# TRANSITIONS WITHIN SELF-EMPLOYMENT: FROM OWN-ACCOUNT WORKER TO EMPLOYER

José María *Millán*♠♣
jose.millan@dege.uhu.es
Departamento de Economía General y Estadística
Universidad de Huelva
Tlf.: 959217886
Fax: 959217828

Emilio *Congregado*♠
congregado@uhu.es
Departamento de Economía General y Estadística
Universidad de Huelva
Tlf.: 959217832
Fax: 959217828

Concepción *Román*♠
concepcion.roman@dege.uhu.es
Departamento de Economía General y Estadística
Universidad de Huelva
Tlf.: 959217886
Fax: 959217828

## Abstract

A central issue within the European entrepreneurial promotion policy is the design of instruments directed at encouraging people to become self-employed. However, it also becomes necessary to focus on the promotion of business growth and success. Thus, this work focuses on the decision of becoming self-employed with employees from own-account self-employment. Thanks to a better understanding about this type of transitions, we will be ready to design incentives and instruments to increase the contribution of the self-employed to the job creation process. In doing so, binary logit models are applied to data drawn from the European-Community-Household-Panel for the EU-15 (1994-2001).

*Key words*: Entrepreneurship, self-employment, labour market, EU-15.

*JEL classification*: J18, J24, J38

# 1 Introduction

A central issue within the European entrepreneurial promotion policy is the design of a set of instruments directed at encouraging people to become self-employed, that is, to favour the choice of self-employment as an alternative to unemployment –or even to paid-employment-.[1] Thus, this was logical in a framework marked by high and persistent unemployment rates as happened during the 1980s and the 1990s where entrepreneurship promotion was in the service of the active labour market policies. However, leaving aside the possible adverse selection problems created[2], objectives such as the increase in self-employment rates –usually included in entrepreneurship promotion action plans- reflect the authentic nature that this type of policy has had: to promote the access into self-employment.

We will agree, however, that the objective cannot be limited to achieving a certain number of self-employed temporally but also to pay attention to obtaining mid and long-term effects. This bias might be corrected by including some specific incentives and instruments aimed at increasing survival chances. Indeed, the existing literature on self-employment survival provides some useful guidelines in this direction. However, together with an adequate promotion of transitions to self-employment and measures oriented to favouring survival, it also becomes necessary to focus on the promotion of business growth.

In this sense, among the factors that interfere with the hiring of workers, the appearance of certain sunk costs that hinder any future adjustment is, undoubtedly, an important one. Thus, some own-account workers wishing to hire employees and facing a positive demand shock might be dissuaded by these costs, causing a negative effect on the number of employers. However, despite the possible adverse effects of the labour market regulation, other effects as the business cycle or generalized positive shocks might cause positive effects on the share of employers.

This is precisely the aim of this work. This study tries to shed some light on the decision of becoming self-employed with employees (employer) from own-account self-employment, which can be seen as the result of business growth and success. Thus, thanks to a better understanding about this type of transitions within self-employment, we will be ready to design incentives and instruments to increase the contribution of the self-employed to the job creation process. In doing so, binary logit models are applied to data drawn from the European Community Household Panel for the EU-15 (ECHP, 1994-2001).[3]

---

[1] Given that most part of these new entrepreneurs were unemployed, and taking into account their disadvantages in relation to business start-up finance (Metcalf and Benson, 2000), the most common transitions has occurred to own-account worker –or employer with very little employees-.
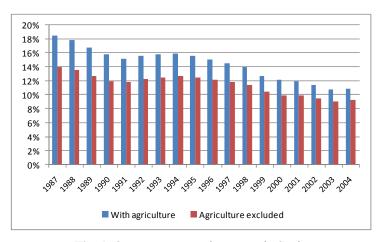
[2] The own-account self-employed may be a discouraged wage worker who finds his offered wages too low or his employment too sporadic in the wage sector. If an individual chooses self-employment not because the value of self-employment is so high but because his value of wage work is so low, it is possible that own-account workers have lower levels of human capital than wage workers. Hence, an adverse selection problem can emerge, and those countries where these own-account workers were predominant might present non favourable conditions for growth and success.

[3] ECHP data are used under permission of European Commission-Eurostat; contract ECHP/2006/09, held with the University of Huelva.

In addition, the determining factors of this type of transitions in Spain[4] are analysed, in order to explore the causes of the specific patterns followed by "the EU cohesion countries".[5] These countries –Ireland, Portugal, Spain and Greece- faced at the beginning of the Eighties, the highest self-employment rates across the EU-15, but their GNIs per capita were among the lowest. Thus, Ireland, Spain and Greece experienced a sharp drop in the percentage of the population opting for self-employment in the last two decades. This particular pattern was the result of sustained falls in own-account work rates, which was opposed to rises in employers' rates.

Some probable explanations for this phenomenon might be the progressive flexibility introduced in their labour markets[6], or the effects of demographic or structural changes' effects. Focusing on the Spanish case, Figure 1 shows how the reduction in own-account workers rates is smoothed if those own-account workers working in agricultural industries are excluded.

However, it is also tempting to link part of this reduction to the incorporation to the Single market.[7] Thus, the appearance of new opportunities and the presence of important Structural and Cohesion Funds[8] resulted in a growth of the existing entrepreneurial dimension within these countries.



**Fig. 1.** Own-account workers rates in Spain

Data Source: I.N.E., Spanish Labour Force Survey

---

[4] The sample for Spain is constructed by means of the eight available waves of the ECHP panel for Spain (1994-2001). Results are also reported from an alternative sample from the Spanish Continuous Expenditure Survey (ECPF).

[5] Greece, Spain, Portugal and Ireland are collectively termed "the EU cohesion countries". Their economic characteristics included low levels of income per head (relative to the EU-15 average), a substantial part of the territory having a "Less Favoured Region" status, traditional manufacturing structures, often a high share of agricultural employment and low productivity.

[6] Regular wage or salary labour markets in these countries were too rigid. This rigidity, particularly strong within Mediterranean countries, has been considered as the main cause for explaining those high self-employment rates as it makes it costly for the self-employed to recruit employees. This argument considers that the rigidity pushed individuals into self-employment although they would prefer to work for an employer causing that small entrepreneurial dimension.

[7] Ireland was incorporated in 1973, Greece in 1981, and Portugal and Spain in 1986.

[8] Structural and Cohesion Funds are funds allocated by the European Union. Structural Funds' objectives are i) supporting development in the less prosperous regions, and ii) revitalising areas facing structural difficulties. The Cohesion fund funding is for Member States whose gross national income is below 90% of the EU average, and contributes to interventions in the field of the environment and trans-European transport networks.

Hence, these arguments turn Spain into an excellent object of study in order to complete our view on the determinants of the transitions to employers, given that the Spanish incorporation to the Single market can be considered as an external shock which can explain the exponential growth in the number of job creators.

The contribution of this paper is threefold. First, the success is analysed in a different manner, that is, by interpreting the hire of employees as a sign of success. Thus, this work provides new evidence supporting the existence of individual and economic factors affecting this type of transitions. In addition, our study also suggests the existence of idiosyncratic factors decreasing the probability of transition in some European countries, which might be related to a specific institutional framework. Third, we consider the possible influence of an external shock –the consequences of the Single Market- on the entrepreneurial dimension. All these results, lead us to rethink about the convenience of including some additional elements in order to improve the actual entrepreneurial promotion policy.

This paper is organized as follows. The second section stresses the importance of the analyzed transition and revises the scarce related literature. Section 3 briefly describes the dataset. The empirical model is presented in the fourth section. Section 5 is devoted to the estimation results for Spain and the EU-15. Finally, section 6 concludes.


## 2. From Own-account Self-employed to Job Creator

As already mentioned, the aim of this study is to consider the transitions from own-account worker to employer, as an alternative to the decision of continuing as own-account worker.

Own-account self-employed covers a diverse range of occupational realities, from artisans and farmers to the professional liberal or the high-technology consultant with an international clientele. Along with this wide range of activities, there are a wide range of motivations behind this occupational choice. In this sense, many self-employed people have chosen to pursue this kind of work environment –they are pulled into it-, while others opt for self-employment as the only realistic job choice open to them –they are pushed into self-employment-.
Leaving aside some singular activities which, given their nature, find a suitable environment in own-account self-employment, the logical growth and expansion of any entrepreneurial venture should result in transitions from own-account worker to employer. However, some elements can foster or hinder the decision to become a job creator. On the one hand, the own character of the expansion process joint with the financial needs and the labour costs can determine, the viability and convenience of this expansion. Thus, the demand shock character (permanent or transitory) and the impact of labour market regulations will play a key role. On the other hand, the abilities to manage a team and the ability to assume the new paperwork will be two additional elements to consider, before deciding to opt for growth.

Therefore, if we want to analyze the success interpreting the hire of employees as a sign of success, the main issues to resolve should be: Which are the underlying factors contributing to the transition from own-account work to employer? How important are the financial issues concerning this decision? How determinant is the existing labour market regulation in this kind of transitions?

To the best of our knowledge, general econometric analysis on the transitions from own-account work to employer does not exist to date. Furthermore, there still only remains rather limited literature on the determinants of job creation by the self-employed, e.g. Carroll *et al*.

