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**The Relation between Entrepreneurship and
Unemployment in Japan**

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ABSTRACT: This paper examines the relationship between entrepreneurship (as measured by fluctuations in the business ownership rate) and unemployment in Japan for the period between 1972 and 2002. It uses an OECD-wide data set and the results of a newly developed two-equation vector autoregressive model. We find that, although Japan's unemployment rate has been influenced by specific exogenous shocks, the effects of entrepreneurship on unemployment are not different when compared to other OECD countries. 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 has not yet been established. We argue that the Japanese government should actively stimulate an entrepreneurial culture.

KEYWORDS: entrepreneurship, business ownership, unemployment, Japan

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ABSTRACT: This paper examines the relationship between entrepreneurship (as measured by fluctuations in the business ownership rate) and unemployment in Japan for the period between 1972 and 2002. It uses an OECD-wide data set and the results of a newly developed two-equation vector autoregressive model. We find that, although Japan's unemployment rate has been influenced by specific exogenous shocks, the effects of entrepreneurship on unemployment are not different when compared to other OECD countries. 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 has not yet been established. We argue that the Japanese government should actively stimulate an entrepreneurial culture.

Introduction

The foundations of Japan's economic structure and development date back to the Meiji era in the 19th century which was 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* structure had an extensive impact on the Japanese economy and its industrial structure.¹ Instead of following the path of increased business concentration, the Japanese economy relied heavily on inter-firm, long-term commitments where large and small firms cooperate closely without vertical integration. Japan managed to climb out of the post-war recession showing extraordinary economic performance in the 1950s and 1960s. Nevertheless, the crises in the 1970s forced Japanese firms to drastically rationalize production (Aoki, 1990) and 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 in which it experienced very low to no growth, commonly referred to as the *lost decade*. In this period business ownership levels declined drastically² and within a decade unemployment levels more than doubled. The *keiretsu* structure with its emphasis on lifelong employment, seniority wages and dominant internal labour markets contributed to low job mobility and mismatches on the external labour market (Genda and Rebeck, 2000). These developments contrast with the general trend towards a more *entrepreneurial* economy observed in many other OECD countries. Japan is struggling with a situation in which old subcontracting firms experience widespread destruction but where 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 low growth and increasing unemployment. It is therefore important to investigate the relationship between entrepreneurship and unemployment in Japan and to see whether this relationship is similar to that in other OECD countries.

The relationship between entrepreneurship and unemployment has received increased attention of researchers and policy makers, in particular as a reaction to the relatively high unemployment levels confronting European countries in the last decades. Entrepreneurship has been suggested as a remedy against high unemployment and stagnant economic growth (European Commission, 2003; Carree and Thurik, 2003; Thurik et al., 2008). With respect to the relationship between unemployment and entrepreneurship, Japan is an interesting case as it historically combines a high degree of entrepreneurship (in terms of small firms or business ownership) with low levels of unemployment.

In this paper we investigate the dynamics in the relationship between entrepreneurship (business ownership) and unemployment rates for Japan between 1972 and 2002, focusing on the contribution of business ownership in bringing down unemployment. We compare Japan with other OECD countries. We do so using an OECD-wide data set and a two-equation vector autoregressive model which both have been developed recently with the specific aim to investigate the dynamics in the relationship between entrepreneurship and unemployment. The structure of the paper is as follows. Section two addresses the link between unemployment and entrepreneurship and gives an overview of different perspectives on this relationship. Sections three and four present and discuss the development in unemployment and business ownership rates in Japan in the period between 1970 and 2002. It seems that the recent rise in unemployment and the decrease in business ownership can be attributed to the fact that the system that used to produce low unemployment rates vanished and no adequate alternative structure has been put into place. Section five introduces and discusses the model as proposed by Thurik et al. (2008) capturing the complex relationship between entrepreneurship and unemployment. In Section six we apply this model to the Japanese situation and discuss the features of this relationship between entrepreneurship and unemployment in Japan. We will conclude discussing the main findings, limitations and implications from our study.

