

Intergenerational correlation in self employment: some further evidence from French ECHP data

Nathalie Colombier · David Masclet

Received: 2 March 2006 / Accepted: 23 April 2007 / Published online: 17 July 2007
© Springer Science+Business Media B.V. 2007

Abstract Previous empirical work has shown that self-employment is correlated across generations, so that the children of the self-employed are themselves more likely to be self-employed. However, the reason for this intergenerational correlation remains unclear. This paper contributes to the existing literature in two ways. First, using French data from the European Community Household Panel Survey, we provide a further examination of this intergenerational correlation among the self-employed. In particular we investigate to what extent the intergenerational correlation in self-employment reflects occupational following. The second contribution of our paper is to investigate the differences between first- and second-generation self-employed workers and their possible explanations. Even though our results indicate that having self-employed parents increases the probability of being self-employed, irrespective of occupation, we do observe that a large majority of individuals enter the same (or very similar)

occupation as their parents, which is consistent with occupational following. Our results also reveal some differences between the first- and second-generation self-employed. Formal education is more important for the first-generation self-employed (those whose parents are not self-employed) than for the second-generation self-employed. Further, the first-generation self-employed, who received less informal human capital than the second-generation self-employed, compensate for this shortcoming by acquiring more formal education.

Keywords Self-employment · Intergenerational Correlation · Social Environment · Human Capital

JEL Classifications J20 · J21 · J23 · J24 · L26

1 Introduction

“As years pass on, the child of the working man learns a great deal from what he sees and hears going on around him...”

Alfred Marshall (1930)

The literature on self-employment has grown rapidly in recent years. One reason for this interest in self-employment is its potential for generating new jobs and encouraging innovation in the economy. A

N. Colombier · D. Masclet
CNRS, CREM, 7 place Hoche, 35065 Rennes, France

N. Colombier
e-mail: nathalie.colombier@univ-rennes1.fr

D. Masclet
e-mail: david.masclet@univ-rennes1.fr

D. Masclet (✉)
CIRANO, Montreal, Canada
e-mail: david.masclet@univ-rennes1.fr

number of empirical studies have shown that education, earnings, job satisfaction, liquidity constraints and other personal characteristics help to explain the self-employment decision (Carrasco 1999; Holtz-Eakin et al. 1994a, b; Borjas and Bronars 1989; Evans and Jovanovic 1989; Evans and Leighton 1989; and Rees and Shah 1986; see Parker 2004, for an overview of these determinants).¹ Other work has investigated the influence of the immediate social environment and social network on self-employment, and more particularly the effect of having self-employed parents² (Hundley 2006; Hout and Rosen 2000; Dunn and Holtz-Eakin 2000; Fairlie 1999; Aldrich et al. 1998; Blanchflower and Oswald 1998; Laferrère and McEntee 1995; Taylor 1996; Lentz and Laband 1990; de Wit and van Winden 1989; Carrol and Mosakowski 1987; Cooper and Dunkelberg 1986; and Lindh and Ohlsson 1998). The results suggest that individuals are more likely to be self-employed when their parents are themselves self-employed. However, the reasons for this intergenerational correlation remain unclear. Among the few studies that have considered the reasons of this intergenerational correlation, Dunn and Holtz-Eakin (2000) investigated the relative importance of family financial and informal human capital in the transition to self-employment, using the National Longitudinal Surveys.³ Parents' financial capital is found to have a positive effect, although the largest impact comes from own self-employment experience.⁴ Finally the authors observe that a majority of individuals enter in occupations different

from their parents. Using French data from the 1992 INSEE Survey, Laferrère (1998) observed that most of the correlation in self-employment could be explained by the fact that individuals enter the same occupation in self-employment than their parents. Finally, in a recent study, Hundley (2006) also investigates how family background affects employment mode and focuses on the roles played by economic, entrepreneurial and vocational inheritance. Entrepreneurial inheritance includes skills and values that are specifically acquired from exposure to a self-employed parent; vocational inheritance includes "elements derived from aspect of the parent's work other than employment mode"; and economic inheritance includes parental income or wealth.⁵ The results are mixed, providing support for the effects of entrepreneurial inheritance and economic inheritance, while no role is found for vocational inheritance.

Previous researches suggest three potential explanations of the intergenerational correlation in self-employment. A part of this correlation may merely reflect *occupational following*. More comprehensively, it may mirror the fact that individuals enter the same occupation as their parents, which can be facilitated by having self-employed parents. Indeed entrepreneurs may be more able than salaried workers to transmit *career-specific* skills to their children. These informal transmissions of specific human capital include all abilities required in a specific job in self-employment. While salaried workers can also transmit *career-specific* skills, self-employment may facilitate such transfers, especially when the work place is connected to the home. For example, the proximity of the work place develops the farmer's children's familiarity with machinery. A shop owner may employ her/his children after school or over the summer to help run the shop.

Some part of this correlation in self-employment may also mirror *employment mode following*; i.e. the fact that individuals follow their parents into

¹ The conclusions regarding human capital depend on the nature of this capital. While general human capital seems to have little to no effect on self-employment, there is more doubt about the role of more specific human capital (work experience for example). Evans and Leighton (1989) and de Wit and van Winden (1989) find a negative effect of work experience, while Rees and Shah (1986), Evans and Jovanovic (1989) and Dolton and Makepeace (1990) report a positive and significant effect.

² In this study, we consider a restricted definition of the immediate social environment, focusing on the influence of parents (mother and father) only.

³ In their study, Dunn and Holtz-Eakin (2000) do not distinguish general human capital from specific human capital.

⁴ This result is consistent with Aldrich et al. (1998) who found that a small number of the self-employed helped their self-employed children, by transferring physical or financial capital. Finally Basu and Parker (2001) found that family credit markets may substitute for formal access to funds.

