

## 5. Switching from paid employment to entrepreneurship: the effect on individuals' earnings

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### INTRODUCTION

The role played by the characteristics and preferences of individuals, as well as general and specific human capital in determining whether individuals choose wage employment or self-employment, has been addressed by some key theoretical and empirical works in the discipline of economics (Lucas, 1978; Kihlstrom and Laffont, 1979; Evans and Leighton, 1989a; Blanchflower and Oswald, 1998; and Lazear, 2005). While theoretical models highlight differences in expected earnings as the main factor determining the decision, empirical evidence does not provide clear support that earnings differentials play a significant (or, at least, the most significant) role in the choice between these two occupations (Parker, 2004). Moreover, empirical evidence on earnings differentials between the self-employed and wage employees does not favour the former (Hamilton, 2000).

The main objective of this chapter is to look at the pecuniary impact of becoming a business owner after being employed in a firm. We use data that allow us to observe individual and firm level effects on incomes simultaneously, thus avoiding misspecification problems associated with panel studies that only include personal data. We account for multiple determinants of wage earnings, such as individual attributes (age, education), employer characteristics (firm size, economic sector, and administrative region), and individuals' career paths.

In line with labour economics research, while estimating individual earnings, we estimate different types of earnings models, each including different kinds of information concerning wage determinants. We first consider individual attributes such as age, schooling and tenure, while controlling for firm characteristics, including firm size, industry and region. Secondly,

we include mobility variables for two specific groups, namely individuals switching from paid employment to business ownership and those switching from paid employment in one firm to paid employment in another firm. Thirdly, we account for specific pecuniary effects for those individuals who leave their current job to become entrepreneurs. Finally, information about the individuals' careers is included as our data comprise historical employment data for individuals.

The following section reviews the literature on earnings differentials between waged workers and the self-employed. The third section discusses the data and methodological issues. The fourth section presents the empirical specification of the study. The fifth section displays the estimation results and summarizes the main findings, while the final section concludes.

## BACKGROUND

Economic models of occupational choice between wage employment and self-employment are mostly based on the expectation that individuals are attracted to business ownership because of higher expected earnings relative to paid employment. In other words, paid employment earnings are the opportunity cost for entrepreneurs. However, the majority of recent evidence suggests that for comparable levels of education and experience, most self-employed individuals earn less than paid employees. An important stream of literature shows that over-optimism about future earnings as an entrepreneur plays a role in explaining this fact (Kahneman and Lovallo, 1993; Camerer and Lovallo, 1999). However, over-optimism does not explain persistence in self-employment by individuals who earn less than they could if they were paid employees. Some researchers argue that the evolution of earnings over time should show sharper increases for the self-employed than for paid employees as the self-employed do not share the rents of their investments in human capital (Becker, 1975). Others contend that earnings for waged workers should increase more sharply over time, in order to discourage shirking because of agency problems, especially given that as a wage worker progresses up the job ladder, shirking becomes more costly to the firm (Lazear and Moore, 1984).

A stream of literature examines the difference between the earnings of waged employees and those of the self-employed. While most studies using cross-sectional data find that the self-employed have lower earnings than paid employees (Bregger, 1963; Ray, 1975; Fain, 1980; Becker, 1984; Haber et al., 1987; and Carrington et al., 1996), studies using longitudinal data find that mean earnings are to some extent analogous (Rees

and Shah, 1986; Gill, 1988; Borjas and Bronars, 1989). Some of these latter studies indicate that initial earnings growth for entrepreneurs in a new business is larger than the growth in wages for salaried employees starting a new job (Brock and Evans, 1986; Rees and Shah, 1986; Borjas and Bronars, 1989; Evans and Leighton, 1989a; and Hamilton, 2000). Other empirical studies report an average income advantage for the self-employed (Form, 1985; Borjas, 1986; Carroll and Mosakowski, 1987; Ferber and Waldfoegel, 1998; Quadrini, 1999; and Fairlie, 2004). There are multiple determinants explaining the decision to become self-employed. Hsu et al. (2007) highlight the importance of financial and opportunity cost-based determinants. Individuals are more likely to start new firms if their opportunity costs are lower; that is, they have relatively low current wage earnings and their liquidity constraints are less binding than for others (Evans and Jovanovic, 1989; Amit et al., 1995; Iyigun and Owen, 1998; Blanchflower and Oswald, 1998; Dunn and Holtz-Eakin, 2000). Additionally, employees are more likely to leave their existing organization and become self-employed when there is a slowdown in sales growth (Gompers et al., 2005). Other studies find a negative correlation between tax rates and self-employment in lower tax brackets (Blau, 1987).

