	Private careers consultant gave most influential advice	Dummy, 0=other, 1=private careers consultant most influential	0.0042	0.0648	0	1
C	Number of teachers at school giving careers advice	Number of teachers in school qualified to give careers advice	2.1547	1.7360	0	9
	OBSERVATIONS (equation 6)	4,267				
$\Delta W_i \equiv \log\left(W_i^{33} - W_i^{23}\right)$	Change in individuals gross real wage	Log wage growth between the age of 23 and 33	2.3754	5..3907	-8.0064	12.5061
$\Delta W_i \equiv \log\left(W_i^{43} - W_i^{33}\right)$	Change in individuals gross real wage	Log wage growth between the age of 33 and 43	4.0104	4.9503	-12.4943	12.4146

Table 1B: Summary Statistics (Continued)

	Variable	*Definition*	*Mean*	*S. Dev*	*Min*	*Max*
$Over_i$	Incorrect prediction of first job (over predict)	Dummy, 0=other, 1=over predict $d_i^{a-e} > 0$	0.2018	0.4014	0	1
$Under_i$	Incorrect prediction of first job (under predict)	Dummy, 0=other, 1=under predict $d_i^{a-e} < 0$	0.2894	0.4535	0	1
H	Higher degree (aged 23)	Dummy, 0=other, 1=post graduate degree at the age of 23	0.0028	0.0526	0	1
H	Degree (aged 23)	Dummy, 0=other, 1=under graduate degree at the age of 23	0.1053	0.3070	0	1
H	Nursing/Teaching qualification (aged 23)	Dummy, 0=other, 1=nursing or teaching qualification at the age of 23	0.0086	0.0923	0	1
H	Diploma (aged 23)	Dummy, 0=other, 1=diploma at the age if 23	0.0144	0.1191	0	1
H	Vocational education (aged 23)	Dummy, 0=other, 1=vocational education at the age of 23	0.0616	0.2405	0	1
H	A level (aged 23)	Dummy, 0=other, 1=A level or Scottish higher at the age of 23	0.0197	0.1390	0	1
H	O level (aged 23)	Dummy, 0=other, 1=O level or CSE grade 1 at the age of 23	0.4510	0.4977	0	1
H	Firm size 11-24 (aged 23)	Dummy, 0=other, 1= 11 to 24 employees at workplace at the aged of 23	0.0674	0.2508	0	1
H	Firm size 25-99 (aged 23)	Dummy, 0=other, 1= 25 to 99 employees at workplace at the aged of 23	0.0914	0.2882	0	1
H	Firm size 100-499 (aged 23)	Dummy, 0=other, 1= 100 to 499 employees at workplace at the aged of 23	0.0970	0.2960	0	1
H	Firm size 500+ (aged 23)	Dummy, 0=other, 1= over 500 employees at workplace at the aged of 23	0.0912	0.2879	0	1
H	Tenure (aged 23)	Number of months at present firm (aged 23)	33.6841	29.7427	0	99
H	Tenure squared (aged 23)	Number of months at present firm squared (aged 23)	2015.088	2612.914	0	9025
H	Number of times unemployed (aged 23)	Number of times unemployed since left school/ FT education	0.6553	1.0567	0	7
H	Number of training courses (aged 23)	Number of training courses	0.5217	1.0146	0	8
H	Higher degree (aged 33)	Dummy, 0=other, 1=post graduate degree at the age of 33	0.0202	0.1408	0	1
H	Degree (aged 33)	Dummy, 0=other, 1=under graduate degree at the age of 33	0.1395	0.3466	0	1
H	Nursing/Teaching qualification (aged 33)	Dummy, 0=other, 1=nursing or teaching qualification at the age of 33	0.0500	0.2179	0	1
H	Diploma (aged 33)	Dummy, 0=other, 1=diploma at the age if 33	0.0196	0.1388	0	1
H	Vocational education (aged 33)	Dummy, 0=other, 1=vocational education at the age of 33	0.3621	0.4807	0	1
H	A level (aged 33)	Dummy, 0=other, 1=A level or Scottish higher at the age of 33	0.1217	0.3270	0	1
H	O level (aged 33)	Dummy, 0=other, 1=O level or CSE grade 1 at the age of 33	0.8313	0.3745	0	1
H	Firm size 11-24 (aged 33)	Dummy, 0=other, 1= 11 to 24 employees at workplace at the aged of 33	0.2038	0.4029	0	1
H	Firm size 25-99 (aged 33)	Dummy, 0=other, 1= 25 to 99 employees at workplace at the aged of 33	0.3002	0.4584	0	1
H	Firm size 100-499 (aged 33)	Dummy, 0=other, 1= 100 to 499 employees at workplace at the aged of 33	0.2791	0.4486	0	1
H	Firm size 500+ (aged 33)	Dummy, 0=other, 1= over 500 employees at workplace at the aged of 33	0.2276	0.4194	0	1
H	Tenure (aged 33)	Number of months at present firm (aged 33)	183.6311	35.9769	0	228
H	Tenure squared (aged 23)	Number of months at present firm squared (aged 33)	35014.32	9957.23	0	51984
H	Number of times unemployed (aged 33)	Number of times unemployed since left school/ FT education	0.5177	0.3968	0	9
H	Number of training courses (aged 33)	Number of training courses	0.6355	0.8259	0	8
	OBSERVATIONS (equation 9)	3,960 *[growth period 33-23]*, 3,655 *[growth period 43-33]*				

