UNIVERSITY *of* York

This is a repository copy of *The intergenerational transmission of liberal professions*.

White Rose Research Online URL for this paper:
https://eprints.whiterose.ac.uk/id/eprint/125677/

Version: Accepted Version

Article:

White Rose
university consortium
Universities of Leeds, Sheffield & York

eprints@whiterose.ac.uk
https://eprints.whiterose.ac.uk/

The intergenerational transmission of liberal professions

Carmen Aina*

Department of Economics, University of Piemonte Orientale

Cheti Nicoletti

University of York; ISER, University of Essex; and IZA

Abstract

By using university administrative and survey data on Italian graduates, we analyse the intergenerational transmission of liberal professions. We find that having a father who is a liberal professional has a positive and significant effect on the probability of a graduate of becoming a liberal professional. To assess the processes at work in this intergenerational transmission, we evaluate the effect of having a liberal professional father on the probabilities to undertake each of the compulsory steps required to become a liberal professional, which are choosing a university degree providing access to a liberal profession, completing a period of practice, passing a licensing exam and starting a liberal profession. Having a liberal professional father has a positive and statistically significant effect on the probability to complete a compulsory period of practice and to start a liberal profession; whereas there does not seem to be an effect on the type of degree chosen and on passing the licensing examination, at least after controlling for child's and parental formal human capital.

Keywords: Professional licensing; liberal professions; intergenerational mobility; nepotism.

JEL codes: J44, J62, J24.

* Corresponding author: carmen.aina@uniupo.it, tel: +39 0321 375 303; fax: +39 0321 375 512

1   Introduction

The focus of this paper is on explaining why children of liberal professional fathers have a larger probability to become liberal professionals. We consider liberal professionals who are self-employed workers providing public services which require them to hold a specific university degree, to obtain a professional license by passing an exam and to complete a compulsory period of practice, which has to be undertaken before the licensing exam.[1]

By using university administrative data linked with post-graduation surveys covering the universe of graduates in 22 Italian Public Universities in 2002 and 2003, we find that the probability of a graduate child to become a liberal professional increases of 9 (16) percentage points when the father is a graduate liberal professional rather than an entrepreneur (a blue collar). These are huge increases, given that only 13% of graduates become liberal professionals.

Similarly to the intergenerational transmission of income, the occupational transmission has been explained by inheritability of endowments and parents' investments in their child's human capital (see Becker and Tomes 1979, 1986). But, to justify a different degree of transmission for different occupations, it is necessary to recognise that there are two types of human capital investments: the indirect investment through formal education and the direct investment through the transmission of job-specific abilities and knowledge from fathers to children (see Laband and Lentz 1983, 1992; Evans and Jovanovic 1989; Dunn and Holtz-Eakin 2000; Fairlie and Robb 2007; Fairlie and Krashinsky 2012). Liberal professions are a type of occupation where the intergenerational transmission of skills and knowledge is important and helps in lowering the entry barrier costs, e.g. shortening the time needed to set a portfolio of customers and increasing potential early profits.

If parental human capital investments were the only explanation for the occupational transmission from fathers to children, then there would be no reason for thinking that a high degree of occupational transmission is unfair. However, other possible mechanisms explaining the transmission of liberal professions are: the transfer of financial resources, job preferences,

---

[1]The liberal professionals considered in our empirical exercise are accountants, lawyers, notaries, psychologists, pharmacists and architects. In some of our auxiliary analyses, which are available upon request to the authors, we also include liberal professions that do not require a compulsory period of practice, i.e. engineers, geo-biologists and agronomists.

family networking and the potential transmission of the family business.[2] Furthermore, an additional mechanism which can explain the large intergenerational association in liberal professions is nepotism, i.e. the fact that liberal professional fathers can help their children beyond their merits to be accepted and to complete a period of practice, to pass a licensing exam, or to undertake other steps required to become a liberal professional.[3]

We are unable to evaluate the separate effect of nepotism; but, after controlling for variables which measure child's and parental formal human capital, and child's job preferences and family financial resources, we can interpret the residual effect of having a liberal professional father on the probability of becoming a liberal professional as the combined effect of transmission of job-specific skills and knowhow, nepotism, family networking and potential inheritance of the family business. While we capture the formal human capital by controlling for a rich set of measures of educational choices and attainments in high school and university using administrative data, which are unlikely to suffer of measurement errors; our measures of financial resources and job preferences are proxy variables which might not fully control for the two related transmission mechanisms. Nevertheless, because we compute the effect of having a liberal professional father on the probability of becoming a liberal professional as the differential effect with respect to having a father who is an entrepreneur and the transmission of financial resources and job preferences is likely to be very similar between fathers who are entrepreneurs and liberal professionals, we expect the potential bias caused by these proxy variables to be small.

The novelty of our paper is that we decompose for the first time the probability of a graduate to become liberal professional in the product of four probabilities (processes) which represent four sequential steps that a child has to undertake to start a liberal profession, which are choosing degrees providing access to liberal professions which require practice period, completing a compulsory period of practice, obtaining a professional licensing and starting a liberal profession. This approach allows us to evaluate the effect of having a liberal professional father in each of these four specific processes and to explain how this effect is mediated by different mechanisms. In this way we can identify which process is the most important in explaining the intergenerational transmission of liberal professions, and

---

[2]For a review of papers on intergenerational mobility see Solon (1999); Björklund and Jantti (2009); Erikson and Goldthorpe (2002); Ermisch et al. (2012) and Torche (2015).

[3]We define nepotism as any advantageous effect of the family network which is not meritocratic.

therefore we can provide more precise policy recommendations to improve access to liberal professions.

Our approach is similar in spirit to Mare's educational transition model, which estimates the effect of parental background on the probability of progressing from one educational level to the next using a sequential binary model (see Mare 1979, 1980, 1981, 2011). The main difference is that, rather than evaluating the effect of family background on school transitions, we estimate the effect of parental occupation on sequential probability processes, which represent sequential steps that a child has to undertake to become a liberal professional.

More precisely, we consider the full sample of graduates and estimate the effect of having a father who is a liberal professional on each of four following probability processes:

I.a the probability to choose university degrees that give access to liberal professions which require a compulsory period of practice,

I.b the probability to complete a compulsory period of practice,

I.c the probability of passing a professional licensing exam,

I.d the probability to start a liberal profession.

Each of these probabilities is conditional on having undertaken the previous step, i.e. completing a period of practice is conditional on having a degree that gives access to liberal professions which require a compulsory period of practice, passing a professional licensing exam is conditional on having completed a period of compulsory practice, and starting a liberal profession is conditional on having obtained a license. Therefore, the probability to become a liberal professional for a graduate is given by the product of the above four conditional probabilities ([I.a], [I.b], [I.c] and [I.d]), which are sequential probabilities.[4]

Our findings suggest that the completion of a compulsory period of practice and the liberal profession initiation are the major processes at work in the transmission of liberal

---

[4]In presence of omitted variables which affect all the above four probabilities, the computation of the probability to become a liberal professional is slightly more complicated, because it requires the estimation of a joint quadrivariate probability model that allows for correlation between the error components in the four probability processes. In the paper we show that the estimation results obtained using separate sequential probability models and the joint quadrivariate probability model are similar.

professions from fathers to children. On the contrary, the type of degree choice and the licensing examination do not play a major role in explaining the transmission of liberal professions.

When controlling for the effect of the observed mechanisms of transmission, i.e. for the transmission of financial resources, formal human capital and job preferences, separately on the four different probability processes, we find that the advantage of having a liberal professional father in the same field of study, (i) on the probability to complete a compulsory period of practice (process I.b), is mainly explained by the transmission of formal human capital followed by family networking and/or nepotism, (ii) on the probability to pass a licensing exam (process I.c), is explained exclusively by formal human capital, (iii) on the probability to start a liberal profession (process I.d), is explained by the transmission of the family business and possibly nepotism.

The remainder of the paper is organised as follows. Section 2 summarises the literature related to our research. Section 3 provides some institutional details on the educational system and on the professional licensing in Italy. We then describe the data in Section 4 and provide descriptive measures of intergenerational mobility in liberal professions in Section 5. We assess the effects of having a liberal professional father and of different mediating mechanisms on the probability of becoming a liberal professional and on the four different sequential processes of intergenerational transmission in Sections 6 and 7, respectively. Finally, Section 8 concludes.

2   Related literature

By assuming that the cost to acquire human capital related to a specific occupation is lower for children who follow their father's occupation and that fathers with a child who is a follower maximise their own earnings as well as their child's, Laband and Lentz (1983) develop an economic model which explains the mechanisms behind the intergenerational occupational transmission and the differences in this transmission across occupations. Direct and indirect human capital transfers from fathers to children are assumed to be the mechanisms of intergenerational transmission at work, and the explanation given for why some types of occupations are more often transmitted than others is that they require job specific human

capital that can be easily and cheaply transmitted from fathers to children. Laband and Lentz (1983) find that for occupations where the direct transmission of job specific knowledge and abilities is more relevant, such as farmers and self-employed people, there is a higher percentage of children following their father's occupation. High levels of intergenerational transmission have been found also by Dunn and Holtz-Eakin (2000) and Sørensen (2007) for self-employed people, by Lindquist et al. (2015) for entrepreneurs and by Pellizzari et al. (2011) for liberal professionals.

Beside the human capital transmission, another possible explanation for the strong intergenerational association is the presence of credit market imperfections, which may lead to a failure of meritocracy (see Evans and Jovanovic 1989; Dunn and Holtz-Eakin 2000; Caselli and Gennaioli 2005; and Fairlie and Kranshinsky 2012). Evans and Jovanovic (1989) propose an economic model for the decision to be self-employed, and they provide empirical evidence that wealthier people have higher probability of starting a self-employment activity. Dunn and Holtz-Eakin (2000) extend this model to allow for financial capital transfers from fathers to children, so that the decision to become self-employed depends on the personal human and financial capital as well as on the human and financial capital transmitted from the father. There is also some empirical evidence that the probability of becoming a self-employed worker or an entrepreneur is higher for children whose fathers are wealthier (see Holtz-Eakin et al. 1994; Parker and Van Praag 2006).

An additional potential explanation for the intergenerational occupational mobility, which has been mentioned but not formalised in a theoretical economic framework, is the transmission of preferences and attitudes from parents to children. For example, risk averse fathers are less likely to become entrepreneurs and probably transmit their risk aversion to their children, who in turn will be less likely to become entrepreneurs (see Dunn and Holtz-Eakin 2000; Fairlie 2002). Necker and Voskort (2014) provide some evidence on intergenerational transmission of risk attitudes looking at earnings risk. They find that a child's earnings risk increases by 14% of a standard deviation for one standard deviation increase in father's earnings risk. This association is statistically significant, but small in size.

A further mechanism of transmission is nepotism, which may affect the outcomes of school admission exams and licensing exams, and ultimately the probability of starting specific

occupations.[5] It is generally difficult to distinguish the roles of nepotism and of human capital transfers in the intergenerational occupational transmission. This is because the intergenerational transmission of knowledge and the father's work network may increase intergenerational mobility without implying favouritism (see Magruder 2010; Ponzo and Scoppa 2011b; Kramarz and Skans 2014). It is perhaps easier to identify the contribution of nepotism when looking at exams for which the probability of success should be independent of the father's occupation once the child's ability is controlled for. An example of this is the licensing examination in Italy, which is a mandatory requirement to become a liberal professional.

Such licensing examination has been often accused of favouritism toward children of liberal professionals, but the empirical evidence is mostly anecdotal or based on statistical analysis that cannot adequately control for the intergenerational transmission of financial resources, formal and informal human capital and preferences (see Basso and Labartino 2011). The most convincing evidence on the effect of fathers on children starting a liberal profession is given by Basso and Pellizzari (2010).[6] Using local administrative registers of professionals in Italy, they find a negative relationship between the age when people start a legal profession and the frequency of their family name in the local register. Since the frequency of their surname is likely to indicate family connections, the negative relation might suggest a potential effect of nepotism on the probability of passing a license. The presence of nepotism is confirmed by a comparison of the relationship between starting age of a legal profession and frequency of the family names before and after the introduction of a reform aimed at reducing biases in the marking of licensing exams. The association between starting age and surname frequency decreases after such intervention, indicating a potential reduction in the nepotism effect.

A final mechanism through which liberal professions get transmitted from parents to children is the potential inheritance of the family professional business which lower the entry barrier to the profession. Bennedsen et al. (2007) find a causal significant negative effect on

---

[5]Previous papers that have studied the effect of nepotism include Lentz and Laband (1989) and Arulampalam et al. (2005), who look at school admission; Pérez-González (2006) and Bennedsen et al. (2007), who analyse the chief executive officer (CEO) successions; Basso and Labartino (2011), who evaluate the effect of nepotism on the starting age of licensed professions; Ponzo and Scoppa (2011a), who study its effect on recruitment; and Scoppa (2009), who estimates the intergenerational mobility of public sector jobs.