Human capital theory proposes a positive relationship between factors such as formal education or professional experience with labour productivity (Mincer, 1974; Becker, 1975). Theoretical models of entrepreneurial choice and dynamics, such as those by Lucas (1978) and Jovanovic (1982), posit that entrepreneurial ability (whether pre-determined or learned) is a fundamental determinant of occupational choice. While experienced and educated wage workers are expected to be more productive and are consequently rewarded with higher earnings in the labour market, Casson (2003) argues that the skills that make good entrepreneurs are not necessarily the same as those embodied in formal qualifications. Even if individuals are not endowed with the complete set of skills necessary to start a business, they can acquire those skills. Lazear (2005) suggests that entrepreneurs should be generalists while those who work for others should be specialists, implying that human capital investments differ between those who end up as entrepreneurs and those who end up in salary or waged work. While Evans and Leighton (1989a) and Evans and Jovanovic (1989) find no connection between formal education and entrepreneurial earnings, Silva (2006) finds that changes in the spread of knowledge across different fields do not necessarily increase the prevalence of entrepreneurship.

Some studies show that relative earnings do not play a significant role in labour market status (i.e. self-employment vs. paid employment), suggesting that pecuniary rewards may not be the primary motivation

for choosing self-employment. Parker (2003) stresses that, in general, occupational choice between self-employment and paid employment is not robustly related to pecuniary factors. Taylor (1999) suggests that individuals are attracted to self-employment by the freedom from managerial constraints that it offers. Hamilton (2000) argues that non-pecuniary benefits of self-employment are substantial, because entrepreneurs persist in business even when they have both lower initial earnings and lower earnings growth than they could obtain in paid employment. Following the literature on over-optimism, Koellinger et al. (2007) find strong evidence that subjective, and often biased, perceptions have a crucial impact on new business creation.

The study of actual transitions from paid employment to entrepreneurship has attracted less attention. In an important study, Carrasco (1999) finds that the unemployed are more likely to enter self-employment, but their businesses generate lower earnings and face higher failure rates. Hamilton (2000) finds that the earnings of individuals entering self-employment are not significantly different from those of waged employees. In a recent study, Ñopo and Valenzuela (2007), using data for Chile, find that individuals switching from paid employment to self-employment experience positive average increases in income. The present chapter aims to contribute to this particular segment of the literature by examining and comparing the determinants of the earnings of individuals who switch from paid employment to self-employment with those of individuals who change firms while remaining paid employees.

## DATA AND METHODOLOGY

As pointed out above, the present study concentrates on the earnings of those individuals who switch from paid employment to entrepreneurship, and of those individuals who change firms but remain paid employees. Additionally, paid employees who do not change firms represent our control group. We estimate earnings equations for paid employees and business owners as a function of individual/personal characteristics, while controlling for the characteristics of the firm, such as size, industry and region. The availability of matched employer–employee data allows for this kind of analysis.

Hamilton (2000) considers different measures of self-employment earnings, namely: net profit, draw, and equity-adjusted draw. Net profit from running an enterprise is the standard measure widely used in the literature as measure of self-employment income. Given the potential under-reporting problem associated with net profit, other measures constitute

good alternatives, such as 'draw', which is the amount of consumption the business generates for the owner. Another measure less frequently used is the draw plus the growth in business equity. This measure is adjusted to account for the opportunity cost of business equity. In fact, the measurement of entrepreneur income constitutes a problem established in the literature (Parker, 2004). Typically, four types of problems exist in this regard, namely income under-reporting by the self-employed; relatively high non-response rates to survey income questions by the self-employed; failure to deal properly with negative incomes; and erroneous income reporting.

