Dependent self-employment as a way to evade employment protection legislation

Concepción Román [a, *], Emilio Congregado [a], José María Millán [a]

[a] *Department of Economics, University of Huelva. Facultad de Ciencias Empresariales. Plaza de la Merced 11, 21071 Huelva, Spain.*

[*] Corresponding author: Concepción Román. E-mail: concepcion.roman@dege.uhu.es.

Abstract

This paper examines whether the strictness of employment protection legislation encourages employers to contract out work to their own paid employees by the formula of dependent self-employment, while makes transitions to independent self-employment less likely by altering the relative valuation of risk between salaried-work and self-employment in favour of the former. In conducting this analysis, discrete choice models are applied to data drawn from the European Community Household Panel from 1994 to 2001. To test our hypotheses, we include a tentative individual measure of the potential severance payment that a worker would receive in the case of dismissal, as well as aggregated variables that try to capture differences in labour market institutions and macroeconomic conditions. We find evidence for a positive impact of the strictness of employment protection legislation and the potential severance payment on transitions to dependent self-employment. The opposite effects, however, are detected for individuals becoming independent self-employed.

Keywords: Entrepreneurship, self-employment, dependency, contracting out, occupational choice, labour market institutions.

JEL classification: J24, J38, J65, K31, L24.

1. Introduction

During deep recessions, the presence of stringent employment protection legislation (henceforth EPL[1]) may alter the structure of employment by status. As an attempt to evade the economic effects of labour regulations, employers who are not able to keep their employees might contract out work to them by the formula of dependent self-employment (hereinafter DSE). In essence, DSE refers to self-employed workers who are employed with the same tasks by the same employer for whom they previously worked as employees. Under similar economic and regulatory circumstances, the relative valuation of risk between salaried work and self-employment might be altered in favour of the former. This may discourage individuals from entering independent self-employment (hereinafter ISE), in other words, entrepreneurship spurred by a business profit opportunity, with formal and informal labour relationships with the previous employer ending along with transitions to self-employment.

Empirical evidence should be the natural way to test the validity of these arguments. However, the presence of two different groups within self-employment (i.e., DSE and ISE) cannot be easily captured by entrepreneurship measures at the macro level. Furthermore, these distinct forms of self-employment may also be linked to the academic controversy on the relationship between EPL and self-employment, with theoretical arguments and empirical evidence suggesting either a positive or negative connection. As a consequence, empirical evidence from less aggregated data is needed to dig deeper into the underlying causal factors of this ambiguity.

Addressing this question is precisely the main aim of this work, that is, to search for the determinants of the existing controversy by means of an analysis at the individual level. To this aim, the present study examines whether the strictness of EPL encourages employers to contract out work to their own paid employees by the formula of DSE, while makes transitions to ISE less likely. In addition, this paper addresses further issues such as the role of the business cycle, public expenditures on start-up incentives and generosity of the social security system as they relate to these two types of transitions to self-employment.

In doing so, binary logit models are applied to data drawn from the European Community Household Panel covering the period 1994-2001. To address the question on the distinction of transitions to DSE from those to ISE, we make use of information about the year when work began with the current employer or at the same business. Thus, we associate to ISE those entering self-employment at period t who declare t as the year when they started work with their current employer or at the same business. On the other hand, we associate to DSE those who became self-employed at period t, but declared that they started work with the current employer or at the same business while they still were paid employees.

For our hypothesis testing, we make use of time-dependent measures of the European economic conditions and regulatory framework, allowing us to capture effects within the same country, as opposed to simple cross-country variation. Thus, our estimations include measures of employment protection for regular and temporary contracts, public expenditure on start-up incentives as a percentage of GDP and national output gaps, all provided by the OECD. In addition, we introduce the three constituent components of the social security legislation index (SSLI) from Botero et al. (2004): old age, disability and death benefits; sickness and health benefits; and unemployment benefits.

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[1] EPL comprises measures designed to protect the rights of employees at work. As defined by the OECD, employment protection refers to regulations about hiring (e.g., rules favouring disadvantaged groups, conditions for using temporary or fixed-term contracts, and training requirements) and firing (e.g., redundancy procedures, mandated pre-notification periods and severance payments, special requirements for collective dismissals, and short-time work schemes). EPL, in turn, refers to all types of employment protection measures, whether grounded primarily in legislation, court rulings, collectively bargained conditions of employment, or customary practice (Parker, 2007).

Finally, as one of the main contributions of this paper, we propose a person and time-variant measure of the potential severance payment that the worker would receive in case of dismissal. This variable, which might be considered a better proxy of the phenomenon we intend to capture than the available aggregated indexes, is used to test whether this compensation affects the individual occupational choice.

Our main empirical results can be summarised as follows. Firstly, we find evidence for a positive impact of the strictness of EPL and the potential severance payment on transitions to DSE. The opposite effects, however, are detected for individuals entering ISE. Secondly, by focusing on the business cycle, we observe that the *recession-push* argument applies for those entering DSE while the *prosperity-pull* hypothesis is suitable for individuals switching to ISE. Finally, our results show that public expenditure on start-up incentives has positive effects on transitions from paid-employment to DSE and ISE. Therefore, this study contributes to a better understanding of the effects of different regulatory frameworks on individual decisions of entering self-employment.

The remainder of this paper is structured as follows. Section 2 is dedicated to a brief theoretical discussion and establishes our hypotheses. Section 3 reviews related literature and Section 4 describes the data, variables and sample design. In Section 5, the econometric framework is described and Section 6 presents the main empirical results of this work. Finally, the concluding remarks of the study are contained in Section 7.

2. Theoretical background

The question of how the strictness of EPL affects self-employment has no clear-cut answer. There are several reasons to expect that the strictness of EPL decreases self-employment. Firstly, the degree of risk aversion and the differences in risk of self-employment and paid-employment might play central roles in the determination of occupational choice. Parker (1997) finds that if individuals choose either self-employment or paid employment, then greater riskiness in a sector will always reduce the likelihood of an agent choosing to participate in it. Therefore, if stricter EPL has the effect of reducing the risk of earnings in paid employment relative to the risk of self-employment incomes, we can expect a negative relationship between the strictness of EPL and self-employment. Redundancy pay, for instance, reduces expected enterprise cash flow and increases the risk of economic loss; consequently, it may have an adverse impact on entry of new enterprises (Kanniainen and Vesala, 2005). Secondly, if we concentrate on paid employees, it might be expected that EPL discourages individuals from becoming entrepreneurs. The strictness of EPL increases the individual's opportunity cost of changing employers or of leaving a secure salaried job to become an entrepreneur. For example, severance payments usually protect workers with the longest tenure. This fact creates a further disincentive for workers to try entrepreneurship, since those workers *lose their place in the queue* if they ever want to close their venture and return to paid employment (Henrekson and Roine, 2007; Henrekson, 2007; Parker, 2007). Lastly, another argument that traditionally has been put forward to support the adverse impact of EPL on self-employment refers to the fact that tighter labour laws decrease the survival prospects of those entrepreneurs who employ outside workers (Parker, 2007). EPL imposes sunk costs for self-employed workers who decide to take on employees and, therefore, it may deter individuals with higher growth expectations from entering self-employment if they think their business will be prevented from reaching optimal size (van Stel et al., 2007; Klapper et al., 2007). That is, individuals who consider becoming entrepreneurs anticipate the prospect of becoming employers in the future, so costs associated with labour regulations discourage them from entering entrepreneurship.

However, these arguments do not consider contracting out directly. Actually, this relationship could be weakened and turned into a positive one if employers can circumvent EPL by contracting out work via the route of DSE. In this sense, several studies argue for a positive relationship between EPL and self-

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employment, since self-employment could be the response to labour market policies. In a stricter labour market, employers may be able to use self-employment as a mean of undermining the intended effects of EPL (Grubb and Wells, 1993; OECD, 1992, 1999; Centeno, 2000; Parker, 2007; Klapper et al. 2007). In this sense, Parker (2009) provides a theoretical rationale for this idea. He uses a simple principal-agent model to explore the effect of various public policies that affect employers' incentives to contract out by re-grading their employees as dependent self-employed workers. EPL increases costs per worker and therefore is viewed as equivalent to employer payroll taxes. Thus, he finds that EPL increases the likelihood of contracting out under several plausible conditions. This prediction is consistent with evidence from Autor (2003) that considers a simple model of employment outsourcing in the presence of positive firing costs and finds that employers are likely to respond to mandated firing costs by outsourcing jobs that required limited firm-specific capital. This kind of reasoning would also lend support to the view that a significant proportion of reported self-employment may be dependent, in the sense that the workers concerned are essentially employees, but are employed on self-employment contracts in order to economise on employers' non-wage labour costs. That is to say, stricter labour regulations are likely to promote transitions from paid employment to self-employment by means of mutual arrangements between an employer and his/her employees, giving rise to the DSE phenomenon.

Along this line, since the bargaining power in an employment relation may be exercised by employers, employees or both, we should pay attention to the beneficial effects of this kind of contracting out, not just for employers but also for employees. For employers, four general savings in labour costs may accrue from external contracting (Collins, 1990): (i) the business' owner may avoid or reduce the quasi-fixed costs associated with employment, such as hiring and training; (ii) The employer may be able to take advantage of lower wage rates outside the firm, taking advantage of non-union rates, regional differences and labour market segmentation; (iii) the owner of the business may be able to use his bargaining power to impose stricter contractual controls over performance by the avoidance of long-term contractual relations with members of the organisation; and finally (iv) the firm may be able to reduce or avoid the costs of compliance with employment protection rights.

Concerning the new situation for employees created by this kind of contracting out, we can argue the following. In the presence of firing costs, labour demand is reduced. A rational labour union anticipates this fall of hiring incentives of the firm and adjusts its wage demand by lowering it. Therefore the bargaining wage decreases in firing cost (Kanniainen and Vesala, 2005). In sum, in the presence of stricter labour regulations, those entering DSE will earn more than if they remained employees, since contracting out allows employers to reduce labour costs. Moreover, since the previous employer guarantees demand to the dependent self-employed worker, this DSE transition does not imply an increase of income risk associated with the decision of entering self-employment.

Previous discussion leads us to state our first hypothesis as follows:

Hypothesis 1: The effects of EPL on transitions from paid-employment to DSE and ISE are of opposite signs:
    - EPL increases the probability of transition from paid-employment to DSE.
    - EPL decreases the probability of transition from paid-employment to ISE.