(2000) for the US, Barkham (1994), Westhead and Cowling (1995), Burke *et al*. (2000, 2002), and Cowling *et al*. (2004) for the UK. Thus, Caroll *et al*. (2000) focuses on the effects of tax changes on self-employed job creation. Barkham (1994) studies the relationship between the size of the new firms and the characteristics of the entrepreneur. Westhead and Cowling (1995) report empirical evidence supporting the relationship between the key founder characteristics and the ability of small high-technology firms to create additional jobs. Burke *et al*. (2000, 2002) using data from the National Child Development Study (NCDS5, 1991), analyse the determinants of being an employer as an alternative of being an own-account worker. Finally, Cowling *et al*. (2004) use wave 9 of the British Household Panel Survey, conducted in the autumn of 1999. They also focus on disaggregation by gender and their analysis is based on the decision rules which determine the choice between own-account worker of employer, and paid-employment. In particular, they examine the probability of men and women of being observed in self-employment, and the probability of a self-employed individual of being an employer.[9]

In short, previous literature is scarce and it only contains several tangential approaches to the phenomena, which confirm the opportunity of our analysis.


## 3. Data

This section briefly describes the samples generated for the EU-15[10] (1994-2001) and Spain during the Nineties, and their corresponding data sources. Our analysis is focused on self-employed individuals, making differences between employers and own-account workers and considering the transition from own-account self-employment employer. Thus, our samples include individuals who are own-account workers during a particular period and either continue as own-account worker or become employers in the next one. To this end, we use data from the European Community Household Panel (ECHP) and from the Spanish Continuous Family Expenditure Survey (ECPF-Encuesta Continua de Presupuestos Familiares). Our samples include men and women aged 21 to 59 and working outside the agricultural sector. Therefore, it should be remembered that this last exclusion is not performed when using the ECPF due to its lack of information related to activity sector.


## 4. Empirical Framework

In order to provide a framework for the empirical analysis to study the determinants of transitions, the standard binary logit model is used. Thus, we assume, as usual, that the probability of switching from the starting status –own-account self-employment- to the final –employer- depends on a set of observed individual characteristics and economic variables $X$ at $t$-

---

[9] However, the Burke *et al*. and Cowling *et al*. approaches both use cross-sectional estimates which confound the determinants of switching and survival, as pointed out by Evans and Leighton (1989).

[10] We have to exclude France, Luxembourg and Sweden for different reasons. Firstly, during the period 1997-2001, own-account workers cannot be distinguished from employers in France due to the high number of missing values we observe within the ECHP in the variable which allows making such distinction –number of regular paid employees in the local unit in current job-. Regarding Sweden and Luxembourg, the ECHP does not collect the information related to first waves, and present missing values in relevant variables in other waves. Tables A3 and A4 (Appendix A) present the distribution of observations across countries for our exercises, and Tables B2 and B3 (Appendix B) summarizes the mean values of our European sample.

$1^{11}$. Hence, an individual who was own-account worker at time *t-1* will be observed as employer at time *t* if the utility derived from his new role as employer exceeds that obtained from an own-account work. Consequently, the probability of switching can be written as:

$$\Pr\left(Y_{i,t}=1\right)=$$
$$=\Pr\left(U_{i,t}^{Emp}>U_{i,t}^{OA}\;\middle|\;U_{i,t-1}^{Emp}\leq U_{i,t-1}^{OA}\right)=$$
$$=\Pr\left(\beta^{'}X_{i,t-1}+u_{i}+\varepsilon_{i,t}>0\right)=F\left(\beta^{'}X_{i,t-1}+u_{i}\right),$$

where $Y_{i,t}=1$ if the individual who was own-account worker in period *t-1* becomes employer with employees in period *t*, and $Y_{i,t}=0$ if the individual continues as own-account worker in period *t*.[12] The vector $X_{i,t-1}$ represents individual characteristics and economic conditions in the previous year to move into the new status, $\beta$ is the associated vector of coefficients to be estimated, $u_{i}$ is a disturbance term that includes the time-invariant unobserved heterogeneity (an individual-specific effect)[13], $\varepsilon_{i,t}$ is a random error term representing not person-specific unobserved variables, and F(.) follows a logit distribution:

$$F\left(z\right)=\frac{\exp(z)}{1+\exp(z)}$$

## 5. Results

This section reports binary logit estimates obtained for the EU-15 (1994-2001) and Spain during the nineties. Thus, the underlying determinants of the transitions from self-employment without employees to job creator are analysed.

### 5.1 Transitions from Own-account Worker to Employer in Europe

Transitions from own-account worker to employer, for European self-employed, are first considered. Estimates are obtained from the sample of individuals who are own-account workers during a particular period and either continue as own-account worker or become employers in the next one. As a consequence, the final sample, after removing cases with

---

[11] Using data from the ECHP, some of the wealth variables captured are the annual capital and property incomes at the individual level lagged one year (period t-2), and the annual own-account work incomes also lagged one year (period t-2). Both are lagged due to the obvious endogeneity problem of the changes in wealth related to business start-up or growth itself. In this sense, other wealth measures like inheritance are used in order to avoid endogeneity issues regarding wealth.

[12] The labour force status is observed once per year. Thus, if there are additional changes in status within the year, they are overlooked. We assume there are only a few of these, and that their exclusion does not affect the results.

[13] Assume we have two observations $y_{i1}$ and $y_{i2}$ of individual *i* taken at two different points in time. Consequently, $u_{i1}$ and $u_{i2}$ would not be independently distributed as we measure them for the same individual. They would tend to be quite similar. As a result, across all respondents, we would tend to underestimate the true error variation and overestimate the statistical significance of our coefficients. That is the reason why we assume $u_{i}$ as a disturbance term that includes the time-invariant unobserved heterogeneity (the person-specific effect). In this sense, as we will work with random-effects models, this term will be assumed to be a normally distributed random variable with mean 0 and variance $u_{n}$.

missing data for any of the relevant variables, includes 12,255 observations where 1,917 (15.64 percent) refer to transitions.[14]

Tables A1 and A2 (see Appendix A) report the estimates. The specifications include variables concerning demographic characteristics and family structure (gender, age, education, number of children and dummies for marital status and the presence/absence of self-employed relatives), education, employment characteristics, experience, incomes (wealth measured by both capital and own-account work incomes) and business cycle (unemployment rate). We also take into account whether the individual has had spells as employer. Furthermore, Tables A5 and A6 (see Appendix A) report predicted probabilities of becoming employer from own-account work for individuals with given characteristics. Finally, predicted probabilities of transitions for individuals living across different EU-15 countries are presented in Table A7 (see Appendix A).

Main empirical results can be summarized as follows. Considering the effect of demographic characteristics, we do not observe any effect of gender, age or the number of children. This probability, however, increases for cohabiting individuals and by the presence of self-employed relatives.[15] In this sense, regarding education, no significant effect is observed which might reflect the relative importance for growth of intergenerational transfers of human capital and entrepreneurial ability when compared with formal education.

When we attempt to capture the effect of industrial affiliation, the probability of becoming employer is observed to be much lower for those working in wholesale, hotels, restaurants and transport, and other services when compared with those working in financial services, industrial or construction sector.[16] Regarding the effect of the number of years of experience, our results show how the probability of switching is U-shaped in experience as own-account worker, reaching a minimum at roughly 10 years of experience.[17]

Focusing on previous experience before current status, European own-account workers are more likely to become employers when they have been employers or paid-employees in the past.[18] Firstly, this result also points to the key role of the endowments of human capital.[19] Furthermore, this result agrees with the absence of some kind of "failure stigma" which might

---

[14] We also estimate a complementary exercise where we control for individuals having born abroad and for those receiving inheritances, gifts or lottery winnings. However, the inclusion of these variables implies excluding Germany, The Netherlands and the UK from this complementary analysis. Tables A3 and A4 (Appendix A) present the distribution of observations across countries for these main and complementary exercises. Tables B2 and B3 (Appendix B) summarize the mean values for those who become employers from own-account work, in both samples.

[15] The probability of switching to employer has an 18% increase with the existence of relatives working as own-account workers (see Table A5, Appendix A).

[16] Individuals working in wholesale, hotels, restaurants and transport present between 24 and 33% lower probabilities of switching to employer than those working in financial services, industrial or construction sector (see Table A5, Appendix A). Similarly, individuals working in other services present between 16 and 24% lower probabilities of switching to being an employer than those working in financial services, industrial or construction sector (see Table A5, Appendix A).

[17] Transitions to employer increases by 43 and 30% when job tenure increases and decreases (see Table A5, Appendix A).

[18] In particular, the probability of switching to employer for those who were employers in the past increases 107% while previous spells as paid-employed increases this probability by around 46% (see Table A5, Appendix A).

[19] Thus, all informal processes of acquisition of this capital (i.e. previous experience in the labour market or intergenerational transfers) present stronger effects than those attached to formal education.

be expected from all those who were employers in the past, but had to reduce their business dimension.

Both home ownership[20] and incomes earned by own-account worker in the previous period also have a positive effect on transitions.[21] Thus, on the one hand, this result supports the liquidity constraint hypothesis. On the other hand, it supports the idea that the adequate development of an entrepreneurial venture by an own-account worker, should result in a transition to employer which is the natural expansion of the business. Hence, business success becomes a decisive element when the decision to hire –or not to hire- employees is to be taken.

However, not just individual conditions will affect this decision, but also the aggregated ones play a crucial role. Thus, by analyzing the business cycle effect on this decision, we find a clear negative impact of the unemployment rate on this type of transitions which supports "prosperity-pull" argument.[22].

