The Relationship between Business Ownership and Unemployment in Spain: A Matter of *Quantity* or *Quality*?[1]

VERHEUL, INGRID[a,b] (*); VAN STEL, ANDRÉ[a,b,c]; THURIK , ROY[a,b,c] AND URBANO, DAVID[d]
*(*) Erasmus University Rotterdam, Centre for Advanced Small Business Economics (H12-18),
P.O. Box 1738, 3000 DR Rotterdam, the Netherlands.*
Tel.: +31 104 081 422 - E-mail: verheul@few.eur.nl.

[A] Erasmus University Rotterdam
[B] EIM Business and Policy Research, Zoetermeer
[C] Max Planck Institute of Economics, Jena
[D] Universitat Autònoma de Barcelona

ABSTRACT

This paper examines the interrelations between self-employment and unemployment rates for Spain in the period 1972-2004, comparing them with the general pattern observed for OECD countries. We apply the model as proposed by Audretsch, Carree, van Stel and Thurik (2005) to Spain. The divergence between predicted and actual unemployment levels in Spain are explained by country-specific shocks in the period under study, which are outside the scope of the model. This indicates that the general mechanism of employment generation by the self-employed may also be applicable to Spain, at least in the long run. The Spanish industrial structure is characterized by a relatively high and fluctuating unemployment level and a relatively high and stable business ownership rate, suggesting that the *quantity* of business ownership in Spain does not have a particularly large contribution to bringing down unemployment. In recent years we see that the unemployment rate decreases and stabilizes. We argue that, in addition to several labor market reforms, an increase in the *quality* of business ownership in Spain may also have contributed to the recent decrease in the unemployment rate.
Keywords: entrepreneurship, self-employment, unemployment, economic growth, Spain

La relación entre el autoempleo y el desempleo en España: Una cuestión de *cantidad* o de *calidad*?

RESUMEN

Este trabajo analiza la relación entre el autoempleo y las tasas de desempleo en España para el periodo 1972-2004, comparando los resultados obtenidos con el patrón general observado en los países de la OCDE. El estudio utiliza el modelo propuesto por Audretsch, Carree, van Stel y Thurik (2005) para el caso de España. Las diferencias entre los niveles de desempleo estimado y real en España se explican fundamentalmente por características específicas de la economía española para el periodo considerado, las cuales quedan fuera del alcance del modelo utilizado. Así pues, el mecanismo general de la generación de empleo a través del autoempleo puede ser aplicable para España, al menos en lo referente al largo plazo. En términos generales, la estructura industrial española se caracteriza por un lado, por un nivel de desempleo relativamente elevado y fluctuante, y por otro, por unas tasas relativamente elevadas y estables de autoempleo, sugiriendo que la *cantidad* de autoempleo en España no contribuye de forma relevante a la reducción del desempleo. De todas formas, se observa que en los últimos años la tasa de desempleo ha disminuido a la vez que estabilizado. En este sentido, en el presente estudio se argumenta que, adicionalmente a las distintas reformas producidas en el mercado de trabajo español, dicha reducción del desempleo viene explicada por un aumento en la *calidad* del autoempleo.
Palabras clave: creación de empresas, autoempleo, desempleo, paro, crecimiento económico, España

1. INTRODUCTION

The relationship between entrepreneurship and unemployment has received considerable attention by both researchers and policy makers. It is a complex relationship, where on the one hand entrepreneurship may lead to a decrease in unemployment, and on the other hand unemployment may lead to an increase or decrease in entrepreneurship (Audretsch et al., 2005). European countries have experienced major industrial restructuring in recent years in reaction to their diminishing competitive advantage – previously attained by large-scale production exploiting economies of scale and scope – that resulted from the competition of low-cost countries (Audretsch and Thurik, 2000). The industrial structure in most western developed countries shifted away from traditional manufacturing towards the production of more complex technologies, e.g., electronics, software and biotechnology (Baptista et al., 2006) thereby favoring new venture creation and (small) business ownership (Audretsch and Thurik, 2001; 2004).

In the present study we investigate how unemployment and business ownership (as a measure of entrepreneurship) have developed in Spain in the period between 1972 and 2004. Specifically, we investigate the interrelations between unemployment and business ownership in Spain, taking the pattern observed in the OECD countries as a starting point for our investigation. We closely follow the structure of investigation of Baptista, van Stel and Thurik (2006). When investigating the relation between unemployment and business ownership Spain is of particular interest as it is characterized by the highest levels in unemployment of the OECD countries and combines these high levels of unemployment (especially during the 1980s and 1990s) with a relatively high and stable business ownership rate (see Figure 1).

This study starts out with giving a brief overview of the literature on the (dynamics behind the) relationship between unemployment and entrepreneurship, building upon previous studies (mainly Audretsch, Carree, van Stel and Thurik, 2005 but also Thurik and Verheul, 2003; Thurik, 2004 and Baptista, van Stel and Thurik, 2006). Subsequently, we present, describe and discuss the developments in unemployment and business ownership rates in Spain for the period under investigation, providing

a basis for understanding the relationship between unemployment and business ownership in Spain. We also describe the econometric model proposed by Audretsch, Carree, van Stel and Thurik (2005), including their results. This model, tested and validated using data for 23 OECD countries, will be the basis of our empirical analysis in which we focus upon explaining the residuals for Spain. Departing from the question of how well the model fits the Spanish data, we will provide possible explanations for the differences found between the actual unemployment rates and the predicted unemployment rates that result from applying the Audretsch, Carree, van Stel and Thurik (2005) model to Spain.

2. THE RELATIONSHIP BETWEEN ENTREPRENEURSHIP AND UNEMPLOYMENT

There are many views on the relationship between unemployment and entrepreneurial activity (Audretsch, Carree, van Stel and Thurik, 2005). Occupational choice theory suggests that higher levels of unemployment will lead to an increase in start-up activity because the opportunity costs of starting a firm have decreased[1]. This effect has been referred to as the *unemployment push*, *refugee* or *desperation* effect. However, there may also be counter effects of unemployment leading to lower levels of entrepreneurial activity. For example, unemployed people may possess lower endowments of human and entrepreneurial capital required to start and sustain a new firm. Also, high unemployment rates may indicate a situation in which there are lower levels of personal wealth, which could reduce the likelihood of becoming self-employed (Hurst and Lusardi, 2004), but could also lead to a decrease in demand and, subsequently, to a limited number and quality of market opportunities.

Not only can unemployment lead to higher levels of entrepreneurial activity, there may also be a reverse effect of entrepreneurship influencing unemployment. In this respect, there is the *Schumpeter* effect of higher levels of entrepreneurship (e.g., start-up activity or self-employment) leading to a decrease in unemployment. Not only do (new) entrepreneurs employ themselves, they also hire employees, leading to subsequent decreases in unemployment.[2] Unemployment can be considered a (reverse) indicator of economic performance. An increase in entrepreneurial activity may impact economic performance at the country level in different ways (van Stel, Carree

---

[1] There is an extensive literature about occupational choice and the self-employment option. See Parker (2004) for a survey.

[2] Campbell (1996 p. 180) shows that for American states "unemployment has a positive and significant effect on new firm entry, suggesting that high unemployment encourages individuals to start new businesses because they view starting their own business as an alternative to unemployment and/or because they can hire workers more cheaply when unemployment is high".

and Thurik, 2005; Carree and Thurik, 2003). Entrepreneurs introduce innovations by introducing new products and production processes and entering new markets (Acs and Audretsch, 2003). Whereas in the short run increased levels of entrepreneurship may lead to a higher number of firm exits (by way of higher entry, creative destruction and higher competition) and subsequent increases in unemployment, in the longer run the processes of competition and learning (e.g., about consumer preferences, technical viability)[3] may lead to higher productivity and lower levels of unemployment (Geroski, 1989; Nickel, 1996).

