JUST LIKE DADDY:

THE OCCUPATIONAL CHOICE OF UK GRADUATES

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Abstract:

This paper examines occupational choices made by two cohorts of UK graduates. About 10% of graduates are in the same occupation as their father 6 or 11 years after graduation. Males graduating from medicine or agricultural studies are more likely to be follower but the main observable determinants of the decision to follow appears to be father's occupation and education. Following in one father's footsteps leads to a pay premium ranging from 5% to 8% for men but none for women. As this pay premium increases with labour market experience, we conclude that it stems from intergenerational transmission of human capital rather than pure nepotism.

JEL code: J24, J31, J62

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1 Introduction

Frequently, it is observed that children are in the same occupation as one of their parent. These dynasties are observed across time and countries and are more common in some occupations such as politician, entertainer, doctor, entrepreneur or farmer. Three hypotheses can explain the choice of occupation made by the offspring. First, as in the case of royalties, it is pure nepotism, where the parents use their position in order to obtain advantages for their children. Second, in occupation where the setting costs are high, children following in their father's footsteps face reduced costs compared to children of outsiders. More generally, the family name can also be seen as goodwill, that employers or customers recognise. Third, fathers may transmit their ability to their children either genetically or by transmission of human capital.

These three explanations are not exclusive. Despite the abundance of examples of dynasties, the economic literature has remained sparse even so meritocracy and intergenerational transmission of inequality have been popular fields of research (Arrow et al, 2000, Mayer, 1997, Neill, 1997). In a series of articles, Lentz and Laband (1985, 1989) have focused on providing evidence on dynasties in various occupations, and finding the origin of the intergenerational similarity in occupational choice. Lentz and Laband (1989) cannot reject that children of physicians have an insider's advantage compared to competitors whose father is not a doctor when applying to medical school. As children of physicians do not obtain better grades, the authors conclude that their initial advantage is mostly due to nepotism rather than any transmission of human capital from one generation to the next.

Following the seminal work of Becker and Tomes (1979, 1986), most of the literature has concentrated on estimating the degree of inter-generational mobility in earnings[1]. Two strategies have been implemented, either estimating the correlation in earnings between siblings or twins, or estimating the correlation in earnings between father and son (daughter). Solon (1999) provides an extensive survey of the empirical evidence. The estimated intergenerational elasticity between father and children's earnings is typically between 0.10 and 0.30 in the US; see also Becker and Tomes (1986) or Peters (1992), and 0.30 and 0.40 in the UK (Atkinson, 1981). These coefficients suggested a high mobility in earnings or to put it in Galton's words a "regression towards mediocrity". However, these results are sensitive to life cycle (age of children and fathers when surveyed) and windows effects (earnings in a given year are a poor proxy for permanent income). Behrman and Taubman (1990), Zimmerman (1992), Solon (1992), Couch and Lillard (1998) and Aughinbaugh (2000) using average earnings on a period of time rather than a single year, estimate the intergenerational correlation in earnings to be in the order of 0.50 in the US. This correlation has been decreasing for children born in the 60's compared to those born in the 50's (Mayer and Lopoo, 2001). The larger correlation in earnings stems from a better measure of permanent income and also the use of more representative samples (see also Couch and Lillard (1998) on the effect of screening missing and zero earning).

In the UK, intergenerational mobility appears to be lower than in the US. Dearden et al. (1997) report estimates of the correlation between father and child earnings as high as 60% for sons and 65% for daughters. Contrary to US evidence, an upward sloping trend is observed, and children born in the 70's are less mobile than

[1] Mulligan (1999) provides a review of empirical works relying on the Becker and Tomes model.

those born in the 60's (Blanden et al., 2001)[2]. As in the US (see Eide and Showalter, 1999), the mobility is higher at the bottom of the distribution than at the top; the rich are less likely than the poor to regress to the mean[3]. These results suggest the existence of a 'class society' where intergenerational effects on income are strong[4].

Knowing that father's income is a strong determinant of his children's income triggers questions on the origin of this correlation. Education[5], intelligence[6], or idiosyncratic characteristics such as working behaviour (Altonji and Dunn, 2000), entrepreneurial skills (Dunn and Holtz-Eakin, 2000), or likelihood of unemployment (O'Neill and Sweetman, 1998) are the usual culprits. Checchi (1997) estimates that for the US, Germany and Italy, half of the intergenerational immobility in income is due to lack of opportunity in education, as expected from Becker and Tomes (1979) or Conlisk (1977). This paper builds on the idea that intergenerational correlation in earnings also stems from the correlation in occupational choice made by fathers and offspring (see Laband and Lentz, 1985 for an introduction). It is of policy interest to examine the causes and consequences of occupational dynasty. Insider advantage leads to the failure to guarantee the full exploitation of each individual's potential, and results in an inefficient allocation of economic resources, which stunts economic

[2] Social mobility was indeed much higher in the 30's than in any recent period according to London based evidence (Baines and Johnson, 1999), but these results may be biased by the young age at which the sons were observed (14 to 17 years old) and the population surveyed (working class only).

[3] This is in contradiction with Conlisk (1977) or Siebert (1989) models, where due to liquidity constraints, intergenerational mobility in earnings is shown to be higher at the top than at the bottom of the earning distribution.

[4] Evidence from other countries suggests that mobility is higher in Canada (Corak and Heisz, 1999), Finland, Germany, Malaysia and Sweden than in the US and UK (Solon, 1999). However, Solon stresses the limit of cross country comparisons due to data and technical differences

[5] Couch and Dunn (1997) for the US and Germany, and Dearden et al. (1997) for the UK, report a correlation of around 40% in education between father-son and mother-daughter pairs. Eide and Showalter (1999) find that education mobility at the bottom of the distribution is high and tend to reduce intergenerational immobility in earning. In opposition with these findings, Gang and Zimmermann (2000) find that parental educational attainment has no effect on the schooling achievement of non-native Germans.

[6] See Hernstein and Murray (1995) and the numerous replications of their work, among others Arrow *et al.*(2000) for the US and Dearden (1998) for the UK.

growth. Hassler and Rodriguez-Mora (1998) report that over the past 100 years, countries with a higher index of intergenerational social mobility achieved an average growth rate of 2.43% per year compared with 1.77% for the less mobile group[7]. Additionally, Maoz and Moav (1999) conclude that higher intergenerational wage mobility reduces the dispersion of earnings[8].

We focus on a sample of UK graduates: 10% of young graduates are in the same occupation as their father (defined by a two-digit occupational code) and 29% in the same occupational group[9]. Despite the homogeneity of the population studied, the probabilities of choosing the paternal occupation varies by occupation group and is the highest for children of entrepreneurs and professionals. It also appears that for graduates, the probability of following into the paternal occupation is independent of gender. Male graduates following in the paternal occupation benefit from a 5% wage premium compared to their peers whose father was not an insider, while no pay premium is found for women. Focusing on men, the pay premium for following in the paternal occupation appears to increase with time on the labour market, which suggests that it originates from intergenerational human capital transfers rather than nepotism. The remainder of the paper is organised as follows. In section 2, a model of occupational choice and its relationship to earnings differentials are presented. The data and stylised facts are presented in section 3, followed by empirical evidence in section 4. Section 5 concludes.

[7] The Netherlands, France, Germany, Italy and the UK form the low mobility group, whereas Sweden, Japan, the US and Australia are high mobility countries.

[8] Maoz and Moav (1999) present an overlapping-generations model where economic growth is generated by an increase in the population's education. Education costs are a function of individual's ability and the pay differential between educated and non-educated workers. The capital market is imperfect and no borrowing to finance education is possible. As a result, increase in education reduces the returns to education and therefore reduces financial constraints but also incentives to invest in education. Under certain condition, the former effect is the stronger, hence the positive relationship between mobility and equality.

[9] The 90 occupation codes were concatenated into five categories: employees in managerial, professional or associate professionals, self-employed in these occupations and other occupations.