Finally, as regards country specific effects, some country dummies present significant effects. On one hand, the presence of more –and less- favourable scenarios in terms of labour market legislation across countries might be affecting these results. However, the fact that precisely "the EU cohesion countries" present higher probabilities of increasing their entrepreneurial dimension lead us to think that external shocks –such as the incorporation to the Single Market- can also play crucial roles over all expanding decisions.[23]

## 5.2 Transitions from Own-account Worker to Employer in Spain

As in the European case, we select the subsample of individuals who are own-account workers during a particular quarter (year when using ECHP) and either continue as own-account worker or become employers in the next quarter (year when using ECHP). After filtering, the final sample used for estimation has 8,786 observations (2,386 observations when using ECHP) of which 222 –2.52 percent- (322 –13.5 percent- when using ECHP) refer to transitions.[24]

Tables A8 and A10 (see Appendix A) report the estimates. Tables A9 and A12 (see Appendix A) likewise compare predicted probabilities of becoming an employer for Spanish own-account workers. Finally, by means of the ECHP, predicted probabilities of transitions for individuals living across different Spanish NUTS-1 are presented in Table A13 (see Appendix A).

---

[20] Home ownership might be important for entrepreneurs who require outside labour because a house is often used as collateral when an individual wants to take a loan in a bank.

[21] Transitions to employer increases by 14% when individuals' own account work incomes are double the average ones, compared with those earning half the average one (see Table A5, Appendix A).

[22] Transitions to employer decreases by 130% when individuals face high unemployment rates –19.8% for instance- compared with those facing low unemployment rates –2.9% for example- (see Table A5, appendix A).

[23] Leaving aside the effect for Finland, those own-account workers living in Greece, Spain and Ireland are observed to be more likely to become job-creators (see Table A7, Appendix A). Regarding Portuguese own-account workers, although they present lower probabilities compared with mean values, their deviation is quite small (see Table A7, Appendix A). France, Luxembourg and Sweden are again excluded from this specification. These results must be cautiously interpreted, taking into account the distribution of observations across countries for our exercises (see Tables A3 and A4, Appendix A).

[24] The differences in these percentages are explained by the fact that labour force status once per year is observed when using the ECHP, and once per quarter when using the ECPF. Tables B1 and B4 (Appendix B) summarizes the mean values of those who become employers from own-account work in Spain.

Results for Spain support those obtained for the EU-15 and can be summarized as follows. Considering the effect of personal characteristics we do not observe any significant effect of age, marital status, or children. In this sense, only males included in the ECPF sample, and those with relatives working as own-account workers identified by means of the ECHP are more likely to switch.[25] Furthermore, the ECPF sample reveals that the presence of university studies increases the chances of hiring paid-employees.[26] On the other hand, our estimations concerning the ECHP sample support again that those Spanish own-account self-employed working in wholesale, hotels, restaurants or transport present lower probabilities of becoming employers.[27] Focusing on previous experience before current status, as happened for Europeans, Spanish own-account workers are more likely to become employers when they have been employers or paid-employees in the past.[28] Furthermore, the presence of liquidity constraints and the importance of the performance of the business is also observed.[29] In addition, our results tally with the "prosperity-pull hypothesis using the ECHP sample.[30] The effect of the size of the town obtained for the ECPF is also interesting. Thus, those own-account workers living in a medium size town (10,001-50,000 inhabitants) are more likely to switch to being an employer than those living in other size towns.[31] Finally, we wish to emphasize that there is no evidence of the existence of regional specific effects, probably due to the existence of common regulatory frameworks among these regions.[32]

## 6. Conclusions

This work investigates the underlying determinants of the decision to hire employees by own-account workers, that is, to become job creators. This analysis is interesting due to the existence of a bias in current entrepreneurship promotion programs which usually emphasise getting people to become self-employed, while they do not include instruments oriented towards facilitating or making the self-employed more interested in expanding their workforce.

---

[25] By means of the ECPF the probability of becoming employer for females decreases by 34% (see Table A9, Appendix A). When using the ECHP, the probability of switching increases by 28% for those with relatives working as own-account workers (see Table A12, Appendix A).

[26] Transitions to employer increase by 189% when own-account workers present university studies (see Table A9, Appendix A).

[27] Transitions to employer with the ECHP decrease by almost 42% when individuals work in wholesale, hotels, restaurants or transport, compared with those working for other sectors (see Table A12, Appendix A).

[28] The ECPF shows that past spells as employer increases the chances of a new spell as employer by 1178% (see Table A9, Appendix A). By using the ECHP, these chances increases by almost 129% (see Table A8, Appendix A). Also for this data set, previous paid-employment experiences increase the transitions to employer by 68% (see Table A8, Appendix A).

[29] When using the ECHP, the presence of inheritance, gift or lottery winnings within the household, increases the probability of becoming an employer by 115% (see Table A12, Appendix A). According to the ECPF, transitions to employer increase by 23% when individuals multiply their earnings by two (see Table A9, Appendix A).

[30] Transitions to employer decrease by 124.5% when individuals face the highest unemployment rates within the sample –19.8%- compared with the lowest rates –11.3%- (see Table A12, Appendix A).

[31] The probability of switching to employer increases by 33% when the individual lives in a medium-sized town (see Table A9, Appendix A).

[32] These results, together with those presented in Table A13 –Appendix A- must be cautiously interpreted, taking into account the distribution of observations across regions for our exercise (see Table A11, Appendix A).

In this sense, this work shows the importance of factors such as earnings or expanding economic situations. However, the informal acquisition of human capital also plays a key role for these decisions. Thus, previous experience within the labour market –as employer or salaried worker- is seen to have a significant impact. Therefore, if the objective is to foster that self-employment which contributes with the job generation process, it becomes important to favour the necessary entrepreneurial human capital, in order to get those better skilled individuals to become job creators.

One of the most interesting results perhaps refers to the existence of certain country specific factors –not detected across Spanish regions-. Thus, the greater likelihood of becoming a job creator from own-account self-employment appears in Finland, followed by Greece, Ireland and Spain, whereas the lower probabilities are in Denmark, The Netherlands and the UK. These observed differences seem to highlight the importance of external shocks –such as the incorporation to the Single Market- and institutional differences between European countries. Therefore, further analysis to detect the exact underlying factors would help to improve the existing entrepreneurship policy, to improve the business environment and to make it easier for own-account workers to hire labour.

## 7.7 References

Barkham, R. J., 1994, "Entrepreneurial Characteristics and the Size of the New Firm: A Model and an Econometric Test", *Small Business Economics*, **6**, 117-125.

Burke, A. E., F. R. FitzRoy and M. A. Nolan, 2000, "When Less is More; Distinguishing Between Entrepreneurial Choice and Performance", *Oxford Bulletin of Economics and Statistics*, **65**, 567-587.

Burke, A. E., F. R. FitzRoy and M. A. Nolan, 2002, "Self-employment wealth and job creation: The roles of gender, non-pecuniary motivation and entrepreneurial ability", *Small Business Economics*, **19**, 255-270.

Carroll, R., D. Holtz-Eakin, M. Rider, and H. S. Rosen, 2000, "Income Taxes and Entrepreneurs' Use of Labour", *Journal of Labour Economics*, **18** (2), 324-351.

Congregado, E., A. Golpe, and J. M. Millán, 2003, "Some Empirical Aspects of Self-employment in Spain during the Nineties", Seminario de Análisis Económico, Universidad de Huelva, SAE WP 20.

Cowling, M., M. Taylor, and P. Mitchell, 2004, "Job Creators", *The Manchester School*, **72** (5), 601-617.

Evans, D. S. and L. S. Leighton, 1989, "Some empirical aspects of entrepreneurship", *The American Economic Review*, **79** (3), 519-535.

Metcalf, H. and R. Benson, 2000, "From unemployment to self-employment: developing an effective structure of micro-finance support", National Institute of Economic and Social Research, Discussion Paper, 170.

Westhead, P. and M. Cowling, 1995, "Employment Change in Independent Owner-Managed High Technology Firms in Great Britain", *Small Business Economics*, **7**, 111-140.