Since we lack specific data on entrepreneurs' income, we use the earnings of the highest paid employee in each firm as a proxy for the business owner's income. While the proxy chosen in the present study might in most cases understate the true business owner's earnings, the earnings distribution of the highest paid employee in a new firm is likely to be similar to the true earnings distribution of the business owner during the first years after start-up, as the firm has not yet had time to accumulate profits and generate capital gains.

The main data source is the 'Quadros de Pessoal' (QP) Micro Data, a longitudinal matched employer-employee data set including extensive information on worker mobility and business owners for 1995 through to 2003. QP includes annual data from all establishments with at least one wage-earner in Portugal. There are over two million workers in each annual survey who can be traced over time through the use of a unique identification number associated with the Portuguese social security system. Data for each business owner and paid employee include occupation, tenure, schooling and careers.

The population under analysis focuses on all male individuals, paid employees and business owners, aged between 16 and 65 years old who are observable in the data set by 1995 and traceable through to 2003. For the purpose of this research, a broad definition of 'business owner' is used. It includes all individuals who are reported as owning a business with at least one waged employee (sole contractors are excluded), regardless of whether they have full or partial ownership, and have started, acquired or inherited the business. We choose not to delve into a conceptual distinction between the terms business owner, self-employed and entrepreneur.

Individual earnings equations are defined for all the periods from 1995 to 2003. Individuals are compared using earnings as the variable of interest for paid employees and the earnings of the highest paid employee as a proxy for entrepreneurial income. We compute for each year and for each firm the earnings of the highest paid employee and assign that wage to the business owner of the firm. Controls for the events are defined as mobility across firms, distinguishing those workers who remain as paid employees

from those who become business owners. Age, education, tenure, and firm characteristics are also controlled. As we know the hierarchical level of the worker, we also control for promotions and demotions.

## EMPIRICAL SPECIFICATION

We begin by estimating a typical earnings equation (Mincer, 1974) using a log-linear wage function:

$$\ln y_{it} = a + X_{it}\beta + D_{it}\gamma + u_{it} \quad (5.1)$$

where  $y_{it}$  is the monthly wages received by individual  $i$  in year  $t$ ;  $X_{it}$  is a vector of both individual characteristics – including age (and its squared term), education (three dummy variables), and tenure (and its squared term) – and firm characteristics – including firm size, industry and administrative region (which can be varying or invariant over time);  $D_{it}$  represents the dummy variables accounting for transitions; and  $u_{it}$  is the equation error term.

In our analysis we also apply a panel data methodology as to control for individual unobserved heterogeneity. We define a fixed effects model for wage equation as:

$$\ln y_{it} = \alpha + X_{it}\beta + D_{it}\gamma + v_i + \varepsilon_{it} \quad (5.2)$$

where  $v_i$  is a vector of unobservable individual time-constant effects, and  $\varepsilon_{it}$  is the error term reflecting time-varying unobservable factors.

As previously mentioned, the period under study starts in 1995 and concludes with 2003. The analysis is restricted to males, who account for 61 per cent of all individuals present in the data set in 1995. Individuals aged between 16 and 65 in 1995 correspond to 97 per cent of the original sample. The dependent variable in the earnings equations is the natural logarithm of monthly wage calculated by the sum of basic wage with regular payments, deflated using the Consumer Price Index. Overtime payments are not included as part of the dependent variable.

Table 5.1 shows the descriptive statistics. The mean age is nearly 44 for business owners and 39 for paid employees. Business owners are better educated, having achieved a university level education. On average, the tenure of business owners is little lower than the tenure of individuals who are always paid employees.