2 Model of occupational choice

The literature on the inheritance of occupation in the UK can be briefly summarized by Egerton's (1997, p 275) statement that "children of professionals both attain better qualifications, which are strongly associated with entry into professional occupations, and enjoy familial advantages in entry to professional occupations". Robertson and Symons (1990) using the National Child Development Study, note that by the age of 23, 48% of sons are in the same occupational class as their father, however, since the authors defined only 3 occupational classes, this is not really informative. Carmichael (2000) relies on the 1991 British Household Panel Survey to provide up-to-date evidence. The paternal occupation when the respondents were 14 years old is used to define six occupational groups. She estimates that the paternal social class has a significant effect on the son's social class but for daughters, the relationship is less stringent. For lower social classes, female choices are dependent on the mother's occupational achievement while for technical and professional occupations the father's occupation is relevant. This suggests that for our graduates, we should observe an effect of the paternal occupation on the occupational choice of females. Despite the theoretical evidence (see below) linking occupational choice to earnings, none of the previous studies has estimated the effect of following on pay.

Following Sjögren (2000a, 2000b), we introduce a model of occupational choice with heterogeneous human capital. As all individuals are graduates, the choice of education and therefore occupation is not dependent on financial constraints and it is also assumed that the costs of a degree are the same for each subject. With these simplifications, the choice of an occupation is only based on the maximisation of the

expected utility of lifetime earnings[10]. Formally, individual i chooses the occupation s out of the set of S possible occupations that maximises her utility (U_i). As the utility is only derived from the wages obtain in occupation s, we have:

$$\Pr(S_i = 1) = E(U_{si}) = Max(E(Y_{si}) \tag{1}$$

Where s takes any value between 1 and S. To simplify the model further, the choice of occupation is limited to the following alternatives: choosing the paternal, or choosing any other occupation. Thus S can be described as a pair {f,u}, where f represents the paternal (more familiar) occupation and u all the other occupations. Furthermore, we assume that individuals only live for one period. Individual i chooses the paternal occupation (F) if her expected earnings in the familiar occupation are higher than in the unfamiliar occupation[11].

$$F_i = \begin{cases} 1 \ if \ E_i(Y_{fi}) \geq E_i(Y_{ui}) \\ 0 \ otherwise \end{cases} \tag{2}$$

As all individual are university graduates, we assume that the human capital of all individuals defers only by the endowment of job specific ability. To simplify, we assume that there are only two types of abilities; A_f is rewarded in the familiar occupation, while A_u is specific to the other occupation. The returns to ability (W_{si}) differ between the two occupation and the earnings in occupation f and u are defined as[12]:

$$\begin{cases} Y_{ui} = W_{ui} A_{ui} \\ Y_{fi} = W_{fi} A_{fi} \end{cases} \tag{3}$$

[10] In this model, we do not take into account career changes over the life-cycle, see Flyer (1997) for a model incorporating them.

[11] See Jovanovic (1979) or Flyer (1997) for empirical evidence on the effect of higher moments of pay on occupational choice.

[12] Assuming some form of nepotism or insider advantage, individuals following into their father footsteps may have higher returns to their skills than their peers. Two individuals *i* and *l* working in the same occupation have different returns to their skills if *i*'s father was an insider but *l*'s father was not. In the case of nepotism, we have $W_{fi} \geq W_{ul}$

Individual i chooses occupation f if her endowment in ability A_f is higher than her endowment in ability A_u *ceteris paribus*. It is easy to assume that the endowment in A_f ability is a function of some characteristics of the father (e.g. attention or care) but also of the father's occupation while A_u is independent of the paternal occupation. Laband and Lentz (1985) stress the importance of the proximity between the workplace and home as a major factor influencing the transmission of skills from one generation to the next and thus the decision to choose father's occupation. Their argument explains why farmers have the highest intergenerational occupation correlation; as for farmers work place and dwelling are typically the same place.

Sjögren (2000b) introduces uncertainty regarding one's ability as a factor influencing the decision to follow. Each individual has some information concerning her endowment in the ability specific to the familiar occupation but faces greater uncertainty on her ability specific to the unfamiliar occupation. Formally, we have:

$$\begin{cases} E(A_{ui}) \sim N(a_{ui}, \theta_{ui}) \\ E(A_{fi}) \sim N(a_{fi}, \theta_{fi}) \end{cases}$$
and
$$\theta_{ui} > \theta_{fi} \qquad (4)$$

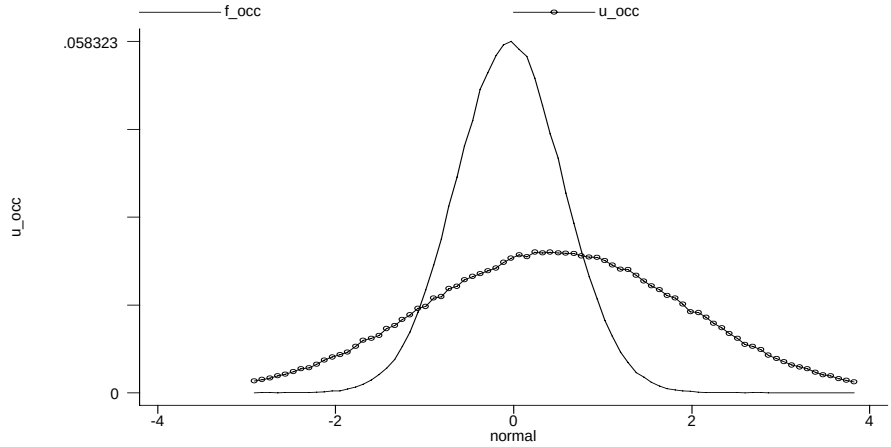
So the expected earnings in the two occupations for individual *i* are:

$$\begin{cases} E(Y_{ui}) \sim N(W_{ui}a_{ui}, W_{ui}\theta_{ui}) \\ E(Y_{fi}) \sim N(W_{fi}a_{fi}, W_{fi}\theta_{fi}) \end{cases} \qquad (5)$$

Depending on their degree on risk aversion, it is possible to observe individuals choosing the familiar occupation even so their expected earnings in the unfamiliar occupation would be higher, thus intergenerational correlation in occupational choice and in earnings can be found even when equality of opportunity in education and on the labour market is guaranteed. Figure 1 plots the hypothetical distribution of earnings in the familiar and unfamiliar occupation when $a_u > a_f$. The

distribution of earnings is more spread in the unfamiliar than in the familiar occupation, thus some risk averse individuals will choose the familiar occupation even so its mean wage is lower than the mean wage in the unfamiliar occupation.

Figure1: Distribution of earnings in the familiar and unfamiliar occupation



To summarize, individuals are more likely to follow in their father's occupation, *ceteris paribus*, if their father was able to transmit his occupation specific ability and the more risk averse the individuals are. Furthermore, following into the paternal occupation can be associated with higher earnings if insider advantage increases the returns to skills and/or if followers have higher ability. We thus expect followers to enjoy a pay premium compared to their peers in the same occupation. This premium would be reduced if risk aversion is large and in the case of extremely risk-averse children, expected earnings in the paternal occupation may be lower than in the other occupation.

3 Data and stylised facts

A- Survey

The empirical analysis is conducted on a population of UK graduates. The Careers of Highly Qualified Workers Survey (HQS) is a survey of individuals who graduated from 29 UK higher education institutions in the academic year ending in 1985 or 1990 (see Belfield et al (1997) for details on survey design). The survey includes a section on previous educational achievement and degree results. Respondents briefly report their career history in a diary but also in more details at two/three fixed points since graduation: one, six and, in the case of the 1985 cohort, 11 years after graduation. For these points, graduates were asked to report their situation, including their annual gross wage. The wage is reported on a 16-band scale, ranging from less than £2,000 to more than £50,000. The range of each band varies within the earnings distribution from £2,000 to £10,000. Less than 5% of working respondents did not report their earnings for 1996. Finally, the HQS includes some questions on the personal characteristics of the respondent, currently and at age 14. This includes the occupation of the main wage earner and the level of education of both parents.