[6]The main results are also summarised in Basso and Labartino (2011).

firms performance of the transmission of chief executive officer (CEO) positions from parents to children, which seems to suggest that the decision to appoint a family member as CEO is not so meritocratic. Grossmann and Strulik (2010) consider the intergenerational transmission of ownership and control of a firm from parents to children. They develop a theoretical model to study whether preferential inheritance tax on family firms may lead to a cost for society because of the potential transmission of firms to heirs who do not necessarily have high entrepreneurial abilities. Calibrating the theoretical model using German data, they actually find that preferential tax treatment of family firms worsen macroeconomic performance. Lindquist et al. (2015) focuses on the transmission of entrepreneurship from parents to children and, by using Swedish adoption data, they find that the most relevant factors explaining such transmission are post-birth rather than pre-birth factors. This result suggests that there are not strong genetic mechanisms explaining the intergenerational transmission of entrepreneurship. Mocetti (2016) studies the intergenerational transmission of pharmacies in Italy. He finds that an increase in the cap imposed on the number of pharmacies per population (a decrease in rent) leads to a reduction in the intergenerational transmission of pharmacies, but has no effect on the career choices of children of non-pharmacists. This evidence suggests that high entry barriers provide a benefit to children of pharmacists and this advantage may lead parents to favour their child beyond their merit.

To summarise, the main mechanisms at play in the intergenerational transmission of liberal professions are: (i) formal human capital; (ii) preferences for specific jobs, (iii) financial resources, (iv) job specific human capital (informal human capital), (v) family network, (vi) nepotism, (vii) inheritance of the family business. Most of the above mechanisms of transmission of occupations have been emphasised also by sociologists, who stress that these occupational transmission mechanisms are relevant conduits for social reproduction (e.g. Grusky and Weeden 2001; Weeden and Grusky 2005; Jonsson et al. 2009).

Our paper is also related to the literature on intergenerational mobility and especially to contributions that study the mechanisms explaining the transmission of occupations from parents to children. An approach often adopted to investigate these intergenerational mechanisms is the decomposition of intergenerational association in the part explained by mechanisms (such as education, cognitive and non-cognitive abilities, and financial resources)

and in the residual part which captures the intergenerational association net of these mediating mechanisms. This type of approach was introduced by sociologists in the 60's and 70's (see Blau and Duncan 1967; and Sewell and Hauser 1975) and was soon after adopted by economists (See Conslik 1974, 1977; Atkinson 1980; and Atkinson and Jenkins 1984).[7] These studies have certainly helped in assessing the magnitude of some mechanisms in explaining intergenerational occupational mobility, but have left some more specific occupational transmission mechanisms unexplored.

To sum up, the contribution of existing literature has been to underline the role of different mechanisms in explaining the intergenerational transmission of occupations. Nevertheless, the empirical evidence on mechanisms is still fragmented as most of the studies focus only on few mechanisms and are unable to evaluate the role of each of them. Our paper provides some more comprehensive analyses on the mechanisms looking at their effects on the transmission of liberal professions from fathers to children as well as on the different underlying processes.

3   Institutional background

3.1   The Italian university education system

In Italy all students with any type of high school diploma can enrol in a university degree. High school diplomas are upper secondary qualifications, which are usually completed at age 18-19, and they can be academic (*licei classici* and *licei scientifici*) or vocational (*istituti tecnici* and *istituti professionali*).

In the period considered in our empirical exercise most of the Italian Universities were public and, with the exceptions of few departments (e.g. Medical Schools and Architecture), there were no university admission exams. If students failed an exam or were unhappy with the mark obtained, they could re-sit the exam several times. Consequently, students usually took much longer than the minimum official period to complete their degree. Four-year degrees were usually completed in an average of 7.5 years, with only one in eight students completing within 4 years (ISTAT 2000).

---

[7]More recent empirical applications of this approach are provided by Bowles and Gintis (2002); Blanden et al. (2007); Black and Devereux (2010); Smeeding et al. (2011); and Ermisch et al. (2012).

3.2 Professional licensing in Italy

In Italy, as in many other countries, professional occupations are subject to a range of requirements to guarantee the acquisition of professional credentials (see Paterson et al. 2003; Catania and Monti 2011; and Pellizzari and Pica 2011). The main four prerequisites generally required by all types of liberal professions are: (i) to have a university degree in a field of study relevant for the specific liberal profession; (ii) the acquisition of professional experience through a period of practice and/or specialised courses; (iii) passing a licensing exam; (iv) becoming a member of a relevant formal professional body.[8]

Several liberal professions require a practice period spent under the supervision of a member of the relevant professional body and practitioners are not paid but may receive a fellowship. The length of the practice period is three years for accountants, two years for lawyers (but can be shortened to one year by attending a Law specialization school for two years), eighteen months for notaries, one year for psychologists, and six months for pharmacists and architects; while the practice period is not mandatory for engineers, geo-biologists, and agronomists.

The licensing exam is compulsory and consists of one or more written tests and an oral exam. Generally, the licensing exam takes place once per year in different provinces. There are no limits to the number of candidates admitted to the licensing exam and to the number of times an examination can be taken. Because the licensing exam includes an oral exam, it is impossible to guarantee the absence of interference with the examination committee's members to favour specific applicants.

Candidates who successfully pass the licensing exam have to become members of a formal professional body (*Albo Professionale*) before starting their liberal profession. Except for passing the licensing exam, there are no other relevant prerequisites for the enrolment in the professional body. The main requirement for the members of the professional body is to respect the code of conduct set by the body, which generally imposes rules and restrictions on pricing, advertising and business structure.

---

[8]For more details on the institutional context of licensed occupations in Italy see Catania and Monti (2011).

4 Data

We use data from AlmaLaurea, which is a consortium of Italian Universities whose aim is to provide employers with information on graduates. Graduates fill in a questionnaire at the completion of their degree (*Profilo dei Laureati* survey) and are followed and interviewed again after 1, 3 and 5 years from the degree (*Condizione Occupazionale dei Laureati* survey). These last three interviews are computer assisted telephone interviews administered by trained interviewers. Information from the four interviews is matched with students' details contained in the universities' administrative data registers, so that for each cohort of graduates AlmaLaurea is able to provide details on age, sex, area of residence, family background, educational choices and test scores pre and during university, labour market status during and after the university, occupational characteristics and wage after the degree.

The initial survey at the completion of the degree covers almost the whole population of new graduates from the Universities belonging to the AlmaLaurea consortium. The response rates in these initial surveys are usually well above 90% for each cohort of students. Looking at the interviews 5 years after the degree the respondents still represent more than 80% of the population of graduates who answered the initial interview.

4.1 Sample definition

Our sample is given by all graduates in 2002 and 2003 and interviewed 5 years after graduation, i.e. in 2007 and 2008. We include all universities and departments belonging to the Consortium in 2002 or 2003 except for Sport Science and Medical Departments and the IULM (Istituto Universitario di Lingue Moderne).[9] The universities included in our sample of graduates are the following 22: University of Bologna, Cassino, Catania, Chieti, Ferrara, Firenze, Genova, Messina, Modena and Reggio Emilia, Molise, Padova, Parma, Piemonte Orientale, Roma LUMSA, Sassari, Siena, Torino Politecnico, Torino, Trento, Trieste, Udine,

---

[9] We exclude students graduating in Sport Science because of the very small sample size. Medical schools are excluded because, contrary to all other departments, they have very selective admission exams and almost all medical graduates end up obtaining professional license. Finally, the IULM is dropped from the sample because it is the only private university and has a high incidence of missing cases for most of the variables in 2002.

and Venezia Architecture. We do not consider students that are older than 40 at the completion of their degree and the few ones that were resident in a foreign country or with a foreign high school diploma before starting university.

Our final sample of graduates includes 24,309 people, and we also consider the three following subsamples:

1. the subsample of graduates with degrees providing access to liberal professions which require compulsory period of practice to obtain a license (11,308 individuals),[10]

2. the subsample of graduates with access to liberal professions who completed a compulsory period of practice (7,899 individuals),

3. the subsample of graduates who completed a compulsory period of practice and passed a licensing exam (5,601 individuals).

Because our analysis considers only liberal professions for which the university degree is mandatory, the probability of becoming a liberal professional without a degree is zero and when conditioning on having a degree we can focus on the sequential processes that occur from the choice of the type of degree to the entry into the labour market. In the Italian context the probability to get a university degree is much more related to parents' education than to parents' occupations (see Checchi et al. 2013); therefore, we do not expect any strong effect of having a liberal professional father on the probability of graduating and therefore omitting to consider the graduation probability process should not bias our results.

4.2   Variables definitions

4.2.1   Dependent Variables

For our analysis we consider four dependent variables that are four dummy variables taking value 1 for graduates who choose a degree providing access to liberal professions requiring a compulsory period of practice [I.a], and who complete a practice period [I.b], pass a professional license [I.c] and start a liberal profession within 5 years from graduation [I.d]. Degrees

---

[10]Liberal professions requiring a period of practice are accountants, lawyers, notaries, psychologists, pharmacists and architects. Therefore, degrees providing access to liberal professions requiring a period of practice are Business and Economics, Law, Psychology, Pharmacy and Architecture.

for which more than 3% of the graduates obtain a professional licensing within 5 years from graduation are defined as degrees giving access to liberal professions. Amongst them, the degrees requiring a compulsory practice period are Business and Economics, Law, Psychology, Pharmacy and Architecture, whereas those without mandatory practice are: Engineer, Geo-Biology, and Agriculture. The degrees with no access to liberal professions are, instead, Language and Linguistics, Modern Literature and Philosophy, Education, Political Science, Mathematics and Physics.

Table A1 reports some descriptive statistics and shows that 46.5% of graduates choose a degree that gives access to liberal professions for which the period of practice is mandatory, 40.7% obtain a professional license, and about 13.0% of graduates become a liberal professional within 5 years from graduation.

4.2.2 Explanatory Variables

To explain the probability to choose a degree with access to liberal professions requiring a compulsory practice, we use only child's characteristics observed at the start of the university, to explain the probability to complete a compulsory period of practice and to pass a licensing exam we consider also characteristics observed at the completion of the university degree, finally to explain the probability to start a liberal profession we consider additionally characteristics observed once the licensing exam has been passed.

The characteristics at the start of the university include a set of variables that measure the child's formal human capital, which are: age at the start of the university and its square term; high school final mark, which ranges between 36 and 60; high school type, i.e. a dummy variable taking value 1 for vocational high schools (*istituti tecnici* and *istituti professionali*) and 0 for academic high schools (*licei classici*, *scientifici*, *linguistici* and *psico-pedagogici*); area of residence in Southern Italy, which is given by a dummy variable taking value 1 for individuals living in the Southern regions and the two main Islands and 0 for individuals living in the Northern and Central regions[11].

At the completion of the university we control for variables measuring financial resources, job preferences, and human capital. We proxy the financial resources by using two dummy

---

[11]This dummy is included to capture potential variation in the quality of high school in South regions.

variables for having worked during university and having received a university scholarship, which only students from low income families are eligible for. To measure the graduates' preferences for jobs with high degree of autonomy and independence and for jobs with high security, all graduates, at the completion of university, are asked the following two questions: "How important is high stability/security in the job you are looking for?" and "How important is independence/autonomy in the job you are looking for?" The answers are reported in a 5-point scale, where 1 means "not at all important" and 5 means "extremely important". We measure the preferences for job independence and security by considering the self-reported levels of job preferences and their square terms. The variables measuring human capital are: a dummy for having graduated from a South university; a set of dummy variables for the field of study; the final university grade standardised at department level by using all the observations available in the sample;[12] the interaction term between the dummy for a Southern university and the standardised university final grade;[13] a set of dummy variables for 1, 2, 3, 4 and 5 or more years delayed graduation (no delay is the reference category), where the delay is computed as additional number of years spent to get a degree beyond the minimum period.

To explain the probability to start a liberal profession, we consider two extra explanatory variables which are two dummy variables for having passed the licensing exam between 13 and 36 months from graduation and between 37 and 60 months from graduation (having passed the exam within 12 months from graduation is the reference category). Conditional on the remaining variables, a delay in passing the licensing exam may be a signal of a lower human capital endowment.

The bottom panel of Table A1 summarises the above variables by reporting means and standard deviations using our sample of 24,309 graduates. The average high school final grade is about 49 (out of 60 maximum points) and only one in three individuals has a vocational diploma. The average age at matriculation is 19, and only 4.7% of the individuals complete their degree within the minimum required period. 31.6% of the graduates were

---

[12]The unstandardised final degree ranges between 73 and 111 (i.e. 110 *cum laude*) and its mean and standard deviation are reported in Table A1.