# Appendix A: Main Results

**Table A1.** Transitions from own-account worker to employer across the EU-15 (Main exercise)

Data Source: European Community Household Panel (ECHP), 1994 – 2001

| | Binomial | |
|---|---|---|
| | **EMPLOYER (EMP)** | |
| | Prob [EMP $_t$ \| OA $_{t-1}$] | |
| **Number of observations** | 12255 | |
| **Number of transitions** | 1917 | |
| **Variables** | **Coef.** | **t-stat.** |
| Constant | 0.0281 | (0.05) |
| **Demographic characteristics** | | |
| Male | 0.0142 | (0.21) |
| Age | -0.0322 | (-1.24) |
| Age (squared) | 0.0002 | (0.5) |
| Cohabiting [1] | 0.1764 | (2.23)** |
| Number of children under 14 | -0.0216 | (-0.66) |
| Relative(s) working as employer(s) | -0.0484 | (-0.38) |
| Relative(s) working as own-account worker(s) | 0.1853 | (2.5)** |
| **Education** | | |
| Secondary education [2] | 0.0668 | (0.98) |
| University studies [2] | 0.1008 | (1.15) |
| Relatives with university studies | 0.0018 | (0.03) |
| **Own-account work characteristics** | | |
| Industrial sector [3] | 0.0397 | (0.41) |
| Financial services [3] | 0.0817 | (0.76) |
| Wholesale, hotels, restaurants & transport [3] | -0.3019 | (-3.69)*** |
| Other services [3] | -0.1932 | (-1.75)* |
| Hours of work | 0.0037 | (1.68)* |
| Own-account employment duration | -0.094 | (-4.93)*** |
| Own-account employment duration (squared) | 0.0048 | (5.88)*** |
| **Previous experience** | | |
| Previous spell(s) as employer | 0.8563 | (14.07)*** |
| Previous spell(s) as paid-employed | 0.432 | (5.47)*** |
| Previous spell(s) as unemployed | 0.0797 | (1.23) |
| Previous spell(s) as inactive | 0.1598 | (1.32) |
| **Incomes** | | |
| Dwelling owner | 0.1442 | (2.12)** |
| Annual capital and property incomes (1 lag) | 9.1E-06 | (0.75) |
| Annual own-account work incomes (1 lag) | 9.7E-06 | (3.94)*** |
| **Business cycle** | | |
| Annual unemployment rate | -0.0869 | (-5.6)*** |
| **Country** | | |
| Austria [4] | -0.4249 | (-1.67)* |
| Belgium [4] | -0.304 | (-1.51) |
| Denmark [4] | -2.3809 | (-5.62)*** |
| Finland [4] | 0.6546 | (4.93)*** |
| France [4] | *No observations* | |
| Germany [4] | -0.5252 | (-2.84)*** |
| Greece [4] | 0.0053 | (0.05) |
| Ireland [4] | -0.1018 | (-0.63) |
| Italy [4] | -0.3966 | (-3.38)*** |
| Luxembourg [4] | *No observations* | |
| Netherlands [4] | -3.8103 | (-6.2)*** |
| Portugal [4] | -0.5144 | (-2.84)*** |
| Sweden [4] | *No observations* | |
| United Kingdom [4] | -1.4583 | (-7.7)*** |
| Reference categories: (1) Non-cohabiting individuals, (2) No education or primary education, (3) Construction Sector, (4) Spain | | |
| Log likelihood | -4911,8 | |

*Notes:*
[***] 1 % significativity level; [**] 5 % significativity level; [*] 10 % significativity level

**Table A2.** Transitions from own-account worker to employer across the EU-15
(Complementary exercise)

Data Source: European Community Household Panel (ECHP), 1994 – 2001

| | Binomial | |
|---|---|---|
| | **EMPLOYER (EMP)** | |
| | Prob [EMP $_t$ | OA $_{t-1}$] | |
| **Number of observations** | 10350 | |
| **Number of transitions** | 1742 | |
| **Variables** | **Coef.** | **t-stat.** |
| Constant | 0.2106 | (0.34) |
| **Demographic characteristics** | | |
| Male | 0.0478 | (0.67) |
| Born abroad | -0.1571 | (-0.99) |
| Age | -0.0345 | (-1.25) |
| Age (squared) | 0.0002 | (0.59) |
| Cohabiting [1] | 0.1737 | (2.06)** |
| Number of children under 14 | -0.027 | (-0.77) |
| Relative(s) working as employer(s) | -0.0487 | (-0.37) |
| Relative(s) working as own-account worker(s) | 0.1605 | (2.09)** |
| **Education** | | |
| Secondary education [2] | 0.0413 | (0.58) |
| University studies [2] | 0.0447 | (0.46) |
| Relatives with university studies | -0.0015 | (-0.02) |
| **Own-account work characteristics** | | |
| Industrial sector [3] | 0.0408 | (0.4) |
| Financial services [3] | 0.1576 | (1.32) |
| Wholesale, hotels, restaurants & transport [3] | -0.3233 | (-3.75)*** |
| Other services [3] | -0.2066 | (-1.74)* |
| Hours of work | 0.0003 | (0.12) |
| Own-account employment duration | -0.0851 | (-4.2)*** |
| Own-account employment duration (squared) | 0.0043 | (5.03)*** |
| **Previous experience** | | |
| Previous spell(s) as employer | 0.8792 | (13.78)*** |
| Previous spell(s) as paid-employed | 0.4395 | (5.1)*** |
| Previous spell(s) as unemployed | 0.1246 | (1.8)* |
| Previous spell(s) as inactive | 0.1556 | (1.19) |
| **Incomes** | | |
| Inherit, gift or lottery winnings | 0.215 | (1.15) |
| Dwelling owner | 0.1544 | (2.12)** |
| Annual capital and property incomes (1 lag) | 1.3E-05 | (0.97) |
| Annual own-account work incomes (1 lag) | 1E-05 | (3.79)*** |
| **Business cycle** | | |
| Annual unemployment rate | -0.0894 | (-5.62)*** |
| **Country** | | |
| Austria [4] | -0.4185 | (-1.61) |
| Belgium [4] | -0.2939 | (-1.44) |
| Denmark [4] | -2.4501 | (-5.73)*** |
| Finland [4] | 0.6391 | (4.75)*** |
| France [4] | *No observations* | |
| Germany [4] | *No observations* | |
| Greece [4] | 0.0124 | (0.1) |
| Ireland [4] | -0.1035 | (-0.62) |
| Italy [4] | -0.4283 | (-3.6)*** |
| Luxembourg [4] | *No observations* | |
| Netherlands [4] | *No observations* | |
| Portugal [4] | -0.534 | (-2.89)*** |
| Sweden [4] | *No observations* | |
| United Kingdom [4] | *No observations* | |
| Reference categories: (1) Non-cohabiting individuals, (2) No education or primary education, (3) Construction Sector, (4) Spain | | |
| Log likelihood | -4372.2 | |

*Notes:*
[***] 1 % significativity level; [**] 5 % significativity level; [*] 10 % significativity level

**Table A3.** Number of transitions from own-account work across the EU-15 (Main exercise)

Data Source: European Community Household Panel (ECHP), 1994 – 2001

| | Number of transitions from Own-Account Work TO | |
| --- | --- | --- |
| | **Own-Account Work** | **Employer** |
| **European Union 15** | *10338* | *1917* |
| **Austria** | 184 | 51 |
| **Belgium** | 245 | 54 |
| **Denmark** | 214 | 7 |
| **Finland** | 435 | 143 |
| **France** | *No observations* | |
| **Germany** | 374 | 81 |
| **Greece** | 2289 | 566 |
| **Ireland** | 436 | 112 |
| **Italy** | 1565 | 244 |
| **Luxembourg** | *No observations* | |
| **Netherlands** | 286 | 3 |
| **Portugal** | 1202 | 249 |
| **Spain** | 2088 | 325 |
| **Sweden** | *No observations* | |
| **United Kingdom** | 1020 | 82 |

**Table A4.** Number of transitions from own-account work across the EU-15 (Complementary exercise)

Data Source: European Community Household Panel (ECHP), 1994 – 2001

| | Number of transitions from Own-Account Work TO | |
| --- | --- | --- |
| | **Own-Account Work** | **Employer** |
| **European Union 15** | *8608* | *1742* |
| **Austria** | 183 | 51 |
| **Belgium** | 245 | 54 |
| **Denmark** | 214 | 7 |
| **Finland** | 435 | 143 |
| **France** | *No observations* | |
| **Germany** | *No observations* | |
| **Greece** | 2284 | 564 |
| **Ireland** | 422 | 109 |
| **Italy** | 1543 | 242 |
| **Luxembourg** | *No observations* | |
| **Netherlands** | *No observations* | |
| **Portugal** | 1199 | 248 |
| **Spain** | 2083 | 324 |
| **Sweden** | *No observations* | |
| **United Kingdom** | *No observations* | |

**Table A5.** Predicted probabilities of switching for individuals with given characteristics across the EU-15 (Main exercise)

Data Source: European Community Household Panel (ECHP), 1994 – 2001

| | Transitions to Employer FROM | |
|---|---|---|
| | OA [a] | Δ% [b] |
| Standard individual [c] (S.I.) | *0.1* | ----- |
| S.I. but female | 0.0987 | -1.3 % |
| S.I. with university studies | 0.1094 | 9.4 % |
| S.I. with relatives with university studies | 0.1001 | 0.2 % |
| S.I. with previous spell(s) as employer | 0.2073 | 107.4 % |
| S.I. with previous spell(s) as paid-employed | 0.1461 | 46.1 % |
| S.I. with previous spell(s) as unemployed | 0.1074 | 7.4 % |
| S.I. with previous spell(s) as inactive | 0.1153 | 15.3 % |
| S.I. with relative(s) working as employer | 0.0957 | -4.3 % |
| S.I. with relative(s) working as own-account worker | 0.1179 | 18 % |
| S.I. but working in the industrial sector | 0.1036 | 3.6 % |
| S.I. but working in financial services | 0.1076 | 7.6 % |
| S.I. but working in wholesale, hotels, restaurants or transport | 0.0759 | -24.1 % |
| S.I. but working in other services | 0.0839 | -16.1 % |
| S.I. with low working hours [c] | 0.0964 | -3.6 % |
| S.I. with high working hours [c] | 0.1064 | 6.5 % |
| S.I. with low job experience [d] | 0.1295 | 29.5 % |
| S.I. with high job experience [d] | 0.1428 | 42.8 % |
| S.I. but receiving €1,000 more in other family incomes | 0.1008 | 0.8 % |
| S.I. with low own-account work incomes [e] | 0.0956 | -4.4 % |
| S.I. with high own-account work incomes [e] | 0.1092 | 9.3 % |
| S.I. with low unemployment rate [f] | 0.1766 | 76.7 % |
| S.I. with high unemployment rate [f] | 0.0471 | -52.9 % |

*Notes*:
[a] Own-account worker.
[b] Percentage change related to the standard.
[c] S. I.= Standard individual: male, cohabiting, one children aged fewer 14, no education or primary education, no relatives with university education within the sample, not previous experience as employer, paid-employed, unemployed or inactive, within the sample, not relatives working as employer or own-account worker, working in the construction sector and receiving mean capital and property incomes. Other variables equals to average values respectively.
[c] Low and high working hours are 40 and 70 (the 10th and 90th centiles respectively).
[d] Low and high own-account work experience are 2 and 19 years (the 10th and 90th centiles respectively).
[e] Low and high and own account work incomes are half and double the average ones respectively.
[f] Low and high unemployment rates are 2.9 % and 19.8 % respectively, which are the lowest and the highest values for our sample period.