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 full of opportunities (Parker, 2004; Thurik et al., 2008). 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 which may lead to early exit. High unemployment may also imply lower levels of personal wealth reducing the likelihood of becoming self-employed or the survival in the initial stages of business ownership.

In addition to unemployment influencing start-up activity, it has been argued that entrepreneurship (in terms of new firm start-ups or business ownership) influences (un)employment. In the present study, we focus on 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 a vital role in the early evolution of industries by way of introducing new products or processes and, in the long term, enhancing productivity through increasing competition. New entrants in the market may also create knowledge about what is technically viable and what consumers prefer by introducing variations of existing products and services in the market. Knowledge spillovers play an important role in this process (Audretsch, Aldridge and Oettl, 2006; Audretsch, 2007). 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 Carree and Thurik (2003) and Carree, Verheul and Thurik (2007).

To conclude, there are different links between entrepreneurial activity and unemployment. Thurik et al. (2008) try to reconcile the ambiguities in the relationship between unemployment and entrepreneurship by distinguishing between the ‘refugee’ effect and the ‘Schumpeter’ effect, as described above. They introduce a two-equation vector autoregression (VAR) model where

changes in unemployment and self-employment (i.e., business ownership) are linked to subsequent changes in these variables for a panel of 23 OECD countries. Section five discusses this model, focusing on the influence of entrepreneurship on unemployment ('Schumpeter' effect). In Section six the model is applied to Japan.

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 between 1970 and 2002 is relatively stable at a low level. Nevertheless, we see a small increase during the 1980s and accelerating rates during the 1990s which bring the level of unemployment in Japan close to that in other OECD countries³. The pronounced cyclical pattern of unemployment in most Western countries shows substantial increases in the early 1980s and early 1990s. These increases can to a smaller extent be observed in Japan where upward shocks are dampened by the *keiretsu* structure and downward shocks are weakened by a relatively large pool of *discouraged workers*⁴. Aoki (1988) shows that discouraged workers amounted to 8.9 percent of the labour force in 1978 as opposed to 1.4 percent in the United States, even despite the higher unemployment rate in the United States at that time.

Japan's economic system has always been admired for persistently low levels of unemployment even in times of economic downturns. These low levels of unemployment can be attributed not only to the high growth rate of this period, but also to the nature of the Japanese employment system. Labour 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 simply redeploy their employees by sending them to subsidiaries or related firms in other sectors (Chuma, 2002a).

FIGURE 1 ABOUT HERE

In contrast to earlier recessions the Heisei recession of the 1990s led to an increase in unemployment. From the 1980s onwards *keiretsu* ties between firms weakened considerably, 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 expanded further through (industrial) segmentation of the Japanese labour 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 started to decline only after 1997 when the Heisei recession deepened and the number of business closures increased considerably. With employment adjustment historically taking place in (large) firms, alternative adjustment mechanisms in the market (e.g., effective job placement, training) 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).

Developments in Business Ownership in Japan

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

 FIGURE 2 ABOUT HERE

In Figure 3 we present entry and exit rates in the number of *establishments* in Japan for the period between 1966 and 2001. Although this is not the same as entry and exit of (*independent*) firms, it can be considered an important indicator of the dynamics in the Japanese economy (Harada, 2007). From Figure 3 we see that the exit rate is relatively stable throughout the 1970s and 1980s ranging from three to four percent. 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 percent between 1996 and 1999, the highest level of establishment closures in decades. More recent figures show that the closure rate is decreasing again. Conversely, business entry steadily decreased since the 1970s when the Japanese economy experienced (high) growth. After the collapse of the ‘bubble economy’ there was a structural decline of the entry rate (JSBRI, 2002). Until the end of the 1980s the entry rate exceeded the exit rate. From the 1990s onwards net entry is negative and business ownership shows a strong downward trend (see Figure 2). Recently, the number of bankruptcies has decreased to its lowest level since the bubble period due to economic stability, safety net guarantees and an ease in eligibility requirements (JSBRI, 2005, p. 24).