[13]The dummy for a Southern university and its interaction with the standardised university final grade are included to capture differences in the quality of the university in the South, but they can also capture potential differences in the probability of passing a licensing exam and starting a liberal profession in Southern regions.

resident in the South of Italy before starting the university, but only 24.8% obtain their degree in a university located in the South of Italy. 64.4% of people in our main sample have some work experience during university. On average the level of preference for job security and independence is about 4, which is just below the maximum level of preference which is 5.

4.2.3 Parents' occupation and education

To study the effect of parents' occupation and education on the probability to choose a degree with access to liberal professions requiring a period of compulsory practice, we consider a set of dummy variables to distinguish between fathers who are graduate liberal professionals, non-graduate liberal professionals,[14] managers, entrepreneurs, self-employed workers, non-manual workers and blue collars; having a graduate father who is not a liberal professional; and two dummy variables for mothers who are graduate and non-graduate liberal professionals.[15]

Both self-employed workers and entrepreneurs work on their own account; but while entrepreneurs engage one or more employees on a regular basis, self-employed workers do not usually engage employees. Liberal professionals are self-employed workers who provide a public service which requires specific intellectual skills and an official license. Both blue collar and non-manual workers are employees; but while the former include unskilled and semi-skilled manual workers, the latter include technicians, teachers, clerical workers and lower supervisors. Finally, managers are employees who have high managerial occupations such as directors, business executive, head teachers, university professors and chief physicians.

When modelling the probability to complete a compulsory period of practice, to obtain or to pass a licensing exam and to start a liberal profession, we consider dummy variables for having a graduate liberal professional father with the same degree, having a graduate liberal professional father with a different degree, having a liberal professional mother with the same degree, and having a liberal professional mother with a different degree or without a degree. Table A2 reports the mean of each of the dummy variables describing the fathers'

---

[14] For the parents' generation there are liberal professions that did not require a university degree, e.g. accountants.

[15] For parents who are retired, unemployed or dead we consider their last occupation.

and mothers' occupation and education in the sample of 24,309 graduates. More than 50% of the fathers are either blue collar or non-manual workers (19.1% and 31.5%, respectively), while 9.6% are liberal professionals, 4.6% are graduate, of this 1.3% with the same degree. Only 1.9% of the mothers are liberal professionals, whereof 0.1% with the same university degree.

5   Measures of intergenerational association

Let us denote the probability of a child of becoming a liberal professional within 5 years from graduation[16] conditioning on the father's occupation by

$$Pr(Y^c = 1 | Y^f = 1), \tag{1}$$

where Y^c is a dummy variable taking value one if a child becomes a liberal professional and zero otherwise, and Y^f is a dummy variable taking value 1 if his/her father's is a liberal professional and zero otherwise. We begin by reporting in Table 1 the odds ratios, i.e. the ratio of the odds of being a liberal professional if one's father is a liberal professional to the odds of it if one's father has a different occupation,

$$\frac{Pr(Y^c = 1, Y^f = 1) Pr(Y^c = 0, Y^f = 0)}{Pr(Y^c = 1, Y^f = 0) Pr(Y^c = 0, Y^f = 1)}. \tag{2}$$

The odds ratio measures the so called intergenerational exchange mobility, which is unaffected by changes in the frequency of liberal professionals from the fathers to the children generation. It measures the association between becoming a liberal professional and having a liberal professional father, which takes values greater (lower) than 1 when the association is positive (negative).

This odds ratio is reported in the first column in the top panel of Table 1, while in the second column we report the equivalent odds ratio when considering only children who become liberal professionals after a compulsory period of practice which are the type of liberal professions considered in our main analysis. In both cases, we find that the odds to be a liberal professional if one's father is a liberal professional is about twice the corresponding odds than if one's father is not a liberal professional. We also compute the odds ratios

---

[16]For brevity in the following we omit to specify "5 years from graduation".

when considering liberal professional fathers with and without a university degree and the transmission is much larger for graduate professional fathers (compare second and third row in Table 1).

To check whether there are any differences in the degree of intergenerational transfer across liberal professions, we report the odds ratios computed by considering specific liberal professions in the bottom panel of Table 1.[17] The odds ratios increase when considering liberal professions for which there is a compulsory period of practice, especially if it is long (see column 2). The largest odds ratio is observed for pharmacists and this is likely caused by strict regulations which limit the number of new pharmacies and increase the likelihood that pharmacies be transmitted from fathers to children (see Mocetti 2016). For geo-biologists and agronomists, for whom there is no compulsory practice, the odds ratios are large but they are not significantly different from 1. These results seem to suggest that high entry barriers to the profession increase the occupational transmission from fathers to children.

6 Intergenerational association: different mechanisms

Let us consider the probability of a graduate of being a liberal professional conditioning on the father's occupation and education by

$$Pr(Y^c = 1 | D^f = j), \tag{3}$$

where $j = 1, ..., 7$; Y^c is a dummy variable taking value one if a graduate becomes a liberal professional and zero otherwise;[18] D^f is a categorical variable denoting his/her father's occupation, which takes value 1 for graduate liberal professionals, 2 for non-graduate liberal professionals, 3 for managers, 4 for self-employed workers, 5 for non-manual workers, 6 for blue collar workers and 7 for entrepreneurs.

In column (1) of Table 2 we report the average marginal effects of having a father in a specific occupation relative to having a father who is an entrepreneur on the probability of

---

[17]We do not report the odds ratio separately for psychologists because there are only five fathers who are psychologists.

[18]For children we consider only liberal professions for which there is a compulsory period of practice.

becoming a liberal professional,[19] which are computed using the following formula

$$Pr(Y^c = 1|D^f = j) - Pr(Y^c = 1|D^f = 7) \quad \text{for} \quad j = 1, ..., 6. \tag{4}$$

We choose as reference category for the father's occupation the entrepreneurs because their expected income is similar to the one of liberal professionals and both liberal professionals and entrepreneurs work on their own account, so that fathers with these two types of occupations are likely to transmit to their children similar job preferences (especially preferences for job independence and risk) and financial resources.[20] To understand how the choice of the reference category affects our results, we also report in the Appendix A the corresponding results when considering blue collars as reference category (see Appendix A Table A3). The differential effect of having a liberal professional father increases when considering blue collars (see Table A3 column 1) rather than entrepreneurs (see Table 2 column 1), it goes from 8.2 to 13.6 percentage points, suggesting that the transmission of financial resources and job preferences from parents to children is more comparable between liberal professionals and entrepreneurs than between liberal professionals and blue collars.

To assess the role of different mechanisms in explaining the intergenerational association in liberal professions, we also compute the average marginal effect of having a father in different types of occupations on the probability of a child of becoming a liberal professional when controlling for a vector of characteristics X which captures family financial resources, job preferences and formal human capital. We do this by estimating a probit model for the probability to become a liberal professional

$$Pr(Y^c = 1|D^f, X) = \Phi\left(-\alpha_0 - X\delta - \sum_{j=1}^{6} \mathbf{I}(D^f = j)\alpha_j\right), \tag{5}$$

where Φ denotes the cumulative function of the standardised normal, X is a row vector of explanatory variables, δ is the corresponding column vector of coefficients, $\mathbf{I}(D^f = j)$ is an indicator function taking value one if the father has occupation j and zero otherwise, and α_j is the corresponding coefficient which measures the effect of having a father with

---

[19]These average marginal effects are computed considering a probit model for the probability to become a liberal professional and using the maximum likelihood estimates.

[20]Using the Survey on Household Income and Wealth (SHIW) of the Bank of Italy over the period 1998-2010, we find a very close value for the average net income of males who are liberal professionals and who are entrepreneurs, Euros 35,487 and 36,566 respectively. Using our main sample, we also find a similar value for the average level of preference for job independence (security) between children of liberal professionals with the same degree and children of entrepreneurs, 4.016 and 3.951 (3.958 and 3.880) respectively.

occupation j with respect to having a father who is an entrepreneur (reference category). The average marginal effect of having a father who is a graduate liberal professional with respect to a father who is an entrepreneur is computed by considering the following difference in probabilities

$$Pr(Y^c = 1|D^f = 1, X) - Pr(Y^c = 1|D^f = 7, X) = \Phi(-\alpha_0 - X\delta - \alpha_1) - \Phi(-\alpha_0 - X\delta), \quad (6)$$

replacing the coefficients with their maximum likelihood estimates and averaging over the full sample. The average marginal effects for fathers with other occupations are computed in a similar way.

Table 2 reports the average marginal effects of having a father in specific occupations on the probability to become a liberal professional unconditional on covariates i.e. controlling for: *nothing* (column 1); *financial resources* (column 2); *job preferences* (column 3); *formal human capital* (HC) at the start of the university and at the completion of the university (column 4); *parental human capital* (HC) (column 5); and *all variables* together (column 6). The detailed list of variables is reported at the bottom of Table 2. Each column reports the average marginal effects of having a father with different types of occupation with respect to having an entrepreneur father but using a different set of variables X.

The effect of having a non-graduate liberal professional father is not significantly different from zero; conversely, the effect of having a graduate liberal professional father is 0.082 but reduces to 0.055 once controlled for all observed variables (see Table 2 columns 1 and 6). This residual captures the effects of nepotism and family networking and, only for liberal professional fathers with the same degree, the transmission of job specific formal human capital and family business. In the following section we better identify and explain the separate contribution of these residual mechanisms.

7   The effect of mechanisms on different processes

In this section we decompose the probability of becoming a liberal professional in the product of four sequential probabilities, which are the probabilities of (I.a) choosing a degree with access to a liberal profession which requires a compulsory period of practice, (I.b) completing a period of compulsory practice, (I.c) obtaining a professional license and (I.d) starting a

liberal profession. Furthermore, we allow each of these probability processes to be explained differently by observed characteristics, which are measures of financial resources, job preferences, child's formal human capital, parental occupation and education, by estimating the four following sequential probit models

$$
\begin{aligned}
&[I.a] \quad Pr(Y_1^c = 1 | X^C, Z_1) = \Phi(X^C \beta_1 + Z_1 \gamma_1), \\
&[I.b] \quad Pr(Y_2^c = 1 | X^C, Z_2, Y_1^c = 1) = \Phi(X^C \beta_1 + Z_2 \gamma_1), \\
&[I.c] \quad Pr(Y_3^c = 1 | X^C, Z_2, Y_2^c = 1) = \Phi(X^C \beta_2 + Z_2 \gamma_2), \\
&[I.d] \quad Pr(Y_4^c = 1 | X^C, Z_3, Y_3^c = 1) = \Phi(X^C \beta_3 + Z_3 \gamma_3),
\end{aligned}
\tag{7}
$$

where Y_1^c, Y_2^c, Y_3^c and Y_4^c, are dummy variables which take value 1 respectively if the child chooses a degree with access to a liberal profession which requires a compulsory period of practice, completes a compulsory period of practice, passes the licensing exam and starts a liberal profession; Φ denotes the cumulative function of the standardised normal; X^C is a vector of common explanatory variables for all four models, which includes a constant and the set of dummies for different father's occupations with the usual reference category "entrepreneur"; Z_s is a vector of extra explanatory variables; and β_s and γ_s are the vectors of coefficients for X^C and Z_s. The list of explanatory variables used for each of the four models are described in Table 3.

We can express the probability of a graduate of becoming a liberal professional as the product of the above four conditional probabilities, i.e.

$$
\begin{aligned}
Pr(Y^c = 1 | X^C, Z) = &Pr(Y_1^c = 1 | X^C, Z_1) Pr(Y_2^c = 1 | X^C, Z_2, Y_1^c = 1) \\
&Pr(Y_3^c = 1 | X^C, Z_2, Y_2^c = 1, Y_1^c = 1) Pr(Y_4^c = 1 | X^C, Z_3, Y_3^c = 1, Y_2^c = 1, Y_1^c = 1).
\end{aligned}
\tag{8}
$$

Therefore, the effect of having a liberal professional father in each of these probability models captures the strength of transmission of liberal professions through each of the four sequential processes.

In Tables 4a, 4b, 4c and 4d we report the average marginal effects of having a father in each of the different occupations with respect to having an entrepreneur father on the four probabilities processes, unconditional on covariates i.e. controlling for: *nothing* (column 1); *financial resources* (column 2); *job preferences* (column 3); *formal human capital* (HC) (column 4); *parental human capital* (HC) (column 5); and *all variables* together (column

6).[21] In Appendix B we also consider the same sequential model estimated using a joint quadrivariate probit model (see Table B1) and results are similar.