Regarding the effects of the business cycle on transitions to both kinds of self-employment, the following may be argued. Cost-cutting pressures are greater for firms during recessions. Thus, because contracting out offers greater flexibility than regular employment contracts in raising or lowering the effective size of the workforce, it is certainly attractive in conditions of uncertainty (Collins, 1990). In addition, we expect that when economic conditions get worse, employees' bargaining power decreases with respect to their employer's counterpart, and in this framework EPL gives employers an extra-incentive to contract out certain work. Hence, transitions from paid-employment to DSE are expected to be counter-cyclical, supporting the *recession-push* argument. By contrast, prospects for business

and profit opportunities are better when conditions are good and people may be drawn into self-employment. Hence, in concordance with the *prosperity-pull* argument, paid employees entering ISE are more likely to appear during expansion periods. Therefore, our second hypothesis is:

Hypothesis 2: The effects of macroeconomic conditions over transitions from paid-employment to DSE and ISE are of opposite signs:
  - The recession-push argument applies for those paid-employees entering DSE.
  - The prosperity-pull argument applies for those paid-employees entering ISE.

Finally, the effectiveness of public expenditure on start-up incentives over both kinds of transitions is expected to be positive in sign. In this sense, one possible impediment to becoming an entrepreneur is simply the lack of capital. Hence, the presence of incentives might smooth the negative effect of liquidity constraints on transitions to ISE.[2] In addition, those individuals considering ISE as an alternative to salaried work might use this support to compensate for their increased income risk in their new situation. By contrast, the same arguments for ISE do not appear to be key elements for transitions to DSE, since the previous employer guarantees demand. However, under the framework of utility maximisation based on the standard theory of on-the-job search (Mortensen, 1986), the availability of incentives might be seen as a route to increase expected profits for the option of DSE. Therefore, unless start-up stimuli coexist with effective measures to distinguish ISE from DSE, both groups would take advantage of these incentives. In sum, these arguments lead to our last hypothesis:

Hypothesis 3: Public expenditure on start-up incentives has positive effects on transitions from paid-employment to DSE and ISE.

The main objective of this paper is to test the validity of these theoretical hypotheses.

3. Related literature

The effect of the regulatory environment on entrepreneurship participation remains a topic of academic debate, especially through large recessions. Thus, cross-country differences on EPL, taxing frameworks, expenditure on active labour market policies, and costs and benefits of social security systems are expected to explain (at least, to a certain extent) international divergences in self-employment participation. In addition, existing concerns about the entrepreneurial nature of the phenomenon of DSE have been raised by arguments suggesting the circumvention of the economic effects of regulation as its main *raison d'être*. However, the absence of solid propositions makes the design of an adequate action policy agenda a difficult task.

To the best of our knowledge, previous evidence related to the role of EPL on self-employment has focused on cross-national variations in entrepreneurship. In this sense, by including the agricultural sector in the analyses, previous studies by the OECD (1992, 1999), Grubb and Wells (1993) and Robson (2003) report evidence of a positive relationship between the strictness of EPL and self-employment rates in OECD countries. Nonetheless, van Stel et al. (2007) and Nyström (2008) obtain a negative effect by means of entrepreneurship measures provided by GEM and COMPENDIA[3] respectively. Finally, Bjørnskov and Foss (2008) do not find any significant result for GEM countries.

On the other hand, the exclusion of the agricultural sector from the data does not seem to be the key for reconciling results. Thus, Kanniainen and Vesala (2005) and Nyström (2008) report a significant

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[2] Parker (2002) presents an overview of the modern theory and evidence of credit rationing. Parker (2003a) proposes a model of credit markets under asymmetric information in which individuals differ in abilities that are valued in both entrepreneurship and paid employment.
[3] See van Stel (2005) for details.

negative relationship between non-agricultural self-employment rates for the OECD and the strictness of EPL. Also, Klapper et al. (2007) find that labour regulations have a dampening effect on entry in labour-intensive industries, using a database of Western and Eastern European firms. Along this line, Kugler and Pica (2008) find some evidence suggesting that the Italian labour market reform of 1990, which increased unjust dismissal costs for businesses with fewer than 15 employees, reduced firms' entry rates. By contrast, Centeno (2000) indicates the existence of a positive non-linear relationship between labour market rigidity and the share of non-agricultural self-employment for the OECD. In addition, Scarpetta et al. (2002) find a positive sign for micro (fewer than 20 employees) and a negative sign for small-medium sized firms (20-49 employees) in OECD countries. Lastly, neither Robson (2003) nor Torrini (2005) find any statistically significant relation between EPL and non-agricultural self-employment rates for the OECD. To summarise, the empirical literature does not provide unambiguous evidence on the existing relation between the strictness of EPL and self-employment.

It might be argued that these different results might be generated by the wide range of proxies measuring the strictness of EPL across these studies. Other arguments such as differences of geographical scope, time period, methods and nature of data also appear to be relevant. However, as some theoretical arguments suggest, the existence of opposite effects of the regulatory framework over individuals entering DSE and ISE might also be behind the absence of clear-cut results.

Similarly, the relationship between tax systems and self-employment likelihood has been subject to controversy. In this sense, despite the empirical literature tending to find a positive effect of income tax rates on participation in self-employment; high tax rates may in principle have both positive and negative effects on the incentive for self-employment. Thus, tax deduction and evasion opportunities seem to make self-employment more likely, while higher income tax rates might raise the income threshold at which a decision is made in favour of self-employment, acting as a barrier to self-employment entry.[4]

Focusing on the effects of ALMP, there are two main types of evaluation studies. The first type uses micro data to measure the impact of program participation on individuals' employment and earnings. In particular, empirical evidence on the effectiveness of start-up subsidies usually uses the survival rate, the number of jobs created directly by the new business, and the employability and income of participants as main indicators for evaluating self-employment programmes, comparing the outcomes of participants with a defined comparison group.[5] The second type uses aggregate data to measure the net effects of programs on aggregate employment and unemployment.[6]

Turning our attention to the generosity of the social security system, it might be argued that a generous system may lead to either fewer or more self-employed. There may be a negative impact on self-employment, insofar as generous social security benefits for employees increase the opportunity costs of entrepreneurship. Additionally, the introduction of compulsory social security contributions aimed at insuring self-employed workers might also act as a barrier to self-employment entry, since these contributions represent a substantial increase in self-employed contributions in most cases. On the other hand, social security in general may have a positive effect on entrepreneurial activity by creating a safety net in case of business failure. The difference in the social security entitlements between self-employed and employees may be of particular relevance. Unfortunately, cross-national data on the

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[4] See for example, Blau (1987); Parker (1996, 2003b) Robson and Wren (1999); Parker and Robson (2004); Bruce and Schuetze (2004); and Schuetze (2000, 2008).

[5] Examples of microeconometric evaluations of start-up subsidies are Meager et al. (2003) for UK, Perry (2006) for New Zealand, Cueto and Mato (2006) for Spain, Pfeiffer and Reize (2000), Baumgartner and Caliendo (2008) and Caliendo and Kritikos (2009) for Germany, and Carling and Richardson (2001) for Sweden.

[6] For a review of the few studies that evaluate the effects of ALMP from a macro point of view, see Boone and van Ours (2004).

differences in the cost/benefit rules governing self-employed and paid-employed workers is not widely available, which limits attempts to control for this type of effect in empirical analysis.[7]

Finally, with regards to the importance of DSE, there is an active legal and political debate on possible labour market reforms to make up for the lack of labour protection of these workers.[8] In this vein, we observe that countries such as Germany, Greece, Belgium, Italy and Austria have developed special measures to equalise labour rights of DSE to those attached to salaried-workers (OECD, 2000). This fact seems to confirm the increasing weight of this phenomenon on the employment composition of some European countries. However, despite the existing debate, the attempts to quantify and characterise this phenomenon are scarce due to a lack of adequate datasets that make a distinction between DSE and ISE.

Notable exceptions are tentative approaches by Delage (2002) for Canada; Freedman and Chamberlain (1997) and Burchell et al. (1999) for UK; and VandenHeuvel and Wooden (1995) for Australia, devoted to the identification and measurement of DSE at the country level. Also, Waite and Will (2001) for Australia; Müehlberger and Pasqua (2009) for Italy; and Böheim and Müehlberger (2009) for the UK are empirical studies investigating whether DSE differs from ISE and salaried work, focusing on personal and job characteristics.[9] However, since these studies are at the country level, no insights are available about the effects of the regulatory environment on the relative likelihoods of belonging to any of these groups.

In sum, the distinction between DSE and ISE is, by itself, worthy of further investigation. Furthermore, comparisons of different regulatory frameworks and their influence on the dynamics of both groups are certainly aspects that should generate further research. To this end, this study contributes to the existing body of literature with the first attempt to investigate the phenomenon of DSE as a way to evade EPL.

4. Data, variables and sample design

The data used come from the European Community Household Panel (ECHP). The ECHP is a panel of households in the EU-15[10], covering the period 1994-2001. Every year, all members of the selected households in each country are interviewed about issues relating to demographics, labour market, income and living conditions. The same questionnaire is used for all countries, which makes the information directly comparable.

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[7] The most extensive issue analysed by empirical studies on this topic has been the effect of unemployment benefit replacement rates on self-employment participation, obtaining a consistent negative impact (e.g., Staber and Bogenhold, 1993; Ilmakunnas and Kanniainen, 2001; Robson, 2003; Parker and Robson, 2004; Kanniainen and Vesala, 2005; Torrini, 2005; Hessels et al., 2007; and Robson, 2007). In addition, Robson (2007) focuses on the effect of the generosity of old age, disability and death benefits; sickness and health benefits; and unemployment benefits. Finally, attempts to capture the effect of social security contributions of the self-employed are those by Centeno (2000) and Hessels et al. (2007). See Schoukens (1999) for a detailed description of all the European systems

[8] Supiot (2001), EIRO (2002), Perulli (2003), and Sciarra (2004) provide a European perspective. For international aspects see OECD (2000) and ILO (2003).