This survey of graduates has one drawback for this research: various variables rely on respondents recollecting their situation some 6, 11, or even 20 years (in case of the family background section) ago, which may lead to severe recollection bias (Beckett et al., 2001). To limit the recollection bias, we drop all responses where the diary is not consistent with other information[13].

[13] In the diary, respondents had to provide information on the number of months spent working, unemployed, in education and in other occupation since graduation. Respondents for which the sum of these occupations did not correspond with their graduation date (plus/minus 12 months) were dropped (see Appendix A1)

The HQS contains a total of 15530 individuals including diplomats, graduates and post-graduates. Graduates from the Open University (a distance learning centre), the University of Buckingham (a private university) and mature students (older than 30 on graduation) were dropped due to their atypical nature. Other restrictions concerning employment history, current working status and paternal information lead to a raw sample of 7,463 observations. The final sample contains full time workers, whose both parents were living at age 14 and who reported their current occupation (see Appendix A1, for details on the construction of the sample). The analysis on the following decision is based on this sample. Additionally, for the analysis on the returns to following, a more restrictive sample is constructed. Another 639 observations are dropped due to misreporting on the pay or hours of work variables[14]. All variables used in this analysis are summarised by cohort and gender in Table 1.

The A-level score is the sum of the best 3 A-levels and reflects the academic ability before entering university. The ability of the average student appears to have decreased over the five-year period, but this also reflects a change in our population. When around 5% of students graduated with a diploma in 1985, this proportion has soared to between 9% and 14% in 1990. Diplomas are usually foundation courses thus demanding a lower academic background. Furthermore, the share of students graduating from polytechnic institutions rather than universities doubled over the period. Potential changes in the quality of the intake did not lead to lower output; the degree grades are similar for the two cohorts. Considering post-degree qualification, the younger cohort appears to be slightly less qualified but this may capture an age effect rather than a cohort effect.

[14] There is no differences in the following behaviour of respondents who reported their pay correctly and those who did not, which lead us to assume that mis-reporting on pay was random in this subsample.

Table 1: Summary table

	Female 1985	Female 1990	Male 1985	Male 1990
A level score	8.748 (4.275)	7.646 (4.387)	8.989 (4.731)	7.173 (5.086)
No A level	0.084	0.106	0.123	0.207
Professional qual.	0.316	0.256	0.303	0.253
Master	0.179	0.117	0.194	0.165
Phd	0.036	0.029	0.058	0.041
Biology	0.111	0.092	0.061	0.052
Agriculture	0.014	0.021	0.021	0.019
Physics	0.089	0.084	0.160	0.130
Maths	0.063	0.045	0.095	0.095
Engineering	0.024	0.037	0.217	0.240
Architecture	0.007	0.019	0.029	0.059
Social science	0.140	0.146	0.136	0.125
Administration	0.089	0.154	0.080	0.118
Language	0.177	0.103	0.040	0.023
Humanities	0.095	0.108	0.072	0.064
Education	0.068	0.089	0.024	0.019
Subject missing	0.013	0.015	0.007	0.010
First	0.042	0.054	0.063	0.068
2/1	0.282	0.331	0.278	0.277
Unclassified 2	0.100	0.052	0.092	0.052
Diploma	0.046	0.094	0.063	0.142
University	0.761	0.482	0.834	0.467
Employment	121.456 (14.605)	62.150 (12.734)	122.785 (14.577)	62.672 (13.661)
Employment^2	149.647 (29.824)	40.247 (13.352)	152.889 (30.808)	41.144 (14.033)
Size <25	0.169	0.192	0.167	0.142
Size 25-99	0.219	0.215	0.159	0.167
Size 100-500	0.172	0.188	0.214	0.228
Size missing	0.017	0.025	0.011	0.011
Permanent job	0.905	0.881	0.909	0.866
London and SE	0.391	0.387	0.375	0.381
Dad manager	0.186	0.180	0.193	0.195
Dad professional	0.312	0.324	0.285	0.270
Dad associate	0.058	0.054	0.056	0.055
Dad self employed	0.109	0.095	0.104	0.099
Observations	1017	2315	1646	2485

The omitted categories are degree only, medical subject, grade 2/2 or lower, polytechnic institution, firm size larger than 500 employees, temporary job, not in London or South East, and father in an other occupation. Standard deviation is reported in parentheses for non-binary variables.

There is no significant variation in work experience by gender, which suggests that women still participating in the labour market had short maternity breaks. Despite the increase in higher education participation, students from middle-class and

highly educated families still form the bulk of graduates; more than 50% of students have a father in a managerial or professional occupation.

B- Intergenerational occupational choice

For presentation purpose, five occupation groups are defined combining the one digit occupation code and employment status: employee manager, employee professional, employee associate professional, self-employment in a managerial, professional or associate professional occupation and all other occupation. With this broad definition, about 29% of graduates are in the paternal occupational group. This is much less than reported by Robertson and Symons (1990) who on a sample of children born in 1958 and observed at age 23 (NCDS), found that 48% have the same occupational status as their father (only 3 occupational groups). The lower figure found for graduates could suggest that either education increases mobility (Becker and Tomes, 1979) or that mobility is higher for middle class children (Siebert, 1989) or a cohort effect, but this would be in contradiction with Blanden et al (2001). At this level of aggregation, no clear differences by gender or cohort are observed, however as reported previously in the literature, following is dependent on the paternal occupation group. Table 2 reports, in the first column of each graduate group, the proportion of graduates in a given occupation group whose father is in the same occupation, i.e. this is the main diagonal in a matrix of child and father occupation. In the second column, we have the distribution of occupation at the paternal level. If father's occupation does not affect his children's occupational choice then for each child's occupational group, the distributions in each column should be identical. However, in each occupation, graduates whose father was in this

occupation are over-represented. For example, 23% of self-employed females who graduated in 1985 have a father who is himself self-employed, when the proportion of self-employed in the father population was 11%. The over-representation of offspring of self-employed workers in self-employment is significant for 1985 female. In general, females' occupational choices are not affected by their fathers' choices; the distribution of fathers' occupation for each daughters' occupation is similar to the distribution at the fathers' generation. The only exceptions are self-employment (1985 cohort) and managerial (1990) occupations.

Table 2: Father's occupational group

	Female 85		**Male 85**		**Female 90**		**Male 90**	
Occupation	Child's occ.	dad	Child's occ.	dad	Child's occ.	dad	Child's occ.	dad
Other	39	33	52***	36	38	35	45**	38
Asso. Pro	05	06	11***	06	06	05	07	06
Professional	33	31	31	28	34	32	30**	27
Manager	23	19	25**	19	26***	18	27***	20
Self employed	23***	11	23***	11	12	10	18***	10

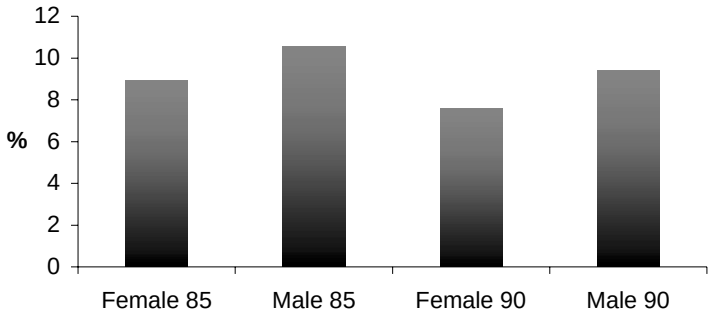
Note: We test whether offspring are over-represented in the father's occupational group (t-test). A *, **, and *** denote a 10% , 5% and 1% significant difference respectively between the proportion of father with the child occupation and the distribution of father 's occupation for this graduate group.