The choice of a degree which provides access to a liberal profession is taken before starting the university, therefore to explain the degree choice we consider only explanatory variables which are observed before or at the start of the university. Consequently, we do not control for the job preferences, which are reported after the completion of the degree, the dummies for having had a scholarship and having worked during the university, and the university final grade. Nevertheless, because our reference category for the father's occupation is the entrepreneur and because the intergenerational transmission of job preferences, financial resources and formal human capital is likely to be similar for entrepreneur and liberal professional fathers, we believe that our estimated effect of having a father liberal professional in column (6) is net of these three transmission mechanisms.

We find that the average marginal effect of having a father who is a graduate liberal professional is not statistically significantly different from having a father who is an entrepreneur.[22] On the contrary, the effect of having a graduate liberal professional father is statistically significantly higher than having a father who is a blue collar (see Table A5a). These results suggest that after controlling for transmission of financial resources, job preferences and formal human capital, which are likely to be similar for fathers who are entrepreneurs and who are graduate liberal professionals, the residual transmission mechanisms do not play a role in explaining the degree choice.

We find a negative effect of having a father who is a non-graduate liberal professional with respect to having an entrepreneur father (see second row in Table 4a), which persists even after controlling of all explanatory variables observed before or at the start of the university. The differential effect can be caused by the difference in the transmission of human capital given that we now consider a liberal professional father who is not graduate. Conversely, we find no effect of having a father who is a non-graduate liberal professional with respect to having a father who is a blue collar (see Table A5a). This seems to suggest that non-graduate liberal professionals transmit to their child a level of formal human capital similar to the blue-collars' one and lower than the entrepreneurs' one. We find similar types of results also

---

[21]The effects of the remaining explanatory variables for each of the probit models when controlling for all variables together are reported in Appendix A Table A4.

[22]Henceforth when speaking about significance we mean statistically significance at 5% level.

when we consider the probability of choosing a degree providing access to liberal professions without restricting the professions to the ones requiring a compulsory period of practice.[23] Ultimately, our results suggest that children of liberal professional fathers are not more likely to choose degrees which provide access to liberal professions.

Looking at the probability to complete a period of practice without controlling for any variable (see Table 4b column (1)), we find a large effect of having a liberal professional father, 26.1, 12.7 ad 9.1 percentage points for liberal professional fathers with the same degree, with a different degree and with no degree. This effect does not seem explained by the observed variables measuring job preferences and financial resources (see columns (2) and (3)), but it is explained by the transmission of formal human capital. Once controlled for all covariates, the effects reduce of about 30%, 80% and 60% for liberal professional fathers with the same degree, with a different degree and without a degree, respectively. Findings are very similar when considering as reference category fathers who are blue collars rather than entrepreneurs (See Table A5b). These similarities in results reinforce our belief that it is not the transmission of financial resources and job preferences (which are similar between liberal professionals and entrepreneurs but not between liberal professionals and blue collars) that explain the effect of having a liberal professional father on the probability to complete a compulsory period of practice.

Notice that most of the effect of liberal professional fathers without a degree or with a different degree on the probability of their child to complete a compulsory period of practice cancels out once controlled for all covariates. This suggests there are no other relevant mechanisms through which the intergenerational transmission affects the probability of completing a compulsory period of practice. On the contrary, the effect of liberal professional fathers with the same degree remains large even after controlling for the transmission of formal human capital, implying that there are other relevant mechanisms, in particular the nepotism and family networking and the transmission of job specific informal human capital and of family business. We try to net out the effect of transmission of family business by excluding all individuals who report that they are working in a family business 5 years after graduation irrelevant of their occupation, and we find that the effect of having a liberal professional father with the same degree after controlling for all covariates is still very large

---

[23]Results are available upon request to the authors.

(see Appendix A Table A6). This seems to suggest that the transmission of family business has probably a small role in explaining the probability to complete a period of compulsory practice.

Because all individuals who complete a compulsory period of practice do attempt to pass the licensing exam, we can interpret the estimated effect of having a liberal professional father on the probability of obtaining a license as the effect on the probability of passing a licensing exam. By comparing our probability of passing a licensing exam by type of liberal profession with the corresponding licensing passing rate published in "Il Sole 24 Ore"[24], we find indeed that our licensing success rates are comparable or even slightly higher. For this reason, we rename the probability of obtaining a license conditional on completing a practice period as the probability of passing the licensing exam.

Looking at the results for the probability of passing a licensing exam conditional on having completed a compulsory period of practice in Table 4c, we find that the effect of having a liberal professional father is at most of 6 percentage points when omitting to control for any covariate and it is completely explained by the transmission of formal human capital. These results suggest that neither nepotism nor the transmission of job specific skills affect the probability to pass a licensing exam. Notice that family networking and the transmission of family business cannot affect the probability to pass a licensing exam because the only way they could have an effect is through nepotism. These results are confirmed when blue collar fathers are used as reference category (see Table A5c).

Finally, looking at the probability of starting a liberal profession without controlling for any covariate (see column (1) Table 4d), we find an average marginal effect of 13.5 and 7 percentage points for liberal professional fathers with the same degree and with a different degree, and no statistically significant effect for fathers who are non-graduate liberal professionals. Controlling for all covariates, the effect of liberal professional fathers with the same degree reduces to 8.4 percentage points and makes the effect of liberal professional fathers with a different degree statistically insignificant. Financial resources and job preferences do not seem to explain any of these effects; whereas variables measuring formal human capital such the standardised university degree and the dummy variables for a delayed graduation,

---

[24] "Il Sole 24 Ore" is the main Italian daily business newspaper and we considered the issue published on the 7th of January 2013.

have a statistically significant average marginal effect on the probability to start a liberal profession but of opposite sign to the one expected (see Table A4). Because higher quality human capital decreases the probability to start a liberal professional, we infer that the selection into starting a liberal profession is not meritocratic. The lack of meritocracy makes us also think that it is not the transmission of job specific skills that provides an advantage to children of graduate liberal professionals with the same degree, but rather the transmission of the business or nepotism. To better disentangle these two residual mechanisms, we also estimate the average marginal effect of having a liberal professional father excluding all individuals who are working in a family business 5 years after graduation irrelevant of their occupation. We find that the effect of having a liberal professional fathers with the same degree, after controlling for all covariates, becomes statistically insignificant (see Appendix A Table A7), which suggests that the inheritance of the family business plays a big role in explaining the probability to start a liberal profession.

In conclusion, our main findings are the following: (i) the largest effect of having a liberal professional father is observed when a father has the same degree as his child, (ii) having a father liberal professional does not increase the probability to choose a degree with access to liberal professions requiring a compulsory practice; (iii) the transmission of human capital (probably both formal and informal) is the main mechanism explaining the probability to complete a compulsory period of practice followed by family networking and/or nepotism; (iv) the transmission of formal human capital is the main and only mechanism explaining the probability to pass a licensing exam after completed a compulsory period of practice; (v) the transmission of the family business and probably nepotism are the main mechanisms explaining the probability to start a liberal profession after completed a compulsory period of practice and passed a licensing exam.

8 Conclusions

In this paper we studied the mechanisms and processes of transmission of liberal professions from fathers to children. Using data on 22 Italian universities, we find that there is a very strong intergenerational transmission. The odds of being a liberal professional for children of liberal professionals is twice the corresponding odds for children of non-professionals and it

is especially large for liberal professions with high entry barriers, in particular accountants, lawyers, notaries, psychologists, pharmacists and architects for which a compulsory period of practice is required.

Our empirical results also suggest that nepotism does not play a role in explaining the probability of passing a licensing exam, but it might explain the probability of starting a liberal profession once a licensing exam is passed and as a matter of fact we find a negative relationship between formal human capital and the probability to start a liberal profession. Furthermore, the transmission of the family business seems to play a substantial role in explaining the effect of having a father liberal professional with the same degree on the probability to start a liberal profession. The process of completing a compulsory period of practice is at least in part meritocratic, but it can also be partly explained by family networking which disproportionably advantages children of liberal professionals. This would suggest that high-ability children with no family members in the profession could be helped in starting a liberal profession by introducing (i) mentoring schemes where senior professionals get incentives to provide advice and help prospective professionals, (ii) programmes to help graduates in finding members of the relevant professional body available to supervise them for a period of practice, (iii) liberalisation reforms that increase competition and lower the entry barrier. Fairlie and Robb (2007) draw a similar type of conclusion from their study on the effect of having a father who is a business owner on the probability of children to become self-employed.

Our findings are aligned with previous empirical evidence on liberal professions in Italy suggesting that one of the main reasons for the intergenerational transmission is that having a liberal professional father helps in lowering the entry barrier and this might lead to favouritism (see Mocetti 2016, for pharmacists, Pellizzari and Pica 2011 and Basso and Pellizzari 2010, for lawyers). Our study generalises previous studies to all types of liberal professions by providing evidence that part of the intergenerational transmission of liberal professions is explained by transmission of the family business, networking and potentially nepotism.

Acknowledgements

References

Arulampalam W., Naylor R. A., Smith J. (2005). Doctor who? Who gets admission offers in UK medical schools?. *IZA Discussion Paper* 1775.

Atkinson A.B. (1980). Inheritance and the redistribution of wealth. In G.A. Hughes and G.M. Heal (ed.), *Public Policy and the Tax System*. Allen and Unwin, London.

Atkinson A.B., Jenkins S.P. (1984). The steady state assumption and the estimation of distributional and related models. *Journal of Human Resources*, 19, 358-376.

Basso G., Labartino G. (2011). Family connections in accessing licensed occupations in Italy. In *Family Ties in Licensed Professions in Italy*, Report for the Fondazione Rodolfo Debenedetti.

Basso G., Pellizzari M. (2010.) Quelle barriere per gli aspiranti avvocati. http://www.lavoce.info/archives/26573/barriere-per-gli-aspiranti-avvocati/

Becker G.S., Tomes N. (1979). An equilibrium theory of the distribution of income and intergenerational mobility. *Journal of Political Economy*, 87, 1153-89.

Becker G.S., Tomes N. (1986). Human capital and the rise and fall of families. *Journal of Labor Economics*, 4, S1-S39.

Bennedsen M., Nielsen K.M., Pérez-González F., Wolfenzon D. (2007). Inside the family firm: The role of families in succession decisions and performance. *Quarterly Journal of Economics*, 122, 647-91.

Björklund A., Jantti M. (2009). Intergenerational income mobility and the role of family background. In W. Salverda, B.Nolan and T. Smeeding (ed.), *Handbook of Economic Inequality*. Oxford: Oxford University Press.

Black S.E., Devereux P.J. (2010). Recent developments in intergenerational mobility. In O. Ashenfelter and D. Card (ed.), *Handbook of Labor Economics*, 4, 1487-1541. Amsterdam: Elsevier.

Blanden J., Gregg P., MacMillan L. (2007). Accounting for intergenerational income persistence: Noncognitive skills, ability and education. *The Economic Journal*, 117, C43-C60.

Blau P.M., Duncan O.D. (1967). *The American occupational structure*. New York, NY: John Wiley and Sons.

Bowles S., Gintis H. (2002). The inheritance of inequality. *Journal of Economic Perspectives*, 16(3), 3-30.

Cameron S.V., Heckman J.J. (1998). Life cycle schooling and dynamic selection bias: Models and evidence for five cohorts of American males. *The Journal of Political Economy*, 106(2), 262-333.

Caselli F., Gennaioli N. (2005). Credit constraints, competition, and meritocracy. *Journal of the European Economic Association*, 3(2-3), 679-689.

Catania A., Monti P. (2011). Institutional aspects of licensed occupations in Italy. In *Family Ties in Licensed Professions in Italy*, Report for the Fondazione Rodolfo Debenedetti.

Checchi D., Fiorio C.V., Leonardi M. (2013). Intergenerational persistence of educational attainment in Italy. *Economics Letters*, 118, 229-232.

Conslik J. (1974). Can equalization of opportunities reduce social mobility?. *American Economic Review*, 64, 80-90.

Conslik J. (1977). A further look at the Hansen-Weisbrod-Pechman debate. *Journal of Human Resources*, 12, 147-163.

Dunn T.A., Holtz-Eakin D.J. (2000). Financial Capital, Human Capital, and the Transition to Self-Employment: Evidence from Intergenerational Links. *Journal of Labor Economics*, 18(2), 282-305.

Erikson R., Goldthorpe J.H. (2002). Intergenerational inequality: a sociological perspective. *Journal of Economic Perspectives*, 16(3): 31-44.

Ermisch J., Jantti M., Smeeding T. (2012). From Parents to Children: The Intergenerational Transmission of Advantage. New York: Russell Sage Foundation.

Evans D., Jovanovic B. (1989). An estimated model of entrepreneurial choice under liquidity constraints. *Journal of Political Economy*, 97(4), 808-27.

Fairlie R.W. (2002). Drug dealing and legitimate self-employment. *Journal of Labor Economics*, 20(3), 538-567.

Fairlie R.W., Krashinsky H.A. (2012). Liquidity constraints, household wealth, and entrepreneurship revisited. *Review of Income and Wealth*, 58(2), 279-306.