[9] Approaches to DSE are not homogeneous. By using data from the Australian Bureau of Statistics (Forms of Employment Survey for 2000), Waite and Will (2001) distinguish dependent and independent contractors. The dependent contractors are persons employed on a commercial contract but with work arrangements consistent with them being an employee. Böheim and Müehlberger (2009) define DSE as self-employed workers who have no employees and only one customer, using data drawn from the British Labour Force Survey between 1999 and 2005. Finally, Müehlberger and Pasqua (2009) make use of individuals that work on the basis of a contract of continuous and coordinated collaboration by means of data from the Italian Labour Force Survey 2004.

[10] Luxembourg and Sweden have to be excluded from our analysis because these countries present missing values in relevant variables.

Individuals in our dataset are asked about their employment status, which allows the identification of those paid-employed individuals switching to self-employment from period *t-1* to period *t*. Also, individuals are asked about the year they began working for the current employer or at the same business, which might be a year belonging to our observation window (1994-2001) or some previous year. Thus, we associate to ISE those paid employees switching to self-employment from period *t-1* to period *t*, and declare *t* (at period *t*) as their year of job commencement with the current employer or at the same business. On the other hand, we associate to DSE those wage workers entering self-employment from period *t-1* to period *t*, and declare (at period *t*) that they started working with the current employer or at the same business while they still were paid-employed.[11]

Our empirical estimates include a set of explanatory variables related to gender, human capital (age, experience and education), other personal characteristics (marital status and number of children), family background (presence of self-employed relatives), employment characteristics (business sector, hours of work and type of contract) and country dummies. National output gaps from the OECD are also included in an attempt to capture the state of the European economy.[12] We also introduce variables that try to measure incomes (capital and property incomes, along with work incomes), which are corrected by purchasing power parities (comparability across countries) and harmonised consumer price indexes (comparability across time).

Additionally, as an alternative to the inclusion of country dummies, we introduce variables trying to capture differences on labour market institutions, as described below.

Employment Protection Legislation

The measures of employment protection we include were developed by the OECD and refer to the protection of regular employment and the regulation of temporary work. These variables are intended to measure the strictness of EPL and are scaled to lie between 0 and 6, from fewer to more protected workers. The fact that these indexes are time-dependent allows us to pick out the effect of an increase in EPL within the same country, as opposed to simple cross-country variation.[13]

Furthermore, as one of the main contributions of this paper, and as an alternative to the OECD EPL index for regular employment, we have constructed an indicator of the potential severance payment that the worker would receive in case of dismissal. In particular, this variable is used to test whether this compensation affects the individual occupational choice. Thus, by exploiting the nature of our micro-data from the ECHP, we are able to generate a person and time variant measure, which might be considered a better proxy of the phenomenon we intend to capture than the available aggregated

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[11] For instance, to identify a transition from paid employment to DSE, we need the following information from the individual: (i) declaring herself as a paid employee in the 1995 survey; (ii) declaring herself as self-employed in the 1996 survey; and (iii) declaring in both surveys, 1995 and 1996, that she started working for her current employer or at the same business in 1995 or before.

[12] The cyclical position of the economy can be defined as the difference between actual output and the level of potential output that can be sustained without generating inflationary pressures in the economy. We have obtained similar results by considering harmonised unemployment rates and employment rates (OECD) as alternative measure of the macroeconomic conditions. Since the output gap presented lower correlations with variables capturing labour market institutional differences, it was included in our final specifications.

[13] For each country, EPL is described using 18 basic items, which can be grouped in three main areas: (i) employment protection of regular workers against individual dismissal; (ii) specific requirements for collective dismissals; and (iii) regulation of temporary forms of employment. For further details on the aggregation of these items, see OECD (1999). More information on the evolution and updating of these indexes is available at OECD (2004).

indexes. This variable is calculated by taking into account individual employment duration, salary, type of contract and age (if necessary).[14]

Social Security Laws Indexes

To measure the effect of the generosity of social security benefits on self-employment likelihood for wage workers, we include the three constituent components of the social security legislation index (SSLI) from Botero et al. (2004): old age, disability and death benefits; sickness and health benefits; and unemployment benefits. These variables originally ranged from 0 to 1, but have been reclassified into a range from 0 to 6 for the purposes of comparability with the effects of OECD EPL indexes over the dependent variables.

Active Labour Market Policies

The OCDE offers data on expenditure on ALMP as a percentage of GDP. This variable can be split into seven categories: (i) public employment services and administration; (ii) labour market training; (iii) job rotation and job sharing; (iv) employment incentives; (v) supported employment and rehabilitation; (vi) direct job creation; and (vii) start-up incentives. We selected for our analysis the seventh category, expenditure on start-up incentives, which we expect to affect transitions to a greater extent. This category includes programmes that promote entrepreneurship by encouraging the unemployed and target groups to start their own business or to become self-employed.

Our final sample includes men and women aged 21 to 59. Workers in the agricultural industries are excluded from this analysis due to the structural differences from the rest of the economy. Despite the fact that self-employment is the *natural* employment status in these industries, the number of transitions from paid employment to self-employment is low.[15] Finally, all individuals who are not full-time workers, that is, working under 30 hours per week, are also excluded.[16]

5. Econometric framework

In order to provide a framework for the empirical analysis, standard binary logit models are used. Thus, as usual, the probability of switching from the starting status to the final is assumed to depend on a set of observed individual characteristics and economic variables, *X* at *t-1*. Thus, an individual who is paid-employed at time *t-1* will be observed in self-employment (DSE or ISE) at time *t* if the utility derived from self-employment exceeds that obtained from paid-employment. Consequently, the probability of switching can be written as:

$$\Pr(Y_{i,t} = 1) = \Pr(S_{i,t} = 1 \mid S_{i,t-1} = 0) =$$
$$= Pr\left(U_{i,t}^{DSE\,or\,ISE} > U_{i,t}^{PE} \mid U_{i,t-1}^{DSE\,or\,ISE} \leq U_{i,t-1}^{PE}\right) = F\left(\beta' X_{i,t-1} + u_i\right);$$

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[14] See appendix B for further details on the construction of this variable.

[15] See note 22 for further details on the exclusion of this sector from our analysis.

[16] We decided not to include part-time employment in our estimations. This is due to the fact that those individuals doing two jobs at the same time might face short-term problems in one of the two activities, and look for complementary incomes for a certain period of time. That would make the determinants of the transitions of those individuals simultaneously performing both jobs different from the determinants of those who opt for a single activity. We believe, therefore, that part-time self-employment needs to be independently analysed.

where $Y_{i,t} = 1$ if the individual who was paid-employed in period *t-1* enters self-employment (DSE or ISE) in period *t*, and $Y_{i,t} = 0$ if the individual continues as paid-employed in period *t*.[17] $S_{i,t} = 1$ indicates self-employment in time *t* and $S_{i,t-1} = 0$ paid-employment in time *t-1*.

However, when we want to compare those individuals switching from paid-employment to DSE with those switching to ISE, the probability can be written as:

$$Pr\left(Y_{i,t} = 1\right) = Pr\left(DSE_{i,t} / SE_{i,t}, PE_{i,t-1}\right) = F\left(\beta' X_{i,t-1} + u_i\right);$$

where $Y_{i,t} = 1$ if the individual who was paid-employed in period *t-1* enters DSE in period *t*, and $Y_{i,t} = 0$ if the individual who was paid-employed in period *t-1* enters ISE in period *t*.

For both kind of exercises, the vector $X_{i,t-1}$ represents individual characteristics and economic conditions in the year prior to moving into the new status, β is the associated vector of coefficients to be estimated, u_i is a disturbance term that includes the time-invariant unobserved heterogeneity (the person-specific effect)[18], and $F(\cdot)$ is specified as the logistic cumulative distribution function.[19]

6. Results

This section presents the main results of the empirical analysis in four stages which correspond to subsections 6.1 to 6.4. First, we report estimates of the probability of transition from paid-employment to self-employment. Second, we estimate the probability of switching from paid-employment to ISE. Third, we report estimates of the probability of switching from paid-employment to DSE. Lastly, the fourth subsection compares people who transition from paid-employment to DSE with people who transition from paid-employment to ISE. These estimations are presented in tables 1 to 4, respectively. Given the relevance for our hypothesis testing, all subsections will predominantly focus on the effects of the business cycle, country-specific idiosyncratic factors and what we test as underlying determinants of cross-country variation, that is, the statistical significance of variables representing labour market institutions.

Each of the stages follows the same estimation strategy by means of three different specifications. Together with socioeconomic variables, specification I includes as explanatory variables some country dummies. Since we detect country-specific effects, and in order to identify their underlying determinants, specification II replaces country dummies by several aggregated measures of labour market institutions (OECD measures of EPL for regular and temporary contracts, the three constituent components of the SSLI from Botero el al. (2004), and the expenditure on start-up incentives as a percentage of GDP). Finally, regression III includes an individual measure of the potential severance payment that an employee would receive in case of dismissal instead of the aggregated measure of EPL for regular employment.

We present results in the following manner: At the top of tables 1 to 4, the number of observations and transitions involved are reported. Below, specifications I to III show corresponding predicted probabilities for sample means of continuous and discrete explanatory variables. Each specification is

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[17] The labour force status is observed once per year. Thus, if there are additional changes in status within the year, they are missed. It is assumed that there are just a few of these, and that their exclusion does not affect the results.

[18] Following usual conventions, we model random individual effects and assume this term as a normally distributed random variable with mean 0 and variance u_n and independence with all observable characteristics.

[19] The same process has been repeated using a probit and a complementary log-log specification of F(.). These estimations do not alter our empirical conclusions in any significant way.

presented in a three-column format, where marginal effects (and not coefficients) and t-statistics are reported. Thus, within each specification, the first column shows the absolute marginal effects associated with all explanatory variables. The second column also refers to marginal effects, but is expressed in relative terms (with respect to predicted probabilities for sample means). Finally, t-statistics associated with marginal effects are presented in the third column.[20]

6.1. Transitions from paid employment to self-employment

Table 1 reports estimates of the probabilities of transition from full-time paid employment to self-employment, where no distinctions between ISE and DSE are made. Although this is the common approach offered thus far in the literature, these results must be interpreted cautiously since different (and even contrary) effects might be working at the same time. Our sample, after removing cases with missing data for any of the relevant variables, yields 203,121 observations, of which 2,058 (1.01%) refer to this type of transition. Given the distribution of our sample, the obtained low values of predicted probabilities of switching for sample means (about 0.004) are expected.