The situation for males is rather different. For each occupation, sons following in their fathers' footsteps are over-represented. The difference is the largest for the self-employed; in 1985, 23% of self-employed have a father who was self-employed, when the proportion of entrepreneurs at the fathers' generation is only 11%. The links between father's and children's occupational choice appear to be stronger for the self-employed, which is consistent with the idea that young adults need transfers of human and/or physical capital to get into self-employment. Having an entrepreneur father facilitates these transfers and appears to be a main determinant of self-employment for the young generation. Dunn and Holtz-Eakin (2000, p284) note "parents impart to their offspring entrepreneurial skills, as opposed to a taste for self-

employment or a general knowledge of the business world". To summarise, sons but not daughters have a tendency to follow in their fathers' footsteps. Before concluding that women are less sensitive to their parents' characteristics, it should be noted that women may be more likely to follow in their mother's occupational choice as shown by Carmichael (2000) for some occupations.

The bulk of the literature on following has used a broad definition of following, similar to the one presented above. This is not completely satisfactory, as the categories are too broad; medical doctor and university professor are both professional occupation, but it will be difficult to argue that physician can transmit insider advantage to their offspring engage in a career as an economist. For the remainder of the analysis, the definition of following is refined. Children are classified as followers if they are in the same occupation as their father, when occupation is defined using a 2-digit code (74 occupations). The two cohorts of graduates behave similarly regarding their decision to choose the paternal occupation (Figure 2). The 1985 graduates are marginally more likely than the younger cohort to opt for the paternal occupation, while women are less likely than men to choose the paternal occupation.

Figure 2: Proportion of graduates in the paternal occupation (2 digit level)



Laband and Lentz (1985, 1989) propose that following is more likely when contacts with the workplace as a child are possible (farmer, entrepreneur, entertainer, etc) which facilitates human capital transfers or when parents, through professional bodies may facilitate entry to education or the labour force (physician, lawyer) which we will qualify as nepotism. By looking at the proportion of followers by subject studied at university, we find some mixed support in favour of Laband and Lentz's claims. In the following subjects more than 20% of graduates are followers: clinical medicine, botany, agriculture, other agriculture science, electrical engineering and social policy and administration[15]. As expected the list includes medics and agriculture related subjects but law students are excluded. The results concerning electrical engineering and administration subjects are also surprising.

C- Earnings of graduates

Finally, the question of interest is whether following is associated with an advantage on the labour market. Hourly pay is computed by using the mid point of the annual pay scale and the usual hours worked per week[16]. Here, we report evidence that male followers benefit from a pay premium. As a gender pay gap is observed, we split the population accordingly. Male graduates who followed their father's footsteps have significantly higher hourly wages: £12.11 versus £11.65 on average. Male followers earn more than their non-follower peers at each decile of the distribution (Figure 3A) but the difference reaching a maximum of £1.60 (10%) at the 8th decile, is only significant for the last two deciles. For women, followers earn

[15] More than 90% of respondents reported the subject of their degree (95 discrete choices). Only subjects with more than 10 observations are included in the list.

[16] We assume that graduates work the same number of hours all year long. For this reason, we restricted the sample to individual working full time (30 hours).

marginally more than non-followers in the bottom three deciles of the earnings distribution (see Figure 3B), however, no substantial difference can be observed on the overall distribution (£10.01 versus £9.97). Following one's father's footsteps appears to have a positive effect on earnings for males but not for females.

Figure 3A:Earnings for followers and non-followers by decile: Male

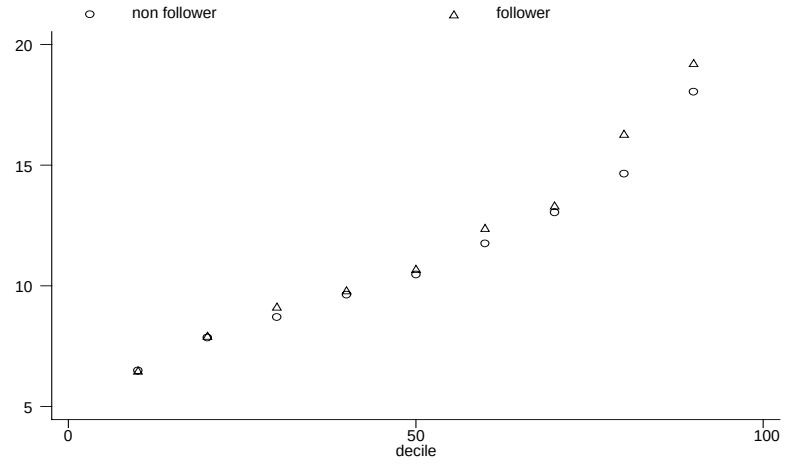
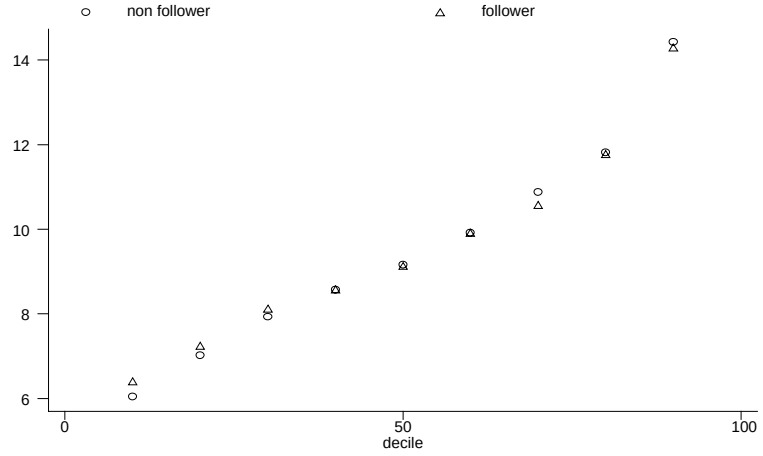


Figure 3B: Earnings for followers and non-followers by decile: Female



4 Empirical results

So far, we have examined the decision to choose the paternal occupation and its effect on wages in isolation. However, the personal characteristics of the graduate

are also of importance in these relationships. First, we examine the determinants of following in the paternal occupation.

A- Following

The econometric model on the determinants of the following decision takes the simple form of a probit model. The analysis is done separately for males and females as previous evidence have shown dissimilarities in the behaviour of graduates by gender.

The determinants of the current following status include cohort dummies, measures of educational ability (A-level and degree), subject of degree, type of institution and qualifications. Table 3 reports results for women and men. The younger cohort is less likely to follow but this could be due to an age effect rather than a cohort effect. For women, a degree in education increases the likelihood of following in their paternal occupation, so does a degree in language or social science compare to a medical science degree. Ability, as measured by A-level scores, has the expected effect of increasing the probability of choosing the unfamiliar occupation, but degree results do not have any effect. The main determinants of the decision to follow are the paternal characteristics. Having a professional or a self employed father increases the probability of following by 21% for women while surprisingly a father with a professional qualification reduces the probability of his daughter choosing the same occupation. For men, the results are slightly different. Only graduates from Agricultural subjects are more likely than medics to opt for the paternal occupation, which is in accordance with Lentz and Laband (1985). The father characteristics also have a major effect on the decision to follow for men. A professionally qualified father and a father in a middle class occupation are associated

with a greater probability of the son choosing his father's occupation. These results are globally in accordance with previous empirical work. The model does not provide a really good fit, as the determinants of followings are mostly unobservable characteristics.

