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The Contribution of Business Ownership in Bringing Down Unemployment in Japan

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Abstract: The relationship between entrepreneurship, measured by fluctuations in the business ownership rate, and unemployment in Japan is examined for the period 1972-2002. We conclude that, although Japan's unemployment rate has been influenced by different exogenous shocks as compared to other OECD countries, the effects of entrepreneurship on unemployment are not distinct. In the past small firms in Japan benefited from the protective environment of the *keiretsu* structure. This secure environment no longer exists, and a new market environment conducive to new venture creation and growth is not yet established. We argue that the Japanese government should actively stimulate an entrepreneurial culture.

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1. Introduction

The relationship between entrepreneurship and unemployment has increasingly received attention both by researchers and policy makers around the globe, in particular as a reaction to the relatively high unemployment levels with which European countries were confronted in the last decades. Entrepreneurship has been suggested as a remedy against high unemployment and stagnant economic growth (Audretsch et al, 2005; Carree and Thurik, 2003; European Commission, 2003). With respect to the relationship between unemployment and entrepreneurship, Japan is an interesting country as it historically combines a high degree of entrepreneurship (in terms of small firms or business ownership) with low levels of unemployment.

The foundations of Japan's economic structure and development date back to the Meiji era in the 19th century, the starting point for rapid growth and industrialization. In the early 20th century the Japanese economy had a 'dual structure' characterized by the power of larger firms and the dependency of smaller firms (Hirschmeier, 1964; Whittaker, 1997). The *keiretsu* structure¹, established after WWII, had an extensive impact on the Japanese economy and its industrial structure. Instead of following the path of increased business concentration, the Japanese economy relied upon inter-firm long-term commitment relationships where large and small firms cooperate together closely without vertical integration. Japan managed to climb out of the post-war recession showing extraordinary economic performance in the 1950s and 1960s, but the crises in the 1970s forced Japanese firms to drastically rationalize production (Aoki, 1990). Subcontracting rates slowly decreased in the 1980s (JSBRI, 2003, p. 28).

Since the beginning of the 1990s Japan entered a prolonged period of economic stagnation known as the *lost decade* in which Japan experienced very low to no growth. In this period business ownership levels declined drastically² and within a decade unemployment levels more than doubled. The keiretsu structure with its emphasis on lifetime employment, seniority wages and internal labour market mechanism contributed to low job mobility and mismatching on the labor market³. These developments contrast a general trend towards a more *entrepreneurial* economy that can be observed in many other OECD countries. Japan is characterized by a situation in which the old subcontracting firms are faced with widespread destruction but where thus far the creation of new firms has not yet taken off (Cowling and Tomlinson, 2002). Amidst strong government efforts to revive the Japanese economy through increased entrepreneurship, many fear that its economy is heading for a second decade of stagnating growth and increasing unemployment.

In the present paper we investigate the dynamics in the relationship between entrepreneurship (as measured by business ownership) rates and unemployment rates for Japan for the period 1972-2002, focusing upon the contribution of business ownership in bringing down unemployment. A comparison with the contribution observed in the OECD countries serves as a starting point for our analysis⁴. The structure of the paper is as follows.

Section 2 addresses the link between unemployment and entrepreneurship, giving an overview of different theories. Sections 3 and 4 (graphically) present and discuss the development in unemployment and business ownership rates in Japan in the period 1970-2002. The rise in unemployment and the decrease in business ownership in recent years seems driven by the fact that the system used to produce low unemployment rates has lost its strength, even in times of economic recession, while no adequate alternative structure have been put into place. In Section 5 we introduce and discuss a model proposed by Audretsch et al. (2005) capturing the complex

relationship between entrepreneurship and unemployment. This model is the basis for our discussion of the particularities in the relationship between business ownership and unemployment in Japan in Section 6 where we apply the model to Japanese data. We will conclude discussing the main findings, limitations and implications from our study.

2. Linking Entrepreneurship and Unemployment

Entrepreneurial activity is not only a consequence of a push effect of (the threat of) unemployment but may also be the result of a pull effect produced by a thriving economy as well as by past entrepreneurial activities. (Audretsch et al., 2005). The occupational choice approach suggests that increased unemployment will lead to an increase in start-up activity because the opportunity costs of starting a firm have decreased. This effect has been referred to as the ‘refugee’ effect. However, unemployed people tend to possess lower endowments of human and social capital and entrepreneurial talent. High unemployment may also imply lower levels of personal wealth reducing the likelihood of becoming self-employed (Parker, 2004).

In addition to unemployment influencing start-up activity, it has also been argued that entrepreneurship (in terms of new firm start-ups or business ownership) influences (un)employment. In the present study we focus upon this direction of causality in the relationship between unemployment and entrepreneurship. The positive effect of entrepreneurship on economic performance has been referred to as the ‘Schumpeter’ effect. New firms create (new) jobs, leading to a subsequent decrease in unemployment. Entrepreneurship may influence economic performance in different ways. Entrepreneurs often play vital roles in the early evolution of industries introducing new products or processes and in the long term may increase productivity by increasing competition. New entrants in the market arena may also create knowledge about what is technically viable and consumer preferences by introducing variations of existing products and services in the market. Knowledge spillovers play an important role in this process. Finally, self-employed individuals tend to work longer hours than wage-employed people and may be more productive as their income is more clearly linked to working effort. See Audretsch et al. (2005) and Carree and Thurik (2003).

There are many different links between entrepreneurial activity and unemployment. Audretsch et al. (2005) try to reconcile the ambiguities found in the relationship between unemployment and start-up activity distinguishing between the ‘refugee’ effect and the ‘Schumpeter’ effect described above. They introduce a two-equation vector autoregression model where changes in unemployment and self-employment are linked to subsequent changes in those variables for a panel of 23 OECD countries. Section 5 reviews this model, focusing upon the influence of entrepreneurship on unemployment (i.e., the ‘Schumpeter’ effect), and Section 6 presents and interprets the residuals for Japan.