⁵ The 'entrepreneurial inheritance' effect is captured by a dummy for father self-employed. The 'vocational inheritance' is captured by a variable 'percent self-employed' that accounts for the effect of having a father in an occupation that is inherently more or less prone to self-employment; it is also reflected in a dummy (paternal entrepreneurial occupation) indicating whether the father is in an occupation requiring management or leadership activities. Finally, family income captures the economic inheritance.

self-employment, irrespective of occupation, in order to practice activities such as managing, organizing and dealing with responsibility, that intrinsically characterize self-employment. Those activities are not specific to any particular occupation but, on the contrary, are common to all (or nearly all) occupations when self-employed. For the same reasons mentioned above, this might be facilitated by having self-employed parents who can transmit *general managerial* skills to their children.⁶ While general managerial skills can also be inherited from salaried workers, we suspect that informal transmission of this general human capital may be higher amongst the self-employed. Farming is another good example of these intergenerational transfers. Because the work place is connected to the home, the farmer's children are constantly exposed to the family business, and acquire familiarity with farm management.⁷

A third explanation of the intergenerational correlation in self-employment is that entrepreneurs would be more able than others to transfer *financial capital* to their children. The family then acts essentially as a substitute banker, which may then be the critical factor that convinces someone to become their own boss via its effect on the associated net benefits. The consequence of these financial transfers to family members would be to relax capital market constraints.

The aim of our paper is twofold. First we seek to contribute to the literature by investigating to what

extent the intergenerational correlation in self-employment reflects occupational following. We provide a simple and robust check for this possibility by controlling for having parents self-employed in the same (or not the same) occupation as their children. We also provide a detailed analysis of this relationship by running separated estimations for each occupation in self-employment. In a sense, we revisit previous studies. Indeed, as noted above, previous results concerning the existence of an occupational following effect are mixed. Dunn and Holtz-Eakin observe that a large majority of individuals enter an occupation different to that of their parents, while Laferrère (1998) suggests a very strong and significant occupational following effect. Finally, Hundley reports significant effects of entrepreneurial inheritance and economic inheritance, while vocational inheritance effect is not supported.⁸

The second contribution of our paper is to analyze the differences between the first- and second-generation self-employed. Are the second-generation self-employed (*i.e.* those whose parents are also self-employed) really different from the first generation? We also investigate the possible factors that might explain these differences. A possible reason is that the first-generation self-employed, who did not receive any intergenerational transfers, may compensate for this shortcoming by acquiring skills on their own.

⁶ General managerial skills include skills that are required in most of all occupations in self-employment : communication skills, aptitude to decide by oneself, leading skills and all sort of other general aptitudes. We recognize that parents may also transmit tastes for these activities; however, we do not aim here at disentangling these different factors as well as distinguishing between tastes and skills but rather investigate to what extent the intergenerational correlation in self-employment reflects occupational following (see Dunn and Holtz-Eakin 2000 for an interesting discussion on this point).

⁷ 'Specific-career skills' and 'general managing skills' do not exactly match the variables used in Hundley (2006) to capture vocational and entrepreneurial inheritance. The vocational effect only captures the part of occupational inheritance that results from having a father in an occupation that is inherently (more or less) prone to self-employment, but does not measure the part of the inheritance from the parent being in the same occupation as her/his children. Moreover, the 'vocational inheritance effect' includes both transmissions of 'specific-career skills' and transfers of 'general managing', since it includes having a parent in occupations involving management or leadership activities.

⁸ Our study differs from the studies above in two ways. First, in contrast to previous studies and in particular to Hundley (2006), we do not consider the effect of family background in general, but rather focus our attention on the effects of having self-employed parents, seeking to investigate to what extent the intergenerational correlation in self-employment merely reflects occupational following. Second, our paper considers the two following issues that earlier work has not addressed. The first is if it matters whether the father or the mother was self-employed: Are intergenerational transmissions stronger along gender lines? Previous work has focused on men only and/or on the effects of having a self-employed father. The second issue is differences between occupations, so that skills may be more transferable between some occupations than others. For example, the impact of human capital transfers through paternal self-employment in farming may increase the probability of becoming a self-employed artisan or farmer, but have little to no impact on the probability of becoming a self-employed professional or shopkeeper. We thus estimate regressions which take into account each self-employment occupation. Contrary to previous work which generally excludes farmers, we include farming, which is typically a self-employed occupation but can also be salaried. We also ran regressions excluding farmers: this produced similar results to those obtained previously.

Our results show that having self-employed parents increases the probability of being self-employed, irrespective of occupation, which is consistent with both occupational following and employment mode following. However a more detailed analysis that distinguishes between the different kinds of self-employed-farmers, artisans, professionals and shopkeepers-provides mitigated results concerning employment mode following, indicating that most of individuals follow their parents into occupations that are identical or at least relatively similar to that of their parents. For example, if having a farmer father positively influences the individual's probability of being a farmer or artisan, it negatively affects the probability of becoming a professional worker. On the contrary, having a professional worker father only increases the probability of being a professional worker. Our results also indicate some differences between the first- and second-generation self-employed. For example, the first-generation self-employed generally have more formal education than the second-generation. One possible explanation is that self-employed workers who have received less informal human capital compensate via more formal education.

The paper is organized as follows. The analysis of the determinants of the intergenerational correlation in self-employment is in Sect. 2, and Sect. 3 investigates the differences between the first- and second-generation self-employed. Finally Sect. 4 concludes.

2 Self-employment and the intergenerational correlation of self-employment

2.1 Descriptive analysis

The econometric analysis described in this section is based on the French part of the European Community Household Panel Survey (ECHP). This survey focuses on household income and living conditions from 1994 to 2001. In contrast to some other panel datasets, the ECHP provides a large enough number of individual observations to allow a credible examination of self-employment. The survey consists of a sample of 7300 households.⁹ To facilitate comparison

with other previous studies, we restrict our sample to workers who were either self-employed or salaried. In particular, we exclude those who were retired, in school or in the military, as well as the unemployed. These restrictions reduce the sample size to 50579 observations. Of these we have 5871 observations (i.e. approximately 11.6% of the sample) on the self-employed. We classify workers as self-employed if they answered yes to the direct question on whether they were self-employed.¹⁰ Table 1 presents summary statistics for these data.