Table 2A: Occupational Expectations and Realisations for First Job: Child's Predictions

	Occupation Of First Job →								
Expectation ↓	*0*	*1*	*2*	*3*	*4*	*5*	*6*	*7*	*Total*
0	**69**	22	6	1	1	14	13	11	*137*
1	0	**602**	187	4	2	74	57	47	*990*
2	1	10	**27**	0	1	7	1	1	*48*
3	10	51	12	**34**	0	31	38	35	*211*
4	3	16	2	1	**17**	24	22	10	*95*
5	6	69	52	5	6	**315**	158	43	*654*
6	3	29	13	1	5	102	**563**	39	*755*
7	19	171	29	3	13	239	353	**550**	*1377*
Total	*128*	*970*	*328*	*49*	*45*	*806*	*1205*	*736*	***4267***

Table 2B: Realisations for First Job as a Percentage of Occupational Expectation: Child's Predictions

	Occupation Of First Job →							
Expectation ↓	*0*	*1*	*2*	*3*	*4*	*5*	*6*	*7*
0	**50**%	16%	4%	1%	1%	10%	9%	8%
1	2%	**61**%	19%	0%	0%	7%	6%	5%
2	2%	21%	**56**%	0%	2%	15%	2%	2%
3	5%	24%	6%	**16**%	0%	15%	18%	17%
4	3%	17%	2%	1%	**18**%	25%	23%	11%
5	1%	11%	8%	1%	1%	**48**%	24%	7%
6	0%	4%	2%	0%	1%	14%	**75**%	5%
7	1%	12%	2%	0%	1%	17%	26%	**40**%

Note: The 7-Point index in Tables 2A and 2B refer to the categorisation in Equation (1) *vis* 0 = Farming; 1 = Manual Worker; 3 = Craftsman; 4 = Artistic; 5 = Service; 6 = Clerical; 7 = Professional.

Table 3: Modelling Child's Occupational Expectations O_i^e - Equation (2)