 FIGURE 3 ABOUT HERE

Modelling the Relationship between Entrepreneurship and Unemployment

In Section two we discussed the complex nature of the relationship between entrepreneurship and unemployment and the assumption of dual causality. To create insight in the causal linkages between entrepreneurship and unemployment, Thurik et al. (2008) 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 variables to correct for business cycle effects over the sample period that apply to the countries in the data set⁵. 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.

The model is tested using a data panel of 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 by fluctuations in business ownership (self-employment) and these data are taken from the COMPENDIA 2002.1 data set of EIM. The COMPENDIA data set harmonizes self-employment data as published in *OECD Labour Force Statistics* using various (country-specific) sources to make the data comparable across countries and over time.⁶ In COMPENDIA business ownership is defined as the number of non-agricultural self-employed (unincorporated as well as incorporated) as a fraction of the labour force (van Stel, 2005).

Equations (1) and (2) are estimated using weighted least squares. Thurik et al. (2008) examine changes in self-employment and unemployment over periods of four years, i.e. L equals 4. Inclusion of more lags is necessary because the impact of entrepreneurship on employment is not instantaneous: i.e., it requires a number of years for the firm to grow (Geroski, 1995). Using four-yearly data to avoid overlapping periods (given that $L=4$), the authors investigate the shape of the lag structure and find that the model variant with 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 outcomes of the entrepreneurship equation (Equation 2) because the focus in this study is on the influence of entrepreneurship on unemployment (the ‘Schumpeter’ effect)⁷. The main variables are presented in bold in the upper part of Table 1. The lagged dependents and the time dummies (controls) are presented in the lower part of the table.

TABLE 1 ABOUT HERE

From Table 1 we see that entrepreneurship significantly lowers unemployment but that it takes a lag of eight years before the (‘Schumpeter’) effect capitalizes. This is consistent with findings by Fritsch and Mueller (2004) for German regions and Carree and Thurik (2008) for OECD countries. Only after some time, the new entrants contribute to economic growth, either by growing themselves or forcing incumbent firms to enhance their performance by way of increased competition.⁸ The subsequent section will present results for how the model works out for Japan.

Analyzing the Residuals for Japan

The residuals of Equation (1) are used 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. Based on the regression coefficients in Table 1 and the unemployment and business ownership rates for Japan 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. Although the predictive value of the model is relatively high in the earlier years (residuals are small), the predictive value in more recent years is considerably lower. 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 for Japan. Therefore we also estimated an alternative 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 ABOUT HERE

FIGURE 5 ABOUT HERE

It appears that the model produces more accurate results for Japan when time dummies are excluded. With the exception of 1990 the ‘alternative’ residuals are considerably smaller. Accordingly, 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 lowers the predictive power of the model for Japan. Time dummies correct for business cycle effects or exogenous economic shocks in the sample period that apply to the (majority of the) countries in the data set. The time period studied by Thurik et al. (2008) is characterized by several of such shocks, including the dissolution of the Soviet Union, the invasion of Kuwait and resulting hostilities, the (burst of the) high-tech bubble and the rocketing 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 example, Japan is the only country from Asia. Hence, the effects captured by the time dummies may refer to shocks experienced by the non-Asian countries only, rather than to global issues. In fact, the smaller residuals for Japan when excluding the time dummies (in Figure 5)⁹ suggest that Japan faces different economic shocks as compared to the other countries included in the data set.¹⁰ It also suggests that Japan faces different business cycles as compared to the other countries.

Economic Development: Japan versus Other Countries

To compare 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. 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. We see that stock indices in Japan follow a different pattern as compared to the other (non-European) countries in our data set.