On the business cycle effect, proxied by means of national output gaps, our first specification shows that unitary increases experienced by the output gap increase the self-employment likelihood by about 4.3%, while this result is not reproduced by specifications II and III. When focusing on country-specific effects (specification I), the fact that some of these dummies are significant might be interpreted as a sign of the presence of specific regional factors affecting the probability of entering self-employment. Thus, using Spain as the reference country, Italy is the country where transitions from wage-employment to self-employment are more likely, while we find the lowest probabilities in France, followed by Germany, Belgium, the Netherlands, the United Kingdom, Austria and Denmark. As far as Finland, Greece, Ireland and Portugal are concerned, no statistically significant differences are found with Spain.

As we advanced above, in order to capture the underlying determinants of detected specific regional factors affecting transition chances, we perform additional binary logit estimations (specifications II and III) where we substitute country dummies with several measures of labour market institutions.

Our results show that the predicted probability of entering self-employment decreases by 12% when the EPL index for regular employment increases by one unit (on a 0-6 scale), and that this probability increases by about 6% when we focus on the effects of the EPL index for temporary employment. However, Robson (2003) suggests an absence of significant relationship between the rate of non-agricultural self-employment and the OECD measures of EPL for regular and temporary contracts in multivariate contexts. Also, when no additional variables are included, Robson suggests a negative relationship between EPL for temporary workers and the rate of non-agricultural self-employment.

Robson reconciles these results with those of OECD (1992, 1999) and Grubb and Wells (1993) by including the agricultural sector in the definition of self-employment. By doing so, the evidence for a positive relationship between the strictness of EPL and self-employment is restored, though it was specifically the strictness of regulations governing regular employment contracts that seems to matter.[21] Given the importance of the issue, we ran some alternative estimations, including individuals working in the agricultural sector. As expected, our results on the effects of EPL for regular and

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[20] The robustness of our t-statistics has been checked by re-estimating them from variance-covariance matrixes of the coefficients obtained by bootstrapping.

[21] Comparing our results with those obtained in the existing literature is a difficult task, plausible only to a certain extent. To the best of our knowledge, only Robson (2003) separately analyses the effects of EPL index for regular and temporary employment. However, Robson's geographical scope, methods and nature of data, number of observations and even the OECD measures of EPL for regular and temporary contracts (which are not time-dependent) are different to those used in the current study.

temporary employment on self-employment chances were not altered due to the low number of transitions detected for this sector.[22]

When we try to capture the effect of the potential severance payment that the worker would receive in case of dismissal, as an alternative to the aggregated EPL index for regular employment, we do not obtain significant results. Let us stress, in this sense, the importance of cautiously interpreting all results concerning EPL and the business cycle in this first exercise, since we hypothesise two effects of opposite direction for two different transitions to self-employment (those entering ISE and DSE). With regard to the expenditure on start-up incentives as percentage of GDP, our results show that transitions from wage work increase by about 11% with each additional 0.01% of GDP devoted to such expenditures.[23]

Focusing on old age, disability and death benefits, Sinn (1996) argues that individuals may seek to translate some of the benefit from a reduction in risk into a higher expected lifetime income by taking additional risks. In view of this argument, it is expected that there will be a positive relationship between the generosity of the system in this area and individuals opting for self-employment. To the contrary, we observe that self-employment likelihood decreases by 38% when the old age, disability and death benefits index increases by one unit. Robson (2007) found a positive and significant effect on self-employment rate and reported non-significant effects on nascent entrepreneurs and own-account workers.[24] Concerning the impact of sickness and health benefits on self-employment likelihood, it can be observed that transitions from paid employment to self-employment increase by around 42% when the corresponding index increases by one unit. In this sense, as Robson (2007) indicates, access to a generous system of publicly-provided sickness benefits may be important in helping to address a particular portion of the risks associated with entrepreneurship, namely, the loss of income during periods of sickness. However, our results differ from those obtained by Robson (2007), where non-significant effects of this index on rates of nascent entrepreneurs, self-employed and own-account workers are reported. Turning our attention to the generosity of unemployment benefits, a high ratio of benefits encourages unemployed workers to wait longer for job openings in the paid-employment sector and discourages them from entering self-employment.[25] However, in terms of the self/paid employment occupational choice, the differences in social security entitlements between both kinds of occupations may be of particular relevance. In this sense, as Robson (2007) argues, it might be the case that by providing a social safety net in the event of business failure, a generous system of unemployment benefits could actually encourage individuals to experiment with a career in entrepreneurship. Thus, our results show that the generosity of unemployment benefits increases self-employment likelihood by about 26%. On the contrary, Robson (2007) reports a negative relationship between this measure and self-employment, own-account workers and nascent entrepreneurship rates.[26]

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[22] Within this strategy, a dummy for the agricultural sector and some interactions measuring the effect of institutions for the agricultural sector were included in regressions II and III. These interactions offered some differences on the role of labour market regulation between workers for agriculture and the rest of the economy. However, these results were not robust across both regressions, and we decided to definitively exclude this sector from our analysis.

[23] As hypothesis 3 states, the following subsections will reveal that both ISE and DSE are positively affected by the presence of these incentives.

[24] We compare our results on social security benefits with Robson (2007) since he also breaks the SSLI into its three constituent components. However, unlike in our study, Robson includes the agricultural sector in the analysis.

[25] See Carrasco (1999).

[26] Similarly to Robson (2007), as an alternative measure of the unemployment benefits system, we included the OECD unemployment benefit replacement rates in some additional estimations, which are available upon request. By doing so, we obtained a negative effect on individuals' entering self-employment, as expected given the robustness of this result in the existing literature.

Table 1. Transitions from paid-employment to self-employment

	Prob [SE$_t$ | PE$_{t-1}$]								
Number of observations	203,121								
Number of transitions	2,058								
Exercise	(I)			(II)			(III)		
Predicted probability (y)	0.0043			0.00464			0.00465		
Variables	dy/dx	[(dy/y)/dx]%	t-stat.	dy/dx	[(dy/y)/dx]%	t-stat.	dy/dx	[(dy/y)/dx]%	t-stat.
Demographic characteristics									
Male	0.0023	53.47%	9.48***	0.0025	53.06%	9.47***	0.0025	53.18%	9.51***
Age	0.0002	4.39%	1.97**	0.0002	4.31%	1.94*	0.0002	4.28%	1.93*
Age (squared)	-3.68E-06	-0.09%	-2.99***	-3.89E-06	-0.08%	-2.94***	-3.8E-06	-0.08%	-2.9***
Cohabiting [1]	0.0009	21.87%	3.73***	0.0009	20.43%	3.49***	0.001	20.46%	3.5***
Number of children under 14	-1.34E-04	-3.11%	-1.05	-1.32E-04	-2.85%	-0.97	-1.37E-04	-2.94%	-1
Relative(s) working as self-employed	0.0034	78.64%	6.66***	0.004	85.9%	7.08***	0.0039	84.5%	7.01***
Education									
Secondary education [2]	-6.96E-05	-1.62%	-0.26	-9.63E-05	-2.08%	-0.35	-1.32E-04	-2.83%	-0.48
University studies [2]	0.001	23.23%	2.96***	0.001	22.73%	2.96***	0.0011	24.2%	3.15***
Employment characteristics									
Industrial sector [3]	-0.0026	-60.41%	-9.94***	-0.0028	-59.99%	-10***	-0.0027	-58.67%	-9.76***
Financial services [3]	-0.0013	-29.19%	-3.98***	-0.0014	-30.69%	-4.27***	-0.0014	-29.61%	-4.08***
Wholesale, hotels. restaurants & transport [3]	-0.0013	-31.28%	-5.1***	-0.0015	-31.77%	-5.23***	-0.0014	-30.88%	-5.06***
Other services [3]	-0.0039	-90.09%	-12.35***	-0.004	-90.21%	-12.63***	-0.0041	-88.61%	-12.39***
Hours of work	1.48E-04	3.45%	12.14***	1.6E-04	3.44%	12.36***	1.59E-04	3.42%	12.28***
Indefinite contract [4]	-0.0038	-89.17%	-8.23***	-0.0043	-92.04%	-8.5***	-0.0041	-87.45%	-8.22***
Previous experience									
Observed previous spell(s) as self-employed	0.043	999%	14.84***	0.0501	1,081%	15.67***	0.0503	1,082%	15.59***
Observed previous spell(s) as unemployed	0.0002	4.7%	0.88	0.0003	5.74%	1.07	0.0003	6.28%	1.17
Incomes									
Dwelling owner	5.59E-05	1.3%	0.23	1.42E-04	3.07%	0.56	2.28E-04	4.91%	0.92
Annual capital and property incomes (1 lag) ('000)	1.03E-04	2.39%	4***	1.14E-04	2.46%	4.1***	1.15E-04	2.48%	4.14***
Monthly work incomes ('00)	6.7E-06	0.16%	0.5	-9.36E-06	-0.2%	-0.55	1.69E-06	0.04%	0.11
Business cycle									
Output gap	1.85E-04	4.31%	2.63***	4.61E-05	0.99%	0.6	5.03E-05	1.08%	0.66
Country									
Austria [5]	-0.0019	-43.71%	-4.83***						
Belgium [5]	-0.0023	-53.68%	-6.42***						
Denmark [5]	-0.0013	-30.47%	-2.9***						
Finland [5]	0.001	22.24%	1.56						
France [5]	-0.004	-98.55%	-17.15***						
Germany [5]	-0.0025	-58.37%	-8.46***						
Greece [5]	5.15E-04	11.96%	1.13						
Ireland [5]	-0.0007	-16.13%	-1.49						
Italy [5]	0.0022	51.57%	4.24***						
Netherlands [5]	-0.002	-49.87%	-6.35***						
Portugal [5]	-4.56E-05	-1.06%	-0.11						
United Kingdom [5]	-0.002	-46.91%	-6.45***						
Labour market institutions									
EPL index for regular employment				-0.0005	-11.85%	-3.22***			
Potential severance payment ('000)							-2.03E-05	-0.44%	-1.37
EPL index for temporary employment				2.70E-04	5.81%	2.99***	2.57E-04	5.53%	2.81***
Start-up incentives as $^0/_{000}$ of GDP				0.0005	11.2%	6.74***	0.0005	10.32%	6.26***
Old age, disability and death benefits index				-0.0018	-38.23%	-5.97***	-0.0014	-30.13%	-5.19***
Sickness and health benefits index				0.0019	41.65%	9.97***	0.0019	41.07%	9.79***
Unemployment benefits index				0.0012	25.57%	2.8***	0.0005	10.15%	1.34
Reference categories: (1) Non-cohabiting individuals, (2) No education or primary education, (3) Construction sector, (4) Non-indefinite contract, (5) Spain									
Log likelihood	-9,760.03			-9,836			-9,840.13		

Notes: *** denotes significance at the 1% level; ** denotes significance at the 5% level; * denotes significance at the 10% level.