			Marginal Effects							
	Coef	*T Stat*	*0*	*1*	*2*	*3*	*4*	*5*	*6*	*7*
School teachers Expectation	0.1028	*16.56*	-0.0015	-0.0239	-0.0014	-0.0053	-0.0022	-0.0067	0.0093	0.0317
Parents Expectation	0.1012	*16.50*	-0.0014	-0.0236	-0.0014	-0.0052	-0.0021	-0.0066	0.0092	0.0312
Male	-0.6169	*15.83*	0.0104	0.1471	0.0082	0.0300	0.0120	0.0341	-0.0579	-0.1840
Mother's interest in child aged 7	0.0363	*1.79*	-0.0005	-0.0085	-0.0005	-0.0019	-0.0008	-0.0024	0.0033	0.0112
Father's interest in child aged 7	-0.0212	*1.32*	0.0003	0.0050	0.0003	0.0011	0.0004	0.0014	-0.0019	-0.0065
Mother's interest in child aged 11	0.0057	*0.21*	-0.0001	-0.0013	-0.0001	-0.0003	-0.0001	-0.0004	0.0005	0.0018
Father's interest in child aged 11	0.0355	*1.37*	-0.0005	-0.0083	-0.0005	-0.0018	-0.0007	-0.0023	0.0032	0.0110
Mother's interest in child aged 16	0.0301	*1.13*	-0.0004	-0.0070	-0.0004	-0.0015	-0.0006	-0.0020	0.0027	0.0093
Father's interest in child aged 16	0.0562	*2.15*	-0.0008	-0.0131	-0.0008	-0.0029	-0.0012	-0.0037	0.0051	0.0173
Library use aged 11	0.0436	*2.09*	-0.0006	-0.0102	-0.0006	-0.0022	-0.0009	-0.0028	0.0040	0.0134
Mother's library use aged 11	0.0472	*1.09*	-0.0007	-0.0109	-0.0007	-0.0024	-0.0010	-0.0031	0.0042	0.0146
Father's library use aged 11	0.0147	*0.34*	-0.0002	-0.0034	-0.0002	-0.0008	-0.0003	-0.0010	0.0013	0.0045
Family financial problems aged 7	0.0684	*0.88*	-0.0009	-0.0155	-0.0010	-0.0036	-0.0015	-0.0049	0.0057	0.0215
Free school meals aged 11	-0.2795	*3.86*	0.0055	0.0718	0.0037	0.0132	0.0051	0.0106	-0.0318	-0.0782
Free school meals aged 16	-0.0313	*0.44*	0.0005	0.0074	0.0004	0.0016	0.0007	0.0019	-0.0029	-0.0096
Absence from school aged 7	-0.0001	*0.01*	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Absence from school aged 11	-0.0022	*2.66*	0.0000	0.0718	0.0001	0.0001	0.0000	0.0001	-0.0002	-0.0007
Absence from school aged 16	-0.0023	*2.52*	0.0000	0.0005	0.0001	0.0001	0.0000	0.0001	-0.0002	-0.0007
Math score aged 7	0.0032	*0.39*	-0.0001	-0.0007	-0.0001	-0.0002	-0.0001	-0.0002	0.0003	0.0010
Reading score aged 7	-0.0040	*1.55*	0.0001	0.0009	0.0001	0.0002	0.0001	0.0003	-0.0004	-0.0012
Math score aged 11	0.0022	*0.57*	-0.0001	-0.0005	-0.0001	-0.0001	-0.0000	-0.0001	0.0002	0.0006
Reading score aged 11	0.0020	*0.68*	-0.0001	-0.0005	-0.0001	-0.0001	-0.0000	-0.0001	0.0002	0.0007
Math score aged 16	0.0340	*9.04*	-0.0004	-0.0079	-0.0005	-0.0017	-0.0007	-0.0022	0.0031	0.0105
Reading score aged 16	0.0184	*5.15*	-0.0003	-0.0043	-0.0003	-0.0009	-0.0004	-0.0012	0.0017	0.0057
Academic Motivation aged 16	0.0180	*7.09*	0.0003	0.0042	0.0002	0.0009	0.0004	0.0012	-0.0016	-0.0055
Frequency child reads aged 16	0.0665	*3.40*	-0.0009	-0.0155	-0.0009	-0.0034	-0.0014	-0.0043	0.0060	0.0205
Parental concern aged 16	-0.0352	*2.27*	0.0005	0.0082	0.0005	0.0018	0.0007	0.0023	-0.0032	-0.0108
Observations	4,647									
Other Controls	*Occupation of Father and Mother*									
Chi Squared (35)	2629.94 *p=[0.000]*									
Pseudo R Squared	0.167									

Table 4: Child's Human Capital at 16 E_i^{olevel} (Number of 'O levels') - Equation (3)