Table 3: Probability of following in paternal occupation- Marginal effects

	Female		Male	
	dF/dx	St. error	dF/dx	St. error
Cohort 90	-0.0100	0.0014	-0.0069	0.0002
A-level	-0.0008	0.0003	-0.0003	0.0005
No A-level	-0.0167	0.0006	0.0135	0.0112
Prof. Qual.	0.0038	0.0087	-0.0041	0.0154
Master	-0.0079	0.0022	-0.0276	0.0120
PhD	-0.0030	0.0146	-0.0085	0.0104
Biology	0.0007	0.0014	-0.0323	0.0132
Agriculture	0.0358	0.0296	0.0423	0.0078
Physic	0.0115	0.0149	-0.0309	0.0082
Maths	-0.0315	0.0028	-0.0525	0.0073
Engineering	-0.0102	0.0071	-0.0311	0.0034
Architecture	-0.0121	0.0053	-0.0222	0.0277
Social science	0.0137	0.0031	-0.0199	0.0059
Administration	0.0029	0.0160	-0.0266	0.0136
Language	0.0182	0.0010	-0.0405	0.0077
Humanities	0.0037	0.0241	-0.0404	0.0076
Education	0.0444	0.0060	-0.0218	0.0085
Subject missing	0.0390	0.0129	-0.0217	0.0053
First	0.0042	0.0164	0.0480	0.0256
Upper second	-0.0014	0.0056	0.0081	0.0083
Unclassified 2nd	0.0256	0.0014	0.0095	0.0205
Diploma	0.0020	0.0183	0.0393	0.0275
University	0.0031	0.0003	0.0129	0.0050
Council	-0.0054	0.0168	0.0011	0.0043
Dad degree	0.0009	0.0059	0.0126	0.0132
Dad prof. Qual	-0.0100	0.0026	0.0041	0.0017
Dad manager	0.1541	0.0269	0.1279	0.0301
Dad professional	0.2175	0.0158	0.2583	0.0016
Dad associate	0.0793	0.0288	0.1301	0.0223
Dad self emp.	0.2123	0.0005	0.3353	0.0136
London & SE	0.0163	0.0073	0.0000	0.0026
Obs.	3332		4131	
Pseudo R^2	0.12		0.16	
Log likelihood	-814.88		-1122.84	

Note: Marginal effects estimated at the mean and robust standard errors corrected for cohort clustering are reported. The omitted categories are degree only, medical subject, grade 2/2 or lower, polytechnic institution, firm size larger than 500 employees, temporary job, not in London or South East, and father in another occupation.

B- Current earnings

As seen in the economic model above, workers sort themselves in the occupation with the highest expected wage. Furthermore, a Chow test reveals that for males, the coefficients of the wage equation are significantly different for followers and non-followers. Thus, we estimate a two-sided Roy model with endogenous selection. For each individual i, earnings in the paternal (D=1) and unfamiliar (D=0) occupations are a function of the individual characteristics $X_{i,}$ but the returns to these characteristics (β_s) or the constants (δ_s) are different in the two occupations. ε_s represents an error term and is normally distributed. Thus, the individual earnings have the following form:

$$y_i = \begin{cases} X_i'\beta_1 + \delta_1 + \varepsilon_{1i} \text{ if } D_i = 1 \\ X_i'\beta_2 + \delta_2 + \varepsilon_{2i} \text{ if } D_i = 0 \end{cases} \tag{6}$$

$$D_i = \begin{cases} 1 \text{ if } D_i^* > 0 \\ 0 \text{ otherwise} \end{cases}$$

$$D_i^* = z_i'\gamma + \upsilon_i$$

The decision to follow in the paternal occupation is a binary variable. It takes the value 1 if a latent, unobservable model, is greater than 0. The latent model on the decision to follow is determined by a vector of personal characteristics (Z) explaining the decision to follow in the paternal occupation. Assuming that the error terms in the latent model follows a normal distribution with unit variance; the model is completed by the following stochastic specification of the disturbance terms:

$$\begin{bmatrix} \varepsilon_{1i} \\ \varepsilon_{2i} \\ \upsilon_i \end{bmatrix} = N\left(\begin{bmatrix} 0 \\ 0 \\ 0 \end{bmatrix}, \begin{bmatrix} \sigma_1^2 & 0 & \rho_1\sigma_1 \\ & \sigma_2^2 & \rho_2\sigma_2 \\ & & 1 \end{bmatrix} \right) \tag{7}$$

Following Heckman's (1979) we know that:

$$\begin{cases} E(y_i / D_i = 1) = x_i^{'}\beta_1 + \delta_1 + \rho_1\sigma_1(\phi(z_i^{'}\gamma)/\Phi(z_i^{'}\gamma)) \\ E(y_2 / D_i = 0) = x_i^{'}\beta_2 + \delta_2 + \rho_2\sigma_2(\phi(-z_i^{'}\gamma)/\Phi(-z_i^{'}\gamma)) \end{cases} \quad (8)$$

where ϕ and Φ are respectively the density and cumulative distribution function of the normal distribution. This method relies on the validity of the excluded variables in determining occupational choice but not earnings.

Other methods to account for the possible endogeneity of the following decision exist. Typically, we are interested in the effect of the treatment (following) on the treated (follower). The outcome of interest takes the value Y_1 if treated and Y_0 if not treated. We also observed whether the individual was treated D=1 or not D=0. Let Z denote a vector of observable characteristics. The effect of the treatment on the treated is then simply defined as:

$$TT = E(Y_1 \mid Z, D = 1) - E(Y_o \mid Z, D = 1) \quad (9)$$

The difficulty in estimating this effect comes from the non-observability of the second term in the LHS of (9)[17]. One solution is to rely on experimental data, where due to the random allocation of the subjects $E(Y_0|Z, D=1) = E(Y_0|Z, D=0)$

Rosenbaum and Rubin (1983) have proposed that in absence of experiment, it may be possible to match each follower with a non-follower with the same observable characteristics. Rather than requiring a match on each characteristic, Rosenbaum and Rubin (1983) show that it is equivalent to condition on the estimated probability of being in the treatment group (follower). The probability of selection is estimated by probit (as in section 4A) and individuals whose score are similar are matched. Following Smith and Todd (2001) notations, we define the probability of following as: P = Pr(D=1|Z). If conditional on their observed characteristics, individuals can be

[17] See Manksi (1995) for a simple introduction to the identification problem

paired then the effect of following is simply the mean difference in earnings between all pairs.

$$TT = E(Y_1 \mid Z, D = 1) - E_{P|D=1}(E_Y(Y \mid D = 0, P) \qquad (10)$$

This strategy relies on the conditional independence assumption; conditional on their observed characteristics, the decision to follow is random. Dehejia and Wahba (1999) show empirically that the matched estimates are not particularly sensitive to the specification of the probit but this is in contradiction with Heckman et al. (1998) and Smith and Todd (2001). Two main methods to define score similarity exist. First, individual for which the difference in score is less than an ad-hoc fixed limits are matched. A larger distance increases the likelihood of a match but at the price of the match quality. Individuals from the control group may be matched to more than one person from the treated group. The second methods rely on creating for each follower, a synthetic individual based on kernel-weight average of the characteristics of the non-followers (Heckman et al. (1997).

The empirical results are now presented. According to Figure 3B, there is no pay premium to following for females so this section of the paper concentrates on male graduates only. First, we estimate the earnings differentials between followers and non-followers, when not accounting for selection. The OLS estimates of the determinants of log annual pay are presented in Appendix A2[18].

Graduates from the 1990 cohort earn more than the 1985 cohort graduates after accounting for the differential in labour market experience. This is consistent with evidence of increasing returns to schooling especially at tertiary level (Chevalier and Walker, 2001). Even within this rather homogenous population of graduates,

[18] As the annual pay variable is categorical, it can be argued that ordinary least square is inappropriate and that the equation should be estimated by interval regressions (Stewart, 1983). However, using the band mid-points leads to similar results, so only OLS results are presented here.

ability matters. Each A-level point is associated with a pay increase of 1.4% and graduates with higher marks benefit from a significant pay premium (+13% for a first, +5% for a 2/1). Returns to different subjects vary significantly, with medic at the top end of the distribution and humanities at the bottom (-39% compare to medics). Additional qualifications are also rewarded, with professional qualifications offering the highest returns (+12.6%) but academic qualifications (master and PhD) also leading to substantial gains (4.7% and 7.5% respectively). Since the population of interest is relatively young, experience is linearly related to pay; each month of labour market experience leads to a pay increase of 0.9%. Smaller firms pay less, while there is a premium for working in London and South East regions. These results are standard. The results for non-followers are similar in magnitude but with larger standard errors due to the smaller sample size and the hypothesis that the coefficients are the same for the two groups is rejected.