Fairlie R.W., Robb A. (2007). Families, human capital, and small business: Evidence from the characteristics of business owners survey. *Industrial and Labor Relations Review*, 60(2), 225-245.

Grossmann V., Strulik H. (2010). Should continued family firms face lower taxes than other estates? *Journal of Public Economics*, 94, 87-101.

Grusky D.B., Weeden K.A. (2001). Decomposition without Death: A Research Agenda for a New Class Analysis, *Acta Sociologica*, 44, 203-218.

Holtz-Eakin D., Joulfaian D., Rosen H. S. (1994). Entrepreneurial decisions and liquidity constraints. *Rand Journal of Economics*, 25(2), 334-47.

ISTAT (2000). Università e lavoro: statistiche per orientarsi, Roma.

Jonsson J.O., Grusky D.B., Di Carlo M., Pollak R., Brinton, M.C. (2009). Microclass Mobility: Social Reproduction in Four Countries. *American Journal of Sociology*. 114: 977-1036.

Kramarz F, Skans O. N. (2014). When strong ties are strong: Family networks and youth labor market entry. *Review of Economics Studies*, 81(3), 1164-1200.

Laband D.N., Lentz B.F. (1983). Like father, like son: toward an economic theory of occupational following. *Southern Economic Journal*, 50, 474-93.

Laband D.N., Lentz B.F. (1992). Self-recruitment in the legal profession. *Journal of Labor Economics*, 10(2), 182-201.

Lentz B.F., Laband D.N. (1989). Why so many children of doctors become doctors: Nepotism vs. human capital transfers. *The Journal of Human Resources*, 24(3), 396-413.

Lindquist M.J., Sol J., van Praag C. M. (2015). Why Do Entrepreneurial Parents Have Entrepreneurial Children?. *Journal of Labor Economics*, 33(2), 269-296.

Magruder J.R. (2010). Intergenerational Networks, Unemployment, and Persistent Inequality in South Africa. *American Economic Journal: Applied Economics*, 2(1), 62-85.

Mare R.D. (1979). Social background composition and educational growth. *Demography*, 16(1), 55-71.

Mare R.D. (1980). Social background and school continuation decisions. *Journal of the American Statistical Association*, 75, 293-305.

Mare R.D. (1981). Change and stability in educational stratification. *American Sociological Review*, 46(1), 72-87.

Mare R.D. (2011). Introduction to symposium on unmeasured heterogeneity in school transition models. *Research in Social Stratification and Mobility*, 29(3), 239-245.

Mocetti S. (2016). Dynasties in professions and the role of rents and regulation: evidence from Italian pharmacies. *Journal of Public Economics*, 133, 1-10.

Necker S., Voskort A. (2014). Intergenerational transmission of risk attitudes - A revealed preference approach. *European Economic Review*, 65, 66-89.

Parker S.C., Van Praag C. M. (2006). Reviewed Schooling, Capital Constraints, and Entrepreneurial Performance: The Endogenous Triangle. *Journal of Business & Economic Statistics*, 24(4), 416-431.

Paterson I., Fink M., Ogus A. (2003). Economic impact of regulation in the field of liberal professions in different Member States. Regulation of Professional Services. *Study for the European Commission, DG Competition.*

Pellizzari M. (coordinator), Basso G., Catania A., Labartino G., Malacrino D., Monti P. (2011). Family ties in licensed professions in Italy, Report for the Fondazione Rodolfo Debenedetti.

Pellizzari M., Pica G. (2011). Liberalizing professional services: Evidence from Italian lawyers. *IGIER Working Paper* 372.

Pérez-González F. (2006). Inherited control and firm performance. *American Economic Review*, 96, 1559-88.

Ponzo M., Scoppa V. (2011a). A simple model of favouritism in recruitment. *Research in Economics*, 65, 78-88.

Ponzo M., Scoppa V. (2011b). The use of informal networks in Italy: Efficiency or favoritism?. *The Journal of Socio-Economics*, 39, 89-99.

Roodman D. (2010). Estimating Fully Observed Recursive Mixed-Process Models with CMP. *Center for Global Development*, Working Paper 168.

Scoppa V. (2009). Intergenerational transfers of public sector jobs: a shred of evidence on nepotism. *Public Choice*, 141, 167-188.

Sewell W.H., Hauser R.M. (1975). *Education, occupation, and earnings: Achievement in the early career*. New York, NY: Academic Press.

Smeeding T., Erikson R., Jäntti M. (eds.) (2011). Persistence, privilege and parenting. New York, NY: Russell Sage Foundation.

Solon G. (1999). Intergenerational Mobility in the Labor Market. In O. Ashenfelter and D. Card (ed.), *Handbook of Labor Economics*, 3, 1761-1800. Amsterdam: Elsevier.

Sørensen, J. B. (2007). Closure and Exposure: Mechanisms in the Intergenerational Transmission of Self-employment. *Research in the Sociology of Organizations*, 25, 83-124.

Torche F. (2015). An analysis of intergenerational mobility: an interdisciplinary review. *The Annals of the American Academy of Political and Social Science*, 657, 37-62.

Van den Berg G.J. (2001). Duration models: specification, identification and multiple durations. In J.J. Heckman and E. Learner (ed.), *Handbook of Econometrics*, 5, 5-55. Amsterdam: North-Holland.

Weeden K.A., Grusky D.B. (2005). The Case for a New Class Map, *American Journal of Sociology*, 111, 141-212.

Table 1: Intergenerational associations in liberal professions: Odds ratios

Father's occupation	General odds ratios of being a liberal professional	
	(1)	(2)
	with or without	with
	a compulsory practice	
Liberal professional	1.969***	2.005***
	(0.107)	(0.121)
Graduate liberal professional	2.440***	2.584***
	(0.174)	(0.200)
Non-graduate liberal professional	1.446***	1.383***
	(0.112)	(0.122)
No. of observations	24,309	

Father's occupation	Profession specific odds ratios	Compulsory practice length
Pharmacist	74.416**	6 months
	(34.453)	
Accountant	12.438***	3 years
	(3.221)	
Notary and lawyer	9.540***	1.5 -2 years
	(1.465)	
Architect	8.529**	6 months
	(2.312)	
Engineer	5.779***	No
	(1.426)	
Geo-biologist	74.731	No
	(48.951)	
Agronomist	4.631	No
	(4.731)	

Notes: Standard errors are reported in parenthesis. * p-value < .10, ** p-value < .05, *** p-value < .01. Notary and lawyer = liberal professional father with degree in Law. Accountant = liberal professional father with degree in Economics. Pharmacist = liberal professional father with degree in Pharmacy. Architect = liberal professional father with degree in Architecture. Engineer = liberal professional father with degree in Engineer. Geo-biologist = liberal professional father with degree in Geology or Biology. Agronomist = liberal professional father with degree in Agriculture.

Table 2: Probability of becoming a liberal professional - Probit model estimates

Father's occupation	Average marginal effect controlling for					
	nothing (1)	financial resources (2)	job preferences (3)	formal HC (4)	parental HC (5)	all variables (6)
Graduate liberal professional	0.082***	0.079***	0.082***	0.087***	0.051***	0.055***
	(0.014)	(0.014)	(0.014)	(0.015)	(0.016)	(0.015)
Non-graduate liberal professional	0.003	0.004	0.005	0.007	-0.019	-0.010
	(0.012)	(0.012)	(0.012)	(0.012)	(0.013)	(0.013)
Manager	-0.022**	-0.022**	-0.017*	-0.020**	-0.030***	-0.024***
	(0.009)	(0.009)	(0.009)	(0.009)	(0.009)	(0.009)
Self-employed	-0.027***	-0.025***	-0.022**	-0.027***	-0.024**	-0.019**
	(0.009)	(0.009)	(0.009)	(0.009)	(0.010)	(0.009)
Non-manual worker	-0.043***	-0.041***	-0.037***	-0.043***	-0.044***	-0.037***
	(0.008)	(0.008)	(0.008)	(0.008)	(0.009)	(0.008)
Blue collar	-0.054***	-0.049***	-0.047***	-0.053***	-0.052***	-0.043***
	(0.009)	(0.009)	(0.009)	(0.009)	(0.009)	(0.009)
Entrepreneur (reference category)						
No. of observations	24,309	24,309	24,309	24,309	24,309	24,309

Notes: Standard errors are reported in parenthesis. * p-value < .10, ** p-value < .05, *** p-value < .01. Control variables are: (2) having worked and having received a scholarship during university; (3) job stability and its square term, job independence and its square term; (4) age at enrolment and its square term, vocational high school track, high school final mark, university in the South, standardised university grade, interaction between South university and standardised university grade, dummies for graduation with delay; (5) graduate liberal professional mother, non-graduate liberal professional mother, non-graduate and non-liberal professional father; (6) all control variables. Sample of all graduates.

Table 3: Control variables in the four sequential processes

Probability of	Control variables for				
	father's occupation	financial resources	job preferences	formal HC	parental HC
I.a - choosing a degree providing access to liberal professions requiring a compulsory practice period	Graduate liberal professional Non-graduate liberal professional Manager Self-employed Non-manual worker Blue collar			Age at enrolment and its square term Vocational high school High school final mark Living in Southern regions	Graduate liberal professional mother Non-graduate liberal professional mother Non-graduate and non-liberal professional father
I.b - completing a compulsory period of practice	*Father's occupation (1):* Graduate liberal professional with the same degree Graduate liberal professional with a different degree Non-graduate liberal professional Manager Self-employed Non-manual worker Blue collar	*Financial resources (1):* Having worked during university Having received a scholarship	*Job preferences (1):* Job stability and its square term Job independence and its square term	*Formal HC (1):* Age at enrolment and its square term Vocational high school High school final mark Field of study University in the South Std. university grade Interaction between South university and std. university grade Graduation with delay	*Parental HC (1):* Graduate liberal professional mother with the same degree Non-graduate or graduate with a different degree liberal professional mother Non-graduate and non-liberal professional father
I.c - passing a professional license	*Father's occupation (1)* See above list	*Financial resources (1)* See above list	*Job preferences (1)* See above list	*Formal HC (1)* See above list	*Parental HC (1)* See above list
I.d - starting a liberal profession	*Father's occupation (1)* See above list	*Financial resources (1)* See above list	*Job preferences (1)* See above list	*Formal HC (1)* plus having passed licensing exam 3 years and 5 years after graduation	*Parental HC (1)* See above list

Table 4a: Probability of choosing a degree providing access to liberal professions requiring a compulsory period of practice [I.a] - Probit model estimates

Father's occupation	Average marginal effect controlling for					
	nothing (1)	financial resources (2)	job preferences (3)	formal HC (4)	parental HC (5)	all variables (6)
Graduate liberal professional	-0.001 (0.019)			0.023 (0.019)	-0.001 (0.021)	0.008 (0.021)
Non-graduate liberal professional	-0.106*** (0.018)			-0.096*** (0.018)	-0.107*** (0.021)	-0.111*** (0.021)
Manager	-0.079*** (0.014)			-0.059** (0.014)	-0.078*** (0.014)	-0.063*** (0.014)
Self-employed	-0.076*** (0.015)			-0.077*** (0.014)	-0.076*** (0.015)	-0.075*** (0.014)
Non-manual worker	-0.116*** (0.013)			-0.109*** (0.013)	-0.116*** (0.013)	-0.109*** (0.013)
Blue collar	-0.129*** (0.014)			-0.133*** (0.014)	-0.129*** (0.014)	-0.131*** (0.014)
Entrepreneur (reference category)						
No. of observations	24,309			24,309	24,309	24,309

Notes: Standard errors are reported in parenthesis. * p-value < .10, ** p-value < .05, *** p-value < .01. Control variables are: (4) age at enrolment and its square term, vocational high school track, high school final mark, living in Southern regions; (5) graduate liberal professional mother, non-graduate liberal professional mother, non-graduate and non-liberal professional father; (6) all control variables. Sample of all graduates.