6.2 Transitions from paid employment to independent self-employment

This subsection concentrates on transitions from paid employment to self-employment in which the new self-employed worker has no relations with his/her previous employer. To this end, table 2 reports estimates of the probabilities of entering ISE. Our final sample, after removing cases with missing data for any of the relevant variables, yields 202,129 observations, of which 1066 (0.53%) refer to this type of transition. The predicted probabilities of entering ISE for sample means are about 0.0026.

Regarding the effect of economic conditions, we observe that the probabilities of switching to ISE rise about 10% for each unitary increase experienced by the output gap, supporting the *prosperity-pull* argument of our hypothesis 2. With respect to the country-specific effects, and using individuals residing in Spain as the reference category, our results show that individuals living in Italy, followed

by those living in the United Kingdom and Portugal, are more likely to enter ISE. On the other hand, residents in France and the Netherlands present the lowest ISE chances. Finally, no other significant differences were found between other countries and Spain.

Table 2. Transitions from paid-employment to independent self-employment

	Prob [ISE$_t$| PE$_{t-1}$]								
Number of observations	202,129								
Number of transitions	1,066								
Exercise	(I)			(II)			(III)		
Predicted probability (y)	0.00284			0.0029			0.00294		
Variables	dy/dx	[(dy/y)/dx]%	t-stat.	dy/dx	[(dy/y)/dx]%	t-stat.	dy/dx	[(dy/y)/dx]%	t-stat.
Demographic characteristics									
Male	0.0016	57.72%	4.7***	0.0017	57.34%	4.82***	0.0017	58.3%	4.86***
Age	2.15E-04	7.57%	2.35**	2.08E-04	7.17%	2.25**	2.09E-04	7.1%	2.24**
Age (squared)	-3.98E-06	-0.14%	-3.1***	-3.91E-06	-0.13%	-3.04***	-3.79E-06	-0.13%	-2.94***
Cohabiting [1]	0.0009	32.51%	3.54***	0.0009	29.71%	3.38***	0.0009	29.92%	3.41***
Number of children under 14	-2.14E-04	-7.54%	-1.82*	-2.15E-04	-7.4%	-1.81*	-2.2E-04	-7.47%	-1.84*
Relative(s) working as self-employed	0.0026	92.73%	4.12***	0.003	104.54%	4.4***	0.0029	100.14%	4.35***
Education									
Secondary education [2]	2.24E-04	7.89%	0.93	2.71E-04	9.35%	1.14	2.15E-04	7.29%	0.9
University studies [2]	0.0008	27.8%	2.39**	0.0008	27.02%	2.41**	0.0009	29.03%	2.56**
Employment characteristics									
Industrial sector [3]	-0.0019	-65.97%	-4.85***	-0.0019	-66.3%	-5.02***	-0.0019	-63.31%	-4.93***
Financial services [3]	-0.0009	-31.2%	-2.94***	-0.001	-34.86%	-3.33***	-0.0009	-31.43%	-3.02***
Wholesale, hotels. restaurants & transport [3]	-0.0008	-29.72%	-3.16***	-0.0009	-31.33%	-3.35***	-0.0008	-28.8%	-3.12***
Other services [3]	-0.0027	-95.32%	-5.09***	-0.0028	-96.91%	-5.31***	-0.0027	-92.08%	-5.24***
Hours of work	8.51E-05	3%	4.81***	9.03E-05	3.12%	5.09***	8.98E-05	3.05%	5.05***
Indefinite contract [4]	-0.0025	-87.84%	-4.26***	-0.0026	-88.96%	-4.4***	-0.0022	-74.77%	-4.16***
Previous experience									
Observed previous spell(s) as self-employed	0.0068	238.4%	4.25***	0.0077	266.66%	4.49***	0.0076	258.41%	4.45***
Observed previous spell(s) as unemployed	0.0007	22.99%	2.73***	0.0006	21.76%	2.66***	0.0006	19.77%	2.47**
Incomes									
Dwelling owner	-2.14E-04	-7.55%	-0.99	-2.08E-04	-7.19%	-0.96	-8.24E-05	-2.8%	-0.39
Annual capital and property incomes (1 lag) ('000)	5.26E-05	1.85%	2.19**	5.28E-05	1.82%	2.12**	5.6E-05	1.9%	2.21**
Monthly work incomes ('00)	7.23E-06	0.25%	0.62	-3.32E-06	-0.11%	-0.23	1.22E-05	0.41%	1.1
Business cycle									
Output gap	2.94E-04	10.36%	3.84***	2.24E-04	7.73%	3.14***	2.21E-04	7.52%	3.1***
Country									
Austria [5]	-2.03E-04	-7.15%	-0.43						
Belgium [5]	-0.0006	-20.21%	-1.24						
Denmark [5]	5.73E-05	2.02%	0.11						
Finland [5]	0.0004	13.83%	0.67						
France [5]	-0.0021	-74.44%	-4.63***						
Germany [5]	-0.0006	-20.93%	-1.61						
Greece [5]	0.0007	26.32%	1.45						
Ireland [5]	1.07E-03	37.74%	1.65*						
Italy [5]	0.0016	55.08%	2.65***						
Netherlands [5]	-0.0013	-46.3%	-3.32***						
Portugal [5]	0.0008	29.1%	1.67*						
United Kingdom [5]	0.0009	31.03%	1.7*						
Labour market institutions									
EPL index for regular employment				-0.0006	-20.16%	-3.6***			
Potential severance payment ('000)							-6.59E-05	-2.24%	-3.35***
EPL index for temporary employment				-1.12E-04	-3.85%	-1.46	-1.37E-04	-4.66%	-1.72*
Start-up incentives as $^0/_{000}$ of GDP				0.0002	6.37%	2.61***	0.0002	6.26%	2.53**
Old age, disability and death benefits index				-0.0012	-42.16%	-4.04***	-0.001	-34.45%	-3.78***
Sickness and health benefits index				0.0008	28.88%	4.13***	0.0009	29.66%	4.22***
Unemployment benefits index				0.0013	44.52%	3.22***	0.0006	18.74%	1.79*
Reference categories: (1) Non-cohabiting individuals, (2) No education or primary education, (3) Construction sector, (4) Non-indefinite contract, (5) Spain									
Log likelihood	-6,141.73			-6,175.65			-6,175.44		

Notes: *** denotes significance at the 1% level; ** denotes significance at the 5% level; * denotes significance at the 10% level.

When focusing on the effects of labour market institutions, we obtain the result that the probability of entering ISE decreases by about 20% when the EPL index for regular employment increases by one unit, which is consistent with hypothesis 1. Along the same lines, the effect of EPL for temporary employment seems to be negative (although not significant at conventional levels) for those entering ISE. These results are consistent with those stated by Parker (1997), van Stel et al. (2007) and Klapper et al. (2007) on the negative relationship between the strictness of EPL and self-employment. Moreover, also supporting our first hypothesis, we observe that each rise of €1,000 in the potential

severance payment that the worker receives in case of dismissal decreases the probability of this type of transition by 2.24%. This result seems to be in concordance with arguments by Kanniainen and Vesala (2005), Henrekson and Roine (2007), Henrekson (2007) and Parker (2007) about the negative impact of severance payments on self-employment entrance.

With respect to the expenditure on start-up incentives as percentage of GDP and the generosity of social security systems, our results are consistent with those obtained for transitions to self-employment, including DSE. Our results show that the expenditure on start-up incentives increases the probability of switching to ISE by around 6% with each additional 0.01% of the GDP devoted to these incentives. In concordance with hypothesis 3, this result seems to support the positive effect of these incentives for overcoming obstacles associated with ISE status, such as liquidity constraints and higher relative risk. We also find that generosity of old age, disability and death benefits decreases the predicted probabilities of entering self-employment by 42% when the corresponding index increases by one unit. Finally, sickness and health benefits, and unemployment benefits increase the chances of self-employment by 29% and 45%, when their respective benefits indexes increase by one unit.

6.3 Transitions from paid employment to dependent self-employment

This subsection moves the focus to transitions from paid employment to self-employment via the formula of DSE. Table 3 reports logit estimates. Our final sample, after removing cases with missing data for any of the relevant variables, yields 202,055 observations, of which 992 (0.49%) refer to this type of transition.[27] Predicted probabilities of entering DSE for sample means are about 0.0012.

When the effect of macroeconomic conditions is captured, we find a marginally significant negative relationship between the output gap and the probability of transition to DSE, supporting the *recession-push* argument.[28] In particular, the probability of transition from paid employment to DSE decreases by 4% with each unit of increase in the output gap. Since transitions to ISE support the *prosperity-pull* argument, this result confirms our second hypothesis.

Another interesting result relates to country-specific effects. Using Spain as the reference, we observe that Italy and Finland are countries where transitions from wage-employment to DSE are more likely, while France, followed by Germany, Belgium, the United Kingdom, Austria and Denmark are countries where these transitions are less popular. Finally, no significant differences with Spain are obtained for Greece, Ireland and Portugal. This classification is consistent with that obtained for all individuals switching from paid employment to self-employment (ISE included), which confirms the importance of the DSE phenomenon.

Let us now examine the effects of labour market institutions. Focusing on the strictness of EPL for regular and temporary employment and the potential severance payment, we observe a positive impact of these measures for transitions to DSE, contrary to the negative effect obtained for these variables for transitions to ISE. Thus, we observe that each rise of €1,000 in the potential severance payment increases the probability of entering DSE by 18%, while this probability increases by 20% when the EPL index for temporary employment increases by one unit on its scale. Finally, the effect of EPL for regular employment, although negative, is not significant at conventional levels. Our results support the positive relationship between EPL and self-employment in stricter labour markets that is suggested by Grubb and Wells (1993), OECD (1992, 1999), Centeno (2000), Klapper et al. (2007) and Parker

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[27] It may seem surprising that nearly half of the transitions from paid employment to self-employment are of the DSE kind. However, an individual entering DSE must necessarily switch from paid employment, as the existence of a previous employer is required. Taking this into account as we analyse transitions from paid-employment, we are able to identify within our sample all the existing transitions to DSE. By contrast, when we focus on ISE, transitions from paid-employment are not the only route, and other entrants from unemployment or out of the labour force (discouraged worker or economically inactive) are not captured.