Education is included in the model through three dummy variables accounting for (1) individuals who completed the nine years of Portugal's

Table 5.1 Descriptive statistics, 1995–2003

Variables	Statistics	All	Paid	Business
		individuals	employees	owners
	N	6170011	5810330	359681
Monthly wage (log)	Mean	6.610	6.620	6.446
	St. dev.	0.547	0.548	0.491
Age (years)	Mean	39.593	39.291	44.472
	St. dev.	10.606	10.585	9.717
Nine years education (dummy)	Mean	0.155	0.154	0.165
	St. dev.	0.362	0.361	0.372
Secondary education (dummy)	Mean	0.125	0.125	0.126
	St. dev.	0.330	0.330	0.332
College education (dummy)	Mean	0.034	0.033	0.048
	St. dev.	0.180	0.178	0.213
Tenure (years)	Mean	9.574	9.613	8.946
	St. dev.	9.357	9.441	7.840
Firm size (log)	Mean	4.364	4.500	2.172
	St. dev.	2.309	2.301	0.899
Entry into business ownership (BO) (dummy)	Mean	0.006	0.001	0.076
	St. dev.	0.076	0.038	0.265
Paid employees (PE) firm change (dummy)	Mean	0.098	0.105	0.000
	St. dev.	0.298	0.306	0.000
Direct transition into BO (dummy)	Mean	0.003	0.001	0.036
	St. dev.	0.051	0.025	0.185
PE firm change: get promoted (dummy)	Mean	0.020	0.022	0.000
	St. dev.	0.142	0.146	0.000
PE firm change: stay current level (dummy)	Mean	0.057	0.061	0.000
	St. dev.	0.233	0.239	0.000
PE firm change: get demoted (dummy)	Mean	0.016	0.017	0.000
	St. dev.	0.125	0.129	0.000
Promotion (dummy)	Mean	0.043	0.044	0.043
	St. dev.	0.204	0.204	0.203
Demotion (dummy)	Mean	0.029	0.029	0.027
	St. dev.	0.167	0.167	0.164

*Note:* Monthly wage is calculated by summing base wage with regular payments, deflated by the Consumer Price Index. The size of the firm is measured by number of employees. Age and experience as paid employee are measured in years. Nine years of education, secondary education, college education, entry to business ownership, paid employees firm change, direct transition to business ownership, and demotion are defined as dummy variables. When the worker changes firm, promotion and demotion are identified by comparing the hierarchical level before and after the move. The direct transition into business ownership is the event where an employee leaves the firm and become a business owner within a one-year window.

compulsory education; (2) individuals who completed their secondary education; and (3) individuals who completed tertiary education, which usually corresponds to a university degree. Table 5.1 shows that only a very small percentage of individuals have tertiary education.

Our study follows two types of individuals, namely those who switch from paid employment to business ownership, observed through a binary variable accounting for entry into business ownership, and those who switch from paid employment in one firm to paid employment in another firm, identified by a binary variable tracking such changes. Paid employees who do not switch firms in the period covered by the study are used as a control group.

A central concern of this chapter is to understand the role of opportunity costs in determining the pecuniary effect of switching from waged employment to self-employment. In order to shed light on this, we differentiate between individuals who enter self-employment directly from paid employment (thus facing an opportunity cost equal to their previous wage) from those entering from unemployment (thus facing a comparably lower opportunity cost). We consider individuals who take less than one year between leaving wage employment and becoming self-employed in the former category. The rationale behind this observation is twofold: firstly, individuals who pay an opportunity cost to enter self-employment are more likely to have discovered a profitable entrepreneurial opportunity, and also face fewer liquidity constraints that may lead to a sub-optimal start-up size; secondly, even if the human capital required for entrepreneurship does not correspond directly with formal education, it is more likely to be acquired while employed. Therefore people who have spent significant time unemployed before becoming a business owner are less likely to have significant stocks of human capital. Thus it is expected that individuals who enter self-employment directly from paid employment will have relatively higher self-employment earnings.

In order to address the relationship between the evolution of wages and occupational mobility, we control not only for demographic variables, but also for firm characteristics across time, such as firm size, economic sector and the administrative region where the firm is located. The variable size is measured using the natural logarithm of the number of employees in the firm, for individual  $i$  at time  $t$ . For sector, we consider five groups of economic sectors, namely, primary sector (ISIC code 1–14), total manufacturing (ISIC code 15–37), energy and construction (ISIC code 40–45), services (ISIC code 50–74), and community social and personal services (ISIC code 75–99). For the regional variable, we follow the NUTS 2 level of aggregation that consists of seven different regions in Portugal (five regions in mainland Portugal plus the two autonomous regions).