Least squares estimation assumes that the decision to follow into the paternal occupation is exogenous which is in contradiction with the theoretical model of occupational choice presented above; this hypothesis is lifted by including a selection term in the wage equation. The Heckman procedure requires Z to be different from X, i.e. some characteristics of the individual explain the decision to follow but have no effect on pay. As shown previously, the main determinants of following is the paternal occupational group, we thus use a set of dummies on the paternal occupation as identifying variables (the selection equation is presented in Appendix A2). Graduates whose father was self-employed or in a middle class occupation are significantly more likely to choose their father's occupation than those whose father was in another occupation. This relationship is stronger for sons of professionals or entrepreneurs. The Heckman estimates are also presented in Appendix A2. The

inverse Mills ratio is significant in the non-follower regression, confirming that selection in followers is not random. The inclusion of the correction terms does not change the previous results substantially. The pay differential between the two groups of graduates can be calculated from our results and are reported in Table 4. Followers benefit from a pay premium reaching 5%. When accounting for selection, the estimated premium remains of the same order but is not significant due to larger standard errors.

Table 4: Wage differential followers/non-followers in current job

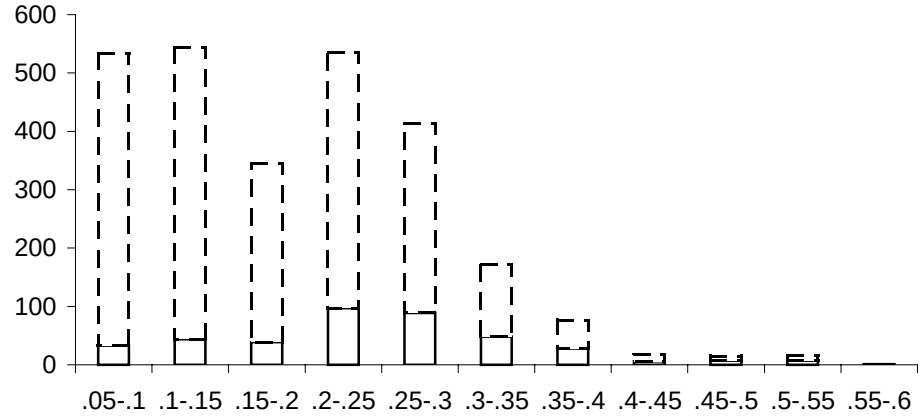
$\exp(\Delta\beta\overline{X}_g)-1$	OLS	Heckman
At the non-followers mean	0.0510 (0.0206)	0.0506 (0.1140)
At the followers mean	0.0485 (0.0204)	0.0504 (0.1062)

Notes: Standard errors in parentheses

The identifying variables used to determine the probability of being in the paternal occupation are weak. Cameron and Taber (2000) propose to run regressions of the instruments on the exogenous variables, the less the covariates are significant the better the instruments. These regressions (available from the author) suggest that the instruments used may be problematic.

Using results from our predicted probability of being a follower, we match individual according to their score. The distribution of the estimated probability is plotted for the two groups in Figure 4. It can be noted that our model does not provide a good fit as only a handful of followers have an estimated probability of being a follower greater than 0.5. Thus, the matching model can be questioned, as the selection does not seem to be captured by the observable characteristics.

Figure 4: Distribution of propensity scores: Current following status



Note: Histogram of the estimated propensity score for followers (plain line) and non-followers (dashed line). The first two bins have been truncated for presentation purpose and contain 1682 and 645 observations in the non-follower group respectively. There is no non-follower in the 0.55-0.60 category and no observations for any group for propensity score higher than .6.

The distributions for the two groups are different but overlap and thus make matching possible. We report in Table 5 results for two distances and two matching techniques. When using the smallest distance (0.001), we drop 25 followers out of the 399 observations for which no match could be found. These non-matched observations are not distributed randomly and concerned individuals in the right tail of the propensity score distribution (score between 0.27 and 0.52). Increasing the minimum distance to (.01) increases the probability of matching and only one observation is left unmatched. However, increasing the bandwidth is associated with an increase in bias and a reduction in the variance of the estimates.

Table 5: Propensity score estimates of the current wage differentials

	1 to 1 match	Kernel based match
Match precision: .001	0.0722 (0.0434)	0.0546 (0.0284)
Match precision: .01	0.0847 (0.0420)	0.0462 (0.0248)

Standard error obtained by bootstrap (500 replications)

One to one matching is the cruder technique of matching and is most sensitive to the shape of the score distributions for the two populations. As mentioned above, with a match precision of (0.001) i.e. for two observations to be matched the difference in their score cannot be higher than 0.001, the right hand side of the distribution of followers cannot be matched. The truncation of the distribution is likely to bias our results but the direction of the bias is not clear. We may assume that those most likely to follow are those who gain the most from following hence our match estimator would be biased downward. The empirical evidence confirms this assumption, as the estimated wage differential between followers and non-followers increases from 7.2% to 8.5% and becomes statistically significant at the 95% level when increasing the bandwidth. The kernel-based results are in line with our parametric results. The estimated pay gap is reduced and ranges between 4.6 and 5.4%; both estimates are significant at the 90% confidence level. The three different estimation techniques lead to similar estimates of the follower pay premium; followers earn between 5% and 8% more than their peers whose father was not in the same occupation as they are.

C- Determinants of pay in the first year

In an attempt to differentiate between the two main competing hypotheses explaining the follower's pay premium, i.e. insider advantage versus transmission of human capital, we focus on the determinants of graduate earnings in their first year on the labour market. The follower effect on the first job is expected to be of similar order as the current one, if the pay premium stems from the transmission of father's characteristics. However, if the pay premium is mostly due to returns to insider

advantage, then the follower effect in the first job should be higher than the current follower effect, as the effects of insider advantage are supposed to decrease with tenure on the labour force. This analysis is conducted on men working in their first year after graduation and reporting positive wages for that year. This limits the sample to 3065 observations. The regression includes the same variables as previously with the exception of the experience variables that are nil in the first job. A Chow test rejects the hypothesis that the estimates are different for the two groups of graduates, so we pool all graduates and estimate a single equation including a dummy for following. The results are similar to those estimated on current earnings. The mean pay differential between followers and non-follower reaches 7% in their first job. When accounting for education and some job characteristics, this premium is reduced to a statistically insignificant 3% (Table 6, column 1). As previously, the decision to follow in the first job is not exogenous. Hence, we correct for selection by including the inverse Mills ratio in the wage equation, estimates obtained by the Heckman procedure are reported in column 2. As previously, we rely on the paternal occupation group to identify the decision to follow, hence these results are subject to the same cautions as those obtained for current wage. The selection term is not significant, which further indicates the difficulties in estimating the decision to follow in the first job. Accounting for selection, the pay premium for following into the paternal occupation in the first job is reduced to 2% and is not statistically significant.

We also estimate the pay differential by matching techniques. First, we estimate the probability of following in the first job (results in Appendix A3). Once again the fit of the model is not really good, and none of the follower has a probability higher than 0.5. The distributions of expected probabilities for the two groups are

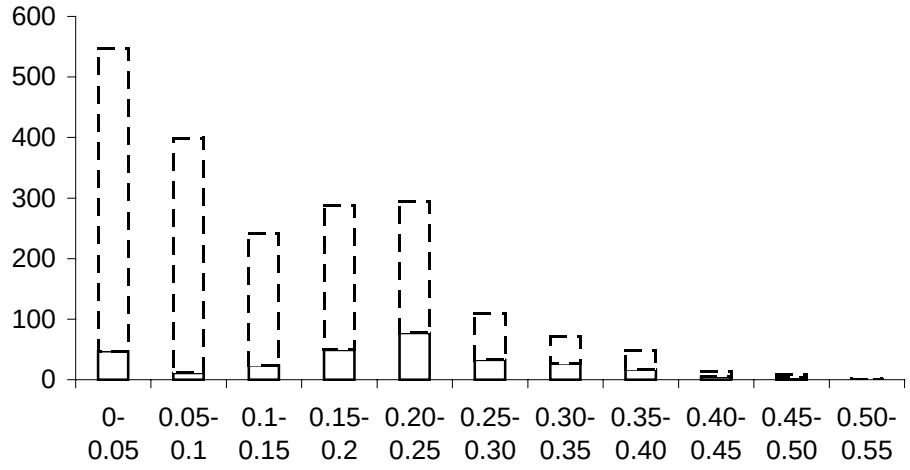
plotted in Figure 5. Overall, the distributions are defined over similar interval, so the matching estimates should not be affected by selection bias.