Table 1 shows that self-employed are on average eight years older than salaried workers, and are more often male and less likely to have children. Self-employed are generally less educated than salaried workers: 72% of the self-employed have less than a high-school degree, against 58% of salaried workers. However amongst the self-employed with education beyond high school, over 42% attained a master degree or more, whereas this figure is only 29% for salaried workers. Table 1 also indicates that self-employed are more likely to be property owners, accumulate more assets and receive higher earnings than salaried workers.¹¹

Finally, the ECHP survey provides some interesting information on the influence of immediate social

¹⁰ An individual is count as self-employed in a given survey year if she or he declared herself (himself) as self-employed worker. Her or his "class of worker" category includes non salaried farmer, shopkeeper, artisan, professional man or managers/owner. Business owners who draw a regular salary are classified as salaried workers.

¹¹ Personal income was initially measured in French Francs. Two income information were available in the French data of the ECHP survey. First, the French panel of the ECHP Survey interviewed in October of each year between 1994 and 2001 the same group of persons representative of the French population on their cumulated personal income at this date (i.e. October of each year between 1994 and 2001). Second, all individuals were also asked every year to retrospectively state their annual income of the past year (e.g. 2000 for the survey conducted in 2001). However, such information prevented us from using data for 2001. For this reason, we used the first income information in this study. To make easier comparative analysis and to provide less ambiguous income information, we reported monthly income. The net monthly income from self-employment is on average 2,229 Euros, compared to 1,603 Euros for employees. Individuals who reported non-positive self-employment earnings were not considered in the analysis (Evans and Jovanovic 1989).

⁹ All individuals living in these households and aged 17 or over in 1994 were interviewed periodically between 1994 and 2001. These "panel individuals" were followed over time even if they changed address.

Table 1 Summary statistics of individual characteristics^{a,b}

Variable	Whole sample	Salaried (WS)	Self-employed (SE)
<i>Individual characteristics</i>			
Gender (male)	.552 (.497)	.536 (.499)	.676 (.468)
Age	39.4 (1.75)	38.5 (1.44)	46.3 (1.58)
<i>Marital status</i>			
Married	.755 (.430)	.755 (.430)	.761 (.426)
Have children	.598 (.490)	.608 (.488)	.525 (.499)
<i>Human capital</i>			
Less than high school ^b	.597 (.490)	.581 (.493)	.720 (.450)
Associate's degree ^b	.113 (.317)	.117 (.321)	.084 (.277)
Bachelor's degree ^b	.036 (.186)	.037 (.189)	.026 (.159)
Master's degree or more ^b	.065 (.247)	.063 (.244)	.078 (.268)
Technical Qualification	.350 (.477)	.348 (.476)	.368 (.482)
<i>Financial capital</i>			
Net monthly income (euro)	1653 (1064)	1603 (1096)	2229 (555)
Home Owner	.537 (.499)	.512 (.499)	.723 (.447)
Assets < 100 ^c	.227 (.419)	.244 (.429)	.096 (.294)
100 ≤ Assets (500 ^c	.231 (.421)	.236 (.425)	.186 (.389)
500 ≤ Assets (1000 ^c	.275 (.446)	.276 (.447)	.268 (.443)
Assets ≥ 1000 ^c	.261 (.439)	.238 (.426)	.433 (.495)
<i>Social environment</i>			
Both parents SE	.146 (.353)	.114 (.318)	.370 (.483)
Father SE	.277 (.447)	.234 (.423)	.580 (.493)
Mother SE	.179 (.384)	.147 (.354)	.413 (.492)
Frequent contact with friends	.679 (.467)	.681 (.466)	.664 (.472)
Frequent contact with neighbors	.439 (.496)	.430 (.495)	.517 (.499)

^a Note: Numbers in parentheses are Standard Deviations

^b Note: "less than high school graduation" corresponds in France to individuals with baccalaureat. "Associate degree" corresponds to individuals with two years of education after baccalaureat. Bachelor's degree corresponds to three years of education after baccalaureat. Finally, "master degree or more" corresponds to individuals with four years or more after baccalaureat

^c Note: assets are calculated in thousand of french francs

environment on the probability of self-employment. Not surprisingly, the self-employed are more likely to have one or both parents self-employed: 37% of the self-employed have self-employed parents, as opposed to only 11.5% for employees. Table 1 also includes variables that provide a further measure of the non-immediate environment (friends and neighbors). It shows that 52% of the self-employed have frequent contact with their neighbors, against 43% of salaried workers. Finally the ECHP data indicate that self-employed sons follow their father's occupations in 47.7% of cases compared to 33% for the sons who are not self-employed workers.¹²

¹² A similar result is obtained by Dunn and Holtz-Eakin (2000). The authors observe that self-employed sons followed their father's occupations in 32% of cases compared to a rate of 22% for the never self-employed sons.

2.2 Self-employment probits using ECHP data

Table 2 reports the results of Random Effects Probit estimations of self-employment.¹³ The independent variables include demographic characteristics (gender, age and marital status), education, wealth and financial transfers, experience, and information on the individual's immediate social environment. Previous work has underlined the endogeneity of earnings,

¹³ Whereas it is possible to test the nature of the individual effect (fixed or random) for linear models, it is much more difficult to do so with a qualitative dependent variable (See Greene 2003). With a binary dependent variable we can use a logit with individual fixed effects which produces convergent estimations. However with a probit model, estimates are convergent only when the individual effects are random. Since one of our goals is to jointly estimate the impact of variables that remain constant over time (e.g. education) and those that vary over time (e.g. whether and when the individual left the parental home, and the number of children) we use a probit with random effects.