With the exception of the Japanese ‘Nikkei’-index, the stock indices follow a similar path. The Japanese stocks are relatively high in the late 1980s (*the bubble economy*) and relatively low in the 1990s (*the lost decade*). While other countries experience substantial rises in stock prices during the second half of the 1990s, Japan’s Nikkei index drops even further due to the deepening of the *Heisei* recession. In the period of the Asian financial crisis the weakened Japanese economy, most notably its banking system, had to absorb heavy losses through forced bad debt write-offs.¹¹

FIGURE 6 ABOUT HERE

Explaining the 1990 'Alternative Residual'

The previous analysis shows that the model excluding time dummies presents the relationship between entrepreneurship and unemployment best. The small 'alternative' residuals in Figure 5 indicate that the estimated impact of entrepreneurship on unemployment in Table 1 is relatively accurate for Japan. This allows for straightforward interpretation of the model outcomes in the case of Japan. Nevertheless, 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 in reality 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 in the period between 1986 and 1990 that is not captured by the model which we can explain ex-post? The high residual for 1990 may be caused by the economic bubble. Japanese firms tend to be 'enthusiastic' in terms of hiring new employees in prosperous years (Abegglen and Stalk, 1985). More funding became available for additional investments due to the increase in land, asset and stock prices, which – in turn – led to an increase in the demand for labour.

Figure 7 illustrates the increased demand for labour between 1986 and 1990. The figure presents trends in the *ratio of active job openings to applicants*, representing the relative demand for job applicants, for the most recent Japanese recessions. We see that between October 1986 (end of the 'recession due to a strong yen') and the beginning of 1991 (start 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. This suggests that the creation of the 'bubble' (that occurred in the 17 quarters between the two recessions) had a large positive influence on this ratio. Not surprisingly the increase in the demand for labour in this period coincides with a decrease in unemployment (see Figure 4), consistent with the relatively large negative residual in 1990 (see Figure 5).

The unique economic circumstances in the period between 1986 and 1990 in Japan explain why the models' prediction for 1990 deviates (positively) from the observed unemployment rate. Accordingly, we can argue that the model (excluding time dummies) estimating the influence of (changes in) entrepreneurship on (changes in) unemployment, as presented in the previous section, is relatively accurate for and applicable to Japan. Based on our residuals analysis we conclude that the bold-printed coefficients in Table 1 apply to Japan¹².

FIGURE 7 ABOUT HERE

Discussion and Conclusion

The present paper deals with the relationship between business ownership and unemployment in Japan. Using a newly developed model and an OECD wide data set we find that, although Japan has endured different exogenous shocks as compared to other OECD countries, the unemployment reducing effect of business ownership (i.e., the Schumpeter effect) is comparable to that in the other countries. Given both the accurate prediction of the model for Japan, which shows that entrepreneurship is important for bringing down unemployment in Japan, and the decrease in business ownership combined with the increase in unemployment in recent years, it is important

that the Japanese government comes into action to stimulate entrepreneurship (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 Japan¹³, it is disconcerting to see that the number of small firms in Japan is decreasing rather than increasing. It appears that the Japanese government has been slow in facilitating the transition towards 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 long run aim at fostering an *entrepreneurial* environment. Assuming that the factors that support high-tech entrepreneurship in Japan are similar to those in western countries (Lynskey, 2004), there is hope that the 'Silicon Valley' model will lead to a revival of the Japanese economy. Inspired by American public policies the Japanese government introduced several 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 (Audretsch and Thurik, 2001) 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)¹⁴. In addition, 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).

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. Indeed, Japanese banks tend to preserve poor performing firms (that borrowed large sums of money during the economic bubble) even though the chances of recovery of these so-called 'zombie firms' are low (Fukao and Kwon, 2006). This tendency prevents banks from awarding more loans to new firms (Nitani and Riding, 2005). Alternative sources of finance capital for new 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 there will be better access to venture capital funding as both the Osaka and Tokyo stock exchanges have opened up new markets (in the late 1990s). 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 the influence of the state will be cut back¹⁵. Nevertheless, even with anti-trust enforcement and deregulation, 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.

According to Daly (1998) entrepreneurship in Japan is more likely to take on the form of intrapreneurship rather than that of new firm entry. 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, 2001). Indeed, Yahagi and Isobe (2001) find that Japan ranks highest out of 21 (mostly OECD) countries with respect to the public perception of the risks involved in new venture creation.