Table 6: Determinants of first job pay- Male only

	OLS	**Heckman**
Follower in 1st job	0.033 (0.023)	0.021 (0.095)
Cohort 90	0.096 (0.015)	0.096 (0.015)
A-level score	0.005 (0.003)	0.005 (0.003)
No A-level	0.110 (0.028)	0.111 (0.028)
Biology	-0.407 (0.052)	-0.409 (0.054)
Agriculture	-0.368 (0.067)	-0.367 (0.067)
Physics	-0.343 (0.043)	-0.344 (0.044)
Maths	-0.355 (0.045)	-0.357 (0.047)
Engineering	-0.321 (0.042)	-0.322 (0.043)
Architecture	-0.378 (0.047)	-0.379 (0.048)
Social science	-0.355 (0.044)	-0.357 (0.045)
Administration	-0.373 (0.046)	-0.374 (0.047)
Language	-0.373 (0.060)	-0.375 (0.060)
Humanities	-0.476 (0.053)	-0.478 (0.055)
Education	-0.247 (0.057)	-0.248 (0.058)
Subject missing	-0.230 (0.086)	-0.232 (0.087)
First	0.084 (0.024)	0.085 (0.024)
2/1	0.028 (0.016)	0.028 (0.016)
Unclassified second	0.092 (0.030)	0.092 (0.030)
Diploma	-0.034 (0.024)	-0.034 (0.023)
University	-0.001 (0.019)	-0.000 (0.020)
Size <25	-0.236 (0.027)	-0.236 (0.027)
Size 25-99	-0.143 (0.020)	-0.143 (0.020)
Size 100-499	-0.088 (0.017)	-0.088 (0.016)
Size missing	-0.261 (0.079)	-0.262 (0.079)
Permanent	0.200 (0.026)	0.200 (0.026)
Lambda		-0.007 (0.056)
Constant	9.623 (0.048)	9.625 (0.050)
Observations	3065	3065
R-squared	0.17	

Note: The omitted categories are degree only, medical subject, grade 2/2 or lower, polytechnic institution, firm size larger than 500 employees, temporary job, not in London or South East.

Figure 5: Distribution of propensity scores: Current following status



Note: Histogram of the estimated propensity score for followers (plain line) and non-followers (dashed line). The first interval has been truncated for presentation purpose and contains 1605 observations in the non-follower group. There is no follower in the 0.50-0.55 category and no observations for any group for propensity score higher than 0.55.

Matched estimates are sensibly higher than estimates obtained by parametric methods and range from 3.9% to 7.7% (Table 7). However, all estimates fail to be statistically significant at the usual level. The lack of precision of the estimates may stem from the low fit in the estimated probabilities of following in the first job. Hence the assumption of conditional independence may not be satisfied.

Table 7: Propensity score estimates of the first job pay differential

	1 to 1 match	Kernel based match
Match precision: .001	0.063 (0.042)	0.056 (0.030)
Match precision: .01	0.077 (0.041)	0.039 (0.026)

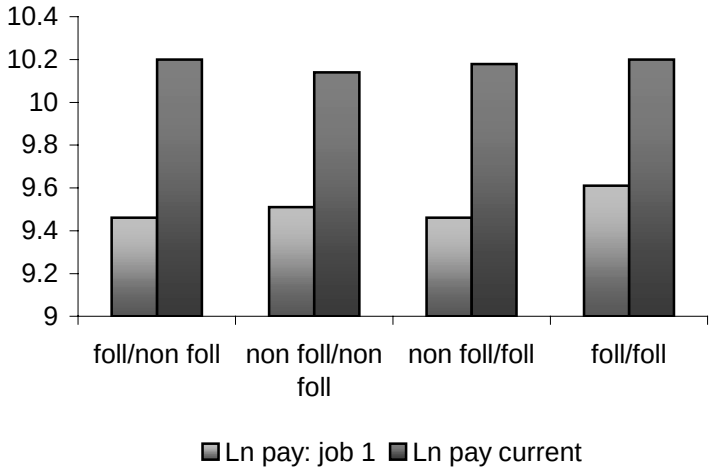
Standard error obtained by bootstrap (500 replications)

We assume that nepotism would be at its maximum when young graduates enter the labour market, as with time the true quality of the graduates would have been revelled. On the other hand, if we assume that the premium enjoyed by

followers comes from the transmission of human capital from the father to the son, then it is possible that the benefits of this extra human capital are reaped through time. Our previous results suggests that returns to following are stable or increase with time (depending on estimation techniques), hence it appears that the follower premium stem from intergenerational transmission of human capital rather than nepotism.

Four groups of graduates can be distinguished based on their first and current job following status. Focusing on male only, we find that 20% (59) of first job followers are in a non-paternal occupation in 1996. On the other hand, 78 graduates who did not choose the paternal occupation in their first job are followers by 1996. Figure 6 reports the starting and current earnings for the four groups of graduates defined[19].

Figure 6: Log annual pay in first and current job by following status



Graduates who are always in the paternal occupation (foll/foll) earn significantly more than those who were never followers (non foll/non foll) at both points in time. Graduates who started in the paternal occupation but then moved

[19] Panel data analysis could improve this analysis. However, as the changes of status are not independent of the pay differential generated by the change, they will still be subject to some endogeneity problems. Furthermore, the estimation would be problematic due to the small number of respondents changing status during the period of observation.

away from it, had lower starting salary (not significant) but higher current earnings than graduates who never followed. This could be consistent with Sjögren's idea (2000b), that some graduates choose the paternal occupation due to risk aversion. However, with time, these graduates discover their endowment in skills and readjust their choice, as their potential wages are higher in the non-paternal occupation. Graduates who did not start in the paternal occupation but are currently followers earn between the amount earned by never and always followers, which could confirm that returns to following are not instantaneous but need time to materialise.

5 Conclusion

Inequality of opportunities has proven to be a topic of great interest to social scientists; the inheritance of occupation is no exception. We rely on a sample of UK graduates to determine whether intergenerational correlation in earnings could stem from intergenerational correlation in occupational choice. Between 8% and 10% of young graduates choose their fathers' occupation. This choice allows them to secure an earnings premium of 5% to 8% for males but none for females. Nepotism and the transfer of human capital from one generation to the next could generate this pay gap. These two hypotheses differ in the way they affect pay through time. As the influence of the father on his son's career decreases with the labour attachment of the child, the effect of nepotism on pay should be maximum at the beginning of the son's career. The transmission of human capital on the other hand, should not lead to decreasing returns over time. As returns to following increases over the graduates' career, the follower premium stems from the transmission of human capital from one generation to the next. Further research on the mechanism of transmission could explain

differences in following rate between occupations. Additionally, a database containing mother's occupation could provide some lights on the origin of the gender difference observed.