To conclude, there are various interrelations between entrepreneurial activity and unemployment. It is important to create a better understanding of the relationship between entrepreneurship and unemployment, in particular since the ambiguities within this relationship are frequently disregarded in the policy arena (Thurik, 2004; Baptista, van Stel and Thurik, 2006). Audretsch, Carree, van Stel and Thurik (2005) try to reconcile the ambiguities found in the relationship between unemployment and start-up activity by introducing a two-equation vector auto-regression model representing both the refugee and the Schumpeter effect of unemployment leading to subsequent increases in business ownership and business ownership leading to subsequent decreases in unemployment, respectively. The present study reviews the empirical model. As we are mainly interested in the contribution that entrepreneurs can make to bringing down unemployment, we focus upon the results for the Schumpeter effect, and present and interpret the residuals for Spain.

## 3. DEVELOPMENTS IN THE SPANISH ECONOMY

Figure 1 displays developments in the rates of unemployment, business ownership and GDP growth in Spain in the period between 1972 and 2004. We can see that in the last three decades Spain has been characterized by two severe employment crises (during the periods 1975-1985 and 1990-1994) as well as two periods in which employment expanded significantly (during the periods 1986-1990 and 1994-2000). It appears that unemployment levels have stabilized in recent years. The business ownership rate has been relatively high and stable within the period 1972-2004. GDP growth rates show ups and downs, following a similar but opposite development to that in unemployment.

To understand these developments in the Spanish economy it is important to consider two country-specific shocks that may have impacted the economy: the change from dictatorship to democracy in 1975 and the entrance into the European Union (EU) in 1986 (Bentolila and Jimeno, 2003). In addition, the first oil crisis of 1973 is likely to have impacted economic development in Spain.

---

[3] In the learning process knowledge spillovers are important (Audretsch and Keilbach, 2004).

Figure 1: Unemployment, business ownership and GDP growth in Spain: 1972-2004
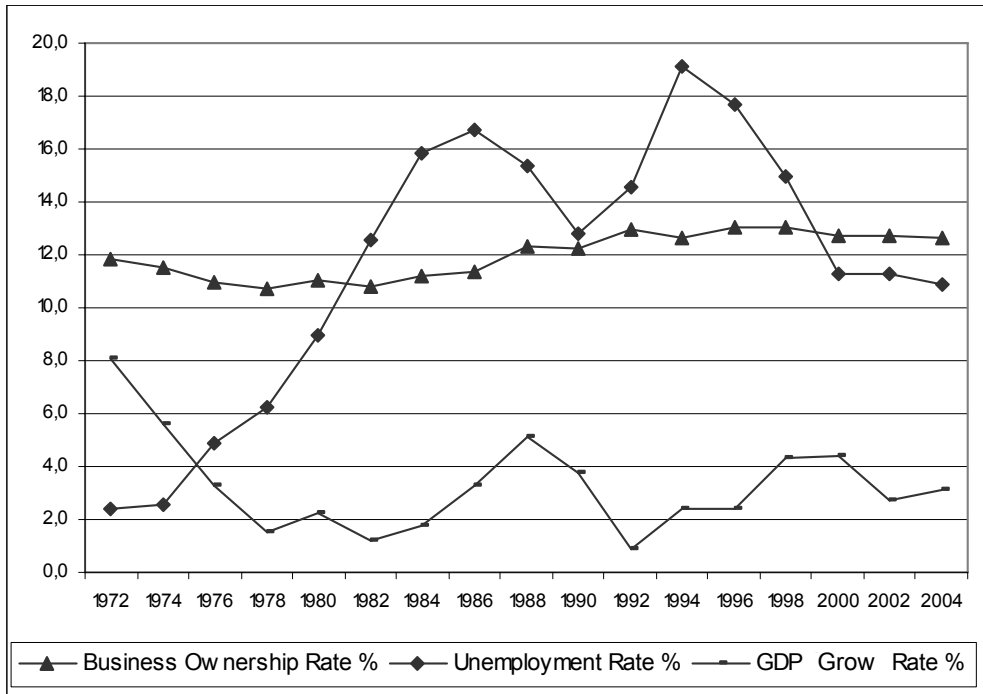
Sources: EIM (COMPENDIA 2004.1)[4] and OECD. Note: The business ownership rate excludes busi-ness owners in the agriculture, hunting, forestry and fishing industries.

Developments in Unemployment in Spain

In the early 1970s Spain, like in other countries, was characterized by a relatively low unemployment rate, due to an expanding global economy. For Spain the first oil crisis of 1973 coincided with the transition from the Franco dictatorship (from 1939 to 1975) to democracy, leaving the country in political and economic turmoil. At the time of the switch of regimes Spain was characterized by an underdeveloped industrial structure, a relatively closed economy, and a heavily regulated labor market (Bentolila and Jimeno, 2003). After 1975 industrial change, economic openness and the introduction of market mechanisms in the Spanish economy had its repercussion on the employment rate (Garcia-Serrano and Jimeno, 1998; Toharia, 1999; Bentolila and Jimeno, 2003). Indeed, we see a steep increase in the unemployment rate until the mid-1980s. Also, the 'inheritance' of an obsolete education system from the dic-tatorship period did not contribute to bringing down unemployment in Spain. After

---

[4] For details on the COMPENDIA data collection, we refer to van Stel (2005).

the regime change, many Spanish people found their way to the institutions of higher education with the expectation that higher educational attainment would improve their chance of finding a (good) job. However, the excessive investment in higher education led to a mismatch in the labor market where the demand for high-educated labor was smaller than its supply. Consequently, unemployment among high-educated individuals increased (Garcia-Rubiales, 2004).

The final steps onto the path of democratization and decentralization paved the way for entrance into the European Union in 1986. With the entrance into the European Union in 1986 Spain had become part of a stable European community, requiring a reallocation of labor, and structural EU funding was made available from 1986 onwards to improve the industrial infrastructure and raise the standard of living in the country (Fernández, 2005). These structural funds have had an important contribution in bringing down Spanish unemployment (Argandoña, 1999, pp. 45-54). Although the availability of EU funding had its contribution in revitalizing the Spanish economy (we see a decline in unemployment and an increase in GDP after 1986 until 1989/90 in Figure 1), the favorable global economic cycle of the late 1980s is likely to have had its influence. In the recession between 1991 and 1994 the European economic climate heavily affected the Spanish economy. Indeed, we see a sharp increase in unemployment in Spain in this period. The influence of the European-wide recession was aggravated for Spain in this period by an overvaluation of the peseta, which led to currency adjustments between 1992 and 1993 to stabilize the Spanish economy (Bentolila and Jimeno, 2003).

The decrease of unemployment in the period between 1994 and 2000 may be attributed in part to the arrival of a center-right political party in Spain in 1996, when several new policies were introduced. Policy goals pursued in this period include modernization of the fiscal system, market liberalization and improving labor market conditions. More specifically these labor market policies include the reduction of unemployment costs (i.e., reducing unemployment benefits), a reduction of direct taxes (the so-called IRPF) and a reduction in the social security fees paid to the National Health Service[5]. In 1997 policies fostering wage and price moderation were introduced to meet the Maastricht Treaty conditions of the Economic and Monetary Union (EMU). After introduction of the EMU, real interest rates fell sharply (Bentolila and Jimeno, 2003). Apart from these country-specific factors, the world economic cycle is likely to have had a contribution in bringing down Spanish unemployment in the period between 1994 and 2000. The stability that characterizes the Spanish economy after 2000 is largely the result of the labor market reforms, the entrance into the European Union, and the economic cycle (Bentolila and Jimeno, 2003).