[28] In this sense, specifications II and III report significant results at the 1% level for this variable.

(2007, 2009), who predict the use of self-employment as a means of undermining the intended effects of EPL by employers. The evidence also supports the results of Autor (2003), who finds that employers are likely to respond to mandated firing costs by outsourcing jobs. Therefore, the contribution of this result is twofold: first, hypothesis 1 seems to be confirmed by different measures of the strictness of EPL at both macro and micro levels, which gives confidence to our finding; secondly, the soundness of our tentative approach to the potential severance payment is shown, since this measure offers significant results (with contrary effects) for transitions to ISE and DSE, while the OECD aggregated measures of EPL offer significant results only for one kind of transition.

Table 3. Transitions from paid-employment to dependent self-employment

	Prob [DSE_t | PE_{t-1}]								
Number of observations	202,055								
Number of transitions	992								
Exercise	(I)			(II)			(III)		
Predicted probability (y)	0.00118			0.00131			0.00152		
Variables	dy/dx	[(dy/y)/dx]%	t-stat.	dy/dx	[(dy/y)/dx]%	t-stat.	dy/dx	[(dy/y)/dx]%	t-stat.
Demographic characteristics									
Male	0.0006	52.33%	5.35***	0.0006	49.34%	5.73***	0.0007	48.72%	5.77***
Age	2.34E-05	1.99%	0.61	3.89E-05	2.97%	0.9	4.08E-05	2.69%	0.84
Age (squared)	-4.57E-07	-0.04%	-0.94	-6.53E-07	-0.05%	-1.2	-7.16E-07	-0.05%	-1.16
Cohabiting [1]	5.24E-05	4.46%	0.47	5.97E-05	4.55%	0.47	6.93E-05	4.57%	0.48
Number of children under 14	3.08E-05	2.62%	0.6	4.39E-05	3.35%	0.76	5.10E-05	3.36%	0.77
Relative(s) working as self-employed	0.0007	62.97%	3.95***	0.0009	67.36%	4.15***	0.001	64.9%	4.14***
Education									
Secondary education [2]	-1.18E-04	-10.02%	-1.14	-1.50E-04	-11.43%	-1.31	-1.54E-04	-10.15%	-1.18
University studies [2]	0.0002	18.65%	1.63	0.0002	18.52%	1.62	0.0003	20.14%	1.76*
Employment characteristics									
Industrial sector [3]	-0.0006	-50.96%	-5.39***	-0.0006	-49.07%	-5.27***	-0.0007	-49.28%	-5.44***
Financial services [3]	-0.0003	-24.52%	-2.13**	-0.0003	-20.84%	-1.75*	-0.0003	-20.76%	-1.78*
Wholesale, hotels. restaurants & transport [3]	-0.0004	-32.99%	-3.66***	-0.0004	-31.6%	-3.47***	-0.0005	-31.55%	-3.56***
Other services [3]	-0.0009	-79.19%	-6.91***	-0.001	-78.12%	-7.16***	-0.0012	-77.62%	-7.31***
Hours of work	4.62E-05	3.93%	8.58***	5.09E-05	3.88%	9.23***	5.91E-05	3.9%	9.53***
Indefinite contract [4]	-0.0008	-64.25%	-6.66***	-0.0012	-91.45%	-5.8***	-0.0014	-90.34%	-5.91***
Previous experience									
Observed previous spell(s) as self-employed	0.028	2,376%	10.47***	0.0348	2,656%	12.4***	0.0381	2,513%	12.9***
Observed previous spell(s) as unemployed	-0.0002	-13.97%	-1.87*	-0.0001	-10.24%	-1.34	-0.0002	-10.31%	-1.39
Incomes									
Dwelling owner	1.38E-04	11.74%	1.45	2.1E-04	15.83%	1.99**	2.2E-04	14.53%	1.85*
Annual capital and property incomes (1 lag) ('000)	2.75E-05	2.34%	3.32***	3.54E-05	2.7%	3.77***	3.94E-05	2.6%	3.78***
Monthly work incomes ('00)	2.40E-06	0.2%	0.43	-1.47E-06	-0.11%	-0.22	-1.03E-05	-0.68%	-1.01
Business cycle									
Output gap	-4.53E-05	-3.86%	-1.6	-9.4E-05	-7.17%	-2.85***	-1.14E-04	-7.49%	-3.03***
Country									
Austria [5]	-8.94E-04	-76.11%	-7.21***						
Belgium [5]	-0.0009	-80.56%	-8.1***						
Denmark [5]	-0.0007	-56.36%	-4.53***						
Finland [5]	0.0004	30.33%	1.54						
France [5]	-0.0015	-131.74%	-14.8***						
Germany [5]	-0.0011	-92.06%	-9.65***						
Greece [5]	-2.71E-05	-2.31%	-0.19						
Ireland [5]	-0.0007	-56.93%	-5.07***						
Italy [5]	0.0006	49.99%	3.13***						
Netherlands [5]	-0.0006	-47.36%	-4.08***						
Portugal [5]	-0.0002	-19.93%	-1.77*						
United Kingdom [5]	-0.0014	-119.92%	-12.92***						
Labour market institutions									
EPL index for regular employment				1.17E-04	8.9%	1.41			
Potential severance payment ('000)							7.56E-06	0.5%	1.82*
EPL index for temporary employment				2.56E-04	19.48%	6.16***	2.79E-04	18.38%	5.93***
Start-up incentives as 0/000 of GDP				2.1E-04	16%	6.24***	2.51E-04	16.52%	6.87***
Old age, disability and death benefits index				-0.0004	-29.36%	-2.8***	-0.0005	-32.5%	-3.63***
Sickness and health benefits index				0.0009	65.08%	9.53***	0.001	63.34%	9.45***
Unemployment benefits index				3.85E-05	2.93%	0.21	2.1E-04	13.82%	1.22
Reference categories: (1) Non-cohabiting individuals, (2) No education or primary education, (3) Construction sector, (4) Non-indefinite contract, (5) Spain									
Log likelihood	-4,712.95			-4,783.74			-4,793.31		

Notes: *** denotes significance at the 1% level; ** denotes significance at the 5% level; * denotes significance at the 10% level.

With regard to the expenditure on start-up incentives and the generosity of social security systems, our results are consistent with those obtained for both transitions to self-employment and ISE, with the

exception of the generosity of unemployment benefits. Thus, we observe that the expenditure on start-up incentives increases the likelihood of DSE by 16% with each additional 0.01% of GDP devoted to these incentives. Therefore, confirming our third hypothesis, these stimuli appear to increase expected profits for the DSE alternative. We also find that generosity of old age, disability and death benefits decreases the probability of entering DSE by around 29% when this index increases by one unit. Furthermore, a unit of increase in the sickness and health benefits index increases DSE likelihood by 65%. Finally, the generosity of unemployment benefits does not seem to matter for transitions to DSE.

6.4. Dependent self-employment vs. independent self-employment

This last subsection compares individuals switching from paid-employment to DSE with those entering ISE. Let us note that we are not considering both final states as substitutes. Instead, our purpose is simply to identify significant differences between both types of self-employment. Table 4 reports the estimates of DSE likelihood in the present period, given self-employment in the same period and paid employment in the prior period. Since transitions to ISE are the reference group by means of this strategy, positive and significant coefficients are associated to characteristics and institutional effects that are more likely for individuals entering DSE. In other words, by means of these aspects, the composition of European self-employment would be positively impacted in the relative weight of transitions from salaried-work to DSE over all transitions from waged-work to self-employment. On the other hand, negative and significant coefficients are related with more probable aspects for those switching to ISE, lowering the existing weight for transitions to DSE over all transitions to self-employment. Finally, coefficients that are not significant will show up in those variables with similar effects for both groups. Consequently, by altering these variables, the relative weight of DSE entrants over those entering self-employment would not be affected. Our final sample, after removing cases with missing data for any of the relevant variables, yields 2,058 transitions, of which 992 (48.2%) refer to individuals entering DSE and, therefore, 1066 (51.8%) refer to individuals entering ISE. In this sense, the predicted relative weight of transitions to DSE for sample means is about 0.47.

Concerning economic conditions, the negative significant impact of the output gap is the logical consequence of the *push* and *pull* arguments, applied for those entering DSE and ISE, respectively. As stated by hypothesis 2, in expanding economic situations, transitions to ISE are more likely while transitions to DSE decrease, lowering the relative weight of transitions from salaried-work to DSE over all transitions to self-employment across the European countries considered. In particular, the predicted relative weight of transitions to DSE decreases by 5% with each unit of increase in the output gap.

With respect to country-specific effects, and using as reference the relative weights for transitions from salaried-work to DSE over both kinds of transitions within the Spanish economy, we observe that Italy, Finland, Greece and the Netherlands present similar weights for both transitions as the Spanish case. However, the United Kingdom, followed by France, Germany, Ireland, Belgium, Austria, Denmark and Portugal show a lower relative incidence of DSE within their economies.

Regarding the effect of labour market institutions, we observe that rises of EPL would increase the incidence of DSE over transitions to self-employment, as hypothesis 1 predicts. Similarly to what occurred with the output gap, this result is explained by opposite responses for both kinds of transitions to self-employment. Thus, the predicted relative incidence of DSE across the studied European economies increases by 14% and 13%, respectively, when the EPL indexes for regular and temporary employment increase by one unit. Furthermore, we observe that each rise of €1,000 in the potential severance payment increases DSE participation in transitions to self-employment by 1.2%.

One of the most interesting results refers to the expenditure on start-up incentives as a percentage of GDP. The evidence presented in tables 2 and 3 supports a positive effect of this expenditure on

transitions from paid-employment to DSE and ISE. However, table 4 presents a notable positive impact of start-up incentives on the relative composition of the transitions to DSE and ISE, in favour of the former. In particular, we observe that the expenditure on start-up incentives increases the relative weight of paid employees entering DSE by around 10% with each additional 0.01% of GDP devoted to such expenditures. Hence, for an adequate entrepreneurship policy design, further research is necessary on the contribution to economic growth and to job creation processes of both groups. By doing so, the achievement of higher self-employment rates by means of incentives could be reconsidered.