Table 5.2 Entry into business ownership by firm characteristics

Variables	All individuals (%)	Last year as employee (%)	First year as business owner (%)
<b>Firm size</b>			
Micro businesses	20.24	37.26	71.20
Small businesses	27.78	33.75	25.65
Medium businesses	22.54	17.12	2.66
Large businesses	29.44	11.87	0.48
<b>Hierarchical levels</b>			
Apprentices, interns, trainees	2.84	3.89	0.01
Non-qualified professionals	8.3	4.31	0.37
Semi-qualified professionals	11.84	7.7	0.36
Qualified professionals	50.21	55.35	5.91
Higher qualified professionals	6.93	7.23	0.75
Supervisors, team leaders	6.28	7.22	0.71
Intermediary managers	3.76	5.24	1.33
Top managers	9.84	9.06	90.56

*Note:* Firm size is measured by number of workers and is divided into five categories: micro firms (1–9 employees), small firms (10–49 employees), medium firms (50–249 employees), and large firms (over 250 employees). *QP* discriminates employee hierarchy in the firm according to the eight different levels from apprentices, interns and trainees (level 1) to top managers (level 8).

Table 5.2 presents the percentage of individuals who enter business ownership (even if they pass through a unemployment spell in between) at two specific times, the last year as paid employees and the first year as business owners, per size of the firm and per hierarchical level.

About 29 per cent of individuals switching from wage employment to business ownership were previously employed by medium or large firms (50 employees or more). About 97 per cent of individuals who become business owners do so in micro and small businesses (fewer than 50 employees). Over 55 per cent of individuals leaving paid employment to become business owners are ‘qualified professionals’, that is, individuals with specialized knowledge acquired through formal education and/or on-the-job training. Over 90 per cent of individuals who become business owners take up a ‘top manager’ position in the firm, which means they are responsible for the coordination of the firm’s fundamental activities. As a consequence, more than 90 per cent of the business owners are likely to earn an income equal to, or greater than, the highest wage paid by the firm, thus validating at least partially our choice of proxy variable for entrepreneurial income.

Lastly, we also identify career paths, following from one year to the next for career events such as promotions and demotions. We also add an interaction variable that simultaneously reconciles paid employees, firm change and the evolution of hierarchical levels. Here, we consider the three hypotheses, namely individuals promoted with the firm change, which means the worker experiences an upward movement to a higher hierarchical level; individuals remaining at the same hierarchical level after the firm change; and individuals demoted with the firm change, which means the worker moves to a lower hierarchical level. When a worker moves from one firm to another, the data do not allow us to identify the reason for that change and the worker can quit or be dismissed. Those who quit have a higher probability of finding a better job with a higher hierarchical position (i.e. of getting promoted). Those who were made redundant have a higher probability of taking a job with a lower hierarchical position (i.e. of getting demoted). Promotion and demotion are here used in an informal way given that we are comparing hierarchical levels in two different firms and not within the same firm.

## RESULTS

We begin by presenting the pooled regression results, followed by the fixed effects results for all the models. Model (i) includes as independent variables individual attributes, namely: age, education, tenure, and firm characteristics, specifically the logarithm of firm size, and industry and regional dummies. Model (ii) adds two mobility dummies, one accounting for entry into business ownership and the other accounting for firm changes by paid employees. Model (iii) contains a new variable that considers direct transitions into business ownership as a determinant of individual wages. Finally, in model (iv) information about employees' careers event is introduced.

### **Pooled Regression**

Results for models (i)–(iv) are presented in Table 5.3, which shows pooled cross-section regression coefficients for our initial wage equation, as described in equation (5.1). Dummies measuring specific effects concerning years, industries and regions are included for all models. Most of the coefficients are statistically significant at the 1 per cent level.