---

[5] This information is retrieved from the speech by José María Aznar for the Spanish parliament (Congreso de los Diputados) on April 25th, 2000. See Suárez (2004).

The High Level of Unemployment in Spain

In the previous section explanations are offered for the *fluctuations* in the unemployment rate. But we also see that the *level* of unemployment is structurally high in Spain. This may be related to the basic framework of the Spanish labor relations, dating back to the 1980s. The main institutional features influencing the (in)ability to reallocate labor between and within firms include the high degree of employment protection, the importance of collective bargaining to establish employment conditions and a low level of functional and geographical (i.e., interregional) mobility, reinforced by the need to acquire court's approval for changing a job's functional and geographic characteristics (Garcia-Serrano and Jimeno, 1998; Garcia-Rubiales, 2004). During the 1980s and early 1990s the Spanish labor market has undergone some major changes, stimulating labor market flexibility. Due to the liberalization of labor contracts in the early 1990s there was an increase in temporary contracts. At the start of the millennium again there was a relaxation of permanent employment protection as well as a tightening of temporary contracts (Garcia-Serrano and Jimeno, 1998; Young, 2003).

Another important feature of the Spanish labor market is the unemployment benefit system. Up to the early 1980s, benefits were relatively generous and the unemployed had little incentive to search for paid employment or become self-employed (Bover et al., 2000 and 2002; Blanchard and Jimeno, 1995; Cebrián, 1996). This changed after the labor market reforms in 1992 (Bentolila et al., 2004), although from an international perspective Spain is still characterized by relatively high unemployment benefits (Hessels et al., 2006; OECD, 2004). Also, there is the importance of the family support system. Since 1975 unemployment rates for young adults between the age of 20 and 30 years old have been high and persistent. However, at the same time most young people stay home with their parents until they get married (and sometimes even after marriage), so they do not appear to suffer from economic hardship as a consequence of unemployment (Garcia-Rubiales, 2004). Combined with the relative generous unemployment benefits[6] and the relatively low labor market flexibility, this may explain the persistent high level of unemployment in Spain, since the (young) unemployed do not have incentives to find employment and employers are not able to adapt to changing market conditions.

Business Ownership in Spain

This paper investigates whether changes in industrial structure, and more specifically changes in business ownership rates, have also influenced the development in

---

[6] See Hessels et al. (2005) for a comparison between countries with respect to social security entitlements.

unemployment in Spain. At first sight this does not seem to be the case considering that Spain combines a fluctuating and high level of unemployment with a relatively stable and high level of business ownership. This suggests that unemployment and business ownership are not related and that the level of business ownership does not have an important contribution in bringing down unemployment.

As compared to other countries Spain is characterized by a relatively high share of very small to small firms. Using the dominant size class, Spain is classified as a country where micro (i.e., very small) enterprises (with 1 to 9 employees) have the largest share in total employment. Indeed, Spain has around 2.7 million firms, of which about 95 percent are micro-enterprises. The number of occupied persons per enterprise in Spain is almost 6, against an average of close to 7.5 for the Europe-19 countries (KPMG/ENSR, 2004). The high share of small firms in the Spanish economy may be explained by the relative difficulty of starting a business with employees (OECD, 1998). Fonseca et al. (2001) find that the countries characterized by high start-up costs such as Spain[7], Italy and Greece, also have a high concentration of small employers. They argue that high start-up costs reduce the rate at which new ventures are created and, accordingly, have a negative impact on job creation[8]. The Spanish business environment appears to pose several restrictions on expansion including the high costs and lack of availability of finance[9]; an unfavorable fiscal climate in which there are taxes on new equity issued increasing the costs of expansion and an inflexible labor market (OECD, 1998). If most new ventures in Spain remain small during their organizational lifetimes, they will have only a minor contribution to reducing unemployment.

In addition to these institutional expansion barriers, the characteristics of the business owners themselves may limit firm growth. For instance, the growth ambitions of entrepreneurs in Spain seem to be low. Indeed, the GEM 2005 report on High-Expectation Entrepreneurship (Autio, 2005) shows that Spain stands out because of its

---

[7] Spain has the highest start-up costs index, combining the number of start-up procedures and the average number of weeks required for the registration to be complete (Fonseca et al., 2001, p. 700).

[8] The argument of Fonseca et al. (2001) is supported by three findings: (1) the movement between wage- and unemployment and self-employment is negatively correlated with start-up costs, (2) higher start-up rates are associated with higher employment growth and (3) higher start-up costs are associated with lower employment rates across all 18 OECD countries in the sample.

[9] In the European Business Survey of Grant Thornton International Business Strategies Ltd. (1996) it is reported that almost 45 percent of the Spanish firms in the survey noted that they experienced the cost of finance as an important short-term constraint on expansion, whereas 32 percent saw this as a long-term constraint. From an availability perspective, the venture capital market in Spain is relatively underdeveloped. As compared to other countries Spain is characterized by a relatively low level of venture capital investments as a percentage of GDP (Amat and Coduras, 2001).

relatively low participation rate in high-expectation entrepreneurial activity[10], which amounts to about 0.2 percent (as compared to an average participation rate of 0.5 percent for the EU countries and 1.4 percent for the Anglo-Saxon countries[11]). The human capital levels of the business owners may also play a role when explaining firm growth (Congregado, Golpe and Millán, 2005). This will be explored further in Section 5.

4. MODELING THE RELATIONSHIP BETWEEN ENTREPRENEURSHIP AND UNEMPLOYMENT

As we have seen the relationship between unemployment and entrepreneurship is complex. It is generally assumed that there is a two-way causation between changes in the level of entrepreneurship and that of unemployment: a *Schumpeter* effect of entrepreneurship reducing unemployment and a *refugee* effect of unemployment stimulating entrepreneurship. Audretsch, Carree, van Stel and Thurik (2005) try to reconcile the ambiguities found in the relationship between unemployment and en-trepreneurship and estimate a vector auto-regression (VAR) model. In a VAR model a vector of dependent variables is explained by one or more lags of the vector of dependent variables, i.e., each dependent variable is explained by one or more lags of itself and of the other dependent variables. They estimate a two-equation VAR model with the change in unemployment and the change in entrepreneurial activity as dependent variables. Also, time dummies are used as exogenous explanatory variables[12]. These dummies correct for business cycle effects over the sample period that are common for the countries covered by the data set. Their model reads as follows:

$$U_{it} - U_{i,t-L} = \alpha + \sum_{j=1}^{J} \beta_j (E_{i,t-jL} - E_{i,t-(j+1)L}) + \sum_{j=1}^{J} \gamma_j (U_{i,t-jL} - U_{i,t-(j+1)L}) + \sum_{t=1}^{T} \delta_t D_t + \varepsilon_{it} \quad (1)$$

$$E_{it} - E_{i,t-L} = \kappa + \sum_{j=1}^{J} \lambda_j (U_{i,t-jL} - U_{i,t-(j+1)L}) + \sum_{j=1}^{J} \mu_j (E_{i,t-jL} - E_{i,t-(j+1)L}) + \sum_{t=1}^{T} \nu_t D_t + \varepsilon_{2it}, \quad (2)$$

---

[10] High expectation entrepreneurial activity is defined as the nascent and baby businesses (TEA) which expect to employ at least 20 employees within five years time (Autio, 2005, p. 14). More specifically, a high expectation nascent entrepreneur is an individual who expects to employ at least 20 employees within five years time through his or her new firm, and a high expectation baby business is a new firm, up to 42 months old, that aims to employ at least 20 employees within five years time.