Table 2 Random effect probit regressions on self-employment probability^a

Variables	(1)	(2)	(3)	(4)	(6)	(7) Men	(9) Women
Constant	−12.886*** (.354)	−12.725*** (.371)	−11.979*** (.360)	−10.101*** (.277)	−2.982*** (.119)	−9.902*** (.429)	−9.732 (.420)
Gender (male)	1.001*** (.094)	1.067*** (.109)	2.265*** (.115)	.300*** (.088)	.241*** (.018)		
Age	.138*** (.005)	.137*** (.005)	.091*** (.005)	.099*** (.004)	.027*** (.001)	.114*** (.016)	.570*** (.099)
Married	.140 (.094)	.206** (.096)	.116 (.095)	−.104 (.093)	.037 (.025)	−.047 (.170)	.508*** (.180)
Have children	−.268*** (.086)	−.322*** (.080)	.034 (.091)	.338*** (.083)	−.024 (.021)	.312*** (.118)	−.745*** (.134)
Associate's degree	.315*** (.122)	.165*** (.148)	.282* (.165)	.188*** (.130)	.201*** (.032)	.121 (.189)	.720*** (.169)
Bachelor's degree	.555*** (.190)	.538*** (.223)	.921*** (.200)	.602*** (.208)	.107*** (.051)	1.119*** (.342)	.511** (.253)
Master's degree or more	.652*** (.140)	.666*** (.143)	.361*** (.133)	.845*** (.139)	.323*** (.034)	.569*** (.168)	1.109*** (.216)
Technical qualification	.421*** (.098)	.433*** (.095)	.216** (.099)	.507*** (.091)	.154*** (.021)	.498*** (.149)	.377** (.175)
Home Owner	.539*** (.085)	.531*** (.090)	.663*** (.087)	.298*** (.086)	.163*** (.021)	.295** (.129)	1.353*** (.138)
Inheritance	.475*** (.165)	.470*** (.165)	.385** (.170)	.729*** (.175)	.152** (.063)	.383* (.216)	.602** (.253)
Inheritance*father SE	.467 (.566)						
Inheritance*mother SE		−.224 (.331)					
Inheritance*Father/Mother SE			.189 (.741)	.051 (.121)	−.177 (.249)	.862 (.767)	−1.556 (1.864)
Father SE	3.059*** (.104)		2.402*** (.147)				
Mother SE		2.937*** (.110)	1.350*** (.141)				
Father SE same job				4.804*** (.180)	1.349*** (.144)	6.039*** (.276)	3.298*** (.367)
Father SE not same job				.757*** (.104)	.706*** (.134)	.991*** (.137)	−.199 (.162)
Mother SE same job				2.538*** (.198)	.821*** (.049)	2.226*** (.275)	1.658*** (.356)
Mother SE not same job				.051 (.121)	.302*** (.120)	−.255 (.155)	1.387*** (.219)
Father SAL same job					−.052 (.068)		
Mother SAL same job					−.077 (.139)		
Observations	43499	42172	42172	42114	42114	22923	22903
Log likelihood	−5074.093	−5001.706	−4930.316	−4569.993	−11699	−2623.090	−1853.810

^a Note: Numbers in parentheses are Standard Errors.

*** 1% significance level

** 5% significance level

* 10% significance level

which are therefore omitted here. We do include a dummy variable indicating whether the individual owned her house before becoming self-employed. The regressions also include a dummy variable for having received a large inheritance.¹⁴ Finally, we controlled for the immediate social environment. The first regression includes dummy variables for having a self-employed father (“father SE”); the variable “mother SE” is included in the second specification, and the third estimation includes both variables. To check whether self-employed parents are more likely than salaried parents to transfer financial capital to their children, we also include three interaction variables: “Inheritance* father SE”, “Inheritance* mother SE” and “Inheritance* father or mother SE”.¹⁵

The originality of our approach is the detailed analysis of how parental self-employment affects the probability of self-employment, depending on whether the parents are in the same occupation as their children. This distinction is made in the fourth column of Table 2. We also controlled for being in the same job, irrespective of labor market status (salaried/self-employed) by including in column five a dummy variable indicating whether parents are employees in the same occupation as their children.¹⁶ The last two columns of Table 2 test for possible differences between the male and female self-employed.

Table 2 shows that many individual characteristics significantly affect the self-employment decision. Consistent with the existing literature, both men and older workers are more likely to make this choice.¹⁷ In contrast, we find no robust effects of

marriage or having children.¹⁸ Turning to measures of human capital, we find that the effect of education on self-employment is positive and statistically significant, as found in Evans and Leighton (1989) and Rees and Shah (1986). Moreover having a technical qualification increases the probability of self-employment. Hence education appears to be an important determinant of career choice. With respect to the financial capital variables, we find that homeowners are more likely to be self-employed than salaried workers. Individuals who received large inheritances or gifts were also more likely to run their own business.¹⁹ This is consistent with the existence of capital constraints, as observed in a number of previous studies (Blanchflower and Oswald 1998; Holtz-Eakin et al. 1994a, b; Meyer 1990; Evans and Jovanovic 1989; Evans and Leighton 1989).²⁰

Footnote 17 continued

et al. 1994a, b; Dolton and Makepeace 1990; Borjas and Bronars 1989; and Rees and Shah 1986). However, Taylor (1996) finds no significant effect of age.

¹⁸ There is no clear consensus on the effect of marriage. Evans and Jovanovic (1989), Evans and Leighton (1989) and Gill (1988) report a negative effect of marriage on the probability of self-employment, while Taylor (1996) and Lindh and Ohlsson (1998) find positive effects. This latter result may show that being married brings more stability and relaxes the liquidity constraint. Nevertheless, most of the other studies find no significant marriage effect. The effects of having children are also not well established. Gill (1988) report a negative effect, while Dolton and Makepeace (1990) find a positive and significant effect.

¹⁹ We also ran a regression (not reported here) including “assets” to control for personal wealth. Asset possession increases the probability of self-employment. Details of this regression will be provided on request.

²⁰ It might be argued that the variable “inheritance” may not be entirely random. Blanchflower and Oswald (1998) note that individuals who receive inheritances may be those who are, for unmeasured reasons, better suited for self-employment. For example, inheritance may release the borrowing constraint of children. Children who attempt to go into business may approach their parents for loans, which may induce simultaneity bias. To control for this possibility, Blanchflower and Oswald (1998) instrumented this variable, by using the information concerning the death of the father and/or the mother since the death of a parent should have no effect on the decision of self-employment. Unfortunately, such information was not available in our data. However, we can be confident in the consistency of our results since Blanchflower and Oswald observed similar positive effects of inheritance with and without instruments and concluded that the effects of inheritance could not be created by simultaneity bias. Finally, we

¹⁴ The key question in the survey is “How much have you inherited from another person”. The omitted category is “no/low heritage received”.