3. Developments in Unemployment in Japan

Figure 1 presents the development of unemployment in the period between 1970 and 2002 for Japan and four other OECD countries: France, Germany, The Netherlands and the United States. As compared to other countries, the development of unemployment in Japan in the period 1970-

¹ See Lincoln et al. (1998) for a description of the different types of keiretsu (i.e., Japanese inter-firm networks), including the *horizontal*, the *vertical distribution* and the *vertical supplier* keiretsu.

² Unable to compete on price with the new Asian competition and lacking experience in presenting themselves in the market, many small firms went bankrupt or were forced to close (Ikeda, 1998).

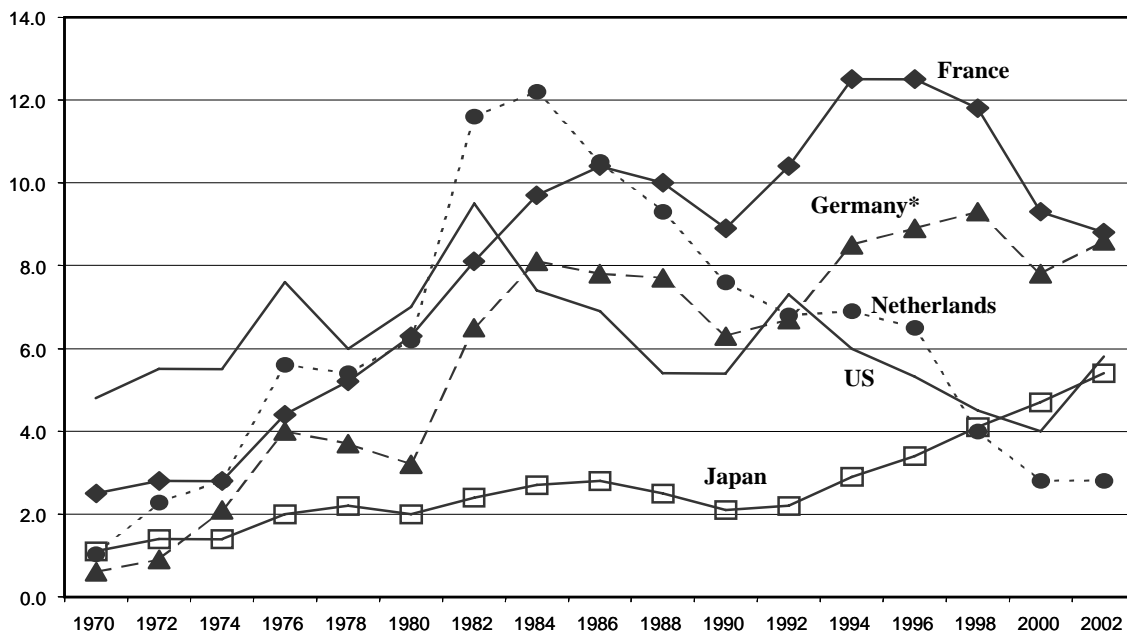
³ Genda and Rebick (2000) show that during the 1990s vacancies have actually increased in periods of rising unemployment levels.

⁴ The present study utilizes the model proposed in Audretsch et al. (2005). However, note that the present paper deals with a one-way relationship, in which entrepreneurship influences the unemployment rate. Baptista et al. (2006), using the same methodology, have investigated the two-way relationship between business ownership and unemployment for Portugal, also including an analysis of the ‘push’ effect of unemployment on self-employment. Verheul et al. (2006) and Thurik (2003) use similar models for Spain and the UK, respectively.

2002 is relatively stable at a low level, with a slight increase during the 1980s and accelerating unemployment rates during the 1990s, bringing the level of unemployment in Japan close to that perceived in the other OECD countries⁵. The pronounced cyclical pattern of unemployment in most Western countries shows vehement increases in the early 1980s and early 1990s. These increases can also be observed in Japan, although to a lesser extent as upward shocks are dampened by the *keiretsu* structure and downward shocks dampened by a relatively large pool of *discouraged workers*.⁶

Japan's economic system has always been admired for sustaining very low levels of unemployment even in times of economic downturns. These sustained low levels of unemployment can be attributed not only to the high growth rate of this period, but also to the specific nature of the Japanese employment system. Labor conditions such as long-term job security and seniority wages resulted in a reliance on internal employment adjustment as a mechanism to cope with changes in demand and technology. In times of economic adversity, such as the oil crises of the 1970s, troubled *keiretsu* firms would redeploy their employees by sending them to subsidiaries or related firms in other sectors (Chuma, 2002a).

Figure 1: Unemployment (% of labor force) in the period 1970-2002



Source: EIM based on OECD. The data for Germany refer to West Germany for the period 1970-1990.

In contrast to earlier recessions, the Heisei recession of the 1990s has led to an increase in unemployment. Keiretsu ties between firms weakened considerably since the 1980s, making it difficult to call on subsidiaries to accept redundant personnel. Also, this recession had a broader impact across sectors than the two oil crises of the 1970s (Chuma, 2002a). Unemployment grew further through the (industrial) segmentation of the Japanese labor market (Abe and Ohta, 2001) and the increased employment participation of women since the 1980s (e.g., Honda, 2005). However, personnel reductions mainly occurred in large firms implementing substantial cutbacks in employment from the beginning of the 1990s. Employment in the small business sector only started to decline after 1997 when the Heisei recession deepened and the number of business closures increased sharply. Because employment adjustment historically occurred within (large)

⁵ In this period of increasing unemployment in Japan it became apparent that the unemployment insurance was not sufficient as this was based on the long-term low unemployment rate in Japan (Ohkusa, 2004).