[11] Note that the Anglo-Saxon countries here refer to Australia, Canada, Ireland, New Zealand, the United Kingdom and the United States.

[12] The inclusion of country dummies in the model was rejected by standard likelihood ratio tests. Indeed in Section 5 of this study we will see that the estimated residuals for Spain are unsystematic in that positive and negative values alternate.

where U is unemployment, E is entrepreneurial activity, i is a country-index, L is the time span in number of years, J is the number of time lags included and D_t are time dummies. The expected sign of the joint impact of the β-coefficients is negative and the expected sign of the joint impact of the λ-coefficients is positive. The inclusion of lagged dependent variables on the right hand side in the VAR model allows for a test for the direction of causality (Granger, 1969).

The model is tested using a data panel for 23 OECD countries between 1974 and 2002. For the unemployment data, U, standardized unemployment rates from OECD Main Economic Indicators are used. Entrepreneurial activity, E, is measured in terms of self-employment and use is made of data from the COMPENDIA data set of EIM Business and Policy Research. The COMPENDIA data set harmonizes self-employment data as published in OECD Labor Force Statistics making use of various (country-specific) sources to make the self-employment data comparable across countries and over time[13]. The definition used in COMPENDIA is the number of non-agricultural self-employed (included both unincorporated and incorporated firms) as a share of the labor force. See Figure 1 for the development of the self-employment rate in Spain and van Stel (2005) for further details about this data base.

Equations (1) and (2) are estimated using weighted least squares. Audretsch, Carree, van Stel and Thurik (2005) consider changes in self-employment and unemployment over periods of four years, i.e., L equals 4. Furthermore, they test for different time lags, in order to gain insight in the lag structure between unemployment and entrepreneurship. Inclusion of more lags seems more compelling because the employment impact of entrepreneurship is not instantaneous. Rather it requires a number of years for the firm to grow (Fritsch and Mueller, 2004). Using four-yearly data to avoid overlapping periods (given that L=4), Audretsch, Carree, van Stel and Thurik (2005) test for the shape of the lag structure and find that the model using two lags is statistically optimal. We present the results for the unemployment equation (Equation 1) in Table 1. As mentioned, we do not pay attention to the entrepreneurship equation (Equation 2) as the present study focuses upon *Schumpeter* effect, not on the *refugee* effect. The main variables are printed in bold in the upper part of the table, while the lagged dependents (i.e., controls) are presented in the lower part of Table 1.

---

[13] The harmonization mainly concerns corrections for the number of incorporated self-employed (harmonization across countries) and corrections for trend breaks (harmonization over time). The 23 countries included in COMPENDIA are the (old) EU-15 as well as Iceland, Norway, Switzerland, USA, Japan, Canada, Australia and New Zealand. COMPENDIA is an acronym for COMParative ENtrepreneurship Data for International Analysis.

Table 1: Estimating the influence of E on U for 23 OECD countries (115 observations)

Dependent variable: U_t-U_{t-4}		
Constant (in %-points)	0.674	(1.4)
E_{t-4}-E_{t-8}	**0.091**	**(0.3)**
E_{t-8}-E_{t-12}	**-1.13 ****	**(3.8)**
U_{t-4}-U_{t-8}	-0.246 **	(2.7)
U_{t-8}-U_{t-12}	-0.027	(0.3)
R^2	*0.403*	
P-value Granger causality test	*0.000 ***	

Source: Audretsch et al. (2005). Note that absolute t-values are between brackets. Coefficients for year dummies are not reported. ** Significant at 0.01 level.

From Table 1 we see that entrepreneurial activity lowers unemployment significantly, but that it takes a lag of eight years before the *Schumpeter* effect capitalizes. This is consistent with results found by Fritsch and Mueller (2004) for German regions. Only after some time, the new entrants start to contribute to economic growth, either by growing themselves or by stimulating incumbent firms to perform better through increased competition.

5. ANALYZING THE RESIDUALS FOR SPAIN

Based on the results in Table 1 we are able to analyze the residuals for Spain for the period 1986-2002[14]. Using data for observed unemployment and business ownership rates for Spain in the period 1974-2002, it is straightforward to calculate the estimated values of the residuals for Spain from the coefficients estimated for equation (1): $Z_{It} = U_t^O - U_t^P$, where U_t^O is the observed unemployment rate and U_t^P is the model prediction. The values obtained for the residual terms tell us whether the model under-estimates (positive residual) or over-estimates (negative residual) the variations in unemployment.

The residuals, as well as the observed and predicted unemployment rates, for Spain are displayed in Figures 2 and 3. The residuals are negative (indicating an overestimation of the unemployment rate) for the period for the periods of 1990, 1998 and 2002, whereas for 1986 and 1994 the model generates positive residuals (indicating

---

[14] Note from Table 1 that the model contains a lag of 12 years. Hence the oldest year for which the unemployment and self-employment rates are predicted by the model is 1986.

lower predicted values for the unemployment rate than what is observed). The residuals are particularly large for 1986 (predicting an unemployment rate of 12.7% while observed unemployment amounts to 16.7%), 1994 (with a predicted value of 14.6% and an observed value of 19.2%) and 2002 (with a predicted value of about 15% and an observed value of 11.3%). Hence, for the periods 1982-1986; 1990-1994 and 1998-2002 there is a discrepancy between predicted and real unemployment in Spain. From Figure 1 we see that for the periods 1982-1986 and 1990-1994 there are large increases in unemployment, consistent with the relatively high positive residuals for 1986 and 1994. These high residual values may be explained by specific developments in these periods. In the period 1982-1986 Spain prepared for entry into the European Union and in the period 1990-1994 there was a worldwide recession, which had a relatively strong impact on the Spanish economy (see also Section 3). Hence, the residuals for 1986 and 1994 do not appear to be related to developments in business ownership. For 1990 and 1998 the actual value of unemployment is more in line with the predicted value.