PANEL A:	*Occupational Expectations*			
	Exogenous		*Endogenous*	
	Coef	*T Stat*	*Coef*	*T Stat*
Male	0.3799	*10.02*	0.5492	*13.70*
Pupil-Teacher ratio aged 11	-0.0008	*0.59*	-0.0018	*1.27*
Pupil-Teacher ratio aged 16	0.0040	*0.78*	-0.0027	*0.53*
Happy at school aged 7	0.0227	*0.37*	0.0036	*0.06*
School lacks library facilities aged 16	0.1323	*3.15*	0.1170	*2.76*
School lacks sports facilities aged 16	-0.0339	*0.87*	-0.0382	*0.97*
School lacks science facilities aged 16	-0.0333	*0.79*	-0.0355	*0.83*
School lacks other facilities aged 16	0.0059	*0.13*	-0.0179	*0.40*
Room for homework aged 16	0.1148	*1.95*	0.0728	*1.23*
Comprehensive school	-0.7523	*15.02*	-0.7202	*14.32*
Secondary modern school	-1.0889	*18.03*	-1.0508	*17.32*
Technical college	-0.3344	*1.65*	-0.2146	*1.06*
Younger siblings aged 16	0.0263	*1.75*	0.0099	*0.65*
Older siblings aged 16	0.0059	*0.39*	-0.0191	*1.23*
Been in trouble with police aged 16	-0.3506	*3.69*	-0.2844	*2.98*
Parent wishes child to leave school aged 16	-0.7762	*13.48*	-0.7249	*12.47*
Attends single sex school aged 16	0.2193	*5.01*	0.2343	*5.33*
Teachers rating of oral ability aged 7	0.0072	*0.29*	-0.0025	*0.10*
Teachers rating of reading ability aged 7	0.1179	*4.26*	0.1255	*4.52*
Teachers rating of creative ability aged 7	0.1422	*5.23*	0.1456	*5.33*
Teachers rating of numerical ability aged 7	0.1510	*5.51*	0.1211	*4.42*
Truant from school aged 16	-0.6249	*7.15*	-0.5789	*6.55*
Household size aged 7	-0.0891	*8.36*	-0.0817	*7.56*
Occupational expectations	**0.1564**	***18.27***	**0.2022**	***24.99***
Observations	4,647			
Chi Squared (24)	2870.14 *p=[0.000]*		3048.25 *p=[0.000]*	
Pseudo R Squared	0.163		0.173	

PANEL B:	*Occupational Expectations*			
	Exogenous		*Endogenous*	
	Coef	*T Stat*	*Coef*	*T Stat*
Armed Forces	**0.5977**	***(7.10)***	**0.4558**	***(1.78)***
Artistic	**0.8213**	***(7.43)***	**1.5159**	***(2.98)***
Service	**0.1247**	***(1.98)***	**-0.0330**	***(0.12)***
Clerical	**0.4946**	***(8.14)***	**0.8439**	***(3.09)***
Professional	**1.0865**	***(20.25)***	**1.0708**	***(6.31)***
Observations	4,647			
Chi Squared (29)	3089.74 *p=[0.000]*		3688.71 *p=[0.000]*	
Pseudo R Squared	0.176		0.210	

Note: Panel A shows occupational expectations defined from a ranked index, given in equation 1, with endogenous expectations derived from the predictions of an ordered probit model. Panel B shows dummy indicators for occupational expectations i.e. no ranking is implied, and endogenous expectations are given by the predictions from a multinomial logit model.

Table 5: Modelling Occupational Status at Age 23 - Equation (4)

			Marginal Effects							
	Coef	*T Stat*	*0*	*1*	*2*	*3*	*4*	*5*	*6*	*7*
Male	-0.4217	*10.97*	0.0103	0.1075	0.0274	0.0034	0.00285	0.0121	-0.0832	-0.0803
Characteristics at Aged 23										
North	0.0265	*0.37*	-0.0006	-0.0067	-0.0018	-0.0002	-0.0001	-0.0009	0.0052	0.0052
North West	-0.0296	*0.48*	0.0007	0.0076	0.0020	0.0002	0.0002	0.0009	-0.0059	-0.0057
York and Humberside	-0.2193	*2.96*	0.0062	0.0580	0.0135	0.0016	0.0013	0.0023	-0.0461	-0.0379
West Midlands	-0.2568	*3.05*	0.0077	0.0700	0.0154	0.0018	0.0014	0.0013	-0.0545	-0.0431
East Midlands	-0.0903	*1.25*	0.0022	0.0235	0.0059	0.0007	0.0006	0.0022	-0.0184	-0.0167
East Anglia	-0.0957	*1.19*	0.0024	0.0250	0.0062	0.0008	0.0006	0.0022	-0.0196	-0.0176
South West	-0.2255	*2.27*	0.0066	0.0611	0.0137	0.0016	0.0013	0.0016	-0.0477	-0.0382
South East	-0.1120	*1.52*	0.0028	0.0293	0.0072	0.0009	0.0007	0.0024	-0.0229	-0.0204
Wales	-0.1174	*1.47*	0.0030	0.0308	0.0075	0.0009	0.0008	0.0024	-0.0242	-0.0213
Scotland	-0.0838	*1.19*	0.0021	0.0217	0.0055	0.0007	0.0006	0.0021	-0.0170	-0.0155
Number of times unemployed	-0.0299	*1.97*	0.0007	0.0076	0.0020	0.0003	0.0002	0.0010	-0.0060	-0.0058
Number of training courses	0.0961	*5.75*	-0.0022	-0.0244	-0.0064	-0.0008	-0.0006	-0.0032	0.0191	0.0184
Highest educational qualification	0.0963	*8.57*	-0.0022	-0.0244	-0.0065	-0.0008	-0.0007	-0.0032	0.0191	0.0186
Human capital at 16 (endogenous)[*]	0.0344	*4.42*	-0.0008	-0.0087	-0.0023	-0.0003	-0.0002	-0.0011	0.0068	0.0066
Occupational expectations	**0.2120**	***24.42***	**-0.0048**	**-0.0538**	**-0.0142**	**-0.0018**	**-0.0015**	**-0.0070**	**0.0421**	**0.0409**
Observations	4,267									
Other Controls	*Occupation of Father and Mother*									
Chi Squared (24)	1838.07 *p=[0.000]*									
Pseudo R Squared	0.126									