The linear coefficient of the age variable is positive. Educational attainment level also has a positive effect on income. Better educated individuals are more likely to earn higher wages than those with secondary or lower

Table 5.3 Wage equations, pooled cross-section regressions, 1995–2003

Variable	Model (i)	Model (ii)	Model (iii)	Model (iv)
Age	0.0390*** [0.0002]	0.0388*** [0.0002]	0.0388*** [0.0002]	0.0391*** [0.0002]
Age <sup>2</sup> × 10 <sup>-2</sup>	-0.0407*** [0.0003]	-0.0405*** [0.0003]	-0.0405*** [0.0003]	-0.0408*** [0.0003]
9 years education	0.1950*** [0.0010]	0.1949*** [0.0010]	0.1949*** [0.0010]	0.1941*** [0.0010]
Secondary education	0.3662*** [0.0012]	0.3662*** [0.0012]	0.3662*** [0.0012]	0.3646*** [0.0012]
College education	0.9530*** [0.0024]	0.9528*** [0.0024]	0.9527*** [0.0024]	0.9499*** [0.0024]
Tenure	0.0108*** [0.0001]	0.0114*** [0.0001]	0.0114*** [0.0001]	0.0110*** [0.0001]
Tenure <sup>2</sup> × 10 <sup>-2</sup>	-0.0128*** [0.0004]	-0.0141*** [0.0004]	-0.0141*** [0.0004]	-0.0132*** [0.0004]
Firm size (log)	0.0717*** [0.0002]	0.0717*** [0.0002]	0.0717*** [0.0002]	0.0719*** [0.0002]
Entry into business ownership (BO)		0.0203*** [0.0038]	-0.0090** [0.0045]	-0.0121*** [0.0045]
Direct transition to BO			0.0639*** [0.0077]	0.0659*** [0.0077]
Paid employees (PE) firm change		0.0148*** [0.0007]	0.0148*** [0.0007]	
PE firm change: get promoted				0.0352*** [0.0013]
PE firm change: stay current level				0.0332*** [0.0008]
PE firm change: get demoted				-0.0800*** [0.0014]
Promotion				0.0597*** [0.0009]
Demotion				0.0461*** [0.0011]
Year dummies	Yes	Yes	Yes	Yes
Industry dummies	Yes	Yes	Yes	Yes
Region dummies	Yes	Yes	Yes	Yes
Intercept	5.0782*** [0.0042]	5.0791*** [0.0042]	5.0790*** [0.0042]	5.0719*** [0.0042]
F test	48663.34	45069.93	43468.18	38511.22
R-squared	0.443	0.443	0.443	0.444
Observations	6174625	6174625	6174625	6174625
Number of individuals	1302927	1302927	1302927	1302927

Table 5.3 (continued)

*Notes:*

Dependent variable is the natural logarithm of monthly wage. *Age* and *tenure* are measured in years. *Nine years of education*, *secondary education*, *college education*, *entry to business ownership*, *paid employees firm change*, *direct transition to business ownership*, *promotion* and *demotion* are defined as dummy variables. Robust standard errors are in brackets.

\* Significant at 10%; \*\* significant at 5%; \*\*\* significant at 1%.

educational levels. As expected, the dummy variable for nine-year education has less influence on wage evolution than the secondary education dummy, while the dummy for tertiary education has a stronger effect on wage evolution than the dummy for secondary education. Firm size is statistically significant and positively associated with wage, which is in line with the literature suggesting that smaller firms pay lower wages (Evans and Leighton, 1989b; Brown et al., 1990; Oi and Idson, 1999).

According to model (i), individuals see their wage increased by almost 1 per cent for every additional year of tenure. Both human capital and matching theories predict that the conditional mean of wages should rise with tenure, as discussed by Becker (1975) in the context of the development and exposition of the theory of human capital, and Jovanovic (1979a, 1979b, 1984) for the job matching argument. When we introduce dummies accounting for firm change and entry into business ownership, this variable keeps the same magnitude. By analysing model (ii), individuals entering business ownership see their estimated income increase by almost 2 per cent, while workers who remain paid employees but move to a different firm benefit from a wage increase of 1.5 per cent. Model (iii) includes a binary variable that differentiates direct transitions from waged employment to business ownership from transitions occurring after a spell of unemployment. This variable is positively associated with income. The incomes of individuals who move directly from paid employment into self-employment rise by more than 6 per cent. Model (iv) shows that those individuals who make a direct transition from paid employment to self-employment increase their income, even controlling for career events such as demotions or persistence at the same hierarchical level in their previous firm, so opportunity costs matter even when some dissatisfaction may occur in the previous wage job.