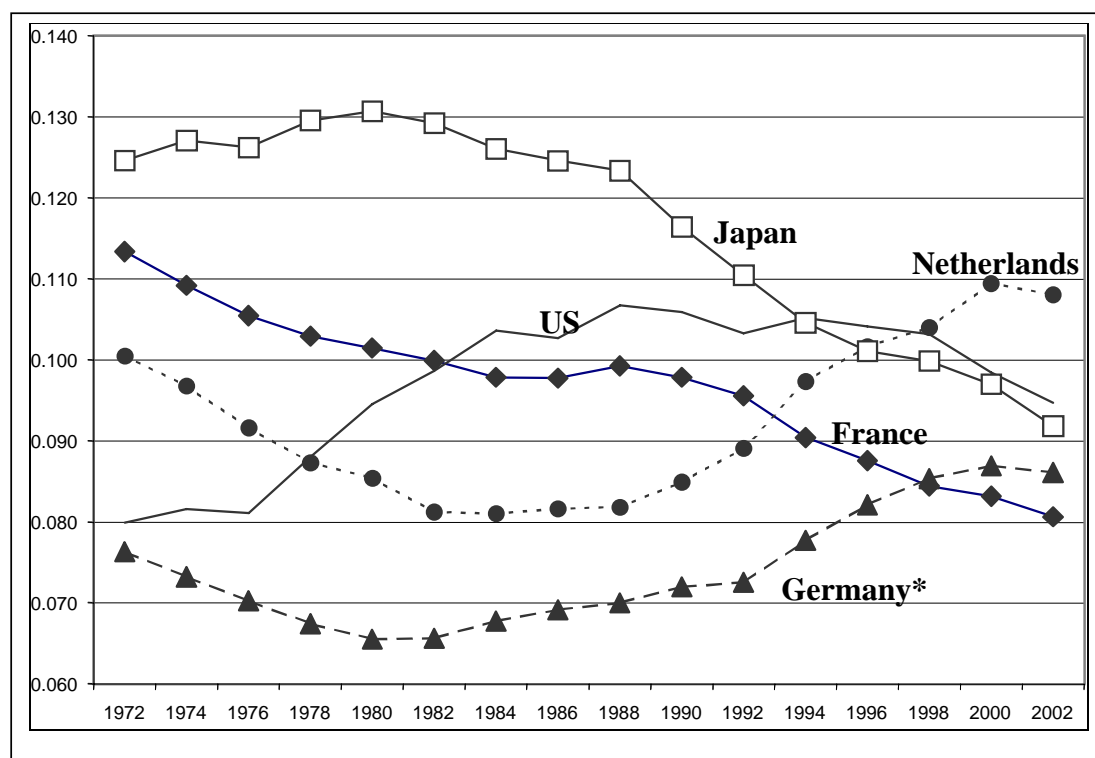
⁶ Discouraged workers are those individuals who withdraw from the labor market, switching from unemployment to 'homemaker'. Aoki (1988) shows that the number of discouraged workers in 1978 amounted to 8.9 per cent of the labor force in Japan opposed to 1.4 per cent in the US despite the higher unemployment rate in the US at that time.

firms, alternative adjustment mechanisms through the market, e.g., in the form of effective job placement and (re)training of employees, were highly underdeveloped (Kameyama, 2001). At present there still is a strong reliance on the organization instead of the market to allocate (human) resources (Chuma, 2002b; Kato, 2001).

4. Developments in Business Ownership in Japan

Figure 2 presents the development in the business ownership rate in the period 1972-2002 for the same countries included in Figure 1. Contrary to most OECD countries, business ownership in Japan decreases. Whereas Japan is characterized by a relatively high share of business owners in the labor force up to the 1970s, the succeeding decades show a steady decline in business ownership.

Figure 2: Business owners (% of labor force) in the period 1972-2002

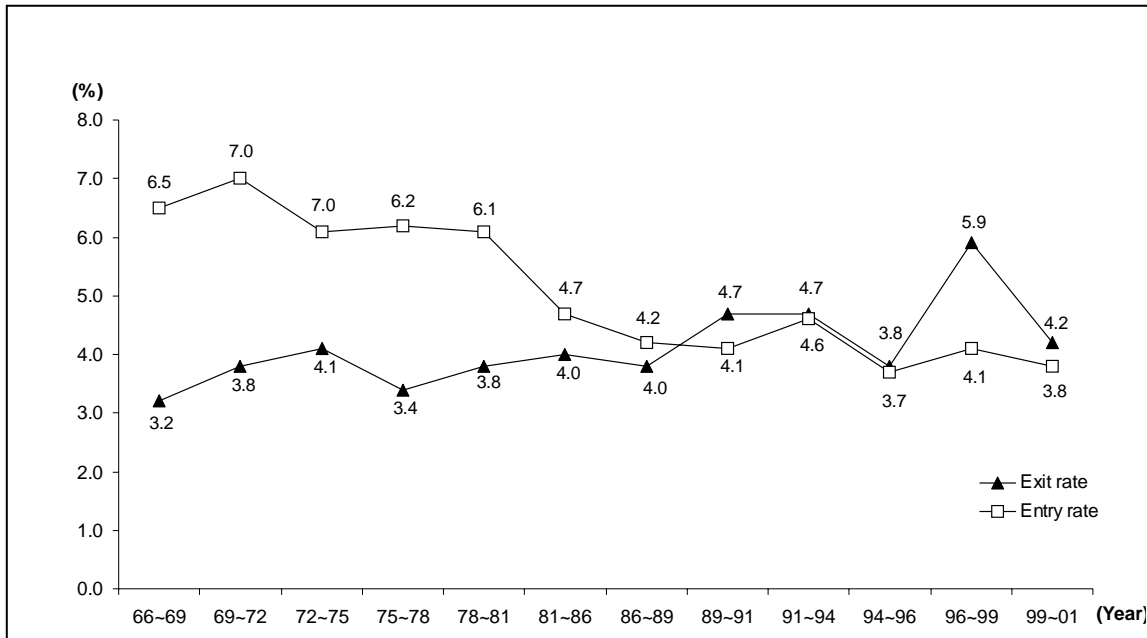


Source: EIM COMPARative ENTrepreneurship Data for International Analysis (COMPENDIA 2002.1). Business ownership refers to non-agricultural entrepreneurship, including the owners of both incorporated and unincorporated businesses, but excluding so-called unpaid family workers and wage-and-salary workers operating a side-business as a secondary work activity. The data for Germany refer to West Germany for the period 1972-1990. See van Stel (2005).