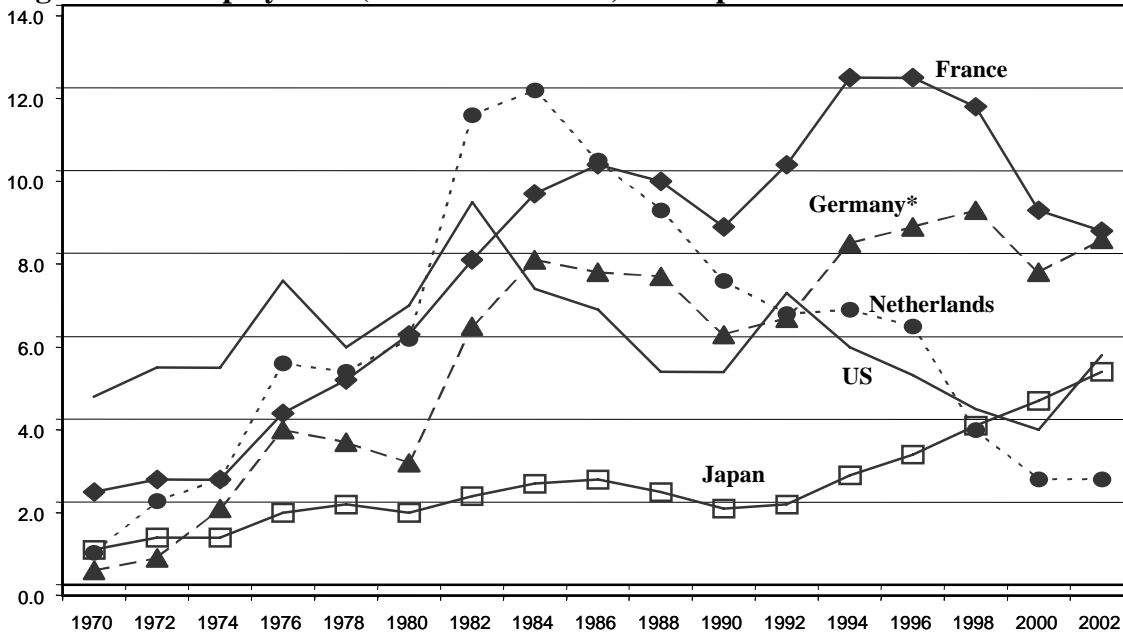
A related element of the Japanese business 'culture' is the limited growth ambition of entrepreneurs. Reynolds et al. (2002) find that there is a high rate of 'necessity entrepreneurship' in Japan, suggesting that the 'refugee' effect is important. Harada (2005) finds a positive relationship between 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 usually do not have growth wishes. Hence, firm growth may either not be a priority for Japanese entrepreneurs or may simply not be feasible in light of a relative lack of skills and knowledge¹⁷.

The limited growth ambition of Japanese entrepreneurs may be linked to the relatively low appreciation of entrepreneurial efforts. A striking example of the negative attitude towards business people in Japan is given in *The Economist* (2005, p.18) 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 identity is still more important than the individual identity.

The *keiretsu* culture and 'inherited' values hamper the process of variety and selection which is a vital ingredient of the entrepreneurial economy (Audretsch et al., 2004). Innovation in small firms is limited in this environment, where *keiretsu* firms are not independent. Even if new ventures are created, there is no incentive for innovation. Japan would benefit from creating an entrepreneurial climate that focuses on changing underlying values and attitudes towards entrepreneurship, rather than solely introducing measures to support business innovation and start-ups. Although changing values and attitudes is difficult, the media and the education system could play a role in creating an entrepreneurial culture in Japan (Verheul et al., 2002)¹⁸. In the media (newspapers, television, etc.) attention could be paid to successful entrepreneurs who can serve as role models for (potential) entrepreneurs and influence attitudes towards business (people)¹⁹. In addition to the media, education may play a role in the shaping of positive attitudes towards entrepreneurship. Primary education may play an important role in developing entrepreneurial awareness, attitudes and qualities, for instance by adopting entrepreneurial teaching techniques (van der Kuip and Verheul, 2004). Also, linkages between universities and small firms should be further developed. Knowledge interactions between universities and business tend to benefit larger firms (Fukugawa, 2005).