### Fixed Effects Regression

Results for models (i)–(iv) are presented in Table 5.4, showing fixed effects (within) regression coefficients for the wage equation described in equation (5.2). Most of the coefficients are statistically significant at the 1 per

cent level. The fixed effects estimation displays very similar effects of age, education and firm size to the pooled regression.

Model (i) indicates that the effect of tenure is still significant, but the size of the coefficient reveals that individuals see their income increase by less than 0.2 per cent (instead of 1 per cent in the pooled model), for every additional year of previous experience in the firm. This result suggests that the effect of tenure may vary with unobserved individual characteristics. Model (ii) shows that individuals entering business ownership suffer a drastic income penalty of about 14 per cent, while workers who remain as paid employees, but switch to a different firm, experience an insignificant impact on their wage level. However in model (iii), when differentiating direct transitions from waged employment to self-employment, as compared with transitions from unemployment to self-employment, we observe that those who switch from paid employment directly into self-employment see their incomes rise by nearly 4 per cent, while those who move from unemployment into self-employment experience a decrease in income of about 16 per cent when compared with their last wage before becoming unemployed. The wage change for paid employees who switch firms remains insignificant. In model (iv) we observe that paid employees switching firms who were demoted in the process suffer a wage decrease of about 7 per cent; those who remain at the same hierarchical level experience a small positive change (0.6 per cent); and those who move to a higher hierarchical level receive wage premium of over 4 per cent. While unrelated to self-employment, these last results strongly suggest that wages are also determined by job assignment and career events, as proposed by Baker et al. (1994) and Gibbons and Waldman (1999, 2006).

## CONCLUSION

The aim of this chapter is to examine the effect of switching from paid employment to business ownership on individuals' earnings. Using a longitudinal matched employer–employee data set from Portugal we have followed the mobility of workers and business owners for the period 1995–2003, estimating personal and firm level effects on incomes simultaneously, and accounting for multiple determinants of wage earnings, such as individual attributes, employer characteristics, and individuals' organizational careers.

The wages of individuals are determined by several factors including occupational and firm mobility, personal attributes and career events. The four models presented have attempted to examine the effect of switching

Table 5.4 Wage equations, fixed effects (within) regressions, 1995–2003

Variable	Model (i)	Model (ii)	Model (iii)	Model (iv)
Age	0.0544*** [0.0002]	0.0553*** [0.0002]	0.0553*** [0.0002]	0.0551*** [0.0002]
Age <sup>2</sup> × 10 <sup>-2</sup>	-0.0374*** [0.0003]	-0.0379*** [0.0003]	-0.0379*** [0.0003]	-0.0377*** [0.0003]
9 years education	0.0055*** [0.0008]	0.0058*** [0.0008]	0.0058*** [0.0008]	0.0057*** [0.0008]
Secondary education	0.0189*** [0.0011]	0.0192*** [0.0011]	0.0192*** [0.0011]	0.0188*** [0.0011]
College education	0.0948*** [0.0016]	0.0954*** [0.0016]	0.0954*** [0.0016]	0.0943*** [0.0016]
Tenure	0.0022*** [0.0001]	0.0018*** [0.0001]	0.0018*** [0.0001]	0.0016*** [0.0001]
Tenure <sup>2</sup> × 10 <sup>-2</sup>	0.0038*** [0.0003]	0.0040*** [0.0003]	0.0039*** [0.0003]	0.0042*** [0.0003]
Firm size (log)	0.0406*** [0.0003]	0.0399*** [0.0003]	0.0399*** [0.0003]	0.0403*** [0.0003]
Entry into business ownership (BO)		-0.1395*** [0.0041]	-0.1565*** [0.0052]	-0.1566*** [0.0052]
Direct transition to BO			0.0380*** [0.0080]	0.0381*** [0.0080]
Paid employees (PE) firm change		0.0001 [0.0004]	0.0001 [0.0004]	
PE firm change: get promoted				0.0437*** [0.0009]
PE firm change: stay current level				0.0055*** [0.0005]
PE firm change: get demoted				-0.0678*** [0.0010]
Promotion				0.0196*** [0.0004]
Demotion				0.0063*** [0.0006]
Year dummies	Yes	Yes	Yes	Yes
Industry dummies	Yes	Yes	Yes	Yes
Region dummies	Yes	Yes	Yes	Yes
Intercept	4.8402*** [0.0055]	4.8213*** [0.0055]	4.8214*** [0.0055]	4.8257*** [0.0055]
F test	1627.44	1575.34	1523.49	1533.58
R-squared	0.019	0.020	0.020	0.024
Observations	6170011	6170011	6170011	6170011
Number of individuals	1 301 750	1 301 750	1 301 750	1 301 750