[*] *Note: Endogenous human capital accumulated at school (i.e. the total number of O' levels) is defined from a human capital equation where occupational expectations are endogenous (see Table 4). Human capital accumulated at school was also defined endogenously from a model where occupational expectations are exogenous (see Table 4). We also experimented with a specification where human capital is exogenous. Moreover, specifications were also estimated where endogenous human capital at 16 was defined from a model with occupational dummies and also from a model where occupational dummies had been derived from estimating occupational expectations based upon a multinomial logit model. The results were qualitatively unchanged throughout. The sample size is reduced since we restrict the analysis to those in employment at 23 i.e. having their first job and thus an occupational status.*

Table 6: Modelling Occupational Status Aged 33 and 42 - Equation (4)

	Aged 33		*Aged 42*	
	Coef	*T Stat*	*Coef*	*T Stat*
Male	-0.4088	*10.52*	-0.3418	*7.66*
Characteristics when aged 33/42				
North	-0.1180	*1.34*	-0.1097	*1.12*
North West	0.0235	*0.35*	-0.0119	*0.14*
York and Humberside	0.0787	*1.09*	-0.1149	*1.29*
West Midlands	-0.0421	*0.57*	-0.1171	*1.33*
East Midlands	-0.1721	*2.04*	-0.0218	*0.22*
East Anglia	0.0966	*1.02*	0.0787	*0.75*
South West	-0.0879	*1.26*	-0.1507	*1.77*
South East	-0.0024	*0.05*	0.0612	*0.79*
Wales	0.0183	*0.20*	-0.0810	*0.78*
Scotland	-0.1576	*2.19*	-0.2453	*2.86*
Number of times unemployed	-0.0256	*0.75*	-0.0529	*0.84*
Number of training courses	0.0147	*3.03*	0.0467	*8.39*
Number of employers	-0.0227	*3.63*	-0.0082	*0.57*
Highest educational qualification by 33/42	0.1269	*11.67*	0.1672	*13.69*
Human capital at 16 (endogenous)[*]	0.0285	*3.74*	0.0413	*4.61*
Occupational expectations	**0.1954**	***22.50***	**0.1281**	***13.78***
Other Controls	*Occupation of Father and Mother*			
Observations	4,316		3,923	
Chi Squared (25)	1643.47 *p=[0.000]*		1178.95 *p=[0.000]*	
Pseudo R Squared	0.116		0.103	

[*]*Note: Endogenous human capital accumulated at school (i.e. the total number of O' levels) is defined from a human capital equation where occupational expectations are endogenous (see Table 3). Human capital accumulated at school was also defined endogenously from a model where occupational expectations are exogenous (see Table 3). We also experimented with a specification where human capital is exogenous. Moreover, specifications were also estimated where endogenous human capital at 16 was defined from a model with occupational dummies and also from a model where occupational dummies had been derived from estimating occupational expectations based upon a multinomial logit model. The results were qualitatively unchanged throughout. Sample sizes differ since we restrict the analysis to those in employment at 33/42 i.e. having an occupational status.*

Table 7: Modeling The Divergence Between Actual and Expected Occupational Status of First Job - Equation (6)

Multinomial-Logit Regression - Reference Category - No divergence ($d_i^{a-e} = 0$)