To have more insight into the dynamics behind the development of the business ownership rate, in Figure 3 we present entry and exit rates in the number of *establishments* in Japan for the period 1966-2001. Although this is not the same as entry and exit of (independent) firms, it can be considered an indicator of the dynamics in the Japanese economy. From Figure 3 we see that the exit rate is relatively stable throughout the 1970s and 1980s at three to four per cent. The economic recession in the early 1990s led to an increase in bankruptcies, followed by a modest recovery in the mid-1990s. From 1997 the exit rate increased again and peaked at 5.9 per cent in the period between 1996 and 1999, the highest level of establishment closures in decades. More recent figures show that the number of closures is declining again. Conversely, start-up activity has steadily decreased since the 1970s when the Japanese economy was still experiencing (high) growth. Since the collapse of the bubble economy there appears to have been a structural decline of the start-up rate (JSBRI, 2002). Until the end of the 1980s the entry rate exceeded the start-up rate. From the 1990s onwards the net entry rate becomes negative and business ownership shows a

strong downward trend (see also Figure 2). Recently, the number of bankruptcies has decreased to its lowest level since the bubble period, due to economic stability, safety net guarantees to SMEs and an ease in eligibility requirements (JSBRI, 2005, p. 24).

Figure 3: Entry and exit rates (in number of establishments) in Japan in the period 1966-2001



Source: JSBRI (2005). Data are from the Statistics Bureau, MIC, *Establishment and Enterprise Census of Japan*. Entry and exit rates include the establishment and closure of branches and plants, and entry and exit due to relocations.

5. Modeling the Relationship between Entrepreneurship and Unemployment

In Section 2 we discussed the complex nature of the relationship between entrepreneurial activity and unemployment, and, in particular including the assumption of the dual causality. To create more insight in the causal linkages involved in the relationship between entrepreneurship and unemployment, Audretsch et al. (2005) estimate a two-equation vector autoregression (VAR) model where the change in unemployment and that in entrepreneurial activity are the dependent variables. 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 (Sims, 1980). Time dummies are included as exogenous variables⁷. 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:

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

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

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 whereas that of the λ -coefficients is positive.

⁷ The inclusion of country dummies in the model was rejected by standard likelihood ratio tests.

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 as self-employment and these data are taken from the COMPENDIA 2002.1 data set of EIM in Zoetermeer, The Netherlands. The COMPENDIA data set harmonizes self-employment data as published in *OECD Labour Force Statistics* making use of various (country-specific) sources to make the self-employment data as comparable as possible across countries and over time.⁸ The definition used in COMPENDIA is the number of non-agricultural self-employed (unincorporated as well as incorporated) as a fraction of the labor force. See van Stel (2005) for details about the COMPENDIA data base.

Equations (1) and (2) are estimated using weighted least squares. Audretsch et al. (2005) consider changes in self-employment and unemployment over periods of four years, i.e. L equals 4. Inclusion of more lags seems compelling because the employment impact of entrepreneurship is not instantaneous: 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 $L=4$), the authors test for the shape of the lag structure and find that the model variant using two lags is statistically optimal. We present the results for the unemployment equation (Equation 1) in Table 1. We do not pay attention to the entrepreneurship equation (Equation 2) because in this study we focus upon the influence of entrepreneurship on unemployment (i.e., the ‘Schumpeter’ effect). The main variables are bold-printed in the upper part of Table 1. The lagged dependents (i.e., controls) are presented in the lower part of the table.

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)
D_{1990}	-1.66** (2.8)
D_{1994}	0.936 (1.4)
D_{1998}	-0.862 (1.4)
D_{2002}	-1.20 (1.9)
R^2	0.403

Source: Audretsch et al. (2005). Note that absolute t-values are between brackets.

** Significant at 0.01 level.

From Table 1 we see that entrepreneurial activity significantly lowers unemployment 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 and Carree and Thurik (2006) for OECD countries. Only after some time, the new entrants contribute to economic growth, either by growing themselves or stimulating incumbent firms to perform better because of the increased competition. The next section will present some computations as to how the model works out for Japan.

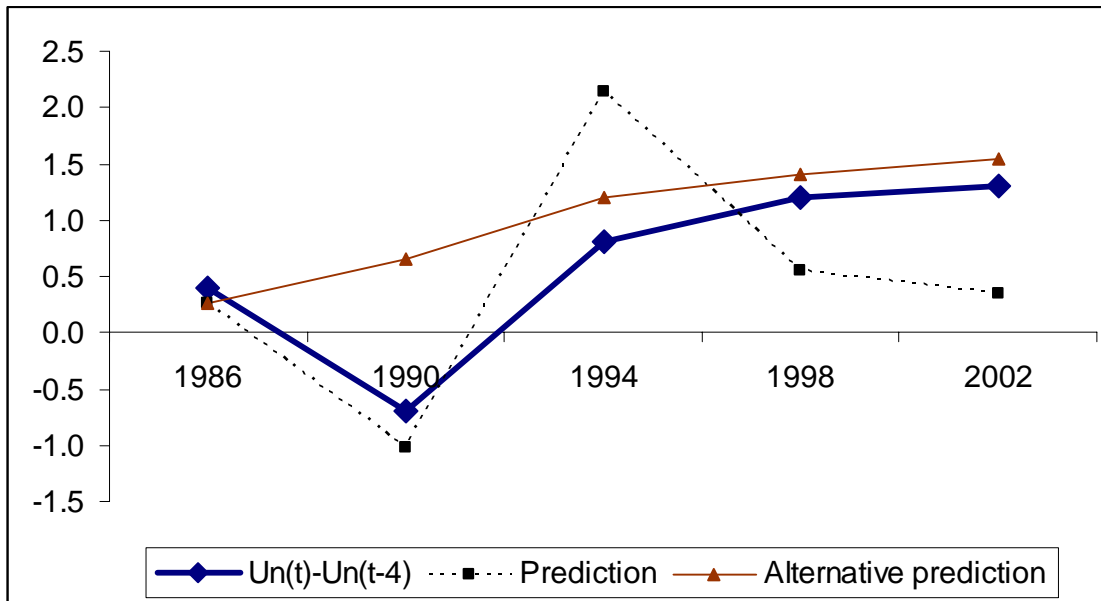
6. Analyzing the Residuals for Japan

⁸ The harmonizations mainly concern 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.