Table 5.4 (continued)

*Notes:*

Dependent variable is the natural logarithm of monthly wage. *Age* and *tenure* are measured in years. *Nine years of education*, *secondary education*, *college education*, *entry to business ownership*, *paid employees firm change*, *direct transition to business ownership*, *promotion* and *demotion* are defined as dummy variables. Robust standard errors are in brackets.

\* Significant at 10%; \*\* significant at 5%; \*\*\* significant at 1%.

from paid employment to business ownership on individuals' incomes. Model (i) considered individual attributes as well as firm characteristics as determinants of earnings. Model (ii) included mobility variables for two specific groups: those individuals who switch from paid employment to business ownership; and those who switch from paid employment in one firm to paid employment in another firm. Model (iii) considered direct transitions from paid employment to self-employment as opposed to transitions with a significant (at least two years) spell of unemployment occurring in-between jobs. Finally, model (iv) introduced information about the individuals' organizational careers, based on changes in hierarchical levels within firms.

The results indicate a concave relation between income and age. We also observe a bell-shaped relationship between wages and tenure. However, the return on age decreases a lot more quickly than that on tenure. Age and education are always positively associated with income. Results show that, on average, there is an earnings penalty for those who enter self-employment, and that smaller start-ups pay lower wages, confirming results from previous empirical work.

When information about individuals who switch from paid employment to self-employment and those who switch firms while remaining paid employees is included, fixed effects estimation results indicate a severe income penalty in the short run for those individuals who become entrepreneurs. However, when differentiating those who switch directly from paid employment to entrepreneurship from those who enter self-employment from unemployment, we find that the former actually capture an earnings premium, while there is an earnings penalty for novice entrepreneurs. Results also show that switching firms while in paid employment only has a strong positive effect on wages when such transition implies a progression in terms of hierarchical levels within organizations.

As entrepreneurs that switch directly from paid employment to self-employment create more income than those entrepreneurs who enter self-employment after a stint in unemployment, we would expect their

impact on economic growth to be greater. However, we should be cautious about suggesting that policy makers should focus exclusively on promoting opportunity entrepreneurship in the sense of those individuals who enter self-employment directly from paid employment. Block and Wagner (2006) discuss this issue, arguing that we do not know enough about the marginal effects of money spent on promoting what they called necessity or opportunity entrepreneurship.

Overall, results clearly show that opportunity costs play a significant role in determining whether entering self-employment leads to an increase in earnings in the short run. Individuals in paid employment are more likely to search for entrepreneurial opportunities that provide them with greater chances of higher earnings from self-employment at the outset. Even though our results control for firm size, it is also possible to speculate that they should also be better able to raise the necessary financing to launch such types of ventures. From a policy perspective, further research might compare those individuals who enter self-employment directly from paid employment, thus facing an opportunity cost equal to their previous wage, and those individuals who become business owners after a spell in unemployment, who should face a comparatively lower opportunity cost. One would expect significant differences in entrepreneurial income, firm performance, and job creation ability between these types of business owners, leading to important implications for public policy.

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