Table 4. Dependent self-employment vs. independent self-employment

	Prob [DSE_t| SE_t , PE_{t-1}]								
Number of observations to SE	2,058								
Number of transitions to DSE	992								
Exercise	**(I)**			**(II)**			**(III)**		
Predicted probability (y)	0.46847			0.4815			0.48353		
Variables	dy/dx	[(dy/y)/dx]%	t-stat.	dy/dx	[(dy/y)/dx]%	t-stat.	dy/dx	[(dy/y)/dx]%	t-stat.
Demographic characteristics									
Male	-0.0351	-7.5%	-0.94	-0.0387	-8.03%	-1.07	-0.0414	-8.57%	-1.15
Age	-0.0076	-1.6%	-0.58	-0.0021	-0.44%	-0.17	-0.0012	-0.25%	-0.1
Age (squared)	1.87E-04	0.04%	1.11	1.15E-04	0.02%	0.71	9.24E-05	0.02%	0.57
Cohabiting [1]	-0.0631	-13.47%	-1.69*	-0.0529	-10.98%	-1.47	-0.0556	-11.51%	-1.55
Number of children under 14	0.0338	7.22%	1.92*	0.0335	6.96%	2**	0.0344	7.11%	2.05**
Relative(s) working as self-employed	0.0052	1.1%	0.13	0.0041	0.85%	0.11	0.0047	0.98%	0.13
Education									
Secondary education [2]	-0.0584	-12.47%	-1.64	-0.0652	-13.55%	-1.98**	-0.0622	-12.87%	-1.88*
University studies [2]	-0.0551	-11.76%	-1.32	-0.057	-11.79%	-1.44	-0.057	-11.8%	-1.45
Employment characteristics									
Industrial sector [3]	0.0064	1.38%	0.15	0.0122	2.54%	0.29	0.0021	0.43%	0.05
Financial services [3]	0.0273	5.82%	0.5	0.0385	8%	0.73	0.041	8.5%	0.78
Wholesale, hotels. restaurants & transport [3]	-0.039	-8.42%	-0.96	-0.0404	-8.39%	-1.01	-0.048	-9.93%	-1.2
Other services [3]	0.0135	2.9%	0.27	0.0276	5.73%	0.57	0.0181	3.75%	0.38
Hours of work	0.0031	0.66%	1.94*	0.0032	0.67%	2.16**	0.0037	0.77%	2.5**
Indefinite contract [4]	-0.0639	-13.65%	-1.85*	-0.048	-9.97%	-1.47	-0.0669	-13.8%	-2.04**
Previous experience									
Observed previous spell(s) as self-employed	0.4268	91.11%	8.76***	0.419	87.02%	15.65***	0.4199	86.85%	15.75***
Observed previous spell(s) as unemployed	-0.104	-22.24%	-3.14***	-0.0929	-19.28%	-3.19***	-0.0868	-17.95%	-2.96***
Incomes									
Dwelling owner	0.056	11.96%	1.75*	0.0577	11.99%	1.89*	0.0504	10.42%	1.65*
Annual capital and property incomes (1 lag) ('000)	0.0064	1.37%	1.27	0.0089	1.85%	1.78*	0.0091	1.89%	1.81*
Monthly work incomes ('00)	-0.0013	-0.29%	-0.56	-0.0018	-0.37%	-0.8	-0.005	-1.02%	-1.96**
Business cycle									
Output gap	-0.0241	-5.14%	-2.23**	-0.0264	-5.49%	-2.7***	-0.0291	-6.01%	-2.97***
Country									
Austria [5]	-0.2495	-53.25%	-3.67***						
Belgium [5]	-0.2653	-56.62%	-3.86***						
Denmark [5]	-0.229	-48.88%	-3.26***						
Finland [5]	0.0627	13.39%	0.93						
France [5]	-0.3634	-77.58%	-5.74***						
Germany [5]	-0.2815	-60.08%	-5.32***						
Greece [5]	0.0145	3.09%	0.28						
Ireland [5]	-0.2692	-57.46%	-4.59***						
Italy [5]	0.0738	15.76%	1.52						
Netherlands [5]	-0.0244	-5.2%	-0.32						
Portugal [5]	-0.0931	-19.87%	-1.76*						
United Kingdom [5]	-0.4806	-102.59%	-18.74***						
Labour market institutions									
EPL index for regular employment				0.0666	13.84%	2.92***			
Potential severance payment ('000)							0.0057	1.18%	2.86***
EPL index for temporary employment				0.0609	12.65%	5.22***	0.0583	12.06%	4.97***
Start-up incentives as ⁰/₀₀₀ of GDP				0.0464	9.63%	4.64***	0.0488	10.1%	4.96***
Old age, disability and death benefits index				0.0077	1.61%	0.19	-0.0147	-3.03%	-0.39
Sickness and health benefits index				0.1102	22.89%	4.49***	0.097	20.06%	3.83***
Unemployment benefits index				-0.1299	-26.98%	-2.41**	-0.042	-8.65%	-0.97
Reference categories: (1) Non-cohabiting individuals, (2) No education or primary education, (3) Construction sector, (4) Non-indefinite contract, (5) Spain									
Log likelihood	-1,123.24			-1,154.27			-1,154.13		

Notes: *** denotes significance at the 1% level; ** denotes significance at the 5% level; * denotes significance at the 10% level.

With regard to the generosity of social security systems, old age, disability and death benefits present an absence of a significant result on DSE relative participation. Hence, none of the negative impacts of

these benefits detected for transitions to DSE and ISE dominates the other. Turning our attention to the impact of sickness and health benefits on the relative weight of DSE over all transitions, it can be observed that the simultaneous positive effect of this aspect of the social security system over transitions to DSE and ISE is dominated by the former. Therefore, the relative DSE incidence increases by around 23% for each unit of increase in the corresponding index. Concerning the generosity of unemployment benefits, the non-significant positive impact of these benefits over transitions to DSE is dominated by the significant positive effect of transitions to ISE, lowering the incidence of the former transitions by 27% over the European self-employment composition.

7. Conclusions

The lack of solid propositions on the effects of the regulatory environment on entrepreneurship participation makes the design of an adequate action policy agenda a difficult task. In this study, we propose to link the absence of consistent results to the presence of two different groups within self-employment (i.e., DSE and ISE), a distinction that is difficult to draw from a macro perspective, which is the most common approach to this analysis.

Thus, this paper examines whether the strictness of EPL encourages employers to contract out work to their own paid employees via the formula of DSE, which makes transitions from paid employment to ISE less likely. To test our hypothesis, our analysis includes a tentative individual measure of the potential severance payment that a worker would receive in case of dismissal, as well as aggregated variables trying to capture differences in the strictness of EPL. In addition, this paper addresses further issues such as the role of the business cycle, public expenditures on start-up incentives and the generosity of the social security system on these two types of transitions to self-employment.

Our results confirm the opposite effects of the strictness of EPL and the potential severance payment on transitions to DSE and ISE. In this sense, these contrary effects seem to be related with previous ambiguous results on the relationship between EPL and self-employment. Also, by focusing on the business cycle, we observe that the *recession-push* argument applies for those entering DSE while the *prosperity-pull* hypothesis applies for individuals switching to ISE. Hence, during recessionary periods, transitions to DSE are more probable, while ISE likelihood decreases. Finally, our results show that public expenditure on start-up incentives has positive effects on transitions from paid-employment to DSE and ISE. However, this effect is stronger for individuals entering DSE.

This new evidence appears to confirm that the coexistence of a map of incentives designed to foster self-employment, a stringent EPL and a large recession may become a breeding ground for *mutually agreed* transitions from waged employment to self-employment, unless effective measures to distinguish ISE from DSE are available. Under these circumstances, the relative weight of transitions from salaried-work to DSE over all transitions from waged-work to self-employment would receive a positive impact, affecting the European self-employment composition. Hence, for an adequate entrepreneurship policy design, further research is necessary on the contribution to economic growth and job creation processes of both groups.

In addition, policy implications are also relevant from the employee perspective. Labour market regulations designed to protect workers appear to increase contracting formulas such as DSE, where workers lose their rights under labour law and receive less favourable benefits from social security protection. Similarly, to undermine the intended effect of job security legislation, other marginal forms of work that are beyond the scope of labour laws might emerge. Therefore, further investigation becomes necessary for an effective design of EPL.

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Appendix A: Data Description

Dependent variables

Transitions from paid-employment to SE	Dependent variable equals 1 for individuals who are full-time waged workers in period *t-1* and become self-employed in period *t*. The variable equals 0 for individuals who are full-time waged workers in periods *t-1* and *t*.
Transitions from paid-employment to ISE	Dependent variable equals 1 for individuals who are full-time waged workers in period *t-1* and become independent self-employed in period *t*. The variable equals 0 for individuals who are full-time waged workers in periods *t-1* and *t*.
Transitions from paid-employment to DSE	Dependent variable equals 1 for individuals who are full-time waged workers in period *t-1* and become dependent self-employed in period *t*. The variable equals 0 for individuals who are full-time waged workers in periods *t-1* and *t*.
Transitions from paid-employment to DSE vs. Transitions from paid-employment to ISE	Dependent variable equals 1 for individuals who are full-time waged workers in period *t-1* and become dependent self-employed in period *t*. The variable equals 0 for individuals who are full-time waged workers in period *t-1* and become independent self-employed in period *t*.

Demographic characteristics

Male	Dummy equals 1 for males.
Age	Age reported by the individual, ranging from 21 to 59.
Cohabiting	Dummy equals 1 for cohabiting individuals.
Number of children under 14	Number of children aged under than 14 living within the household.
Relative(s) working as self-employed	Dummy equals to 1 if there are any in the household.

Education

No education or primary education (reference category)	Dummy equals 1 for illiterate, no schooling individuals, or individuals with primary schooling as highest education level achieved.
Secondary education	Dummy equals 1 for individuals with secondary schooling as highest education level achieved.
University studies	Dummy equals 1 for individuals with university studies.

Employment characteristics

Construction sector (reference category)	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 and 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).
Hours of work	Hours of work per week.
Indefinite contract	Dummy equals 1 for full-time waged-workers with indefinite contract.