¹⁵ Additional regressions (not reported here) including the variables concerning non immediate environment (friends and neighbors) do not report highly significant effects of these variables.

¹⁶ For example, the father may be a salaried agricultural worker while his child is a self-employed farmer.

¹⁷ The majority of the literature concludes that men are significantly more likely to become self-employed (Lindh and Ohlsson 1998; Blanchflower and Oswald 1990; Dolton and Makepeace 1990; De Wit and van Winden 1989; and Carrol and Mosakowski 1987), as are older workers (Holtz-Eakin

Finally, we explore the influence of the social environment on self-employment. Consistent with the existing literature, Table 2 shows that self-employed parents have a positive and significant effect on children's self-employment. However, the interaction variables "inheritance*father SE", "Inheritance*mother SE" and "Inheritance*father/mother SE" that provide measures of the transmission of financial capital are insignificant, showing that there are no significant differences in the transmission of financial capital between salaried and self-employed parents.

Turning to check whether intergenerational self-employment correlation reflects occupational following, we find that the variables "father SE same job" and "mother SE same job" are both positive and significant. This result confirms the idea that a part of the correlation in self-employment is attributable to children following their parents. However, the coefficient on the variable "father SE not same job" is also positive and statistically significant, which is consistent with the idea of employment mode following and its possible interpretation in term of transmission of general managerial skills. Finally, the variables "Father SAL same job" and "mother SAL same job" are both insignificant, suggesting that having employee parents in the same occupation does not influence the self-employment decision.²¹

The two last columns of Table 2 show the estimation results for men and women. The comparison of these two columns reveals several differences between the male and female self-employed. The variable "marriage" attracts a positive and significant coefficient for women; on the contrary it is insignificant for men. In contrast, having children negatively influences self-employment for women, but has a positive effect for men. A possible explanation is that family responsibilities, which have been shown to reduce risk-taking and which reduce the choice of self-employment, may be more important for women than for men. Finally, Table 2 indicates that both men

and women are positively and significantly influenced by having self-employed parents. However women (men) are more likely to be influenced by their mother (father) than by their father (mother). Hence, these results indicate that intergenerational correlation in self-employment is stronger along gender lines.

2.3 Occupational inheritance among the self-employed

While the results above have shown that parents influence their children, even if they are not in the same occupation, we may suspect that this influence be higher when occupations are relatively similar.²² To check, we estimated a Multinomial Logit model²³ in Table 3, which yields a measure of the effect of each variable on the probability of self-employment in a given occupation (as opposed to being a salaried worker, which is the omitted category).²⁴

Table 3 indicates that men are more likely to become self-employed farmers or artisans; on the contrary they are less likely to become shopkeepers. Moreover, education reduces the probability of choosing to become a farmer, artisan or shopkeeper, whereas it increases the probability of becoming a professional worker (compared to the reference of being a salaried worker). Table 3 also reveals that financial capital positively affects the probability of being a farmer.

Turning to the influence of the social environment, Table 3 reveals that a large majority of individuals enter the same or very similar occupation as their parents. For example, having a farmer father

Footnote 20 continued

also ran estimations without "inheritance". The results are similar to those presented in Table 2. Details of this regression will be provided on request.

²¹ Additional regressions (not reported here) including the variables "Father same job" and "Mother same job" also produced similar results.

²² For example, a possible distinction could be made between manual occupations (farming, artisan) and non manual jobs (professional workers for example). Shopkeepers would then enter a third category since these occupations include both manual and non manual activities.

²³ The results of a Hausman test confirm the IIA assumption in all sub-samples.

²⁴ We also re-estimated the regressions in Table 2, taking into account father's occupation. A first model tests whether having a self-employed farmer father influences the probability of becoming a self-employed worker for all occupations except farmers. The three other models exclude respectively artisans, shopkeepers and professional workers. Our results indicate that, in all cases, father's occupation is positive and significant, even for the occupations that have been omitted. Details of these regressions will be provided on request.

Table 3 Multinomial logit on self-employment probability depending on father occupational ^{a,b}

Variables	SE farmer	SE artisan	SE shopkeeper	SE prof.
Constant	-7.464*** (.180)	-7.655*** (.199)	-4.349*** (.124)	-4.317*** (.127)
Gender (Male)	.488*** (.053)	.485*** (.053)	.856*** (.046)	.881*** (.046)
Age	.064*** (.012)	.063*** (.012)	.076*** (.010)	.041*** (.010)
Married	-.094 (.065)	-.018 (.065)	-.0617 (.053)	.180*** (.056)
Have Children	-.347*** (.064)	-.361*** (.064)	-.216*** (.053)	-.217*** (.050)
Associate's degree	-.876*** (.159)	-.850*** (.160)	-.1683*** (.167)	-.519*** (.092)
Bachelor's degree	-.058 (.198)	-.006 (.201)	-.1210*** (.206)	-.280*** (.131)
Master's degree or more	-1.616*** (.267)	-1.603*** (.269)	-2.129*** (.233)	-1.523*** (.191)
Technical qualification	.360*** (.057)	.370*** (.057)	.451*** (.044)	.364*** (.047)
Home owner	.218*** (.064)	.223*** (.064)	-.392*** (.046)	-.194*** (.049)
Inheritance	.474* (.307)	.528* (.309)	.126 (.181)	.182 (.165)
Inheritance*father SE	-.002 (.012)	-.706 (.560)	.205 (.1025)	-.258 (.754)
Father SE farmer	3.343*** (.068)	1.753*** (.134)	.317*** (.129)	.381* (.218)
Father SE artisan	.400** (.181)	.666** (.196)	1.050*** (.069)	.500*** (.087)
Father SE shopkeeper	.778*** (.190)	1.558*** (1.031)	.133 (.293)	.403*** (.168)
Father SE professional	.597 (.419)	.194 (.485)	-.423 (.393)	.203 (.258)
Father SAL farmer		-1.789* (1.00)	-.412 (.883)	-1.164 (1.01)
Father SAL artisan		.114 (.930)	.156 (.398)	-.825 (.426)
Father SAL shopkeeper		.173 (1.509)	.756 (.809)	-1.343 (.766)
Father SAL professional		-.139 (.939)	.400 (1.221)	-1.225 (.900)
Observations	47063	47063	47063	47063
Log likelihood	-28922.709	-28736.512	-28922.709	-28736.512
				-28922.709
				47063
				-28736.512

^a Note: Numbers in parentheses are standard errors.