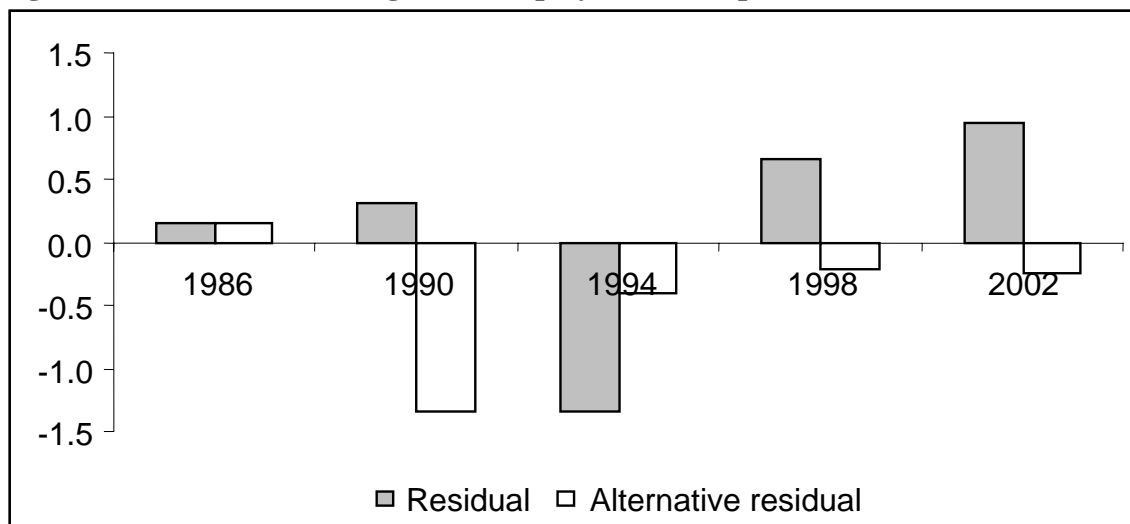
To determine whether and to what extent the contribution of entrepreneurship (i.e., business ownership) to reducing unemployment in Japan deviates from that in other OECD countries we study the residuals of Equation (1) for Japan. Based on the regression coefficients in Table 1 and the unemployment and business ownership rates for Japan as depicted in Figures 1 and 2, we compute the residuals and predicted values for the four-year change in unemployment (the dependent variable in Equation 1) for Japan.

The residuals in percentage points for Japan for the years 1986, 1990, 1994, 1998 and 2002 amount to 0.14, 0.32, -1.34, 0.65 and 0.95, respectively. We see that, although the predictive value of the model is quite high in the earlier years (residuals are small), the predictive value is considerably smaller in more recent years. Investigating the contribution of each independent variable to the model fit, we find that – on average – the time dummies contribute negatively to the predictive value of the model. Therefore, we also estimated a model including the unemployment and self-employment variables only, i.e. ignoring the impact of the time dummies.

Figure 4 presents the actual values of the four-year change in unemployment (i.e., the dependent variable) as well as the predictions based on the two models (i.e., including and excluding year dummies). Figure 5 presents the residuals of both models.

Figure 4: Predicted and actual values of change in unemployment in Japan

Note: The alternative prediction ignores the influence of the time dummies.

Figure 5: Residuals for change in unemployment in Japan

Note: The alternative residual ignores the influence of the time dummies.

It appears that the model produces more accurate results for Japan when time dummies are not included. With the exception of 1990 the 'alternative' residuals are considerably smaller. Hence, using the model outcomes from Table 1, but ignoring the impact of the time dummies, produces a more accurate prediction of the unemployment rate in Japan. Note that the predicted acceleration in unemployment (according to the 'alternative prediction' in Figure 4) corresponds with the deceleration in the business ownership rate since the mid 1980s (see Figure 2).

The Use of Time Dummies

The question is why including time dummies in the model has a negative impact on the predictive power of the model for Japan. Time dummies correct for business cycle effects or exogenous economic shocks in the sample period that are common for the (majority of the) countries covered by the data set in use. In a data set including countries from all over the world, time dummies usually correct for exogenous shocks with a worldwide impact. In the time period studied for the Audretsch et al. (2005) model there have been such shocks, including the dissolution of the Soviet Union, the invasion of Kuwait and resulting hostilities, the (burst of the) high-tech bubble and

changing prices for raw minerals. The influence of these events is of a worldwide nature and can be incorporated in models by including time dummies.

The data set we use in the present study includes 23 countries from all over the world. However, the distribution of these countries over the different continents is relatively uneven. For instance, Japan is the only country from Asia and – together with the Anglo-Saxon countries of the United States, Canada, New Zealand and Australia – it is one of the five non-European countries. Hence, the effects captured by the time dummies may refer to shocks experienced by the European countries only, rather than to global issues. In fact, the smaller residuals for Japan when excluding the time dummies (presented in Figure 5)⁹ suggest that Japan faces different economic shocks (or similar shocks at a different point in time) as compared to the other countries included in the data set. It also suggests that Japan faces different business cycles as compared to the other countries.