**Table A6.** Predicted probabilities of switching for individuals
with given characteristics across the EU-15 (Complementary exercise)

Data Source: European Community Household Panel (ECHP), 1994 – 2001

|  | Transitions to Employer FROM | |
|---|---|---|
|  | OA [a] | Δ% [b] |
| Standard individual [c] (S.I.) | *0.1183* | ----- |
| S.I. but born abroad | 0.1029 | -13 % |
| S.I. with inherit, gift or lottery winnings within the household | 0.1427 | 20.6 % |

*Notes*:
[a] Own-account worker.
[b] Percentage change related to the standard.
[c] S. I.= Standard individual: male, born in the country of present residence, cohabiting, one children aged fewer 14, no education or primary education, no relatives with university education within the sample, not previous experience as employer, paid-employed, unemployed or inactive, within the sample, not relatives working as employer or own-account worker, working in the construction sector, receiving mean capital and property incomes, and without any inherit, gift or lottery winnings within the household. Other variables equals to average values respectively.

**Table A7.** Predicted probabilities of switching for individuals
with given characteristics across the EU-15 (Main exercise)

Data Source: European Community Household Panel (ECHP), 1994 – 2001

|  | Transitions to Employer FROM | |
|---|---|---|
|  | OA [a] | Δ% [b] |
| Standard individual [c] | *0.1* | ----- |
| Standard individual but living in Austria | 0.097 | -3 % |
| Standard individual but living in Belgium | 0.1081 | 8.1 % |
| Standard individual but living in Denmark | 0.015 | -85 % |
| Standard individual but living in Finland | 0.2401 | 140.2 % |
| Standard individual but living in France | *No observations* | |
| Standard individual but living in Germany | 0.0885 | -11.5 % |
| Standard individual but living in Greece | 0.1417 | 41.7 % |
| Standard individual but living in Ireland | 0.1292 | 29.2 % |
| Standard individual but living in Italy | 0.0995 | -0.5 % |
| Standard individual but living in Luxembourg | *No observations* | |
| Standard individual but living in the Netherlands | 0.0036 | -96.4 % |
| Standard individual but living in Portugal | 0.0894 | -10.6 % |
| Standard individual but living in Spain | 0.141 | 41.1 % |
| Standard individual but living in Sweden | *No observations* | |
| Standard individual but living in the United Kingdom | 0.0368 | -63.2 % |

*Notes*:
[a] Own-account worker.
[b] Percentage change related to the standard.
[c] S. I.= Standard individual: male, cohabiting, one children aged fewer 14, no education or primary education, no relatives with university education within the sample, not previous experience as employer, paid-employed, unemployed or inactive, within the sample, not relatives working as employer or own-account worker, working in the construction sector and receiving mean capital and property incomes. Other variables equals to average values respectively.

**Table A8.** Transitions from own-account worker to employer across Spain

Data Source: Spanish Continuous Family Expenditure Survey (ECPF), 1990 (I) – 1997 (I)

| | Binomial | |
|---|---|---|
| | **EMPLOYER (EMP)** | |
| | Prob [$EMP_t$ | $OA_{t-1}$] | |
| **Number of observations** | 8786 | |
| **Number of transitions** | 222 | |
| **Variables** | **Coef.** | **t-stat.** |
| Constant | -3.9693 | (-2.26)** |
| **Demographic characteristics** | | |
| Male | 0.4243 | (2.19)** |
| Age | 0.0132 | (0.17) |
| Age (squared) | -0.0004 | (-0.39) |
| Married [1] | -0.4369 | (-1.6) |
| Children under 14 | -0.0084 | (-0.03) |
| Husband/Wife self-employed | 0.004 | (0.02) |
| **Education** | | |
| Secondary schooling [2] | 0.3231 | (1.74)* |
| University studies [2] | 1.0801 | (4.39)*** |
| **Own-account work characteristics** | | |
| Own-account employment duration | -0.3014 | (-5.68)*** |
| **Previous experience** | | |
| Observed previous spell(s) as employer | 2.6617 | (15.7)*** |
| **Incomes** | | |
| Other quarterly family income | 4.6E-05 | (1.32) |
| Quarterly own-account work incomes | 1.1E-04 | (3.15)*** |
| **Business cycle** | | |
| Quarterly unemployment rate | 0.0011 | (0.05) |
| **Town size** | | |
| Medium town (10,001-50,000 inh.) [3] | 0.4171 | (2.24)** |
| Large town (50,001-500,000 inh.) [3] | 0.1978 | (1.04) |
| Very large town ( > 500,000 inh.) [3] | -0.3986 | (-1.19) |
| Reference categories: (1) Single, separated, etc., (2) No education or primary schooling, (3) Small town ( < 10,001 inh.) | | |
| Log likelihood | -824.9 | |

*Notes*:

[***] 1 % significativity level; [**] 5 % significativity level; [*] 10 % significativity level

**Table A9.** Predicted probabilities of switching for individuals
with given characteristics across Spain

Data Source: Spanish Continuous Family Expenditure Survey (ECPF), 1990 (I) – 1997 (I)

| | Transitions to Employer FROM | |
| --- | --- | --- |
| | OA [a] | Δ% [b] |
| Standard individual [c] (S.I.) | *0.0091* | ----- |
| S.I. but female | 0.0059 | -34.4 % |
| S.I. with university studies | 0.0262 | 189.4 % |
| S.I. with previous spell(s) as employer | 0.1157 | 1178 % |
| S.I. with husband / wife self-employed | 0.0091 | 0.4 % |
| S.I. with low observed own-account work duration [d] | 0.0181 | 99.6 % |
| S.I. with high observed own-account work duration [d] | 0.0041 | -55.1 % |
| S.I. but receiving €1,000 more in other family incomes | 0.0095 | 4.7 % |
| S.I. with low work incomes [e] | 0.0082 | -9.9 % |
| S.I. with high work incomes [e] | 0.0111 | 23.1 % |
| S.I. with low unemployment rate [f] | 0.009 | -0.5 % |
| S.I. with high unemployment rate [f] | 0.0091 | 0.5 % |
| S.I. but living in a small town (<10,001 inh.) | 0.008 | -11.7 % |
| S.I. but living in a medium town (10,001-50,000 inh. | 0.0121 | 33.4 % |
| S.I. but living in a large town (50,001-500,000 inh.) | 0.0097 | 7.4 % |
| S.I. but living in a very large town ( > 500,000 inh.) | 0.0054 | -40.6 % |

*Notes*:
[a] Own-account worker.
[b] Percentage change related to the standard.
[c] Standard individual: male, married, children, no education or primary education, not husband / wife self-employed, and not previous experience as employer within the sample. Other variables equals to average values respectively.
[d] Low and high own-account work duration are 1 and 6 quarters (the 10th and 90th centiles respectively).
[e] Low and high own-account work incomes are half and double the average ones respectively.
[f] Low and high unemployment rates are 15.85 % and 24.55 % respectively, which are the lowest and the highest values for our sample period.

**Table A10.** Transitions from own-account worker to employer across Spain

Data Source: European Community Household Panel (ECHP), 1994 – 2001

|  | Binomial |  |
| --- | --- | --- |
|  | **EMPLOYER (EMP)** | |
|  | Prob [EMP $_t$ | OA $_{t-1}$] | |
| **Number of observations** | 2386 | |
| **Number of transitions** | 322 | |
| **Variables** | Coef. | t-stat. |
| Constant | 1.3025 | (0.93) |
| **Demographic characteristics** | | |
| Male | -0.1419 | (-0.82) |
| Born abroad | 0.3953 | (1.17) |
| Age | -0.0142 | (-0.22) |
| Age (squared) | 9.5E-06 | (-0.01) |
| Cohabiting [1] | 0.064 | (0.35) |
| Number of children under 14 | -0.0518 | (-0.57) |
| Relative(s) working as employer(s) | -0.3475 | (-1.03) |
| Relative(s) working as own-account worker(s) | 0.2789 | (1.66)* |
| **Education** | | |
| Secondary education [2] | 0.2389 | (1.35) |
| University studies [2] | -0,0177 | (-0.08) |
| Relatives with university studies | 0.0602 | (0.38) |
| **Own-account work characteristics** | | |
| Industrial sector [3] | 0.1293 | (0.5) |
| Financial services [3] | 0.0468 | (0.17) |
| Wholesale, hotels, restaurants & transport [3] | -0.5868 | (-2.89)*** |
| Other services [3] | -0.0353 | (-0.12) |
| Hours of work | -0.0012 | (-0.21) |
| Own-account employment duration | -0.0683 | (-1.48) |
| Own-account employment duration (squared) | 0.0026 | (1.28) |
| **Previous experience** | | |
| Previous spell(s) as employer | 0.9738 | (6.29)*** |
| Previous spell(s) as paid-employed | 0.592 | (3.19)*** |
| Previous spell(s) as unemployed | -0.0373 | (-0.24) |
| Previous spell(s) as inactive | -0.4849 | (-1.75)* |
| **Incomes** | | |
| Inherit, gift or lottery winnings | 0.8939 | (2.06)** |
| Dwelling owner | -0.0016 | (-0.01) |
| Annual capital and property incomes (1 lag) | 8.8E-06 | (0.19) |
| Annual own-account work incomes (1 lag) | 9.6E-06 | (1.25) |
| **Business cycle** | | |
| Annual unemployment rate | -0.1443 | (-5.61)*** |
| **Region** | | |
| Northwest [4] | -0.0491 | (-0.21) |
| Northeast [4] | 0.1458 | (0.63) |
| Madrid [4] | 0.2032 | (0.66) |
| Center [4] | -0.2155 | (-0.85) |
| East [4] | -0.2754 | (-1.22) |
| Canary Islands [4] | 0.1716 | (0.57) |
| Reference categories: (1) Non-cohabiting individuals, (2) No education or primary education, (3) Construction Sector, (4) South | | |
| Log likelihood | -826.4 | |