*** 1% significance level

** 5% significance level

* 10% significance level

^b Note : Due to the few number of observation among managers, this category was not considered in the logit estimation

positively influences the individual's probability of being a farmer or artisan, but negatively affects the probability of becoming a professional worker. On the contrary, having a professional worker father only increases the probability of being a professional worker. Last, having a shopkeeper father affects the probability of being self-employed, irrespective of the occupation. These detailed results indicate that there is a distinction between manual occupations, such as farmer or artisan, and intellectual occupations such as professional workers and that most of individuals enter very similar occupation as their parents.

In summary, the results reported here indicate that having self-employed parents is an important factor in explaining the probability of being self-employed. This is consistent with Dunn and Holtz-Eakin (2000), Taylor (1996), Lentz and Laband (1990), De Wit and van Winden (1989) and others. Our results also reveal that intergenerational influence runs most strongly along gender lines. Finally, another important result is that intergenerational correlation in self-employment mainly reflects occupational following. In the next section we investigate whether the characteristics of the second-generation self-employed differ from those of the first-generation self-employed. Indeed we might suspect that there are some differences between the self-employed who have benefited from intergenerational transfers and those who did not.

3 First- and second-generation self-employed

3.1 Differences between the first- and second-generation self-employed

Table 4 provides some information about differences between the first- and second-generation self-employed. The first-generation self-employed are generally younger and more formally educated than the second generation self-employed. We also see a higher percentage of men amongst the second-generation self-employed. Finally, Table 4 shows that the incomes of the first generation of self-employed are on average higher than those of the second generation. Table 5 provides a more formal analysis of these patterns, via separate estimations of self-employment Probits for the first- and second-generation self-employed.

Table 5 reveals a number of differences between the first- and second-generation self-employed. Technical formation is only significant for second generation self-employed workers. Moreover, consistent with our previous results, formal education is more important for the first-generation self-employed. For example, having a Master's degree significantly increases the probability of being self-employed for those without self-employed parents, whereas it is insignificant for those whose parents are self-employed.

3.2 Why these differences?

We now try to investigate explanations of these differences between the first- and second-generation self-employed. There are two possible reasons why the first-generation self-employed are generally more educated than the second generation. The first relies on substitution between informal managerial human capital acquisition through parental transfers and more formally-acquired schooling: the second generation may find university education less useful. We might suppose that there is relatively less need for the second-generation self-employed to acquire formal education, since they have had the opportunity to accumulate equivalent training *via* their parents. By way of contrast, the first-generation self-employed, who receive less informal human capital than the second-generation self-employed, may compensate by more formal education. The second explanation is that some of the differences observed between the first- and second-generation self-employed may reflect differences in the distribution of occupations.²⁵ Table 6 shows that many of the second-generation self-employed are farmers, while this group represents only 7% of the first-generation self-employed.

To show that the first-generation self-employed compensate for their lower level of informal education by more formal education, we repeat Table 3's estimations, taking the distribution among occupations into account. We estimate a Multinomial Logit

²⁵ We recognize here that there may exist other possible explanations for these differences. However, we are confident in our results, since they indicate that our two effects tend to capture most of the distance between the first- and second-generation self-employed.

Table 4 Summary statistics of individual characteristics for first and second generation self-employed^a

Variable	Self-employed (SE)	Second Generation SE	First Generation SE
<i>Individual characteristics</i>			
Gender (male)	.676 (.468)	.717 (.450)	.611 (.468)
Age	46.3 (1.58)	48.1 (1.68)	44.9 (1.58)
Married	.761 (.426)	.764 (.424)	.802 (.398)
Have children	.525 (.499)	.499 (.500)	.594 (.491)
<i>Human capital</i>			
Less than high school	.720 (.450)	.800 (.399)	.613 (.487)
Associate's degree	.084 (.277)	.064 (.245)	.104 (.305)
Bachelor's degree	.026 (.159)	.018 (.132)	.037 (.189)
Master's degree or more	.078 (.268)	.051 (.220)	.118 (.323)
Technical qualification	.368 (.482)	.378 (.485)	.332 (.471)
<i>Financial capital</i>			
Individual income	2006 (5001)	16753 (19673)	24475 (72322)
Have owner	.723 (.447)	.803 (.397)	.673 (.468)
Assets <100 ^c	.096 (.294)	.073 (.260)	.121 (.326)
100 ≤ Assets < 500 ^c	.186 (.389)	.181 (.385)	.189 (.391)
500 ≤ Assets < 1000 ^c	.268 (.443)	.283 (.450)	.243 (.429)
Assets ≥ 1000 ^c	.433 (.495)	.441 (.496)	.440 (.496)
<i>Social environment</i>			
Both parents SE	.370 (.483)		
Father SE	.580 (.493)		
Mother SE	.413 (.492)		

^a Note: Numbers in parentheses are standard deviations^c Note: assets are calculated in thousand of French francs**Table 5** Random effect probit regressions on self-employment for first and second generation self-employed^a

Variables	Father self-employed worker	Father not self-employed worker
Constant	−11.152*** (.727)	−9.600*** (.571)
Gender (Male)	1.461*** (.1484)	.630*** (.1483)
Age	.582*** (.098)	.590*** (.082)
Married	−.159 (.166)	.176 (.127)
Have children	−.778*** (.146)	−.1323 (.114)
Associate's degree	.010 (.242)	.563*** (.201)
Bachelor's degree	.477 (.333)	.977*** (.259)
Master's degree or more	.239 (.245)	1.128*** (.154)
Technical qualification	1.087*** (.137)	−.183 (.126)
Home owner	.771*** (.122)	.344*** (.111)
Inheritance	.573* (.3000)	−.188 (.251)
Observations	12045	31442
Log likelihood	−2075.183	−2926.112