Economic Development: Japan Versus Other Countries

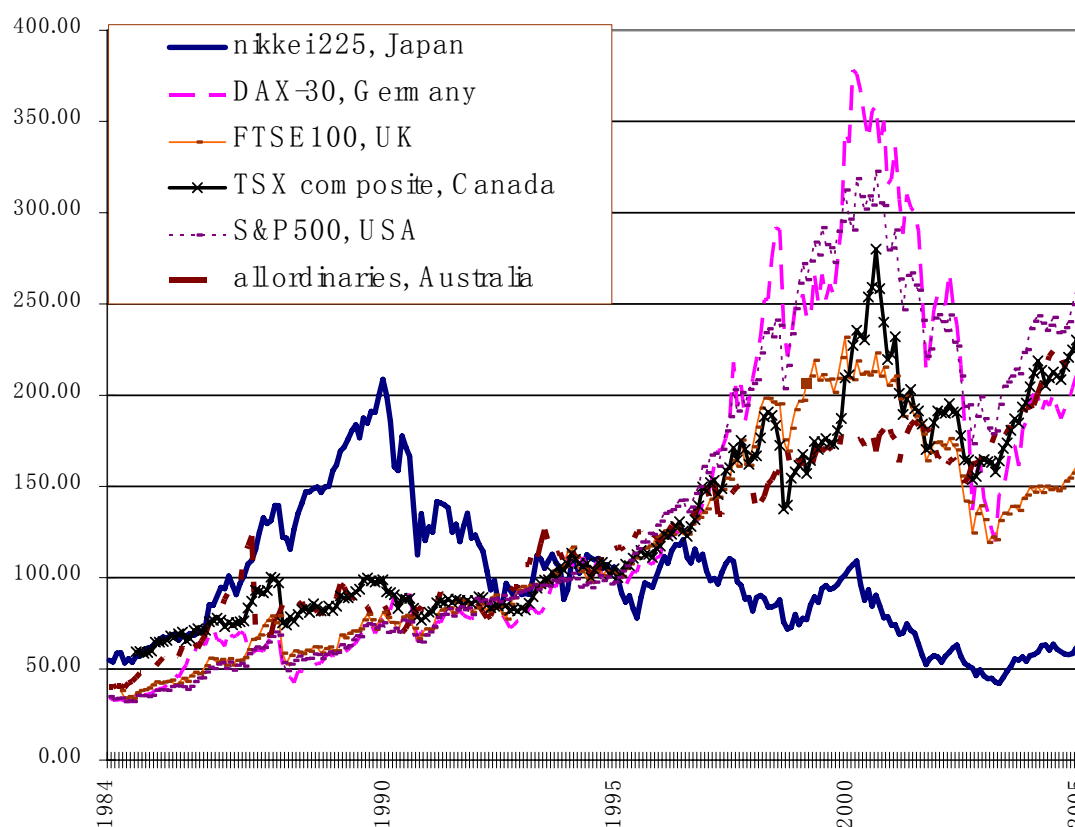
To compare the economic development in Japan with that in other countries, Figure 6 presents stock indices over the last twenty years for six of the main economies in the world. We see that stock indices in Japan follow a different pattern as compared to the other (non-European) countries in our data set. Stock prices are to a large extent influenced by company profits and the ‘emotional state’ of investors, both of which are largely influenced by exogenous shocks.

With the exception of the Japanese ‘Nikkei’-index, the stock indices follow a quite similar path. The Japanese stocks were relatively high in the late 1980’s (*the economic bubble*) and relatively low in the 1990’s (*the lost decade*). Where other countries experience substantial rises in stock prices during the second half of the 1990’s (now commonly referred to as the *tech-hype* or *internet-bubble*) Japan’s Nikkei index drops even further. This may be due to the deepening of the *Heisei* recession. In this period, commonly referred to as ‘*the Asian financial crisis*’, the weakened Japanese economy, and most notably its banking system, had to absorb heavy losses through forced bad debt write offs.¹⁰ The Australian stock index may have been affected by this *Asian financial crisis* as well.

⁹ Note that the residuals in 1986 are the same by construction as 1986 is the reference group in the initial model.

¹⁰ For more information on the causes of the Asian financial crisis and its impact on the Asian economies we refer to Corsetti et al. (1999).

Figure 6: Main stock indices for a selection of countries (January 1984 - June 2005), with January 1995 as the base month



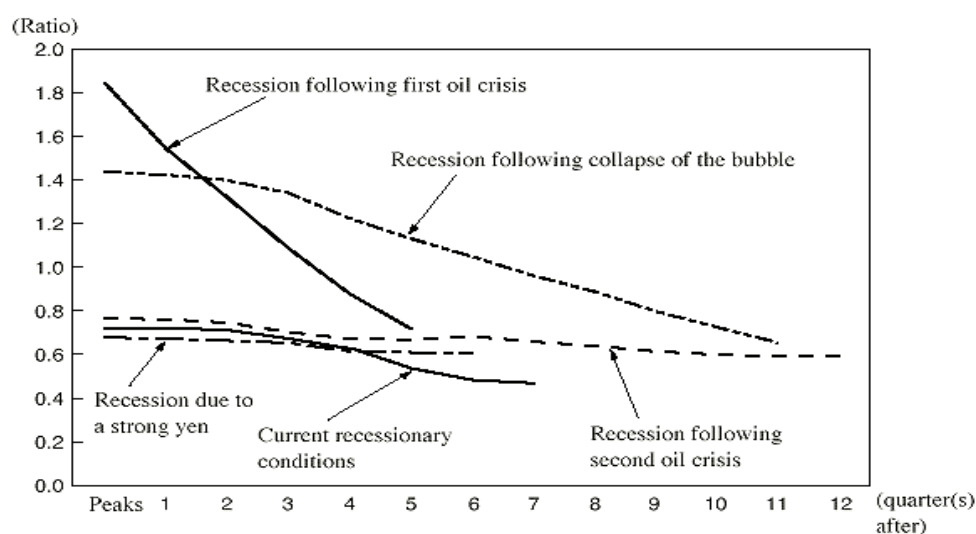
Source of data: econstats.com

Explaining the 1990 'Alternative Residual'

The previous analysis explains that for Japan the model excluding time dummies presents the relationship between entrepreneurship and unemployment best. The small 'alternative' residuals in Figure 5 suggest that the estimated impact of entrepreneurship on unemployment, as reflected by the bold-printed coefficients in Table 1, is relatively accurate for Japan. This allows for straightforward interpretation of the model outcomes for the case of Japan. However, it is important to understand the origin of the large residual in 1990. For the period 1986-1990 the model predicts an increase in unemployment of about 0.6 percentage points, but the reality is that unemployment decreased by 0.7 percentage points (see Figure 4). Can we explain this residual, i.e., is there a unique characteristic in the development of the Japanese economy during the period 1986-1990 that is not captured by the model and that we can explain ex-post? It may be that the high residual for 1990 is caused by the economic bubble. Japanese firms tend to be 'enthusiastic' in terms of hiring new employees in prosperous years (Abegglen and Stalk, 1985). Because of the increase in land, asset and stock prices more funding became available for additional investments, increasing the demand for labor.