*Notes*:
[***] 1 % significativity level; [**] 5 % significativity level; [*] 10 % significativity level

**Table A11.** Number of transitions from own-account work across Spain

Data Source: European Community Household Panel (ECHP), 1994 – 2001

| | Number of transitions from Own-Account Work TO | |
|---|---|---|
| | **Own-Account Work** | **Employer** |
| | | |
| **Spain** | *2064* | *322* |
| | | |
| **Northwest** | 374 | 57 |
| **Northeast** | 326 | 64 |
| **Madrid** | 122 | 23 |
| **Center** | 302 | 39 |
| **East** | 506 | 67 |
| **South** | 308 | 47 |
| **Canary Islands** | 126 | 25 |

**Table A12.** Predicted probabilities of switching for individuals with given characteristics across Spain

Data Source: European Community Household Panel (ECHP), 1994 – 2001

| | Transitions to Employer FROM | |
|---|---|---|
| | OA [a] | Δ% [b] |
| Standard individual [c] (S.I.) | *0.0955* | ----- |
| S.I. but female | 0.1085 | 13.6 % |
| S.I. but born abroad | 0.1356 | 41.9 % |
| S.I. with university studies | 0.094 | -1.6 % |
| S.I. with relatives with university studies | 0.1009 | 5.6 % |
| S.I. with previous spell(s) as employer | 0.2185 | 128.8 % |
| S.I. with previous spell(s) as paid-employed | 0.1603 | 67.8 % |
| S.I. with previous spell(s) as unemployed | 0.0924 | -3.3 % |
| S.I. with previous spell(s) as inactive | 0.0611 | -36.1 % |
| S.I. with relative(s) working as employer | 0.0694 | -27.3 % |
| S.I. with relative(s) working as own-account worker | 0.1225 | 28.2 % |
| S.I. but working in the industrial sector | 0.1073 | 12.3 % |
| S.I. but working in financial services | 0.0997 | 4.3 % |
| S.I. but working in wholesale, hotels, restaurants or transport | 0.0555 | -41.9 % |
| S.I. but working in other services | 0.0925 | -3.2 % |
| S.I. with low working hours [d] | 0.0968 | 1.3 % |
| S.I. with high working hours [d] | 0.0938 | -1.8 % |
| S.I. with low job experience [e] | 0.1243 | 30.1 % |
| S.I. with high job experience [e] | 0.0997 | 4.4 % |
| S.I. with inherit, gift or lottery winnings within the household | 0.2052 | 114.8 % |
| S.I. but receiving €1,000 more in other family incomes | 0.0963 | 0.8 % |
| S.I. with low work incomes [f] | 0.0923 | -3.4 % |
| S.I. with high work incomes [f] | 0.1023 | 7.1 % |
| S.I. with low unemployment rate [g] | 0.1791 | 87.5 % |
| S.I. with high unemployment rate [g] | 0.0602 | -37 % |

*Notes*:

[a] Own-account worker.

[b] Percentage change related to the standard.

[c] S. I.= Standard individual: male, born in the country of present residence, cohabiting, one children aged fewer 14, no education or primary education, no relatives with university education within the sample, not previous experience as employer, paid-employed, unemployed or inactive, within the sample, not relatives working as employer or own-account worker, working in the construction sector, receiving mean capital and property incomes, and without any inherit, gift or lottery winnings within the household. Other variables equals to average values respectively.

[d] Low and high working hours are 40 and 70 (the 10th and 90th centiles respectively).

[e] Low and high own-account work experience are 2 and 19 years (the 10th and 90th centiles respectively).

[f] Low and high and own-account work incomes are half and double the average ones respectively.

[g] Low and high unemployment rates are 11.3 % and 19.8 % respectively, which are the lowest and the highest values for our sample period.

**Table A13.** Predicted probabilities of switching for individuals living across Spain

Data Source: European Community Household Panel (ECHP), 1994 – 2001

| | Transitions to Employer FROM | |
|---|---|---|
| | OA [a] | Δ% [b] |
| Standard individual [c] | *0.0955* | ----- |
| Standard individual but living in the Northwest | 0.0964 | 0.9 % |
| Standard individual but living in the Northeast | 0.1147 | 20.1 % |
| Standard individual but living in Madrid | 0.1207 | 26.3 % |
| Standard individual but living in the Center | 0.0828 | -13.3 % |
| Standard individual but living in the East | 0.0784 | -18 % |
| Standard individual but living in the South | 0.1007 | 5.4 % |
| Standard individual but living in Canary Islands | 0.1174 | 22.9 % |

*Notes*:
[a] Own-account worker.
[b] Percentage change related to the standard.
[c] S. I.= Standard individual: male, born in the country of present residence, cohabiting, one children aged fewer 14, no education or primary education, no relatives with university education within the sample, not previous experience as employer, paid-employed, unemployed or inactive, within the sample, not relatives working as employer or own-account worker, working in the construction sector, receiving mean capital and property incomes, and without any inherit, gift or lottery winnings within the household. Other variables equals to average values respectively.

## Appendix B: Data Description

**Spanish Continuous Family Expenditure Survey (ECPF)**

Variable definitions referred to exercises developed with the Spanish Continuous Family Expenditure Survey (ECPF) are reported below.

### Dependent variables

**Transitions from own-account work to employer:**
Dependent variable equals 1 for individuals who are own-account workers in quarter *t-1* and become employers in quarter *t*. The variable equals 0 for individuals who are own-account workers in quarters *t-1* and *t*.

### Explanatory variables

**Demographic characteristics:**

| | |
|---|---|
| Male | Dummy equals 1 for males. |
| Age | Age reported by the individual, ranging from 21 to 59. |
| Married | Dummy equals 1 for married individuals and 0 otherwise. |
| Children under 14 | Dummy for individuals with children aged under than 14. |
| Husband / Wife self-smployed | Dummy equals to 1 for individuals whose husband / wife is self-employed. |

**Education:**

| | |
|---|---|
| No education and primary schooling | Dummy equals 1 for illiterate, no schooling individuals, and individuals with primary schooling as higher education level achieved, and 0 otherwise Education data of the head of household is used as a *proxy* of education of the husband / wife. |
| Secondary schooling | Dummy equals 1 for individuals with secondary schooling as higher education level achieved and 0 otherwise. Education data of the head of household is used as a *proxy* of education of the husband / wife. |
| University studies | Dummy equals 1 for individuals with University studies and 0 otherwise. Education data of the head of household is used as a *proxy* of education of the husband / wife. |

**Employment characteristics:**

| | |
|---|---|
| Own-account employment duration | Observed number of quarters in present job as own-account worker. |

**Observed previous experience:**

| | |
|---|---|
| Previous spell(s) as self-employed | Dummy equals 1 for individuals with observed previous spell(s) as self-employed. |

**Incomes:**

| | |
|---|---|
| Quarterly own-account work incomes | Own-account work incomes earned during the previous quarter to the interview, converted to euros of 1992, having been corrected by Consumer Price Index. |

| Other quarterly family incomes | Other family income earned during the previous quarter to the interview, converted to euros of 1992, having been corrected by Consumer Price Index. It includes all family incomes but own-account work incomes. |

**Business cycle:**

| Quarterly unemployment rate | National quarterly unemployment rate (source: Labour Force Survey –EPA-). |

**Town size:**

| Small town ( < 10,000 inh.) | Dummy equals to 1 for individuals living in small size towns and 0 otherwise. |
| Medium town (10,001-50,000 inh.) | Dummy equals to 1 for individuals living in medium size towns and 0 otherwise. |
| Large town (50,001-500,000 inh.) | Dummy equals to 1 for individuals living in large size towns and 0 otherwise. |
| Very large town ( > 500,000 inh.) | Dummy equals to 1 for individuals living in very large size towns and 0 otherwise. |