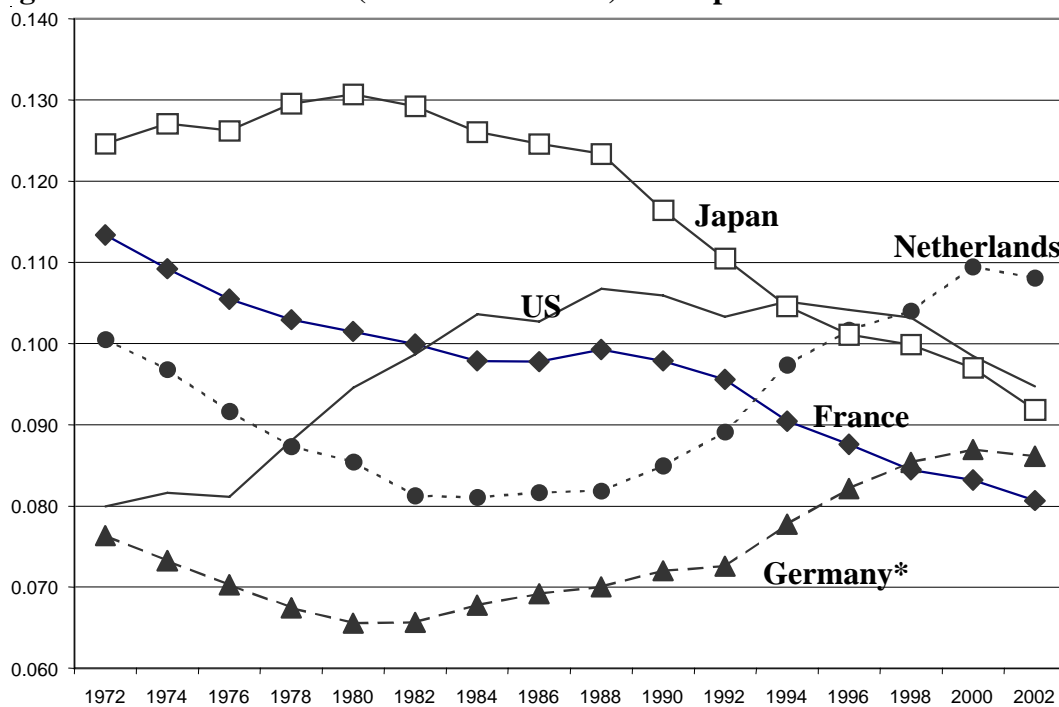
To conclude, although the Japanese economy seems to show signs of recovery, the speed of adjustment from a managed to an entrepreneurial economy is slow. We feel that establishing an entrepreneurial culture in Japan will be a prerequisite for persistent 'revival' in the near future.