Table 4b: Probability of completing a compulsory period of practice [I.b] - Probit model estimates

Father's occupation	Average marginal effect controlling for					
	nothing	financial resources	job preferences	formal HC	parental HC	all variables
	(1)	(2)	(3)	(4)	(5)	(6)
Graduate liberal professional	0.261***	0.250***	0.261***	0.190***	0.236***	0.178***
with the same degree	(0.022)	(0.023)	(0.023)	(0.023)	(0.026)	(0.026)
Graduate liberal professional	0.127***	0.117***	0.129***	0.040*	0.086***	0.027
with a different degree	(0.026)	(0.026)	(0.026)	(0.023)	(0.030)	(0.026)
Non-graduate liberal professional	0.091***	0.090***	0.094***	0.042**	0.048*	0.037*
	(0.024)	(0.023)	(0.024)	(0.020)	(0.028)	(0.022)
Manager	0.032*	0.024	0.042**	-0.003	0.015	-0.004
	(0.018)	(0.018)	(0.018)	(0.015)	(0.019)	(0.015)
Self-employed	0.003	0.000	0.011	0.001	0.010	0.010
	(0.019)	(0.019)	(0.019)	(0.015)	(0.019)	(0.015)
Non-manual worker	0.039**	0.029*	0.045***	-0.003	0.038**	0.003
	(0.017)	(0.017)	(0.017)	(0.014)	(0.017)	(0.014)
Blue collar	0.001	-0.007	0.010	-0.009	0.007	0.004
	(0.018)	(0.018)	(0.018)	(0.015)	(0.018)	(0.015)
Entrepreneur (reference category)						
No. of observations	11,308	11,308	11,308	11,308	11,308	11,308

Notes: Standard errors are reported in parenthesis. * p-value < .10, ** p-value < .05, *** p-value < .01. Control variables are: (2) having worked and having received a scholarship during university; (3) job stability and its square term, job independence and its square term; (4) age at enrolment and its square term, vocational high school track, high school final mark, university in the South, field of study, standardised university grade, interaction between South university and standardised university grade, dummies for graduation with delay; (5) graduate liberal professional mother with the same degree, non-graduate or graduate with ad different degree liberal professional mother, non-graduate and non-liberal professional father; (6) all control variables. Sample of graduates who chose a degree with access to liberal professions which require a compulsory period of practice.

Table 4c: Probability of passing a licensing exam [I.c] - Probit model estimates

Father's occupation	Average marginal effect controlling for					
	nothing	financial resources	job preferences	formal HC	parental HC	all variables
	(1)	(2)	(3)	(4)	(5)	(6)
Graduate liberal professional with the same degree	0.054	0.054	0.054	0.048*	0.016	0.038
	(0.033)	(0.033)	(0.033)	(0.027)	(0.038)	(0.030)
Graduate liberal professional with a different degree	0.063**	0.062**	0.063**	0.010	0.027	-0.000
	(0.030)	(0.030)	(0.030)	(0.027)	(0.034)	(0.029)
Non-graduate liberal professional	0.060**	0.058**	0.061**	0.007	0.022	-0.001
	(0.027)	(0.027)	(0.027)	(0.024)	(0.032)	(0.027)
Manager	0.003	0.002	0.003	-0.031*	-0.014	-0.034*
	(0.021)	(0.021)	(0.021)	(0.018)	(0.022)	(0.019)
Self-employed	-0.014	-0.019	-0.013	-0.030	-0.009	-0.027
	(0.022)	(0.022)	(0.022)	(0.019)	(0.022)	(0.019)
Non-manual worker	-0.010	-0.019	-0.009	-0.045***	-0.011	-0.044***
	(0.020)	(0.020)	(0.020)	(0.017)	(0.020)	(0.017)
Blue collar	-0.019	-0.036	-0.017	-0.049***	-0.013	-0.044**
	(0.022)	(0.022)	(0.022)	(0.018)	(0.022)	(0.019)
Entrepreneur (reference category)						
No. of observations	7,899	7,899	7,899	7,899	7,899	7,899

Notes: Standard errors are reported in parenthesis. * p-value < .10, ** p-value < .05, *** p-value < .01. Control variables are: (2) having worked and having received a scholarship during university; (3) job stability and its square term, job independence and its square term; (4) age at enrolment and its square term, vocational high school track, high school final mark, university in the South, field of study, standardised university grade, interaction between South university and standardised university grade, dummies for graduation with delay; (5) graduate liberal professional mother with the same degree, non-graduate or graduate with ad different degree liberal professional mother, non-graduate and non-liberal professional father; (6) all control variables. Sample of graduates who chose a degree with access to liberal professions which require a compulsory period of practice and completed a compulsory period of practice.

Table 4d: Probability of starting a liberal profession [I.d] - Probit model estimates

Father's occupation	nothing (1)	financial resources (2)	job preferences (3)	formal HC (4)	parental HC (5)	all variables (6)
		Average marginal effect controlling for				
Graduate liberal professional with the same degree	0.135*** (0.044)	0.139*** (0.044)	0.133*** (0.044)	0.113*** (0.038)	0.102** (0.048)	0.084** (0.041)
Graduate liberal professional with a different degree	0.070* (0.040)	0.072* (0.040)	0.069* (0.040)	0.053 (0.035)	0.036 (0.044)	0.030 (0.038)
Non-graduate liberal professional	0.010 (0.036)	0.008 (0.036)	0.015 (0.036)	0.024 (0.031)	-0.024 (0.041)	0.006 (0.035)
Manager	-0.042 (0.028)	-0.038 (0.028)	-0.033 (0.028)	-0.033 (0.024)	-0.056* (0.029)	-0.037 (0.025)
Self-employed	-0.037 (0.029)	-0.030 (0.029)	-0.029 (0.029)	-0.006 (0.025)	-0.032 (0.029)	0.003 (0.025)
Non-manual worker	-0.098*** (0.026)	-0.085*** (0.026)	-0.084*** (0.026)	-0.058** (0.023)	-0.099*** (0.026)	-0.047** (0.023)
Blue collar	-0.113*** (0.028)	-0.096*** (0.028)	-0.098*** (0.028)	-0.061** (0.025)	-0.108*** (0.028)	-0.041 (0.025)
Entrepreneur (reference category)						
No. of observations	5,601	5,601	5,601	5,601	5,601	5,601

Notes: Standard errors are reported in parenthesis. * p-value < .10, ** p-value < .05, *** p-value < .01. Control variables are: (2) having worked and having received a scholarship during university; (3) job stability and its square term, job independence and its square term; (4) age at enrolment and its square term, vocational high school track, high school final mark, university in the South, field of study, standardised university grade, interaction between South university and standardised university grade, dummies for graduation with delay, having passed the licensing exam 3 years and 5 years after graduation; (5) graduate liberal professional mother with the same degree, non-graduate or graduate with ad different degree liberal professional mother, non-graduate and non-liberal professional father; (6) all control variables. Sample of graduates who chose a degree with access to liberal professions which require a compulsory period of practice, completed a compulsory practice period and passed a licensing exam.

Appendix A: Supplemental Tables

Table A1: Summary statistics of children's variables

Variable	Mean	Std. Dev.
Holding a degree providing access to liberal professions	0.668	
Holding a degree providing access to liberal professions and requiring a compulsory period of practice	0.465	
Completing a period of practice	0.388	
Obtaining a professional licensing	0.407	
Starting liberal professions	0.130	
Female	0.600	
Age at the start of the university	19.183	0.863
Vocational high school	0.337	
High school final grade	48.825	7.162
University final grade	102.827	7.426
Area of residence in Southern regions	0.316	
Standardised university final grade	0.040	0.982
University in Southern regions	0.248	
Standardised university final grade*University located in the South	0.035	0.498
Having worked during university	0.644	
Scholarship	0.303	
Agricultural	0.031	
Pharmacy	0.048	
Architecture	0.049	
Engineer	0.126	
Law	0.145	
Business and Economics	0.176	
Psychology	0.048	
Geo-Biology	0.046	
Education	0.057	
Language and Linguistics	0.059	
Modern Literature and Philosophy	0.101	
Political Science	0.084	
Mathematics and Physics	0.031	
Graduation within the minimum period	0.047	
Graduation with 1 year of delay	0.197	
Graduation with 2 years of delay	0.210	
Graduation with 3 years of delay	0.167	
Graduation with 4 years of delay	0.121	
Graduation with 5 years or more of delay	0.258	
Licensing exam passed within 12 months from graduation	0.203	
Licensing exam passed between 13 and 36 months from graduation	0.110	
Licensing exam passed between 37 and 60 months from graduation	0.108	
Preferences for job security	4.014	0.897
Preferences for job independence	3.791	0.911
No. of observations	24,309	

Table A2: Summary statistics of parents' occupation

Father's Variables	Mean
Liberal professional	0.096
Graduate liberal professional	0.046
Graduate liberal professional with the same degree	0.013
Graduate liberal professional with a different degree	0.033
Non-graduate liberal professional	0.051
Manager	0.180
Entrepreneur	0.073
Self-employed	0.145
Non-manual worker	0.315
Blue collar	0.191
Non-graduate and non-liberal professional	0.759

Mother's Variables	
Liberal professional	0.019
Liberal professional with the same degree	0.001
Liberal professional with no degree or a different degree	0.018
No. of observations	24,309

Table A3: Probability of becoming a liberal professional - Probit model estimates with reference category 'Blue collar'

| Father's occupation | Average marginal effect controlling for | | | | | |
| | nothing | financial resources | job preferences | formal HC | parental HC | all variables |
	(1)	(2)	(3)	(4)	(5)	(6)
Graduate liberal professional	0.136***	0.129***	0.129***	0.140***	0.103***	0.098***
	(0.013)	(0.013)	(0.013)	(0.013)	(0.014)	(0.014)
Non-graduate liberal professional	0.056***	0.053***	0.052***	0.060***	0.033***	0.033***
	(0.010)	(0.010)	(0.010)	(0.010)	(0.011)	(0.011)
Manager	0.032***	0.027***	0.030***	0.033***	0.022***	0.019***
	(0.006)	(0.006)	(0.006)	(0.006)	(0.007)	(0.007)
Entrepreneur	0.054***	0.049***	0.047***	0.053***	0.052***	0.043***
	(0.009)	(0.009)	(0.009)	(0.009)	(0.009)	(0.009)
Self-employed	0.027***	0.025***	0.025***	0.026***	0.028***	0.024***
	(0.006)	(0.006)	(0.006)	(0.006)	(0.007)	(0.007)
Non-manual worker	0.010**	0.008*	0.010**	0.011**	0.008	0.006
	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)
Blue collar (reference category)						
No. of observations	24,309	24,309	24,309	24,309	24,309	24,309

Notes: Standard errors are reported in parenthesis. * p-value < .10, ** p-value < .05, *** p-value < .01. Control variables are: (2) having worked and having received a scholarship during university; (3) job stability and its square term, job independence and its square term; (4) age at enrolment and its square term, vocational high school track, high school final mark, university in the South, standardised university grade, interaction between South university and standardised university grade, dummies for graduation with delay; (5) graduate liberal professional mother, non-graduate liberal professional mother, non-graduate and non-liberal professional father; (6) all control variables. Sample of all graduates.

40

Table A4: Four probability processes corresponding to the last columns of Tables 4a, 4b, 4c, 4d - Estimates of the average marginal effect for all remaining control variables

Father's occupation	Average marginal effect on the probability of			
	choosing a degree providing access to liberal professions requiring compulsory practice	completing a period of practice	passing a licensing exam	starting a liberal profession
Age at the start of the university	-0.041***	-0.016**	-0.030***	0.027**
	(0.006)	(0.007)	(0.008)	(0.010)
Vocational high school	0.114***	-0.004	-0.021**	-0.001
	(0.007)	(0.008)	(0.010)	(0.014)
High school final grade	-0.005***	-0.001**	0.003***	-0.001
	(0.000)	(0.001)	(0.001)	(0.001)
Residence in Southern regions	0.054***			
	(0.007)			
Standardised university grade		0.008*	0.016***	-0.019***
		(0.004)	(0.005)	(0.007)
University in Southern regions		0.167***	0.054***	-0.079***
		(0.008)	(0.010)	(0.015)
Graduation with 1-year delay		-0.011	0.015	-0.036
		(0.020)	(0.024)	(0.027)
Graduation with 2-year delay		-0.016	-0.011	-0.064**
		(0.020)	(0.024)	(0.029)
Graduation with 3-year delay		-0.025	-0.040	-0.055*
		(0.020)	(0.025)	(0.030)
Graduation with 4-year delay		-0.028	-0.051**	-0.030
		(0.021)	(0.026)	(0.032)
Graduation with 5-year + delay		-0.067***	-0.068***	-0.036
		(0.020)	(0.025)	(0.030)
Preference for job security		-0.006	-0.010	-0.034***
		(0.005)	(0.006)	(0.008)
Preference for job independence		0.032***	0.005	0.032***
		(0.004)	(0.005)	(0.007)
Working during university		-0.029***	-0.016*	0.016
		(0.008)	(0.009)	(0.012)
Scholarship		-0.020**	-0.006	-0.027*
		(0.009)	(0.011)	(0.014)
Licensing obtained 3 years from graduation				-0.064***
				(0.023)
Licensing obtained 5 years from graduation				-0.094***
				(0.026)
Graduate liberal professional mother	0.048			
	(0.039)			
Non-graduate liberal professional mother	0.030			
	(0.029)			
Liberal professional mother with the same degree		0.072	-0.069	0.172**
		(0.081)	(0.082)	(0.086)
Liberal professional mother with no degree or a different degree		0.015	0.010	-0.015
		(0.027)	(0.032)	(0.040)
Non-graduate and non-liberal professional father	-0.015	-0.009	-0.011	-0.024
	(0.010)	(0.012)	(0.014)	(0.019)
No. of observations	24,309	11,308	7,899	5,601

Notes: Standard errors are reported in parenthesis. * p-value < .10, ** p-value < .05, *** p-value < .01. We also control for father's occupation and child's type of degree. Reference category: academic high school diploma, living in Central and Northern regions, university located in Central and Northern regions, graduation within the minimum period, no working experiences during university, no scholarship during university, licensing passed 1 year from graduation, mother who is not a liberal professional, liberal professional father.