Figure 2: Estimated residuals for Spain 1986-2002 in percentage points (equation 1a)
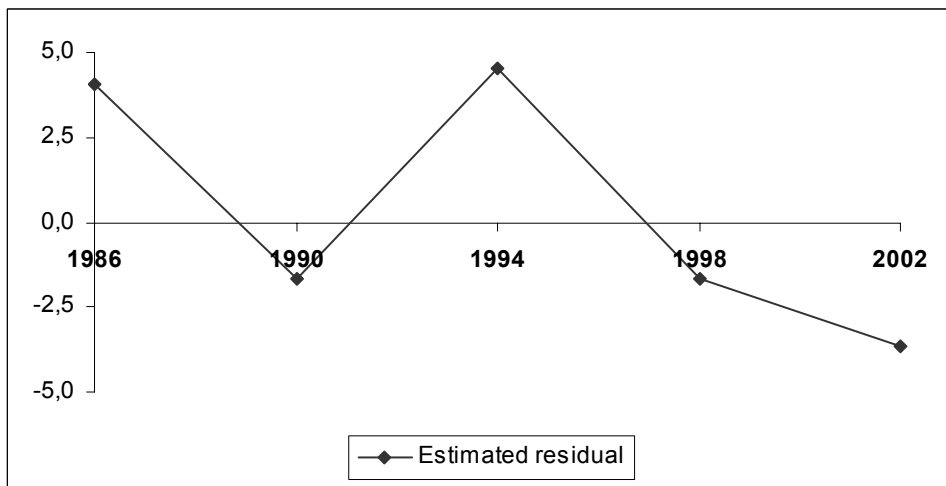
**Figure 3: Observed and predicted unemployment rates in Spain 1986-2002**
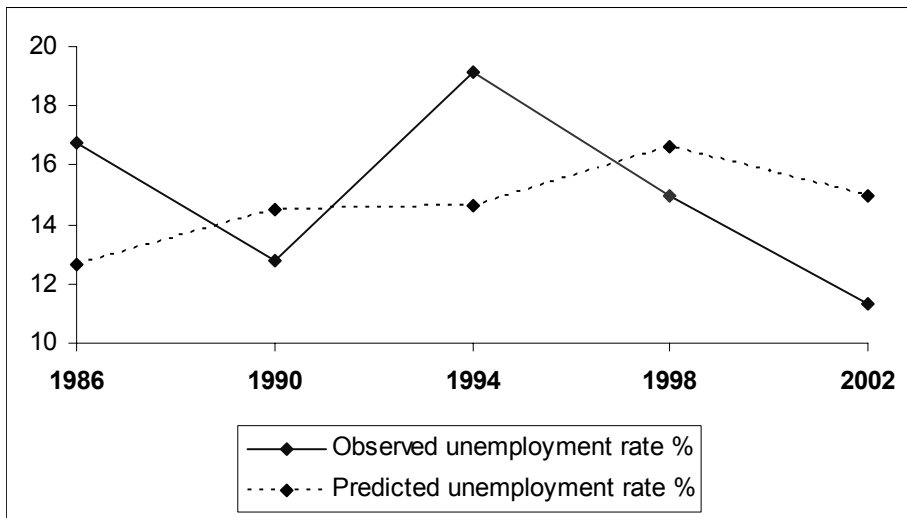
The residual for 2002 can not be explained by specific developments or shocks in Spain in the period 1998-2002, or by developments in the rate of business ownership, which is relatively stable over time. However, although the model captures the influence of the *quantity* of business ownership, it fails to address changes in the *quality* (or composition) of business ownership. Even if the level of business ownership increases, the extent to which jobs are created varies heavily between firms. Storey and Strange (1992) show that in the United Kingdom 2 percent of all new firms accounted for 33 percent of job creation, a skewness in employment distribution that may be related to differences in human capital levels of founders (Frank, 1988). Accordingly, employment creation may be more strongly influenced by the human capital of the founders than by the absolute number of (new) business owners (van Praag and Cramer, 2001). We hypothesize that the overestimation of unemployment by the model might be related to developments in the quality of business ownership, contributing more to bringing down unemployment in Spain in the period 1998-2002 than in previous years.

Research by Congregado, Golpe and Millán (2005) provides empirical support for our hypothesis. Using micro data from the European Community Household Panel for Spain in the period 1994-2001, they study the determinants of the decision to become self-employed. Specifically, by estimating a series of binary and multinomial logit models, they consider the transitions of several labor force statuses (e.g. paid employment and unemployment) into self-employment. An important contribution of their work is that they distinguish between two different states of self-employment, viz. self-employed *without* employees (i.e. own-account worker) and self-employed *with* employees (i.e. employer). When considering entrepreneurship as a route to reduce unemployment, in particular the

transitions into the employer status are of importance. Congregado, Golpe and Millán (2005) find that, independent of whether workers are in paid employment, unemployment or in self-employment without employees at the start of a given period, the probability of entering into the employer status (i.e. self-employment *with* employees) is higher for workers with university studies, compared to workers with other (lower) levels of education. In particular, the probability of moving from own-account worker to employer is twice as high for own-account workers with a university degree, as compared to own-account workers with lower levels of education. The results by Congregado, Golpe and Millán (2005) show that particularly higher educated entrepreneurs are likely to grow their businesses. Either they hire employees directly at the start of business operations or they expand their business after having worked some time as an own-account worker. Hence, if the share of higher-educated entrepreneurs would be increasing over the last decade this may – in part – explain the decrease in unemployment in 2002 even though the total number of business owners has been stable over the last 15 years (see Figure 1).

Figure 4 presents the development in the share of self-employed individuals with higher education in total self-employment in Spain in the period 1987-2004 (per three months).[15] We see that the share of higher educated self-employed individuals has increased over time, and in particular from the early 1990s onwards. Hence, in the period preceding 2002 the education level of business owners (reflecting the *quality* of business ownership) in Spain increased, which – considering the results of Congregado, Golpe and Millán (2005) – is likely to have had its impact on employment creation.

**Figure 4: Higher educated self-employed (as a share of total
self-employment) in Spain, 1987-2004**
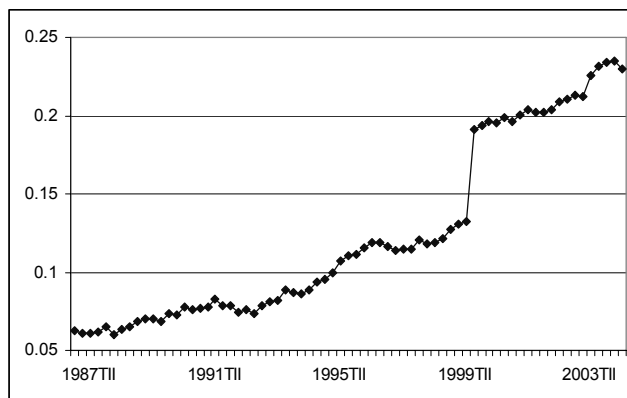
*Source: INE (Instituto Nacional de Estadística). Until 1999 higher education is defined as university educa-
tion only. From 2000 onwards, due to a change in classifications, other types of higher education, like e.g.
engineering colleges, are included as well.*

---

[15] We are grateful to Antonio Golpe and José María Millán for providing us with these data.

The quality of entrepreneurship may also be captured by the distinction between opportunity and necessity entrepreneurship (as proposed in the Global Entrepreneurship Monitor)[16]. Indeed, it has been argued that opportunity entrepreneurship tends to have a higher contribution to the economy in terms of job creation than necessity entrepreneurship (Reynolds et al., 2001)[17]. Table 2 presents Total Entrepreneurial Activity (TEA) rates[18] for Spain for the period 2001-2004. A distinction is made between total, opportunity and necessity entrepreneurial activity rates. The last two rows in the table refer to relative measures of opportunity and necessity entrepreneurship (measured vis-à-vis total entrepreneurial activity). From Table 2 we see that in recent years there has been an increase in the share of opportunity entrepreneurship.

Table 2: TEA rates (total, opportunity and necessity) for Spain, 2001-2004

	2001	2002	2003	2004
TEA total	6.32	4.59	6.77	5.15
TEA opportunity	4.46	3.42	6.05	4.53
TEA necessity	1.61	1.02	0.51	0.62
Share opportunity	70.50	74.50	89.40	88.00
Share necessity	25.50	22.20	7.50	12.00

Source(s): Amat and Coduras (2001); de Castro et al. (2002); Coduras and Justo (2003); Coduras et al. (2004). Note that the share of opportunity and necessity entrepreneurial activity is calculated vis-a-vis total TEA.