Figure 7 presents trends in the *ratio of active job openings to applicants*, representing the relative demand for job applicants, for the most recent Japanese recessions.

Figure 7: Trends in the ratio of active job openings to applicants under recessionary conditions (seasonally adjusted)



Source: Ministry of Labour, *Report on Employment Service*.

Note: From economic peak to recession bottom; data for the current recessionary conditions go through the 1998 October to December period.

The periods of recessionary conditions are as follows:

Recession following first oil crisis: From 1973 October to December period to 1975 January to March period

Recession following second oil crisis: From 1980 January to March period to 1983 January to March period

Recession due to strong yen: 1985 April to June period to 1986 October to December period

Recession following collapse of the bubble: 1991 January to March period to 1993 October to December period

Current recessionary conditions: Started in 1997 January to March period

Source: Ministry of Labour (1999).

From Figure 7 it can be derived that between October 1986 (end of the ‘recession due to a strong yen’) and the beginning of 1991 (beginning of the ‘recession following the collapse of the bubble’) the *ratio of active job openings to applicants* increased from 0.60 to more than 1.40. Hence, the creation of the bubble (that occurred within the 17 quarters between the two recessions) seemed to have had a positive influence on this ratio, which – both in size and speed – was comparable to the negative effect of the burst of the bubble. Between October 1986 and October/December 1993 the ratio, loosely portraying the job market perspectives of job seekers, peaked and stabilized at the level of the previous recession.

The development of the *ratio of active job openings to applicants* seems to be negatively related to changes in unemployment in the period 1986-1993 (see Figure 1). However, this does not provide conclusive evidence for the hypothesis that an increase in labor demand was responsible for this decrease in unemployment. For instance, changes in the social welfare of inactive members of the (potential) workforce may have ‘inspired’ the Japanese people to – en masse – switch from unemployment to ‘homemaker’ (i.e., the *discouraged worker effect*). This would lead to a decrease in the size of the labor force which, subsequently, would affect the unemployment rate (via the denominator)¹¹. Indeed, data from *OECD Labour Force Statistics* show that between 1986 and 1992 the increase in the size of the Japanese labor force accelerated considerably. In terms of the *ratio of active job openings to applicants* this implies that the number of applicants (the denominator of the ratio) increased. Accordingly, an increase in the *ratio of active job openings to applicants* may be interpreted as a considerable increase in the demand for labor. The high

¹¹ Estimates of the number of *discouraged workers* in Japan suggest that there is a strong tendency among the Japanese people to become ‘discouraged’ (Aoki, 1988).

increase in the labor force between 1986 and 1992 suggests that in this period many previously *discouraged workers* (re)entered the labor force.

Given the unique economic circumstances in Japan in the period between 1986 and 1990 (i.e., an increase in speculative behavior and optimism, leading to a large increase in the demand for labor and a subsequent decrease in unemployment) it is not surprising that the models' prediction for 1990 deviates (positively) from the observed unemployment rate. Because exceptional events seem to have led to a discrepancy between the predictions and reality in this time period, we argue that the model (ignoring the impact of the time dummies), estimating the influence of (changes in) entrepreneurship on (changes in) unemployment, as presented in the previous section, is relatively accurate for and, therefore, applicable to Japan.

7. Discussion and conclusion

The present paper has discussed the relationship between business ownership and unemployment in Japan. We have shown that, although Japan is a country which has endured different exogenous influences as compared to the other OECD countries, the unemployment reducing effect of business ownership (i.e., the Schumpeter effect) is comparable to that in the other OECD countries. Given the accurate prediction of the model for Japan, which shows that entrepreneurship is important for bringing down unemployment, as well as the developments in unemployment and business ownership rates we see in recent years (i.e., a decrease in business ownership and an increase in unemployment) in Japan, it is important that the Japanese government comes into action to stimulate entrepreneurship (i.e., business ownership) through creating an entrepreneurial culture.

Although in the last two decades the importance of small firms as a source of economic growth is increasingly acknowledged and new firm creation has become a national priority in Japan¹², it is disconcerting to see that the growing importance attributed to small firms has been paired with a decrease rather than an increase in the number of business owners in Japan. It may be argued that the Japanese government has been slow in facilitating the transition towards creating an entrepreneurial environment. Indeed, in a recent survey of Japan in *The Economist* (2005) it is argued that Japan chooses a path of gradual reform. This gradual approach is also expressed in the dualistic character of public policy in Japan. On the one hand, policy is based on social considerations, aiming at mitigating the harsh impact of the changed economic conditions in the short run. The massive injections of public funds in the financial sector, bankruptcy prevention measures and extensive public loan policies are aimed at preventing large-scale destruction of the small business sector. On the other hand, policies in the longer term aim at fostering an *entrepreneurial* environment. In this respect there is hope that the 'Silicon Valley' model will lead to a revival of the Japanese economy. Inspired by American policy the Japanese government introduced several new laws aimed at facilitating new venture creation; formalizing the venture capital market; stimulating cooperation between the business sector and universities, and supporting business innovation (JSBRI, 2005).

Moving from a managed to an entrepreneurial economy, Japan will have to deal with several obstacles to small firm development. *First*, innovation levels in small firms in Japan have been relatively low. Of the total private R&D expenditures, only 7.2 per cent takes place in firms with less than 500 employees, which is the lowest share of all OECD countries (OECD, 2002b)¹³. Small and medium sized firms traditionally have not been able to benefit from technology transfer by knowledge institutions. Knowledge transfer occurred largely through informal relationships between firms and university researchers, which typically benefited larger firms (Yoshihara and Tamai, 1999).