Table A5a: Probability of choosing a degree providing access to liberal professions requiring a compulsory period of practice [I.a] - Probit model estimates with reference category 'Blue collar'

Father's occupation	Average marginal effect controlling for					
	nothing (1)	financial resources (2)	job preferences (3)	formal HC (4)	parental HC (5)	all variables (6)
Graduate liberal professional	0.128***			0.156***	0.127***	0.139***
	(0.017)			(0.017)	(0.020)	(0.019)
Non-graduate liberal professional	0.023			0.037**	0.022	0.020
	(0.016)			(0.016)	(0.019)	(0.019)
Manager	0.050***			0.075***	0.050***	0.068***
	(0.010)			(0.011)	(0.012)	(0.011)
Entrepreneur	0.129***			0.133***	0.129***	0.131***
	(0.014)			(0.014)	(0.014)	(0.014)
Self-employed	0.053***			0.057***	0.053***	0.057***
	(0.011)			(0.011)	(0.011)	(0.011)
Non-manual worker	0.012			0.025***	0.013	0.023**
	(0.009)			(0.009)	(0.009)	(0.009)
No. of observations	24,309			24,309	24,309	24,309

Notes: Standard errors are reported in parenthesis. * p-value < .10, ** p-value < .05, *** p-value < .01. Control variables are: (4) age at enrolment and its square term, vocational high school track, high school final mark, living in Southern regions; (5) graduate liberal professional mother, non-graduate liberal professional mother, non-graduate and non-liberal professional father; (6) all control variables. Sample of all graduates.

Table A5b: Probability of completing a compulsory period of practice [I.b] - Probit model estimates with reference category 'Blue collar'

	Average marginal effect controlling for					
Father's occupation	nothing	financial resources	job preferences	formal HC	parental HC	all variables
	(1)	(2)	(3)	(4)	(5)	(6)
Graduate liberal professional	0.260***	0.257***	0.251***	0.199***	0.228***	0.174***
with the same degree	(0.020)	(0.020)	(0.020)	(0.022)	(0.024)	(0.025)
Graduate liberal professional	0.126***	0.124***	0.119***	0.049**	0.079***	0.023
with a different degree	(0.024)	(0.024)	(0.024)	(0.022)	(0.028)	(0.025)
Non-graduate liberal professional	0.091***	0.097***	0.084***	0.051***	0.041*	0.033
	(0.021)	(0.021)	(0.021)	(0.018)	(0.026)	(0.021)
Manager	0.032**	0.032**	0.032**	0.006	0.008	-0.008
	(0.015)	(0.015)	(0.014)	(0.012)	(0.016)	(0.013)
Entrepreneur	-0.001	0.007	-0.010	0.009	-0.007	-0.004
	(0.018)	(0.018)	(0.018)	(0.015)	(0.018)	(0.015)
Self-employed	0.003	0.008	0.001	0.010	0.002	0.006
	(0.016)	(0.016)	(0.015)	(0.012)	(0.015)	(0.012)
Non-manual worker	0.038***	0.036***	0.035***	0.006	0.030**	-0.000
	(0.013)	(0.013)	(0.013)	(0.011)	(0.013)	(0.011)
Blue collar (reference category)						
No. of observations	11,308	11,308	11,308	11,308	11,308	11,308

Notes: Standard errors are reported in parenthesis. * p-value < .10, ** p-value < .05, *** p-value < .01. Control variables are: (2) having worked and having received a scholarship during university; (3) job stability and its square term, job independence and its square term; (4) age at enrolment and its square term, vocational high school track, high school final mark, university in the South, field of study, standardised university grade, interaction between South university and standardised university grade, dummies for graduation with delay; (5) graduate liberal professional mother with the same degree, non-graduate or graduate with ad different degree liberal professional mother, non-graduate and non-liberal professional father; (6) all control variables. Sample of graduates who chose a degree providing access to liberal professions requiring a compulsory practice period.

Table A5c: Probability of passing a licensing exam [I.c] - Probit model estimates with reference category 'Blue collar'

Father's occupation	Average marginal effect controlling for					
	nothing	financial resources	job preferences	formal HC	parental HC	all variables
	(1)	(2)	(3)	(4)	(5)	(6)
Graduate liberal professional	0.072**	0.090***	0.072**	0.097***	0.029	0.082***
with the same degree	(0.031)	(0.031)	(0.031)	(0.025)	(0.036)	(0.029)
Graduate liberal professional	0.082***	0.098***	0.081***	0.059**	0.040	0.044
with a different degree	(0.027)	(0.027)	(0.028)	(0.025)	(0.033)	(0.029)
Non-graduate liberal professional	0.079***	0.094***	0.078***	0.056***	0.036	0.043*
	(0.024)	(0.024)	(0.024)	(0.022)	(0.030)	(0.026)
Manager	0.022	0.038**	0.021	0.018	-0.000	0.010
	(0.017)	(0.018)	(0.017)	(0.015)	(0.019)	(0.017)
Entrepreneur	0.019	0.036	0.017	0.049***	0.013	0.044**
	(0.022)	(0.022)	(0.022)	(0.018)	(0.022)	(0.019)
Self-employed	0.005	0.017	0.004	0.019	0.005	0.017
	(0.019)	(0.019)	(0.019)	(0.016)	(0.018)	(0.016)
Non-manual worker	0.009	0.017	0.009	0.003	0.002	0.000
	(0.016)	(0.016)	(0.016)	(0.014)	(0.016)	(0.014)
Blue collar (reference category)						
No. of observations	7,899	7,899	7,899	7,899	7,899	7,899

Notes: Standard errors are reported in parenthesis. * p-value < .10, ** p-value < .05, *** p-value < .01. Control variables are: (2) having worked and having received a scholarship during university; (3) job stability and its square term, job independence and its square term; (4) age at enrolment and its square term, vocational high school track, high school final mark, university in the South, field of study, standardised university grade, interaction between South university and standardised university grade, dummies for graduation with delay; (5) graduate liberal professional mother with the same degree, non-graduate or graduate with ad different degree liberal professional mother, non-graduate and non-liberal professional father; (6) all control variables. Sample of graduates who chose a degree with access to liberal professions which require a compulsory period of practice and completed a compulsory practice period.

Table A5d: Probability of starting a liberal profession [I.d] - Probit model estimates with reference category 'Blue collar

	Average marginal effect controlling for					
Father's occupation	nothing	financial resources	job preferences	formal HC	parental HC	all variables
	(1)	(2)	(3)	(4)	(5)	(6)
Graduate liberal professional	0.248***	0.235***	0.231***	0.174***	0.210***	0.125***
with the same degree	(0.040)	(0.041)	(0.040)	(0.036)	(0.046)	(0.041)
Graduate liberal professional	0.183***	0.167***	0.167***	0.114***	0.144***	0.071*
with a different degree	(0.037)	(0.037)	(0.036)	(0.032)	(0.042)	(0.037)
Non-graduate liberal professional	0.123***	0.104***	0.113***	0.085***	0.084**	0.048
	(0.032)	(0.032)	(0.032)	(0.028)	(0.038)	(0.034)
Manager	0.071***	0.058**	0.065***	0.028	0.052**	0.004
	(0.022)	(0.023)	(0.022)	(0.020)	(0.025)	(0.022)
Entrepreneur	0.113***	0.096***	0.098***	0.061**	0.108***	0.041
	(0.028)	(0.028)	(0.028)	(0.025)	(0.028)	(0.025)
Self-employed	0.076***	0.065***	0.069***	0.055***	0.076***	0.044**
	(0.024)	(0.024)	(0.024)	(0.021)	(0.024)	(0.021)
Non-manual worker	0.014	0.011	0.014	0.003	0.009	-0.006
	(0.020)	(0.020)	(0.020)	(0.018)	(0.020)	(0.019)
Blue collar (reference category)						
No. of observations	5,601	5,601	5,601	5,601	5,601	5,601

Notes: Standard errors are reported in parenthesis. * p-value < .10, ** p-value < .05, *** p-value < .01. Control variables are: (2) having worked and having received a scholarship during university; (3) job stability and its square term, job independence and its square term; (4) age at enrolment and its square term, vocational high school track, high school final mark, university in the South, field of study, standardised university grade, interaction between South university and standardised university grade, dummies for graduation with delay, having passed the licensing exam 3 years and 5 years after graduation; (5) graduate liberal professional mother with the same degree, non-graduate or graduate with ad different degree liberal professional mother, non-graduate and non-liberal professional father; (6) all control variables. Sample of graduates who chose a degree with access to liberal professions which require a compulsory period of practice, completed a compulsory practice period and passed a licensing exam.

Table A6: Probability of completing a compulsory period of practice excluding family business [I.b] - Probit model estimates

	Average marginal effect controlling for					
Father's occupation	nothing	financial resources	job preferences	formal HC	parental HC	all variables
	(1)	(2)	(3)	(4)	(5)	(6)
Graduate liberal professional	0.234***	0.222***	0.231***	0.159***	0.204***	0.144***
with the same degree	(0.026)	(0.027)	(0.027)	(0.027)	(0.030)	(0.029)
Graduate liberal professional	0.115***	0.105***	0.116***	0.031	0.073**	0.016
with a different degree	(0.026)	(0.027)	(0.027)	(0.024)	(0.030)	(0.026)
Non-graduate liberal professional	0.087***	0.085***	0.090***	0.039*	0.043	0.033
	(0.024)	(0.024)	(0.024)	(0.020)	(0.028)	(0.023)
Manager	0.026	0.017	0.034*	-0.008	0.008	-0.010
	(0.018)	(0.018)	(0.018)	(0.015)	(0.019)	(0.015)
Self-employed	-0.002	-0.005	0.005	-0.001	0.005	0.007
	(0.019)	(0.019)	(0.019)	(0.015)	(0.019)	(0.015)
Non-manual worker	0.032*	0.022	0.037**	-0.007	0.031*	-0.001
	(0.017)	(0.017)	(0.017)	(0.014)	(0.017)	(0.014)
Blue collar	-0.006	-0.014	0.002	-0.012	0.001	0.000
	(0.019)	(0.019)	(0.019)	(0.015)	(0.019)	(0.015)
Entrepreneur (reference category)						
No. of observations	11,101	11,101	11,101	11,101	11,101	11,101

Notes: Standard errors are reported in parenthesis. * p-value < .10, ** p-value < .05, *** p-value < .01. Control variables are: (2) having worked and having received a scholarship during university; (3) job stability and its square term, job independence and its square term; (4) age at enrolment and its square term, vocational high school track, high school final mark, university in the South, field of study, standardised university grade, interaction between South university and standardised university grade, dummies for graduation with delay; (5) graduate liberal professional mother with the same degree, non-graduate or graduate with ad different degree liberal professional mother, non-graduate and non-liberal professional father; (6) all control variables. Sample of graduates who chose a degree providing access to liberal professions requiring a compulsory practice period.

Table A7: Probability of starting a liberal profession excluding family business [I.d] - Probit model estimates

	Average marginal effect controlling for					
Father's occupation	nothing	financial resources	job preferences	formal HC	parental HC	all variables
	(1)	(2)	(3)	(4)	(5)	(6)
Graduate liberal professional	0.127***	0.129***	0.127***	0.088**	0.099*	0.066
with the same degree	(0.049)	(0.049)	(0.049)	(0.042)	(0.053)	(0.045)
Graduate liberal professional	0.056	0.057	0.054	0.047	0.025	0.027
with a different degree	(0.041)	(0.041)	(0.041)	(0.035)	(0.045)	(0.039)
Non-graduate liberal professional	-0.008	-0.010	-0.002	0.010	-0.040	-0.005
	(0.037)	(0.037)	(0.037)	(0.032)	(0.041)	(0.036)
Manager	-0.050*	-0.046	-0.041	-0.036	-0.063**	-0.040
	(0.028)	(0.028)	(0.028)	(0.025)	(0.029)	(0.025)
Self-employed	-0.041	-0.035	-0.033	-0.006	-0.036	0.002
	(0.030)	(0.030)	(0.029)	(0.026)	(0.030)	(0.026)
Non-manual worker	-0.106***	-0.093***	-0.092***	-0.062***	-0.107***	-0.052**
	(0.027)	(0.027)	(0.026)	(0.023)	(0.027)	(0.023)
Blue collar	-0.120***	-0.103***	-0.105***	-0.063**	-0.116***	-0.045*
	(0.029)	(0.029)	(0.028)	(0.025)	(0.029)	(0.026)
No. of observations	5,488	5,488	5,488	5,488	5,488	5,488

Notes: Standard errors are reported in parenthesis. * p-value < .10, ** p-value < .05, *** p-value < .01. Control variables are: (2) having worked and having received a scholarship during university; (3) job stability and its square term, job independence and its square term; (4) age at enrolment and its square term, vocational high school track, high school final mark, university in the South, field of study, standardised university grade, interaction between South university and standardised university grade, dummies for graduation with delay, having passed the licensing exam 3 years and 5 years after graduation; (5) graduate liberal professional mother with the same degree, non-graduate or graduate with ad different degree liberal professional mother, non-graduate and non-liberal professional father; (6) all control variables. Sample of graduates who chose a degree with access to liberal professions which require a compulsory period of practice, completed a compulsory practice period and passed a licensing exam.