**Table B1.** Descriptive statistics of the transitions
from own-account worker to employer across Spain

Data Source: Spanish Continuous Family Expenditure Survey (ECPF), 1990 (I) – 1997 (I)

| | All observations | Non switching observations | Switching observations |
|---|---|---|---|
| **Number of observations** | 8786 | 8564 | 222 |
| | | | |
| **Demographic characteristics** | | | |
| Females | 32.3 % | 32.6 % | 20.3 % |
| Average age | 44.6 years | 44.6 years | 43.5 years |
| Age 21-30 years | 7.9 % | 7.9 % | 9.5 % |
| Age 31-40 years | 25.6 % | 25.5 % | 27.5 % |
| Age 41-50 years) | 36.5 % | 36.4 % | 39.6 % |
| Age 51-59 years | 30 % | 30.2 % | 23.4 % |
| No education / Primary schooling [*] | 34.3 % | 34.3 % | 35.6 % |
| Secondary schooling [*] | 25.1 % | 25 % | 27.9 % |
| University studies [*] | 20.9 % | 21 % | 18 % |
| Married | 66.7 % | 67 % | 52.7 % |
| Children under 14 | 27.9 % | 27.8 % | 30.2 % |
| Husband / Wife self-employed | 5.4 % | 5.1 % | 17.1 % |
| **Previous employment characteristics** | | | |
| Average observed exp. as own-acc.worker | 3.3 quarters | 3.4 quarters | 2.1 quarters |
| **Previous experience within self-employment** | | | |
| Previous experience as employer | 3.7 % | 2.7 % | 40.1 % |
| **Incomes** | | | |
| Other quarterly family income | €1,217 | €1,214 | €1,309 |
| Average quarterly own-acc. work incomes | €1,869 | €1,845 | €2,793 |
| **Town size** | | | |
| Small town ( < 10,000 inh.) | 43.1 % | 43.4 % | 32 % |
| Medium town (10,001-50,000 inh.) | 24.3 % | 24.1 % | 30.2 % |
| Large town (50,001-500,000 inh.) | 26 % | 25.8 % | 31.1 % |
| Very large town ( > 500,000 inh.) | 6.7 % | 6.7 % | 6.8 % |

[*] Educational attainment of the head of household is used as a *proxy* of education of the husband/wife.

## European Community Household Panel (ECHP)

Variable definitions referring to exercises developed with the European Community Household Panel (ECHP) are reported below.

### Explained variables

**Transitions from own-account work to employer:**
Dependent variable equals 1 for individuals who are own-account workers in period *t-1* and become employers in period *t*. The variable equals 0 for individuals who are own-account workers in periods *t-1* and *t*.

### Explanatory variables

**Demographic characteristics:**

| | |
|---|---|
| Male | Dummy equals 1 for males. |
| Born abroad | Dummy equals 1 for born abroad individuals. |
| Age | Age reported by the individual, ranging from 21 to 59. |
| Cohabiting | Dummy equals 1 for cohabiting individuals and 0 otherwise. |
| Number of children under 14 | Number of children aged under than 14 living within the household. |
| Relative(s) working as employer(s) | Dummy equals to 1 if there are any in the household. |
| Relative(s) working as own-acc. worker(s) | Dummy equals to 1 if there are any in the household. |

**Education:**

| | |
|---|---|
| No education or primary education | Dummy equals 1 for illiterate, no schooling individuals, or individuals with primary schooling as highest education level achieved, and 0 otherwise. |
| Secondary education | Dummy equals 1 for individuals with secondary schooling as highest education level achieved and 0 otherwise. |
| University studies | Dummy equals 1 for individuals with university studies and 0 otherwise. |
| Relatives with university studies | Dummy equals 1 if there are any in the household. |

**Employment characteristics:**

| | |
|---|---|
| Construction sector | Dummy equals 1 for individuals whose codes of main activity of the local unit of the business is F (construction), by the "Nomenclature of Economic Activities" (NACE-93). |
| Industrial sector | Dummy equals 1 for individuals whose codes of main activity of the local unit of the business are C (mining and quarrying), D (manufactures) and E (electricity, gas and water supply), by the "Nomenclature of Economic Activities" (NACE-93). |
| Wholesale, hotels, restaurants & transport | Dummy equals 1 for individuals whose codes of main activity of the local unit of the business are G (wholesale and retail trade; repair of motor vehicles, motorcycles and personal/household goods), H (hotels and restaurants) and I (transport, storage and communication), by the "Nomenclature of Economic Activities" (NACE-93). |
| Financial services | Dummy equals 1 for individuals whose codes of main activity of the local unit of the business are J (Financial intermediation) and K (real estate, renting and business |

| | activities), by the "Nomenclature of Economic Activities" (NACE-93). |
|---|---|
| Other services | Dummy equals 1 for individuals whose codes of main activity of the local unit of the business are L (public administration and defense; compulsory social security), M (education), N (health and social work) and O-Q (other community, social and personal service activities; private households with employed persons; extra-territorial organizations and bodies), by the "Nomenclature of Economic Activities" (NACE-93). |
| Years of own-account work experience | Number of years as own-account worker. |
| Hours of work | Hours of work per week. |

**Observed previous experience:**

| Previous spell(s) as employer | Dummy equals 1 for individuals with observed previous spell(s) as employer. |
|---|---|
| Previous spell(s) as paid-employed | Dummy equals 1 for individuals with observed previous spell(s) as paid-employee. |
| Previous spell(s) as unemployed | Dummy equals 1 for individuals with observed previous spell(s) as unemployed. |
| Previous spell(s) as inactive | Dummy equals 1 for individuals with observed previous spell(s) as inactive. |

**Incomes:**

| Inherit, gift or lottery winnings | Dummy equals 1 for households where anyone inherit any property capital, or receive a gift or lottery winnings, worth €2,000 or more during period $t-1$, and 0 otherwise. |
|---|---|
| Dwelling owner | Dummy equals 1 for households owning the dwelling in period $t-1$, and 0 otherwise. |
| Capital and property incomes (1 lag) | Capital and property incomes, and private transfers received during period $t-2$, converted to euros of 1996, having been corrected by Harmonised Consumer Price Index. Furthermore, these incomes are converted to average euros of 1996, being corrected by Purchasing Power Parity (across countries) for european exercises using ECHP. |
| Annual own-account work incomes (1 lag) | Own-account work incomes earned during period $t-2$, converted to euros of 1996, having been corrected by Harmonised Consumer Price Index. Furthermore, these incomes are converted to average euros of 1996, being corrected by Purchasing Power Parity (across countries) for european exercises using ECHP. |

**Business cycle:**

| Annual unemployment rate | Standardized annual unemployment rate (source: OCDE) |
|---|---|
| **Country dummies** | Dummies equal 1 for individuals living in the named country, and 0 otherwise. |

Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, Netherlands, Portugal, Spain, Sweden and United Kingdom.

**Region dummies:**

| Northwest | Dummy equals 1 for individuals living in Galicia, Asturias or Cantabria, and 0 otherwise. |
|---|---|

| | |
|---|---|
| Northeast | Dummy equals 1 for individuals living in the Basque Country, Navarra, La Rioja, or Aragón, and 0 otherwise. |
| Madrid | Dummy equals 1 for individuals living in Madrid, and 0 otherwise. |
| Center | Dummy equals 1 for individuals living in Castilla and León, Castilla La Mancha, or Extremadura, and 0 otherwise. |
| East | Dummy equals 1 for individuals living in Catalonia, Comunidad Valenciana or the Balearic Islands), and 0 otherwise. |
| South | Dummy equals 1 for individuals living in Andalusia, Murcia, Ceuta or Melilla, and 0 otherwise. |
| Canary Islands | Dummy equals 1 for individuals living in the Canary Islands, and 0 otherwise. |

**Table B2.** Descriptive statistics of the transitions
from own-account worker to employer across the EU-15 (Main exercise)