Although from an international perspective Spain is characterized by a relatively low level of high-expectation entrepreneurial activity (Autio, 2005), the development of both the share of high educated self-employed individuals in total self-employment and the share of opportunity entrepreneurs in total entrepreneurial activity (TEA) in Spain indicates that the quality of entrepreneurship, and (possibly) its contribution to employment creation, improves in recent years. This is a positive development for the Spanish economy. Indeed, if the quality of entrepreneurship (in terms of education

---

[16] Opportunity entrepreneurship reflects the "voluntary nature of participation" and people starting a business because they perceive a business opportunity, while necessity entrepreneurship refers to people starting a business because there are no "better choices for work" (Reynolds et al., 2001, p.8).

[17] Reynolds et al. (2001) find that 14 percent of opportunity entrepreneurs expect that their new ventures create 20 or more jobs in five years, whereas nine out of ten necessity entrepreneurs expects that their firms do not provide more than 5 new jobs within the same time period.

[18] TEA refers to the share of people in the adult population (aged 18-64 years old) who are actively involved in starting a new business or in managing a business that is less than 42 months old (Reynolds et al., 2002, p. 5).

levels of entrepreneurs or the share of opportunity based entrepreneurs) increases further in the near future, it may be that finally the level of unemployment in Spain is converging towards the unemployment levels of the other OECD countries.

6. CONCLUSION AND DISCUSSION

The aim of the present paper is to investigate to what extent the model as proposed by Audretsch, Carree, van Stel and Thurik (2005) is applicable to Spain, relating unemployment to entrepreneurial activity. More specifically, this exercise could indicate whether developments of the unemployment rate in Spain are related to developments of the business ownership rate. Although the predicted levels of unemployment for Spain deviate from the actual levels in distinctive periods, there are intuitive explanations relating to country-specific shocks for why predictions and actual levels diverge for certain years, indicating that the general mechanism of employment generation by the self-employed may also be applicable to Spain, at least in the long run. The model focuses upon effects of changes in the *quantity* of self-employment and is not able to capture possible effects of changes in the *quality* of self-employment, which may be of particular importance for Spain.

The Spanish industrial structure is characterized by a relatively high and fluctuating unemployment level and a relatively high and stable business ownership rate, suggesting that business ownership in Spain does not have a particularly large contribution to bringing down unemployment. In recent years we see that the unemployment rate decreases and stabilizes. Although this may be the result of several labor market reforms and a restructuring of the Spanish economy, there is reason to believe that a change in the quality of entrepreneurial activity in Spain may also have played a role. Indeed, as indicated in the previous section, the quality of entrepreneurship in Spain (in terms of higher educated self-employed individuals and opportunity entrepreneurs) may be changing for the better, which is also likely to have consequences for unemployment.

Although in recent years several labor market reforms have facilitated the shift from a managed to an entrepreneurial economy in Spain, there is still a need for the Spanish government to alleviate the problem of unemployment, in particular since its *level* is still relatively high. There appears to be an opportunity for the Spanish government to combat unemployment by stimulating self-employment among higher educated, young individuals. There are several hints as to why this may be important. First, we see that unemployment among high-educated and young individuals in Spain is still relatively high[19]. Although several studies point out that the level of education

_____

[19] See for example, Castillo et al. (1998); Bentolila and Jimeno (2003) and García-Pérez and Muñoz-Bullón (2003).

has a positive impact on the probability of finding a job[20], university students in Spain have a lower probability of finding employment than students in the other OECD countries: the unemployment rate among university students in the age category of 25 to 34 years old in Spain is 11.5 percent, compared to a European average of 6.2 percent (OECD, 2005a; European Commission, 2005). Moreover, unemployment is relatively high among individuals within the (general) age category of 16 to 34 years old (i.e., 43.5 percent) (INE, 2004). In Spain young people experience more problems in the transition from education system to the labor market than in the other OECD countries (Dolado et al., 2000, p. 95).

Second, although there may be improvements in recent years, Spain is characterized by the lowest participation in so-called high-expectation entrepreneurial activity (i.e., start-ups and new firms that anticipate on creating at least 20 jobs in the next five years) of all countries participating in the Global Entrepreneurship Monitor (Autio, 2005). The relatively low quality of self-employment is Spain also becomes apparent from the relatively high share of (very) small firms (KPMG/ENSR, 2004) as well as a low "inventiveness coefficient" (resident patent applications per head of the population) (OECD, 1997)[21]. Hence, there is room to (further) stimulate the quality of entrepreneurship in terms of job creation and innovation. Research by Congregado, Golpe and Millán (2005) shows that particularly the high-educated self-employed are likely to employ workers, either directly after the start of business operations or some years after start-up. Thus, stimulating new firm creation by young high-educated individuals is expected to lead to a decrease in (the level of) unemployment in Spain, not only because these targeted individuals exit from unemployment themselves, but also because in particular high-educated individuals are expected to have a disproportional high contribution in bringing down unemployment by way of employing workers.

There are several ways in which the Spanish government can help improve the quality of entrepreneurs and combat unemployment. First, to facilitate an entrepreneurial climate it is important to lift the education level of the population in general by way of investing in higher education[22]. This would lead to more higher-educated entrepreneurs[23]. Although there has been an increase in the number of individuals in Spain that have attended university from 18 to 30 percent in the period between 1978

---

[20] See for example, Barceinas et al. (2000).

[21] Obstacles to innovation (and so-called 'Schumpeterian' entrepreneurship) in Spain, cited in OECD (1998), include culture, lack of financial and human resources for innovation, lacking ability of public research institutions to promote technological development and deficient public finance institutions to finance innovation.

[22] Knowledge has been cited as one of the cornerstones of the entrepreneurial economy (Audretsch and Thurik, 2000; 2001; 2004).

[23] It can also be expected that these high-educated entrepreneurs create wage jobs for high-educated individuals, further augmenting employment options for people with an above-average education.

and 1993 (INE, 2002), the average education level in Spain is still low as compared to that of other OECD countries. About 40 percent of the Spanish people have attained secondary education, against an average for the OECD countries of 65 percent (INE, 2004). Also, more than 30 percent of the people within the age category of 20 to 24 years old abandon school after primary education. To compare, in France and Germany this percentage is 14 and 15 percent, respectively (OECD, 2005a). Also, the education system should be aimed more at stimulating business ownership and entrepreneurship. Reynolds et al. (2001) argue that higher education in Spain fails to address business issues in general and lacks a focus on entrepreneurship in particular. This may limit the extent to which individuals are able to develop the necessary (management) skills for running a growing business.

In addition to these education-related policies it is important that the Spanish government increases the incentives for the (young) unemployed to find paid employment (e.g., wage- or self-employment). This can be done through lowering the level of unemployment benefits.[24] Indeed, Spain is characterized by one of the highest replacement rates in case of unemployment (i.e., the percentage of income that is made available for the unemployed).[25] Moreover, although unemployment benefits in Spain are conditional upon active job search, these conditions are loosely applied. A more strict enforcement of these conditions would stimulate the search for jobs by the unemployed (OECD, 2005b). Apart from the generous nature of the unemployment benefits, cultural values and attitudes towards unemployment also seem to play a role in sustaining the high level of unemployment in Spain. In particular in the south of Spain[26] (where unemployment rates are higher) people appear to accept unemployment as a part of everyday life. Unemployment is perceived of as an opportunity to increase the quality of life – having more flexibility in time use and more leisure time available – rather than as a problem (Ahn et al., 2004). Hence, next to lowering unemployment benefits, a shift in the national attitude towards unemployment (in particular amongst young people) would be beneficial for unemployment reduction. However, since culture is relatively inert it will take time to bring about such a change.