	Under Achievement $d_i^{a-e} < 0$			*Over Achievement* $d_i^{a-e} > 0$		
	Coef	*T Stat*	*Marginal*	*Coef*	*T Stat*	*Marginal*
School teachers Expectation	0.0542	*3.95*	0.0133	-0.0442	*2.83*	-0.0095
Parent Expectation	0.0577	*4.29*	0.0163	-0.0859	*5.42*	-0.0160
Male	-0.0476	*0.56*	-0.0150	0.1012	*1.03*	0.0178
Number of times unemployed	0.1345	*3.62*	0.0220	0.1022	*2.55*	0.0083
Number of training courses	-0.0224	*0.60*	-0.0035	-0.0198	*0.45*	-0.0018
Highest educational qualification	-0.0183	*0.70*	-0.0014	-0.0443	*1.27*	-0.0057
Careers Advice Controls						
Ever had careers advice by the age of 23	0.3072	*2.36*	0.0578	0.0900	*0.56*	-0.0026
Teacher gave most influential advice	-0.2464	*1.50*	-0.0542	0.1263	*0.64*	0.0328
Government careers service gave most influential advice	-0.3666	*2.41*	-0.0629	-0.1658	*0.90*	-0.0072
College/University gave most influential advice	-0.2273	*0.98*	-0.0433	-0.0153	*0.05*	0.0090
Job/Skill centre gave most influential advice	0.2202	*0.57*	0.0010	0.6605	*1.58*	0.1026
Family/Friends gave most influential advice	-0.3703	*2.18*	-0.0624	-0.1781	*0.83*	-0.0091
Personnel manager gave most influential advice	-0.5168	*1.08*	-0.1133	0.4503	*1.01*	0.1077
Private careers consultant gave most influential advice	0.3476	*0.60*	0.0224	0.7197	*1.12*	0.1041
Number of teachers at school giving careers advice	-0.0124	*0.56*	-0.0021	-0.0087	*0.36*	-0.0007
Observations			4,267			
Other Controls			*As in Tables 3 and 4*			
Chi Squared (114)			413.36 *p=[0.000]*			
Pseudo R Squared			0.047			

Table 8: The Impact of the Divergence Between Actual Occupational Status of First Job and Expected Occupation Upon Wage Growth - Equation (9)

	Wage Growth Age 33-23			*Wage Growth Age 33-42*		
	Mean	*Coef*	*T Stat*	*Mean*	*Coef*	*T Stat*
Male	0.4677	2.6432	*13.18*	0.5070	0.4646	*2.41*
White	0.9861	-0.0656	*0.09*	0.9842	1.2102	*1.85*
Under achieved	**0.2894**	**0.4641**	***2.18***	**0.2818**	**-0.0228**	***0.12***
Over achieved	**0.2018**	**-0.1323**	***0.55***	**0.1999**	**-0.0076**	***0.03***
Characteristics at t_1		*t_1=23*			*t_1=33*	
Number of times unemployed	1.0155	-0.1092	*1.25*	0.3968	-0.0729	*0.36*
Number of training courses	0.5215	0.2949	*3.40*	1.6355	-0.0609	*2.71*
Higher Degree	0.0028	2.2895	*1.45*	0.0202	0.9046	*1.47*
Degree	0.1053	1.4349	*4.22*	0.1395	1.2054	*3.78*
Nursing/Teaching qualification	0.0086	2.5809	*2.82*	0.0500	-0.0813	*0.20*
Diploma	0.0144	2.4572	*3.40*	0.0196	0.3278	*0.55*
Vocational education	0.0616	-0.3813	*1.09*	0.3621	0.2784	*1.55*
A level	0.0197	0.7376	*1.20*	0.1217	0.5282	*1.96*
O level	0.4510	0.4129	*2.09*	0.8313	0.2411	*1.00*
Firm size 11-24	0.0674	0.6614	*1.95*	0.2038	-0.9849	*4.64*
Firm size 25-99	0.0914	0.4865	*1.62*	0.3002	-1.5595	*8.31*
Firm size 100-499	0.2960	0.8788	*3.00*	0.4486	-1.5740	*8.23*
Firm size 500+	0.0912	0.7958	*2.61*	0.2276	-1.393	*6.60*
Tenure	33.6841	-0.0227	*1.98*	15.3026	0.0486	*0.41*
Tenure squared	201.9020	0.0003	*2.24*	243.1550	-0.0026	*0.46*
Controls	Occupations 7, Regions 10					
Observations	3,960			3,655		
Adjusted R-Squared	0.0840 *p=[0.000]*			0.0462 *p=[0.000]*		