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APPENDIX

Table A1: Sample size

N=	15,530	All observations
-	772	Disable
-	2,159	Distance learning centre (Open University)
-	1,761	Age on graduation greater than 30
-	1,299	History of employment missing or incomplete
-	660	Not working in 1996
-	710	Not working full time in 1996
-	384	Father's occupation missing
-	114	No father when aged 14
-	24	No mother when aged 14
-	184	Occupation missing in 1996
	7,463	
-	235	Pay 1996 missing
-	363	Hours worked missing, or <30 or >70
-	41	Pay per hour less than £3.00
	6,824	

Table A.2: Current log annual pay: Male

	OLS				Heckman			
	Non Follower		Follower		Non Follower		Follower	
	Coeff	S.E	Coeff	S.E	Coeff	S.E	Coeff	S.E
Cohort 90	0.2142	0.0449	0.3671	0.1602	0.2115	0.0447	0.3681	0.1544
A level score	0.0137	0.0024	0.0169	0.0064	0.0137	0.0024	0.0169	0.0062
No A-level	0.0885	0.0261	0.1322	0.0719	0.0879	0.0260	0.1323	0.0689
Professional q.	0.1265	0.0150	0.1639	0.0438	0.1269	0.0150	0.1642	0.0420
Master	0.0474	0.0179	0.1184	0.0586	0.0489	0.0178	0.1176	0.0569
Phd	0.0751	0.0339	0.0306	0.1256	0.0755	0.0338	0.0315	0.1203
Biology	-0.2742	0.0447	-0.2703	0.1655	-0.2709	0.0446	-0.2730	0.1624
Agriculture	-0.3408	0.0744	-0.3119	0.1373	-0.3481	0.0737	-0.3112	0.1319
Physics	-0.2237	0.0391	-0.2559	0.0891	-0.2197	0.0390	-0.2575	0.0901
Maths	-0.1139	0.0410	-0.1466	0.0943	-0.1066	0.0409	-0.1498	0.1064
Engineering	-0.1564	0.0384	-0.1599	0.0851	-0.1524	0.0384	-0.1614	0.0861
Architecture	-0.3390	0.0407	-0.4313	0.1071	-0.3352	0.0406	-0.4332	0.1079
Social science	-0.1922	0.0410	-0.0788	0.0870	-0.1898	0.0408	-0.0803	0.0869
Administration	-0.1735	0.0416	-0.1081	0.1043	-0.1705	0.0415	-0.1102	0.1077
Language	-0.2313	0.0562	-0.0197	0.1927	-0.2262	0.0559	-0.0221	0.1870
Humanities	-0.3908	0.0479	-0.1696	0.1280	-0.3855	0.0477	-0.1716	0.1301
Education	-0.2951	0.0460	-0.3488	0.1159	-0.2905	0.0459	-0.3493	0.1119
Subject missing	-0.2760	0.1050	0.0847	0.1430	-0.2722	0.1045	0.0843	0.1377
First	0.1286	0.0270	0.1072	0.0749	0.1264	0.0269	0.1083	0.0756
2/1	0.0532	0.0159	0.0324	0.0498	0.0528	0.0158	0.0327	0.0483
Unclassified 2	0.0194	0.0328	0.0040	0.0673	0.0183	0.0327	0.0043	0.0646
Diploma	-0.0737	0.0229	-0.1486	0.0702	-0.0756	0.0229	-0.1479	0.0687
University	0.0361	0.0189	0.0705	0.0591	0.0344	0.0187	0.0710	0.0577
Experience	0.0092	0.0016	0.0045	0.0052	0.0092	0.0016	0.0044	0.0050
experience^2	-0.0005	0.0010	0.0032	0.0033	-0.0006	0.0010	0.0033	0.0032
Firm size <25	-0.1346	0.0257	-0.1118	0.0619	-0.1373	0.0254	-0.1112	0.0604
Firm size 25-99	-0.0636	0.0174	0.0041	0.0591	-0.0632	0.0174	0.0043	0.0568
Firm size 99-500	-0.0329	0.0144	-0.0381	0.0498	-0.0336	0.0143	-0.0376	0.0489
Firm size missing	-0.1215	0.1036	-0.5299	0.1225	-0.1223	0.1030	-0.5300	0.1175
Permanent	-0.0077	0.0271	0.2050	0.0844	-0.0070	0.0270	0.2052	0.0815
London and SE	0.1482	0.0131	0.1043	0.0393	0.1478	0.0131	0.1043	0.0378
Constant	9.1962	0.0982	8.9693	0.2706	9.1900	0.0978	8.9626	0.2843
Lambda					0.0442	0.0204	0.0048	0.0709
Obs.	3596		399		3596		399	
R^2/Wald test	33.43		43.44		$\chi^2(31)=1829.37$		$\chi^2(31)=404.77$	
Ind of eq.					$\chi^2(1)=4.58$		$\chi^2(1)=0.00$	

Note: Robust standard errors corrected for cohort clustering are reported. The omitted categories are degree only, medical subject, grade 2/2 or lower, polytechnic institution, firm size larger than 500 employees, temporary job, not in London or South East, and father in another occupation.

Selection equations: Current job

	Non Follower		Follower	
	Coeff	S.E	Coeff	S.E
Cohort 90	-0.3069	0.1954	0.3106	0.1943
A level score	0.0043	0.0109	-0.0050	0.0108
No A-level	-0.0793	0.1231	0.0754	0.1228
Professional q.	0.0525	0.0705	-0.0548	0.0705
Master	0.2157	0.0887	-0.2148	0.0888
Phd	-0.0301	0.1578	0.0299	0.1581
Biology	0.3516	0.1774	-0.3401	0.1766
Agriculture	-0.2002	0.2029	0.2014	0.2027
Physics	0.3261	0.1426	-0.3240	0.1432
Maths	0.6998	0.1672	-0.7032	0.1676
Engineering	0.3301	0.1334	-0.3253	0.1336
Architecture	0.2388	0.1906	-0.2390	0.1909
Social science	0.2032	0.1415	-0.2024	0.1422
Administration	0.3295	0.1536	-0.3240	0.1539
Language	0.4797	0.2247	-0.4798	0.2254
Humanities	0.4662	0.1724	-0.4639	0.1722
Education	0.2535	0.2293	-0.2572	0.2300
Subject missing	0.2602	0.3091	-0.2463	0.3085
First	-0.3136	0.1235	0.3138	0.1237
2/1	-0.0822	0.0746	0.0814	0.0747
Unclassified 2	-0.0366	0.1173	0.0380	0.1175
Diploma	-0.2644	0.1126	0.2638	0.1126
University	-0.1298	0.0889	0.1326	0.0890
Experience	0.0021	0.0062	-0.0024	0.0061
experience^2	-0.0042	0.0038	0.0043	0.0038
Firm size <25	-0.1868	0.0875	0.1896	0.0870
Firm size 25-99	0.0043	0.0904	-0.0067	0.0906
Firm size 99-500	-0.0837	0.0783	0.0829	0.0784
Firm size missing	-0.0994	0.3056	0.1111	0.3006
Permanent	-0.0277	0.0963	0.0199	0.0950
London and SE	-0.0078	0.0617	0.0068	0.0618
Dad manager	-0.7626	0.1086	0.7606	0.1095
Dad professional	-1.3960	0.0965	1.3919	0.0962
Dad associate	-0.6812	0.1620	0.6780	0.1625
Dad entrepreneur	-1.4040	0.1111	1.4014	0.1113
constant	2.4480	0.4031	-2.4294	0.3981
Observation	3596		399	

Note: Robust standard errors corrected for cohort clustering are reported. The omitted categories are degree only, medical subject, grade 2/2 or lower, polytechnic institution, firm size larger than 500 employees, temporary job, not in London or South East, and father in another occupation.

Table A3: Follower status in first job

	Coef.	Std. Err
Cohort 90	0.0674	0.0136
A level score	-0.0007	0.0039
No A-level	0.1320	0.0131
Professional q.	0.0036	0.0251
Master	-0.2411	0.0168
Phd	-0.3406	0.2096
Biology	-1.1268	0.0582
Agriculture	0.2055	0.1675
Physics	-0.3985	0.1515
Maths	-0.8773	0.0686
Engineering	-0.4007	0.0267
Architecture	-0.3357	0.4546
Social science	-0.4410	0.0850
Administration	-0.4564	0.1492
Language	-0.5420	0.0122
Humanities	-0.7145	0.0824
Education	-0.2601	0.1049
Subject missing	-0.7232	0.2970
First	0.3413	0.1757
2/1	0.1121	0.0252
Unclassified 2	0.0333	0.1994
Diploma	0.2918	0.0637
University	0.2221	0.0885
Council house	-0.1116	0.0449
Dad degree	-0.0932	0.0739
Dad prof. Qual.	-0.0483	0.0897
Dad manager	0.2803	0.0247
Dad professional	1.2211	0.0551
Dad associate	0.5030	0.0006
Dad entrepreneur	1.0907	0.0809
constant	0.0820	0.0400
_cons	-1.8255	0.1691
Pseudo R^2	0.1661	
observations	3125	