^a Note: Numbers in parentheses are standard errors

Table 6 Summary statistics of self-employed by occupation^a

	All self-employed	First generation self-employed	Second generation self-employed
Farmer	35.02	7.79	51.55
Artisan	25.78	32.73	21.77
Shopkeeper	22.48	33.12	16.62
Professional man and managers	16.71	26.37	10.06

^a Note: Percentage of the population

model in Table 7, providing separate estimations for the first- and second-generation self-employed.²⁶ Results of Table 7 show that formal education affects first-generation self-employed differently depending on their occupation. While formal education has a positive effect for first-generation professional workers or shopkeepers, it has no effect for first-generation farmers or artisans. However the results reported here also indicate that education is generally more important for the first-generation than for the second-generation of self-employed, which is consistent with results presented previously. For example, the coefficient on Master's degree (or more) is positive and highly significant for first-generation professional workers whereas it is insignificant for second-generation professional workers. In addition, having a Bachelors degree only positively affects first-generation shopkeepers. Finally, while formal education decreases the probability of being a self-employed farmer for the second-generation self-employed, it has no negative effect for the first generation of self-employed.

4 Conclusion

The aim of this article was twofold. First we sought to investigate to what extent intergenerational correlation in self-employment mirrors occupational following. Second, we investigated the differences between the first- and second-generation self-employed. We have three key findings.

First, the results from our analysis of ECHP show that having self-employed parents positively influences the probability of being self-employed, irrespective of occupation. However, a more detailed analysis that distinguishes between the different kinds

of self-employed - farmers, artisans, professionals and shopkeepers shows that most of individuals enter the same or similar occupation as their parents. This indicates that large part of intergenerational correlation reflects occupational following or mirrors the fact that individuals are in occupations that are relatively similar to their parents.²⁷

Second, another interesting result, concerns gender differences and shows that intergenerational correlation is stronger along gender lines. Last, we also highlighted a number of differences between the first- and second-generation self-employed. The first-generation self-employed are generally more educated, even taking into account the occupational distribution of the first and second generations.

There are number possible explanations of our results. We have interpreted our results in terms of intergenerational transmissions. These explanations are not mutually exclusive, nor are they exhaustive. The first potential explanation is that self-employed workers would be more able than others to transfer *financial capital* to their children, acting as substitute banker. Our results do not support the existence of this effect, showing no significant differences in the transmission of financial capital between salaried and self-employed parents. A second possible explanation, consistent with employment mode following, relies on informal transfers of *general managerial skills*. If the self-employed transmit general managerial skills to their children, we should observe that self-employed parents in a given occupation should increase the probability of the children being self-employed in any occupation. However, a detailed analysis of our data indicates that it is not always the case. Finally, a third potential explanation, consistent

²⁶ The IIA assumption is confirmed in all sub-samples.

²⁷ Under a larger definition of occupational following, we may consider that it also reflects the fact that individuals enter not only the same occupations as their parents but also occupations that are quite similar.

Table 7 Multinomial logit on self-employment probability depending on father occupational ^{a,b}

Variables	First generation SE farmer	Second generation SE farmer	First generation SE artisan	Second generation SE artisan	First generation SE shopkeeper	Second generation SE shopkeeper	First generation SE prof.	Second generation SE prof.
Constant	-5.864*** (.382)	-5.439*** (.207)	-5.587*** (.161)	-5.529*** (.240)	-3.886*** (.159)	-4.157*** (.240)	-7.488*** (.200)	-7.647*** (.332)
Gender (male)	-.486*** (.132)	.697*** (.060)	.695*** (.057)	1.314*** (.082)	-1.111*** (.059)	-.320*** (.078)	-.127*** (.063)	.307*** (.098)
Age	.046*** (.007)	.079*** (.003)	.067*** (.002)	.059*** (.004)	.036*** (.002)	.040*** (.004)	.080*** (.003)	.077*** (.005)
Married	-.386** (.155)	-.060 (.073)	-.281*** (.065)	.295*** (.096)	.194*** (.070)	.245*** (.098)	.379*** (.084)	.383*** (.130)
Have children	-.022 (.151)	-.321*** (.072)	-.221*** (.062)	-.337*** (.087)	-.136** (.062)	-.530*** (.089)	-.182*** (.071)	-.412*** (.113)
Associate's degree	.381 (.779)	-1.126*** (.169)	.228 (.317)	-2.313*** (.360)	.215 (.228)	-.081 (.156)	1.816*** (.225)	2.033*** (.130)
Bachelor's degree	.465 (.863)	-1.362*** (.290)	.273 (.564)	-.950*** (.303)	.823** (.352)	.625 (.226)	1.443*** (.429)	.609** (.268)
Master's degree or more	1.185 (1.000))	-.030 (.495)	.337 (.444)	-6.894*** (1.834)	-.330 (.503)	.625 (.509)	2.193*** (.301)	.077 (.393)
Technical qualification	.280 (.135)	.298*** (.064)	.396*** (.055)	.3009*** (.076)	.189*** (.059)	.662*** (.087)	-.054 (.092)	.307*** (.142)
Home Owner	-.002 (.139)	.288*** (.058)	-.433*** (.058)	-.054 (.076)	.080 (.057)	.102 (.079)	.425*** (.064)	.721*** (.100)
Inheritance	.222 (.339)	-1.137* (.610)	.531* (.336)	.030 (.455)	.288 (.374)	-.406 (.598)	.674*** (.271)	.986*** (.388)
Observations	33106	12558	33106	12558	33106	12558	33106	12558
Log likelihood	-16839.325	-11273.737	-16839.325	-11273.737	-16839.325	-11273.737	-16839.325	-11273.737

^a Note: Numbers in parentheses are standard errors.