These policies stimulating the unemployed to find paid employment should be complemented by policies aimed at improving the efficiency of counseling and training for the unemployed to increase the chance that unemployed individuals find a suitable job or are prepared for starting up their own business (e.g., OECD, 2005b).

---

[24] Using Spanish micro data, Congregado, Golpe and Millán (2005) find that those unemployed individuals who receive higher unemployment benefits have a smaller probability to enter self-employment.

[25] Brouwer et al., 2005; OECD, 2004.

[26] For information on regional disparities in unemployment see: López-Bazo et al. (2002); Villaverde and Maza (2002); Bande et al. (2004), and Garcia-Rubiales (2004).

Also, it is important for the Spanish government to facilitate labor mobility, which has been relatively low in Spain from the 1970s onwards. Indeed, people in Spain are reluctant to move to other places for work (Mauro and Spilimbergo, 1998)[27]. In combination with a generous unemployment benefit system, this limited mobility reduces incentives to accept lower wages and restricts the flow of labor towards (away from) areas in which there is a surplus (lack) of employment options (Mauro and Spilimbergo, 1998). In addition, the Spanish government should aim to relax the collective bargaining system, which prevents a sufficient decrease of the wage level in areas characterized by high unemployment, thereby inhibiting new business ventures in these areas (Mauro and Spilimbergo, 1998). Although the measures sketched above are aimed at the labor market in general, they are also likely to affect self-employment (as one of the alternatives to unemployment)[28].

From a societal perspective it is important that these issues are dealt with by the Spanish government, in particular since Spain has received extraordinary large sums of money from the European Union since 1986, amounting up to almost 50 percent of the total EU structural funds since 1995 (Fernandez, 2005)[29]. This injection of funding seems to create an environment in Spain in which people are not motivated to find paid employment (reinforced by the relatively high unemployment benefits) and unemployment is the preferred 'occupational choice'. This situation, in which social benefits 'consume' a large part of the government budget, is not sustainable since it can be expected that the EU subsidies for Spain will decrease in the near future with the entrance of the new EU member states. In addition, the ageing process will put more pressure on the social welfare system in Spain. Hence, it is important that Spain learns how to 'survive' without subsidies and structural funding. One important step forward for Spain would be to further invest in an entrepreneurial economy in which there is demand for high-skilled labor and where higher educated people start businesses with growth potential.

---

[27] Even if people move for their work, this often involves migration flows to the two major decision-making areas in Spain: Barcelona and Madrid (Mauro and Spilimbergo, 1998).

[28] Obviously, institutional restrictions on business expansion outside the sphere of the labor market, e.g., the lack of available finance, the unfavorable fiscal climate, should also be dealt with.

[29] Indeed, since 1986 Spain has received a substantial amount of EU funding to stimulate economic development, i.e., Spain received 540; 2,400; 5,900 and 8,900 million euro in the periods 1986-1988; 1989-1993; 1994-1999; 2000-2004, respectively (Fernandez, 2005).

7. REFERENCES

ACS, Z.J., and AUDRETSCH, D.B. 2003, Innovation and technological change, in: Z.J. Acs and D.B. Audretsch (eds.), *Handbook of Entrepreneurship Research*, Boston/Dordrecht: Kluwer Academic Publishers, 55-79.

AHN, N., GARCÍA, J.R. and JIMENO, J.F. 2004, Well-being consequences of unemployment in Europe, Working Paper 2004-11, FEDEA.

AMAT, J.M. and CODURAS, A. 2001, Proyecto GEM: Informe Ejecutivo 2000 Espana, Madrid: Catedra Janeti de Entrepreneurship and Family Business, Instituto de Empresa.

ARGANDOÑA, A., 1999, Una historia del desempleo en España, Documento de Investigación nº 398, Cátedra 'Economía y ética', IESE.

AUDRETSCH, D.B. and KEILBACH, M. 2004, Entrepreneurship capital and economic performance, *Regional Studies* 38, 949-959.

AUDRETSCH, D.B. and THURIK, A. R. 2000, Capitalism and democracy in the 21st century: from the managed to the entrepreneurial economy, *Journal of Evolutionary Economics* 10 (1), 17-34.

AUDRETSCH, D.B. and THURIK, A.R. 2001, What is new about the new economy: sources of growth in the managed and entrepreneurial economies, *Industrial and Corporate Change* 10 (1), 267-315.

AUDRETSCH, D.B. and THURIK, A.R. 2004, The model of the entrepreneurial economy, *International Journal of Entrepreneurship Education* 2 (2), 143-166.

AUDRETSCH, D.B., CARREE, M.A. VAN STEL, A.J. and THURIK, A.R. 2005, Does Self-Employment Reduce Unemployment?, Papers on Entrepreneurship, Growth and Public Policy #07/2005, Max Planck Institute of Economics, Jena, Germany.

AUTIO, E., 2005, *Global Entrepreneurship Monitor, 2005 Report on High-Expectation Entrepreneurship*, London Business School/Mazars/Babson.

BANDE, R., FERNÁNDEZ, M. and MONTUENGA, V. 2004, Regional Unemployment in Spain: Disparities, Business Cycle and Wage Setting, Paper presented at XIX National Conference on Labour Economics, Modena, September 2004.

BAPTISTA, R., VAN STEL, A.J. and THURIK, A.R. 2006, Entrepreneurship, industrial restructuring and unemployment in Portugal, in: Santarelli, E. (ed.), *Entrepreneurship, Growth, and Innovation: the Dynamics of Firms and Industries*, International Studies in Entrepreneurship, Berlin: Springer Science, 223-241.

BARCEINAS, F., OLIVER, J., RAYMOND, J.L. and J.L. ROIG, J.L., 2000, Los rendimientos de la educación y la inserción laboral en España', Papeles de Economía Española, nº 86, 128-147.

BENTOLILA, S., ARELLANO, M. and BOVER, O. 2004, Paro y prestaciones: Nuevos resultados para España, in: J. Pérez, C. Sebastián and P. Tedde (eds.), Economía e Historia, Ensayos en Homenaje a Luis Ángel Rojo (Volumen I), Políticas, Mercados e Instituciones Económicas, Madrid: Editorial Complutense.

BENTOLILA, S. and JIMENO, J.F. 2003, Spanish unemployment: the end of the wild ride?, FEDEA (Fundación de Estudios de Economía Aplicada), Documento de Trabajo 2003-10, April 2003.

BLANCHARD, O. and JIMENO, J. 1995, Structural unemployment. Spain and Portugal, *American Economic Review* 85, 212-218.

BOVER, O., GARCÍA-PEREA, P. and PORTUGAL, P. 2000, Labor market outliers: lessons from Portugal and Spain, *Economic Policy*, 31, 379- 428.

BOVER, O., ARELLANO, M. and BENTOLILA, S. 2002, Unemployment duration, benefit duration, and the business cycle, *Economic Journal*, 112, 223-265.

CAMPBELL III, C.M., 1996, The effects of state and industry economic conditions on new firm entry, *Journal of Economics and Business* 48 (2), 167-183.

CARREE, M.A. and THURIK, A.R. 2003, The impact of entrepreneurship on economic growth, in: D.B. Audretsch and Z.J. Acs (eds.), *Handbook of Entrepreneurship Research*, Boston/ Dordrecht: Kluwer Academic Publishers, 437-471.