Observed previous experience

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

Incomes

Dwelling owner	Dummy equals 1 for households owning the dwelling.
Annual Capital and property incomes (1 lag)	Capital and property incomes, and private transfers received during period *t-2*, converted to average euros of 1996, being corrected by Purchasing Power Parity (across countries) and Harmonised Consumer Price Index (across time).
Monthly work incomes	Work incomes earned during the previous month to the interview, converted to average euros of 1996, being corrected by Purchasing Power Parity (across countries) and Harmonised Consumer Price Index (across time).

Business cycle

Output gap	Deviations of actual GDP from potential GDP, as a percentage of potential GDP (source: OECD, 2009).

Labour market institutions

EPL index for regular employment	Time-dependent EPL index for regular employment (source: OECD). Variable scaled to lie between 0 and 6.
EPL index for temporary employment	Time-dependent EPL index for temporary employment (source: OECD). Variable scaled to lie between 0 and 6.
Potential severance payment	Authors' calculations based on OECD (1999). Variable converted to average € of 1996, after correction by Purchasing Power Parity (across countries) and Harmonised Consumer Price Index (across time). See appendix B for details.
Old age, disability and death benefits index	Measure of generosity of old age, disability and death benefits (source: Botero et al. 2004). This variable has also been reclassified into a range from 0 to 6 for the same reason.
Sickness and health benefits index	Measure of generosity of sickness and health benefits (source: Botero et al. 2004). This variable originally ranged from 0 to 1 but has been reclassified into a range from 0 to 6. The main reason for doing this is to allow a clear comparison of the effect of this variable with OECD EPL indexes on the dependent variables.
Unemployment benefits index	Measure of generosity of unemployment benefits (source: Botero et al. 2004). This variable has also been reclassified into a range from 0 to 6 for the same reason.
Start-up incentives	Expenditure on start-up incentives as percentage of GDP (source: OECD).

Table A1. Distribution of observations across countries

	All observations	Observations not switching	Observations switching to ISE	Observations switching to DSE
Austria	11,023	10,955	51	17
Belgium	10,361	10,307	38	16
Denmark	10,657	10,587	46	24
Finland	8,861	8,742	44	75
France	20,314	20,281	29	4
Germany	24,872	24,734	101	37
Greece	12,443	12,205	89	149
Ireland	9,791	9,687	74	30
Italy	22,212	21,852	143	217
Netherlands	16,053	15,960	45	48
Portugal	19,593	19,298	151	144
Spain	19,956	19,605	129	222
United Kingdom	16,985	16,850	126	9
Total	203,121	201,063	1,066	992

Table A2. Descriptive statistics of the transitions from paid-employment to self-employment

	All observations	Observations not switching	Observations switching to ISE	Observations switching to DSE
Number of observations	203,121	201,063	1,066	992
Demographic characteristics				
Males	63.5 %	63.33 %	79.36 %	81.75 %
Average age	38.66 years	38.68 years	35.27 years	37.62 years
Age 21-30 years	24.68 %	24.6 %	35.65 %	27.62 %
Age 31-40 years	32.34 %	32.31 %	36.68 %	35.28 %
Age 41-50 years	29.1 %	29.17 %	20.64 %	24.7 %
Age 51-59 years	13.87 %	13.92 %	7.04 %	12.4%
No education / Very basic education	34.75 %	34.68 %	37.43 %	47.48 %
Primary schooling / Secondary schooling	37.91 %	37.97 %	35.55 %	29.74 %
University studies	27.33 %	27.36 %	27.02 %	22.78 %
Cohabiting	75.86 %	75.88 %	74.58 %	75.1 %
Average number of children under 14	0.64 children	0.63 children	0.68 children	0.71 children
Relative(s) working as self-employed worker(s)	7.36 %	7.27 %	14.82 %	15.83 %
Employment characteristics				
Construction sector	7.76 %	7.62 %	19.42 %	22.28 %
Industrial sector	26.9 %	26.95 %	22.05 %	21.88 %
Financial services	10.64 %	10.62 %	12.76 %	11.19 %
Wholesale. hotels. restaurants & transport	20.74 %	20.66 %	29.27 %	28.13 %
Other services	33.97 %	34.15 %	16.51 %	16.53 %
Indefinite contract	90.19 %	90.36 %	77.58 %	70.06 %
Average hours of work per week	41.1 hours	41 hours	44.2 hours	44.8 hours
Previous experience				
Previous spell(s) as self-employed	2 %	1.74 %	10.69 %	44.35 %
Previous spell(s) as unemployed	30.17 %	30.06 %	42.68 %	38.51 %
Incomes				
Dwelling owner	70.46 %	70.43 %	70.36 %	77.12 %
Receiving capital and property incomes	41.26 %	41.31 %	39.12 %	35.18 %
Average annual capital and property incomes	€ 358	€ 356	€ 475	€ 719
Average annual capital and property incomes (those who receive)	€ 868	€ 861	€ 1,214	€ 2,045
Average monthly work income	€ 1,239	€ 1,240	€ 1,213	€ 1,146
Country				
Austria	5.43 %	5.45 %	4.78 %	1.71 %
Belgium	5.1 %	5.13 %	3.56 %	1.61 %
Denmark	5.25 %	5.27 %	4.32 %	2.42 %
Finland	4.36 %	4.35 %	4.13 %	7.56 %
France	10 %	10.09 %	2.72 %	0.4 %
Germany	12.24 %	12.3 %	9.47 %	3.73 %
Greece	6.13 %	6.07 %	8.35 %	15.02 %
Italy	4.82 %	4.82 %	6.94 %	3.02 %
Ireland	10.94 %	10.87 %	13.41 %	21.88 %
Netherlands	7.9 %	7.94 %	4.22 %	4.84 %
Portugal	9.65 %	9.6 %	14.17 %	14.52 %
Spain	9.82 %	9.75 %	12.1 %	22.38 %
United Kingdom	8.36 %	8.38 %	11.82 %	0.91 %
Business cycle				
Output gap	-0.52 %	-0.52 %	-0.31 %	-0.73 %
Labour market institutions				
EPL index for regular employment	2.412	2.411	2.407	2.58
EPL index for temporary employment	2.741	2.739	2.642	3.336
Potential severance payment	€ 5,897	€ 5,909	€ 3,603	€ 5,942
Start-up incentives as % of GDP	1.062 %	1.056 %	1.361 %	1.886 %
Old age, disability and death benefits index	4.041	4.042	4	4.038
Sickness and health benefits index	4.318	4.316	4.39	4.629
Unemployment benefits index	4.731	4.731	4.736	4.725

Appendix B: Description of Individual Potential Severance Payment

This variable is a person and time-variant measure of the potential severance payment that the worker would receive in case of dismissal. In particular, following the OECD (1999), the variable is defined as severance pay for individual dismissal of a regular employee with tenure beyond any trial period, dismissed on personal grounds or economic redundancy, but without fault. Information is mainly based on legal regulations, but also, where relevant, on averages found in collective agreements or individual employment contracts. For its construction, information on employment duration, salary, type of contract and age (if necessary) is taken into account. The information considered in calculations is summarised by country in the table below.

Austria
– If duration in employment < 3 years, no severance payment.
– If 3 years ≤ duration in employment< 5 years, 2 months of severance payment.
– If 5 years ≤ duration in employment< 10 years, 3 months of severance payment.
– If 10 years ≤ duration in employment <15 years, 4 months of severance payment.
– If 15 years ≤ duration in employment < 20 years, 6 months of severance payment.
– If 20 years ≤ duration in employment < 25 years, 9 months of severance payment.
– If 25 years ≤ duration in employment, twelve months of severance payment.

Belgium
None by law.

Denmark
For blue collar, none by law, but based on collective agreements. Assuming blue collar collective agreements are based on white collar legal compensations, and given our difficulties in distinguishing blue and white collar within our sample, we apply white collar payments in case of dismissal for all individuals living in Denmark. The information is summarised below:
– If duration in employment < 12 years, no severance payment.
– If 12 years ≤ duration in employment < 15 years, 1 month of severance payment.
– If 15 years ≤ duration in employment < 18 years, 2 months of severance payment.
– If 18 years ≤ duration in employment, 3 months of severance payment.

Finland
None by law, but if the worker is 45 years old or older and her tenure is at least five years, then she has the right of between 1 and 2 months of severance pay out of a collective redundancy payment fund, often used for training purposes. We will consider that, in this case, the worker would receive one month of severance pay.

France
– If duration in employment < 1 year, no severance payment.
– If duration in employment ≥ 1 year, 1/10 month's pay per year of service for the first ten years, and 1/10+1/15 month's pay per year of service after the first 10 years.

Germany
None by law.

Greece
– If duration in employment < 1 year, 5 days of severance payment.
– If 1 year ≤ duration in employment< 2 years, 7 days of severance payment.
– If 2 years ≤ duration in employment< 5 years, 15 days of severance payment.
– If 5 years ≤ duration in employment <10 years, 30 days of severance payment.
– If 10 years ≤ duration in employment < 15 years, 60 days of severance payment.
– If 15 years ≤ duration in employment < 20 years, 90 days of severance payment.
– If 20 yeas ≤ duration in employment, 105 days of severance payment.

Ireland
– If duration in employment < 2 years, no severance payment.
– If duration in employment ≥ 2 years: 1 week pay + ½ week per year of service with age ≤ 41 years + 1 week per year of service with age > 41 years, with a maximum of Ir£ 15,600 (as of 1995).

Italy
2/27 of annual salary per year of service.

Netherlands
None by law and if the dismissal is handled by the employment office. However, if the employer files for permission in a labour court, the court may determine severance pay according to the following formula, the one that we considered:
– If age < 40 years, 1 month per year of service of severance payment.
– If 40 ≤ age < 50, 1.5 months per year of service of severance payment.
– If 50 ≤ age, 2 months per year of service of severance payment.

Portugal
1 month per year of service, with a legal minimum of three months.

Spain
Workers dismissed for objective reasons and with an indefinite contract, 2/3 month's pay per year of service up to a maximum of 12 months.

United Kingdom
– If duration in employment < 2 years, no severance payment.
– If duration in employment ≥ 2 years, and with a limit of 30 weeks and £220 per week (as of April 1998):
- ½ week per year if age is between 18 and 21 years.
- 1 week per year if age is between 22 and 40 years.
- 2 weeks per year if age is between 41 and 64 years.