Data Source: European Community Household Panel (ECHP), 1994 – 2001

| | All observations | Non switching observations | Switching observations |
|---|---|---|---|
| **Number of observations** | 12255 | 10338 | 1917 |
| **Demographic characteristics** | | | |
|     Females | 25.5 % | 25.8 % | 24 % |
|     Average age | 41.6 years | 41.7 years | 40.6 years |
|     Age 21-30 years | 14.2 % | 13.6 % | 17.2 % |
|     Age 31-40 years | 31.7 % | 31.4 % | 33.5 % |
|     Age 41-50 years | 34 % | 34.4 % | 31.6 % |
|     Age 51-59 years | 20.1 % | 20.5 % | 17.7 % |
|     No education / Very basic education | 52 % | 52.8 % | 47.6 % |
|     Primary schooling / Secondary schooling | 28.5 % | 28 % | 31.4 % |
|     University studies | 19.5 % | 19.2 % | 21.1 % |
|     Relatives with university studies | 20 % | 19.8 % | 21.2 % |
|     Cohabiting | 81.3 % | 81.2 % | 81.6 % |
|     Average number of children under 14 | 0.69 children | 0.69 children | 0.71 children |
|     Relative(s) working as employer(s) | 4.6 % | 4.6 % | 4.6 % |
|     Relative(s) working as own-acc. worker(s) | 14.2 % | 13.7 % | 16.5 % |
| **Employment characteristics** | | | |
|     Construction sector | 15.3 % | 15.1 % | 16.6 % |
|     Industrial sector | 12.4 % | 11.9 % | 15.1 % |
|     Financial services | 12 % | 11.6 % | 13.8 % |
|     Wholesale, hotels, restaurants & transport | 48 % | 48.8 % | 43.3 % |
|     Other services | 12.3 % | 12.5 % | 11.2 % |
|     Average hours of work per week | 51 hours | 50.9 hours | 51.2 hours |
|     Average years of exper. as own-acc.worker | 9.6 years | 9.6 years | 9.7 years |
| **Previous experience** | | | |
|     Observed previous spell(s) as employer | 16.8 % | 14.1 % | 31.6 % |
|     Observed previous spell(s) as paid-employed | 12.6 % | 11.4 % | 18.8 % |
|     Observed previous spell(s) as unemployed | 28.2 % | 28 % | 29.4 % |
|     Observed previous spell(s) as inactive | 5.2 % | 5 % | 6 % |
| **Incomes** | | | |
|     Dwelling owner | 79.1 % | 78.8 % | 80.6 % |
|     Receiving capital and property incomes | 35.7 % | 35.6 % | 36.4 % |
|     Average annual capital and property incomes | €490 | €482 | €536 |
|     Average annual capital and property incomes (those who receive) | €1,372 | €1,353 | €1,472 |
|     Average annual own-account work incomes | €10,202 | €10,045 | €11,051 |
| **Country** | | | |
|     Austria | 1.9 % | 1.8 % | 2.7 % |
|     Belgium | 2.4 % | 2.4 % | 2.8 % |
|     Denmark | 1.8 % | 2.1 % | 0.4 % |
|     Finland | 4.7 % | 4.2 % | 7.5 % |
|     France | | *No observations* | |
|     Germany | 3.7 % | 3.6 % | 4.2 % |
|     Greece | 23.3 % | 22.1 % | 29.5 % |
|     Ireland | 4.5 % | 4.2 % | 5.8 % |
|     Italy | 14.8 % | 15.1 % | 12.7 % |
|     Luxembourg | | *No observations* | |
|     Netherlands | 2.4 % | 2.8 % | 0.2 % |
|     Portugal | 11.8 % | 11.6 % | 13 % |
|     Spain | 19.7 % | 20.2 % | 17 % |
|     Sweden | | *No observations* | |
|     United Kingdom | 9 % | 9.9 % | 4.3 % |

**Table B3.** Descriptive statistics of the transitions
from own-account worker to employer across the EU-15 (Complementary exercise)

Data Source: European Community Household Panel (ECHP), 1994 – 2001

| | All observations | Non switching observations | Switching observations |
|---|---|---|---|
| **Number of observations** | 10350 | 8608 | 1742 |
| | | | |
| **Demographic characteristics** | | | |
| Females | 26.4 % | 26.9 % | 23.8 % |
| Average age | 3.6 % | 3.7 % | 3.1 % |
| Born abroad | 41.6 | 41.8 | 40.7 |
| Age 21-30 years | 14 % | 13.5 % | 16.9 % |
| Age 31-40 years | 31.7 % | 31.3 % | 33.5 % |
| Age 41-50 years | 33.8 % | 34.3 % | 31.4 % |
| Age 51-59 years | 20.4 % | 20.9 % | 18.2 % |
| No education / Very basic education | 54.3 % | 55.2 % | 50 % |
| Primary schooling / Secondary schooling | 29.3 % | 28.9 % | 31.1 % |
| University studies | 16.4 % | 15.9 % | 18.9 % |
| Relatives with university studies | 18.5 % | 18.2 % | 20 % |
| Cohabiting | 81.5 % | 81.4 % | 81.6 % |
| Average number of children under 14 | 0.69 children | 0.68 children | 0.71 children |
| Relative(s) working as employer(s) | 5 % | 5 % | 4.8 % |
| Relative(s) working as own-acc. worker(s) | 15.6 % | 15.3 % | 17 % |
| **Employment characteristics** | | | |
| Construction sector | 13.6 % | 13 % | 16.4 % |
| Industrial sector | 12.9 % | 12.3 % | 15.5 % |
| Financial services | 10 % | 9.5 % | 12.9 % |
| Wholesale, hotels, restaurants & transport | 52 % | 53.6 % | 44.4 % |
| Other services | 11.5 % | 11.6 % | 10.8 % |
| Average hours of work per week | 51 hours | 51 hours | 50.7 hours |
| Average years of exper. as own-acc.worker | 10.4 years | 10.4 years | 10.2 years |
| **Previous experience** | | | |
| Previous spell(s) as employer | 17.7 % | 14.7 % | 32.4 % |
| Previous spell(s) as paid-employed | 11.1 % | 9.7 % | 18.1 % |
| Previous spell(s) as unemployed | 28.1 % | 27.8 % | 29.7 % |
| Previous spell(s) as inactive | 5 % | 4.8 % | 5.8 % |
| **Incomes** | | | |
| Inherit, gift or lottery winnings | 2.1 % | 2 % | 2.5 % |
| Dwelling owner | 80.4 % | 80.1 % | 81.9 % |
| Receiving capital and property incomes | €453 | €437 | €532 |
| Average annual capital and property incomes | 31.6 % | 31.3 % | 33.3 % |
| Average annual capital and property incomes (those who receive) | €1,433 | €1,398 | €1,598 |
| Average annual own-account work incomes | €9,589 | €9,372 | €10,658 |
| **Country** | | | |
| Austria | 2.3 % | 2.1 % | 2.9 % |
| Belgium | 2.9 % | 2.8 % | 3.1 % |
| Denmark | 2.1 % | 2.5 % | 0.4 % |
| Finland | 5.6 % | 5.1 % | 8.2 % |
| France | *No observations* | | |
| Germany | *No observations* | | |
| Greece | 27.5 % | 26.5 % | 32.4 % |
| Ireland | 5.1 % | 4.9 % | 6.3 % |
| Italy | 17.2 % | 17.9 % | 13.9 % |
| Luxembourg | *No observations* | | |
| Netherlands | *No observations* | | |
| Portugal | 14 % | 13.9 % | 14.2 % |
| Spain | 23.3 % | 24.2 % | 18.6 % |
| Sweden | *No observations* | | |
| United Kingdom | *No observations* | | |

**Table B4.** Descriptive statistics of the transitions
from own-account worker to employer across Spain (Complementary exercise)

Data Source: European Community Household Panel (ECHP), 1994 – 2001

| | All observations | Non switching observations | Switching observations |
|---|---|---|---|
| **Number of observations** | 2386 | 2064 | 322 |
| **Demographic characteristics** | | | |
| Females | 24.2 % | 24.4 % | 23 % |
| Born abroad | 3.4 % | 3.3 % | 4.3 % |
| Average age | 41.2 years | 41.5 years | 39.4 years |
| Age 21-30 years | 16.3 % | 15.4 % | 22.4 % |
| Age 31-40 years | 31.1 % | 30.5 % | 35.1 % |
| Age 41-50 years | 31.6 % | 32.6 % | 25.8 % |
| Age 51-59 years | 20.9 % | 21.6 % | 16.8 % |
| No education / Very basic education | 63.8 % | 65.1 % | 55.6 % |
| Primary schooling / Secondary schooling | 18.6 % | 18.1 % | 21.7 % |
| University studies | 17.6 % | 16.8 % | 22.7 % |
| Relatives with university studies | 23.8 % | 23.1 % | 28.6 % |
| Cohabiting | 78.8 % | 79.3 % | 76.1 % |
| Average number of children under 14 | 0.62 children | 0.62 children | 0.62 children |
| Relative(s) working as employer(s) | 4.4 % | 4.5 % | 3.7 % |
| Relative(s) working as own-acc. worker(s) | 17.9 % | 17.1 % | 22.7 % |
| **Employment characteristics** | | | |
| Construction sector | 12.9 % | 12 % | 18.6 % |
| Industrial sector | 8 % | 7.5 % | 11.5 % |
| Financial services | 10.4 % | 9.6 % | 15.2 % |
| Wholesale, hotels, restaurants & transport | 61.7 % | 64.2 % | 45.7 % |
| Other services | 7 % | 6.7 % | 9 % |
| Average hours of work per week | 52.5 hours | 52.7 hours | 51.2 hours |
| Average years of exper. as own-acc.worker | 9.7 years | 9.9 years | 8.8 years |
| **Previous experience** | | | |
| Previous spell(s) as employer | 15.5 % | 12.2 % | 37 % |
| Previous spell(s) as paid-employed | 12.5 % | 10.2 % | 27.3 % |
| Previous spell(s) as unemployed | 39.6 % | 38.9 % | 44.1 % |
| Previous spell(s) as inactive | 7.4 % | 7.4 % | 7.5 % |
| **Incomes** | | | |
| Inherit, gift or lottery winnings | 1.4 % | 1.2 % | 2.8 % |
| Dwelling owner | 84.7 % | 84.6 % | 85.1 % |
| Receiving capital and property incomes | 55.6 % | 54.8 % | 60.9 % |
| Average annual capital and property incomes | €289 | €286 | €311 |
| Average annual capital and property incomes (those who receive) | €520 | €522 | €511 |
| Average annual own-account work incomes | €7,862 | €7,724 | €8,746 |
| **Region** | | | |
| Northwest | 18.1 % | 18.1 % | 17.7 % |
| Northeast | 16.3 % | 15.8 % | 19.9 % |
| Madrid | 6.1 % | 5.9 % | 7.1 % |
| Center | 14.3 % | 14.6 % | 12.1 % |
| East | 24 % | 24.5 % | 20.8 % |
| South | 14.9 % | 14.9 % | 14.6 % |
| Canary Islands | 6.3 % | 6.1 % | 7.8 % |