CASTILLO, S., JIMENO, J.F. and LICANDRO, O. 1998, Employment Segmentation, Labour Mobility, and Mismatch: Spain, 1987-1993, Working Papers 98-04, FEDEA.

CASTRO, J. de, PISTRUI, J., CODURAS, A., COHEN, B. And JUSTO, R. 2002, Proyecto GEM: Informe Ejecutivo 2001 Espana, Madrid: Cathedra Najeti, Instituto de Empresa.

CEBRIÁN, I., 1996, The influence of unemployment benefits on unemployment duration, *Labour* 10 (2), 239-267.

CODURAS, A. and JUSTO, R. 2003, *Global Entrepreneurship Monitor: Informe Ejecutivo 2002*, España: GEM.

CODURAS, A. LÓPEZ-GARCÍA, P., JUSTO, R. and de LA VEGA, I. 2004, *Global Entrepreneurship Monitor: Informe Ejecutivo 2003*, España: GEM.

CONGREGADO, E., GOLPE, A. and MILLÁN, J.M. 2005, Determinantes de la oferta de empresarios, in: García, J. and J. Pérez (eds.), *Cuestiones Clave de la Economía Española*, Perspectivas actuales 2004, Ed. Comares, 165-187.

DOLADO, J.J., FELGUEROSO, F. and JIMENO, J.F. 2000, La inserción laboral de los titulados universitarios en España, Papeles de Economía Española, nº 86, 78-98.

EUROPEAN COMMISSION, 2005, Key data on education in Europe, see: www.eurydice.org.

FERNÁNDEZ, P., 2005, Fondos Europeos: la política regional europea en España. 1986-2003. Papeles FAES, nº 13. Fundación para el análisis y los estudios socials.

FONSECA, R., LÓPEZ-GARCÍA, P. and PISSARIDES, C.A. 2001, Entrepreneurship, start-up costs and employment, *European Economic Review* 45, 692-705.

FRANK, M.Z., 1988, An inter-temporal model of industrial exit, *Quarterly Journal of Economics* 103, 333-344.

FRITSCH, M., and MUELLER, P. 2004, The effects of new business formation on regional development over time, *Regional Studies* 38, 961-975.

GARCÍA-PÉREZ, J.I. and MUÑOZ-BULLÓN, F., 2003, The nineties in Spain: too much flexibility in the youth labour market? Working Paper, Business Economics Series. Universidad Carlos III, January 2003.

GARCÍA-RUBIALES, V., 2004, Unemployment in Spain: An analysis of labor mobility and young adult unemployment, Stanford University, Department of Economics, Honor thesis 2004.

GARCÍA-SERRANO, C. and JIMENO, J.F. 1998, Labour reallocation, job tenure, labour flows and labour market institutions: Evidence from Spain. Documento de Trabajo 98-07 FEDEA.

GEROSKI, P.A., 1989, Entry, innovation and productivity growth, *Review of Economics and Statistics* 71 (4), 572-578.

GRANGER, C.W.J., 1969, Investigating causal relations by econometric models and cross-spectral methods, *Econometrica* 37, 424-438.

GRANT THORNTON INTERNATIONAL BUSINESS STRATEGIES LTD., 1996, European Business Survey, United Kingdom.

HESSELS, S.J.A., STEL, A.J. VAN, BROUWER, P. and WENNEKERS, A.R.M. 2006, Social security arrangements and early-stage entrepreneurial activity; an empirical analysis, EIM Scales paper N200518, Zoetermeer: EIM Business and Policy Research.

HURST, E. and LUSARDI, A. 2004, Liquidity constraints, household wealth and entrepreneurship, *Journal of Political Economy* 112 (2), 319-347.

INE, 2002, Encuesta de Población Activa (EPA-2002), Instituto Nacional de Estadística.

INE, 2004, Anuario de Estadísticas Laborales y de Asuntos Sociales. Ministerio de Trabajo y Asuntos Sociales. Instituto Nacional de Estadística.

KPMG/ENSR, 2004*, Observatory of European SMEs 2003*, Luxembourg: European Communities.

LÓPEZ-BAZO, E., DEL BARRIO, T. and ARTIS, M. 2002, The regional distribution of Spanish unemployment. A spatial analysis, ERSA conference papers, European Regional Science Association.

MAURO, P. and SPILIMBERGO, A. 1998, How do the skilled and the unskilled respond to regional shocks? The case of Spain, IMF Working Paper no. 98/77, International Monetary Fund.

NICKELL, S.J., 1996, Competition and Corporate Performance, *Journal of Political Economy* 104, 724-746.

OECD, 1997, *Main Science and Technology Indicators*, Paris: OECD.

OECD, 1998, *Fostering Entrepreneurship, The OECD Jobs Strategy*, Paris: OECD.

OECD, 2004, *OECD Employment Outlook 2004, Reassessing the OECD Jobs Strategy*, Paris: OECD.

OECD, 2005a, *Education at a Glance: OECD Indicators*, Paris: OECD.

OECD, 2005b, *Economic Survey of Spain 2005*. Paris: OECD.

PARKER, S., 2004, *The Economics of Self-Employment and Entrepreneurship*, Cambridge: Cambridge University Press.

PRAAG, M. VAN and CRAMER, J. 2001, The roots of entrepreneurship and labour demand: individual ability and low risk aversion, *Economica* 149, 45-62.

REYNOLDS, P.D., CAMP, S.M., BYGRAVE, W.D., AUTIO, E. and HAY, M. 2001, *Global Entrepreneurship Monitor: 2001 Executive Report*, Babson College, London Business School and Kaufman Center for Entrepreneurial Leadership.

REYNOLDS, P.D., BYGRAVE, W.D., AUTIO, E., COX, L.W. and HAY, M. 2002, *Global Entrepreneurship Monitor, 2002 Executive Report*, Babson College, London Business School and Kauffman Foundation.

STEL, A. VAN, 2005, COMPENDIA: Harmonizing business ownership data across countries and over time, *International Entrepreneurship and Management Journal* 1 (1), 105-123.

STEL, A.J. VAN, CARREE, M.A. and THURIK, A.R. 2005, The effect of entrepreneurial activity on national economic growth, *Small Business Economics* 24, 311-321.

STOREY, D.J. and STRANGE, A. 1992, Entrepreneurship in Cleveland 1979-1989: A Study of the Effects of the Enterprise Culture, Research Series, No. 3, Sheffield, UK: Employment Department.

SUÁREZ, C., 2004, Convergencia y estabilidad, fondos y liberalización: los frentes europeos de Aznar en economía, Especial España en Europa, Working Papers, IUEE, 13/2004.

THURIK, A.R., 2004, Entrepreneurship and unemployment in the UK, *Scottish Journal of Political Economy*, 50 (3), 264-290.

THURIK, A.R. and VERHEUL, I. 2003, The relationship between entrepreneurship and unemployment: the case of Spain, in: Genescà, E., D. Urbano, J.L. Capelleras, C. Guallarte, and J. Vergés (eds), *Creación de Empresas. Entrepreneurship*, Barcelona: Universitat Autònoma de Barcelona.

TOHARIA, L., 1999, Los factores determinantes de la tasa de paro en España", Ponencia presentada en el Seminario sobre "Raíces Históricas de los problemas de economía actual".

VILLAVERDE, J. and MAZA, A. 2002, Salarios y desempleo en las regiones españolas, Papeles de Economía Española, nº 93, 182-194.

YOUNG, D, 2003, Employment protection legislation: its economic impact and the case for reform, European Commission, Economic Papers, nº 186, July 2003.