¹² This is reflected in the 'Basic Law on SMEs' of 1999 arguing that small firms are "*a source of diverse and vigorous growth*" (JSBRI, 2002, p. I-0).

¹³ The relatively low R&D investments in small firms also contribute to a low total factor productivity (TFP) growth. Urata and Kawai (2002) show that small firms exhibit lower TFP growth than larger firms.

A *second* problem is the acquisition of financial capital (JSBRI, 2002). The current focus of banks on securing outstanding loans is likely to lead to a pre-selection of stable, low-risk investments. New and high-growth firms are usually unable to meet collateral requirements, and, accordingly, are more likely to be turned down by banks¹⁴. Alternative sources of finance capital for small firms exist but their use is still limited. Reynolds et al. (2002) show that only 0.7 per cent of the Japanese firms is funded with venture capital and that Japan ranks lowest among all OECD countries in per capita venture capital investments. However, in the (near) future small and new firms in Japan may make more use of venture capital funding as both the Osaka and Tokyo stock exchanges have opened up new markets (in the late 1990s) and the strict requirements for listing on these new venture capital markets have recently been eased (JSBRI, 2005, p. 109).

Finally, small firms encounter difficulties entering the market as newcomers because of the existing business channels between established firms (JSBRI, 2002). The importance of long-term close relationships, trust and reputation in Japan complicates the development of a dynamic business environment that is open to new entrants. It is expected that anti-trust legislation will be reinforced in the period to come, and that the role of the state will be brought back¹⁵. However, even with anti-trust enforcement and deregulation to stimulate entrepreneurship, Japan may not be able to replicate the American style free market economy. Japan's unique system of inter-firm relations and low risk-taking is likely to result in a different approach to the challenges of the knowledge economy. In this respect, Daly (1998) argues that entrepreneurship in Japan is more likely to take on the form of intrapreneurship rather than that of new firm start-ups. Moreover, Japan has taken the path of incremental change, implementing a set of policies, whereas the real challenge for Japan may lie in creating an entrepreneurial *culture* in which small firms flourish and policies have maximum impact. Japan has inherited *keiretsu* values such as risk adversity and the importance of group structures, which are still firmly embedded in its society and hamper entrepreneurial activity¹⁶. Cultural inclinations, such as risk adversity and collectivism, are fairly constant over time (Hofstede, p. 34). Indeed, Yahagi and Isobe (2001) find that Japan ranks highest among a group of 21 (mostly OECD) countries with respect to the public perception of the risks involved in new venture creation.

An important element of the Japanese business 'culture' is the limited growth ambition of entrepreneurs. Reynolds et al. (2002) find that there is a high rate of 'necessity entrepreneurship' in Japan, suggesting that the 'refugee' effect is important. Harada (2005) finds a positive relationship between the unemployment rate and aspiring entrepreneurs. Unemployment is relatively high for younger and older people in Japan (OECD, 2002a). While the young unemployed generally have fewer skills, older people tend not to desire firm growth. Thus, firm growth may either not be a priority for Japanese entrepreneurs or may not be feasible in light of lack of skills and knowledge¹⁷.

The limited growth ambition of Japanese entrepreneurs may be linked to the relatively low appreciation of entrepreneurial efforts in Japan. A striking example of the negative attitude towards business people in Japan is given in *The Economist* (2005, p. 18 of survey) citing one of the leading venture capitalists in Japan who underlines the importance of social obligations of companies and argues that young entrepreneurs are too greedy for money. This citation also shows that the collective is still more important than the individual identity.

¹⁴ Even if firms acquire money from the bank, they tend to over-invest and over-borrow, and that in times of economic shocks these firms perform poorly (Yao and Ouyang, 2006).

¹⁵ The election of pro-change prime minister Koizumi in September 2005 has contributed to this expectation. And, indeed, Japan has already witnessed the democratization of Japan Post and the splitting up of the highway agency (see *The Economist*, 2005).

¹⁶ In the *keiretsu* structure risks were reduced through the stability of the subcontracting relation. Kawai and Urata (2002) argue that subcontracting opportunities have a positive effect on small firm entry.

¹⁷ See Genda and Kambayashi (2002) for a discussion of age effects on self-employment in Japan.

The *keiretsu* culture and ‘inherited’ values hampers the process of variety and selection which is a vital ingredient of the entrepreneurial economy. Innovation by small firms is lacking within this environment, where keiretsu firms are not independent. Hence, even if small firms are started up, there is no incentive for innovation. Hence, it is important that the Japanese government fosters an entrepreneurial climate focusing upon changing underlying values and attitudes towards entrepreneurship, rather than solely introducing measures supporting business innovation and start-ups (in an incremental fashion). Changing values and attitudes is difficult, in particular since culture is resistant to change. However, the media and the education system could play a role in creating an entrepreneurial culture in Japan¹⁸. In the media (newspapers, television, etc.) attention may be paid to successful entrepreneurs, who can serve as role models for (potential) entrepreneurs and change attitudes towards business (people)¹⁹. However, Hindle and Klyver (2005) find that whereas the media can *reinforce* existing values of people towards entrepreneurship, it is not capable of changing or shaping those values. With respect to shaping attitudes towards entrepreneurship education may play an important role. Because individuals are still moldable at an early age, in particular primary education may play a role in developing entrepreneurial awareness, attitudes and qualities, for instance by adopting entrepreneurial teaching techniques (van der Kuip and Verheul, 2005). To conclude, we see that the Japanese economy shows signs of recovery and is moving slowly from a managed to an entrepreneurial economy. Establishing an entrepreneurial culture in Japan will be a prerequisite of persistent ‘revival’ in the near future.

¹⁸ See Verheul et al. (2002) for a discussion of different ways in which the government can foster an entrepreneurial climate by way of influencing the preference of people to become entrepreneurs.

¹⁹ For example, Northern Ireland organized a series of masterclasses and interactive meetings where business people and young people meet to discuss entrepreneurship and what it means to them. See: <http://www.goforittheenterpriseshow.com/enterprise.html>. England also experimented with so-called ‘Enterprise shows’.

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