*** 1% significance level

** 5% significance level

* 10% significance level

^b Note: Due to the few number of observation among managers, this category was not considered in the logit estimation

with occupational following, stems from the fact that self-employed may be more able than salaried workers to transmit *career-specific* skills to their children. Under this assumption of transmission of *career-specific skills*, we should see that having self-employed parents in a given occupation increases the probability of the children being self-employed in the same occupation. Our results support this explanation. Indeed previous results showed that a majority of individuals enter the same or similar occupation as their parents, which suggests the determinant role for the intergenerational transmissions of *career-specific skills* in increasing the probability of being self-employed worker. This result may have several potential implications for understanding the role of informal education in explaining career choice and aspects of labor market behavior.

A number of topics remain for future research. A direction for future research would be to investigate the reasons for the differences between our results and previous studies. Moreover, we have not considered in the current analysis the differences in earnings between first and second generation self-employed. A further examination of this is called for.

Acknowledgements This paper has benefited from useful comments from participants at the 2006 European Association of Labour Economists in Prague, and the 2005 Applied Micro-Economics Meeting in Hammamet. We are also grateful to Andrew Clark, Robert Breunig, Anne Laferrère and Claude Montmarquette for their useful comments. We also thank two anonymous referees for their helpful comments.

References

- Aldrich, H., Renzuli, L. A., & Langton, N. (1998). Passing on privilege: Resources provided by self-employed parents to their self-employed children. *Research in Social Stratification and Mobility*, 16, 291–317.
- Basu, A., & Parker, S. C. (2001). Family finance and new business start-ups. *Oxford Bulletin of economics and Statistics*, 63(3), 333–358.
- Blanchflower, D. G., & Oswald, A. J. (1990). Self-employment and Mrs. Thatcher's enterprise culture. In: R. Jowell, S. Witherspoon, & L. Brook (Eds.), *British Social Attitudes: the 1990 report*. Aldershot: Gower.
- Blanchflower, D. G., & Oswald, A. J. (1998). What makes an entrepreneur. *Journal of Labor Economics*, 16(1), 26–30.
- Borjas, G. J., & Bronars, S. (1989). Consumer discrimination and self-employment. *Journal of Political Economy*, 97(3), 581–605.
- Carrasco, R. (1999). Transitions to and from self-employment in Spain: An empirical analysis. *Oxford Bulletin of Economics and Statistics*, 61(3), 315–341.
- Carrol, G., & Mosakowski, E. (1987). The career dynamics of self-employed. *Administrative Science Quarterly*, 32, 570–589.
- Cooper, A. C., & Dunkelberg, W. C. (1986). Entrepreneurship and paths to business ownership. *Strategic Management Journal*, 7, 53–68.
- Dolton, P. J., & Makepeace G. H. (1990). The earnings of economics graduates. *Economic Journal*, 100(127), 237–250.
- Dunn, T. A., & Holtz-Eakin, D. (2000). Financial capital, human capital, and the transition to self-employment: Evidence from intergenerational links. *Journal of Labor Economics*, 18(2), 282–305.
- Evans, D. S., & Leighton, L. S. (1989). Some empirical aspects of entrepreneurship. *American Economic Review*, 79(3), 519–535.
- Evans, D. S., & Jovanovic, B. (1989). An estimated model of entrepreneurial choice under liquidity constraints. *Journal of Political Economy*, 97, 808–827.
- Fairlie, R. W. (1999). The absence of the african-american owned business: an analysis of the dynamics of self-employment. *Journal of Labor Economics*, 17, 80–108.
- Gill, A. M. (1988). Choice of employment status and the wages of employees and the self-employed. some further evidence. *Journal of Applied Econometrics*, 3, 229–234.
- Greene, W. (2003). *Econometric analysis* (5th ed.). Prentice Hall.
- Hout, M., & Rosen, H. (2000). Self-employment, family background and race. *Journal of Human Resources*, 35, 670–692.
- Hotz-Eakin, D., Joulfaian, D., & Rosen, H., (1994a). Entrepreneurial decisions and liquidity constraints. *RAND Journal of Economics*, 25(2), 335–347.
- Hotz-Eakin, D., Joulfaian, D., & Rosen, H. (1994b). Sticking it out: Entrepreneurial survival and liquidity constraints. *Journal of Political Economy*, 102(1), 53–75.
- Hundley, G. (2006). Family background and the propensity for self-employment. *Industrial Relations*, 45(3), 377–392.
- Laferrere, A. (1998). Devenir travailleur indépendant. *Economie et Statistique*, 9/10(319–320), 13–28.
- Laferrere, A., & McEntee, P. (1995). Self-employment and intergenerational transfers of physical and human capital: An empirical analysis of french data. *The Economic and Social Review*, 27(1), 43–54.
- Lentz, B. S., & Laband, D. N. (1990). Entrepreneurial success and occupational inheritance among proprietors. *Canadian Journal of Economics*, 23(3), 563–579.
- Lindh, T., Ohlsson, H. (1998). Self-employment and wealth inequality. *Review of Income and Wealth*, 44(1), 25–42.
- Marshall, A. (1930). *Principles of economics*. London: Macmillan for the Royal Economics Society and co.
- Meyer, B. D. (1990). Why are there so few black entrepreneurs? NBER Working Paper 3537.
- Parker, S. C. (2004). *The economics of self-employment and entrepreneurship*. Cambridge: Cambridge University Press.

- Rees, H., & Shah, A. (1986). An empirical analysis of self-employment in the UK. *Journal of Applied Econometrics*, 1(1), 95–108.
- Taylor, M. (1996). Earnings, independence or unemployment: Why become self-employed?. *Oxford Bulletin of Economics and Statistics*, 58(2), 253–266.
- Wit, G. de, & Winden, F. van (1989). An empirical analysis of self-employment in the Netherlands. *Small Business Economics*, 1(4), 263–272.

Copyright of *Small Business Economics* is the property of Springer Science & Business Media B.V. and its content may not be copied or emailed to multiple sites or posted to a listserv without the copyright holder's express written permission. However, users may print, download, or email articles for individual use.

Copyright of *Small Business Economics* is the property of Springer Science & Business Media B.V. and its content may not be copied or emailed to multiple sites or posted to a listserv without the copyright holder's express written permission. However, users may print, download, or email articles for individual use.