Appendix B: Joint sequential model

In this Appendix we take account of the potential unobserved characteristics that affect the four different processes reported in Tables 4a, 4b, 4c and 4d by estimating a quadrivariate probit model which allows for correlation in the error terms in the four univariate probability models. Taking account of this correlation in unobserved explanatory variables is important because failing to do so may lead to an underestimation of the effect of having a liberal professional father especially on the later processes. Allowing for a non-zero correlation between errors in the four probit models is equivalent to consider for each model a composite error term given by the sum of a random effect, which is an individual random effect identically and independently normally distributed across individuals and entering each of the four models multiplied by a different coefficient, and of an idiosyncratic error term, which is identically and independently normally distributed across individuals and across the four models but with a variance that can vary across models. By assuming, without loss of generality, that the individual random effect affects positively the probabilities of taking the four steps needed to become a liberal professional, students with a low level of the unobserved random component are more likely not to take these four steps; therefore the sub-sample of students who choose degrees providing access to liberal professions which require a compulsory practice period is a selected sample with relatively larger random effects and the sub-samples of students completing a period of compulsory practice and passing a licensing exam are even a more selected sub-samples with larger random effects. This selection process is known as "weeding out" or "sorting effect".[25] If having a liberal professional father has a positive effect on all the four probability processes, then children without a liberal professional father who took one or more compulsory steps are likely to have a larger unobserved random component than children with a liberal professional father. This implies that omitting this unobserved random component leads to an attenuation bias for the effect of having a liberal professional father.

In the following for simplicity we adopt the same notation used in Section 7. We assume that the four outcome dummy variables for individual i, $Y_{1,i}^c$, $Y_{2,i}^c$, $Y_{3,i}^c$ and $Y_{4,i}^c$, which take value 1 respectively if a graduate chooses a degree that can lead to a liberal profession

---

[25]See Cameron and Heckman (1998) and Van den Berg (2001) for more details on this selection process in sequential binary models for educational transitions and in the similar context of discrete duration models.

which requires a compulsory period of practice, if he/she completes a compulsory period of practice, if he/she obtains a license and if he/she starts a liberal profession, stem from four unobservable latent variables

$$
\begin{aligned}
Y_{1,i}^* &= X_i^C \beta_1 + Z_{1,i}\gamma_1 + \varepsilon_{1,i}, \\
Y_{2,i}^* &= X_i^C \beta_2 + Z_{2,i}\gamma_2 + \varepsilon_{2,i}, \\
Y_{3,i}^* &= X_i^C \beta_3 + Z_{2,i}\gamma_3 + \varepsilon_{3,i}, \\
Y_{4,i}^* &= X_i^C \beta_4 + Z_{3,i}\gamma_4 + \varepsilon_{4,i},
\end{aligned}
\tag{9}
$$

where $Y_{s,i}^c = \mathbb{1}(Y_{s,i}^* > 0)$ for $s = 1,2,3,4$; X_i^C is a vector of common explanatory variables for the four models, which includes a constant and a set of dummies for different father's occupations; $Z_{s,i}$ is a vector of extra explanatory variables which are used in equation s; β_s and γ_s are the vectors of coefficients for X_i^C and Z_s in equation s;[26] $\varepsilon_{1,i}$, $\varepsilon_{2,i}$, $\varepsilon_{3,i}$ and $\varepsilon_{4,i}$ are the error terms which have a standardised quadrivariate normal distribution with covariances (correlations) between each pair of error term $\varepsilon_{s,i}$ and $\varepsilon_{j,i}$ given by ρ_{sj}.

To allow for a non-zero correlation between errors, we consider the following joint likelihood

$$
\begin{aligned}
L = \prod_{i=1}^{\infty} &\Phi\big(-X_i^C\beta_1 - Z_{1,i}\gamma_1\big)^{1-Y_{1,i}^c} \Phi_2\big(X_i^C\beta_1 + Z_{1,i}\gamma_1, -X_i^C\beta_2 - Z_{2,i}\gamma_2, \rho_{12}\big)^{Y_{1,i}^c(1-Y_{2,i}^c)} \\
&\Phi_3\big(X_i^C\beta_1 + Z_{1,i}\gamma_1, X_i^C\beta_2 + Z_{2,i}\gamma_2, -X_i^C\beta_3 - Z_{2,i}\gamma_3, \Sigma_{(3)}\big)^{Y_{1,i}^c Y_{2,i}^c(1-Y_{3,i}^c)} \\
&\Phi_4\big(X_i^C\beta_1 + Z_{1,i}\gamma_1, X^C\beta_2 + Z_{2,i}\gamma_2, X_i^C\beta_3 + Z_{2,i}\gamma_3, -X_i^C\beta_4 - Z_{3,i}\gamma_4, \Sigma_{(4)}\big)^{Y_{1,i}^c Y_{2,i}^c Y_{3,i}^c(1-Y_{4,i}^c)} \\
&\Phi_4\big(X_i^C\beta_1 + Z_{1,i}\gamma_1, X^C\beta_2 + Z_{2,i}\gamma_2, X_i^C\beta_3 + Z_{2,i}\gamma_3, X_i^C\beta_4 + Z_{3,i}\gamma_4, \Sigma_{(4)}\big)^{Y_{1,i}^c Y_{2,i}^c Y_{3,i}^c Y_{4,i}^c},
\end{aligned}
\tag{10}
$$

where Φ, Φ_2, Φ_3 and Φ_4 are the cumulative function of the standardised univariate, bivariate, trivariate amd quadrivariate normal, i.e.

$$
\Phi(a_1) = \int_{-\infty}^{a_1} (2\pi)^{-1/2} exp(-\tfrac{\varepsilon_1^2}{2}) d\varepsilon_1,
\tag{11}
$$

$$
\Phi_2(a_1, a_2, \rho_{12}) = \int_{-\infty}^{a_1}\int_{-\infty}^{a_2} (2\pi)^{-1}(1-\rho_{12}^2)^{-1/2} exp\left(-\tfrac{\varepsilon_1^2 - 2\rho_{12}\varepsilon_1\varepsilon_2 + \varepsilon_2^2}{2(1-\rho_{12}^2)}\right) d\varepsilon_2 d\varepsilon_1,
\tag{12}
$$

$$
\Phi_3(a_1, a_2, a_3, \Sigma_{(3)}) = \int_{-\infty}^{a_1}\int_{-\infty}^{a_2}\int_{-\infty}^{a_3} (2\pi)^{-3/2}|\Sigma_{(3)}|^{-1/2} exp\left(-\tfrac{1}{2}\boldsymbol{\varepsilon}_{(3)}'\Sigma_{(3)}^{-1}\boldsymbol{\varepsilon}_{(3)}\right) d\varepsilon_3 d\varepsilon_2 d\varepsilon_1,
\tag{13}
$$

$$
\Phi_4(a_1, a_2, a_3, a_4, \Sigma_{(4)}) = \int_{-\infty}^{a_1}\int_{-\infty}^{a_2}\int_{-\infty}^{a_3}\int_{-\infty}^{a_4} (2\pi)^{-4/2}|\Sigma_{(4)}|^{-1/2} exp\left(-\tfrac{1}{2}\boldsymbol{\varepsilon}_{(4)}'\Sigma_{(4)}^{-1}\boldsymbol{\varepsilon}_{(4)}\right) d\varepsilon_4 d\varepsilon_3 d\varepsilon_2 d\varepsilon_1,
\tag{14}
$$

---

[26]To avoid introducing more additional notation, we denote the two vectors of parameters with the same symbols used for the corresponding vectors in the four separate probit models in 7.

where $\varepsilon'_{(3)} = [\varepsilon_1, \varepsilon_2, \varepsilon_3]$, $\varepsilon'_{(4)} = [\varepsilon_1, \varepsilon_2, \varepsilon_3, \varepsilon_4]$,

$$\Sigma_{(3)} = \begin{bmatrix} 1 & \rho_{12} & \rho_{13} \\ & 1 & \rho_{23} \\ & & 1 \end{bmatrix},$$

$$\Sigma_{(4)} = \begin{bmatrix} 1 & \rho_{12} & \rho_{13} & \rho_{14} \\ & 1 & \rho_{23} & \rho_{24} \\ & & \rho_{34} & 1 \\ & & & 1 \end{bmatrix},$$

and $|\Sigma_{(3)}|$ and $|\Sigma_{(4)}|$ are the determinants.

We use the same explanatory variables considered for the four separate models defined in Table 3.

Table B1 reports the estimates of the average marginal effects of different father's occupations on the probability of choosing a degree providing access to liberal professions which require a compulsory period of practice, of completing a period of compulsory practice, of obtaining a professional license and of starting a liberal profession (see columns 1 to 4 top panel) and the estimated correlations between the error terms (see bottom panel).[27]

The effect of unobserved heterogeneity component has different signs in the 4 different sequential probability processes. Furthermore, having a father who is a liberal professional does not have a significant effect on the probability to pass a licensing exam and on the probability to choose a degree with access to a liberal profession which requires a compulsory period of practice, at least after controlling for the observed variables. This implies that the omission of the unobserved variables should not lead to a large bias. Indeed the estimation results for the joint probit model are qualitatively similar to the ones found using the separate probit models in Tables 4a, 4b, 4c and 4d and seem to suggest that the potential bias caused by adopting separate probit models is small.

---

[27]We implement the maximum likelihood estimation using the Stata module CMP for conditional (recursive) mixed process estimator (see Roodman 2010). The computation of the average marginal effects is based on the maximum likelihood estimates of the probit coefficients and their standard errors are computed using the delta method.

Table B1: Joint sequential probability processes - Quadrivariate probit model estimates

Father's occupation	Joint ML estimation of the probit models Average marginal effect on the probability of			
	choosing a degree providing access to liberal professions requiring compulsory practice	completing a period of practice	passing a licensing exam	starting a liberal profession
Graduate liberal professional	0.007			
	(0.021)			
Graduate liberal professional with the same degree		0.067***	-0.035	0.132***
		(0.009)	(0.033)	(0.034)
Graduate liberal professional with a different degree		0.011	0.007	0.037
		(0.011)	(0.030)	(0.032)
Non-graduate in a liberal profession	-0.108***	0.030***	-0.063**	0.044
	(0.020)	(0.009)	(0.029)	(0.034)
Manager	-0.061***	0.013*	-0.058***	0.005
	(0.014)	(0.007)	(0.019)	(0.025)
Self-employed	-0.074***	0.016**	-0.062***	0.034
	(0.014)	(0.007)	(0.019)	(0.023)
Non-manual worker	-0.108***	0.018***	-0.092***	0.012
	(0.013)	(0.006)	(0.018)	(0.029)
Blue collar	-0.131***	0.022***	-0.100***	0.019
	(0.014)	(0.006)	(0.020)	(0.032)
Entrepreneur (reference category)				
Non-graduate and non-liberal professional	-0.014	-0.001	-0.013	-0.014
	(0.010)	(0.005)	(0.014)	(0.016)
ρ_{12}	-0.870***			
	(0.103)			
ρ_{13}	0.794***			
	(0.142)			
ρ_{14}	- 0.454*			
	(0.262)			
ρ_{23}	-0.955***			
	(0.011)			
ρ_{24}	0.815***			
	(0.089)			
ρ_{34}	-0.818***			
	(0.051)			
No. of observations			24,309	

Notes: Standard errors are reported in parenthesis. * p-value < .10, ** p-value < .05, *** p-value < .01. ρ_{12} is the correlation between the error terms in the processes (1) and (2). ρ_{13}, ρ_{14}, ρ_{23}, ρ_{24} and ρ_{34} are similarly defined. Each process includes the set of control variables listed in Table 3.