Figure 1: The Divergence Between Actual Occupation of First Job (Wave 4) and Expected Occupation

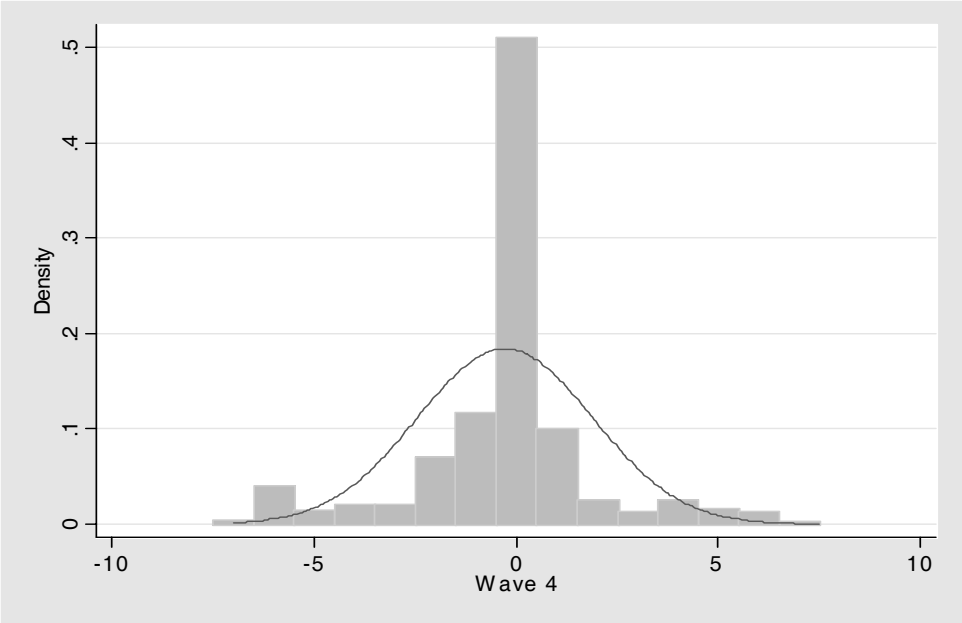

Figure 2: The Divergence Between Observed Occupation Aged 33 (Wave 5) and Expected Occupation

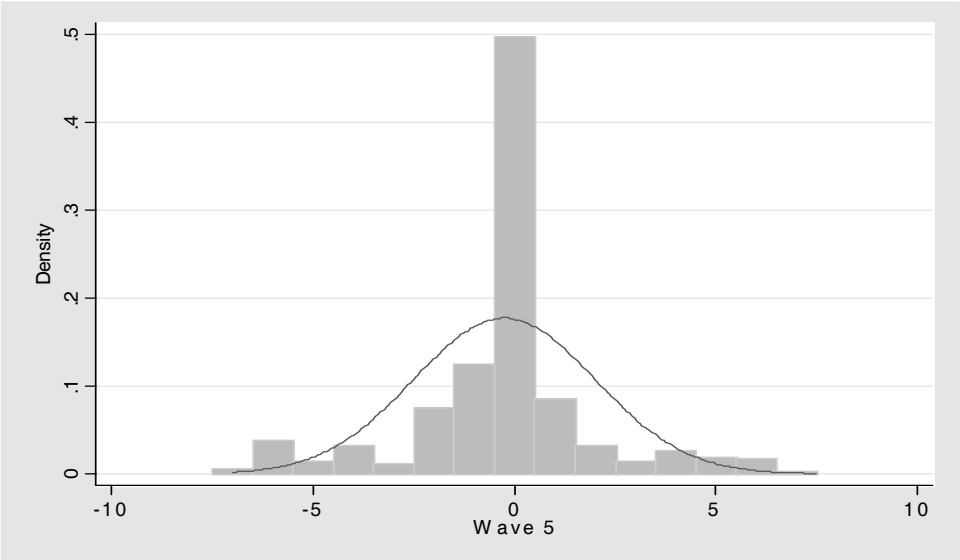

Figure 3: The Divergence Between Observed Occupation Aged 42 (Wave 6) and Expected Occupation