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



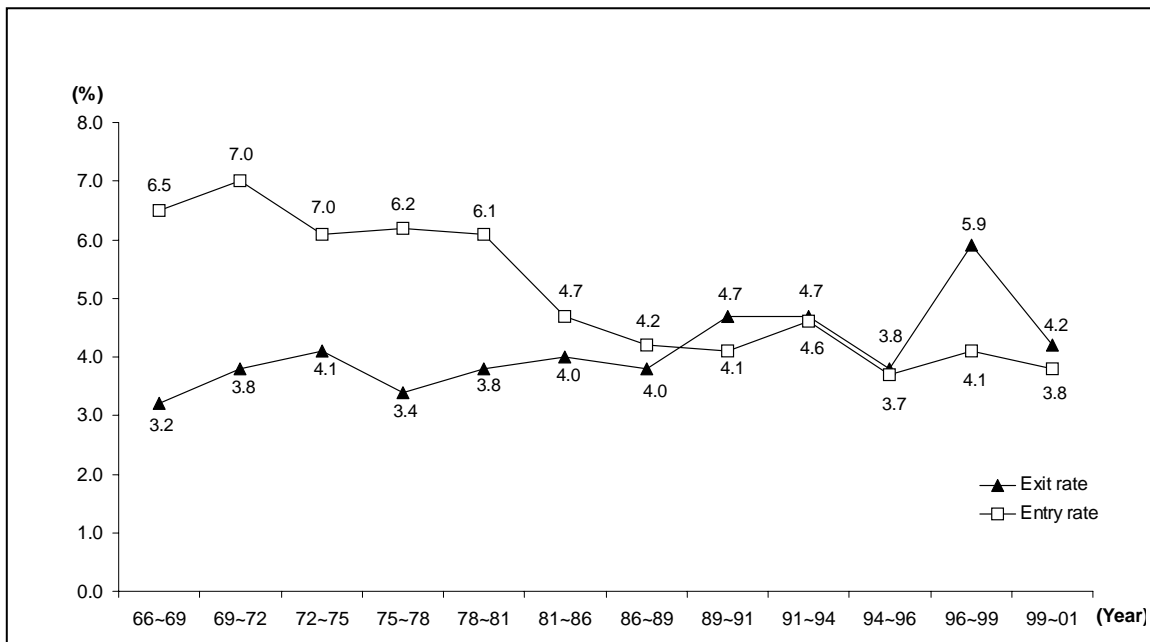
Source: EIM based on OECD data. The data for Germany refer to West Germany for the period 1970-1990.

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



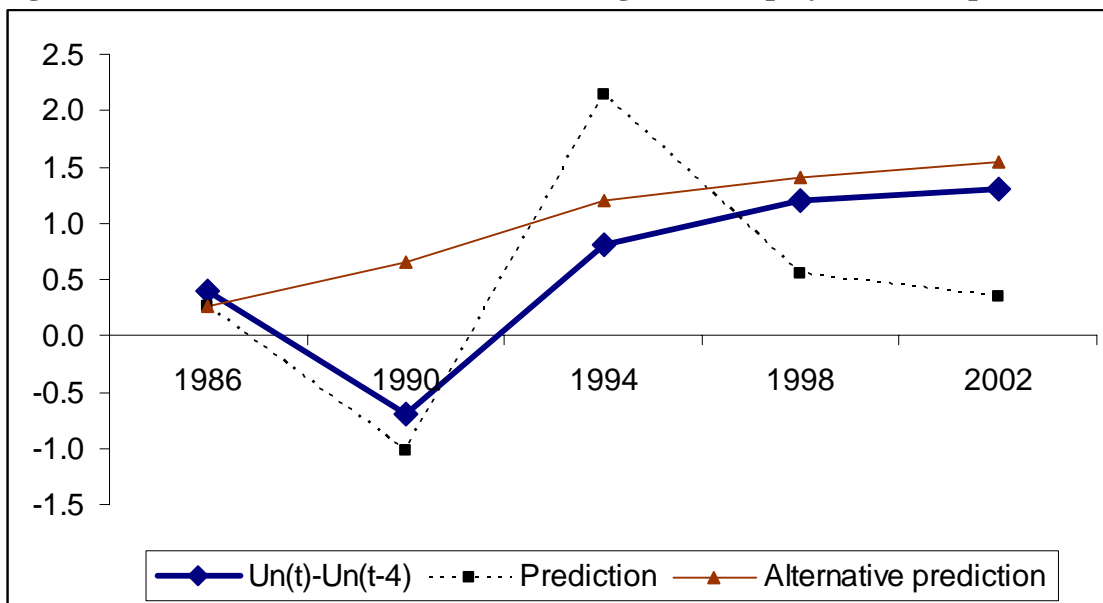
Source: EIM COMPArative ENtrepreneurship Data for International Analysis (COMPENDIA 2002.1). Business ownership refers to non-agricultural entrepreneurship, including the owners of both incorporated and unincorporated businesses, but excluding so-called unpaid family workers and wage-and-salary workers 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).

Figure 3: Entry and exit rates (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.

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



Note: The alternative prediction ignores the influence of the time dummies in Equation (1).

Figure 5: Residuals for the 4-year change in unemployment in Japan

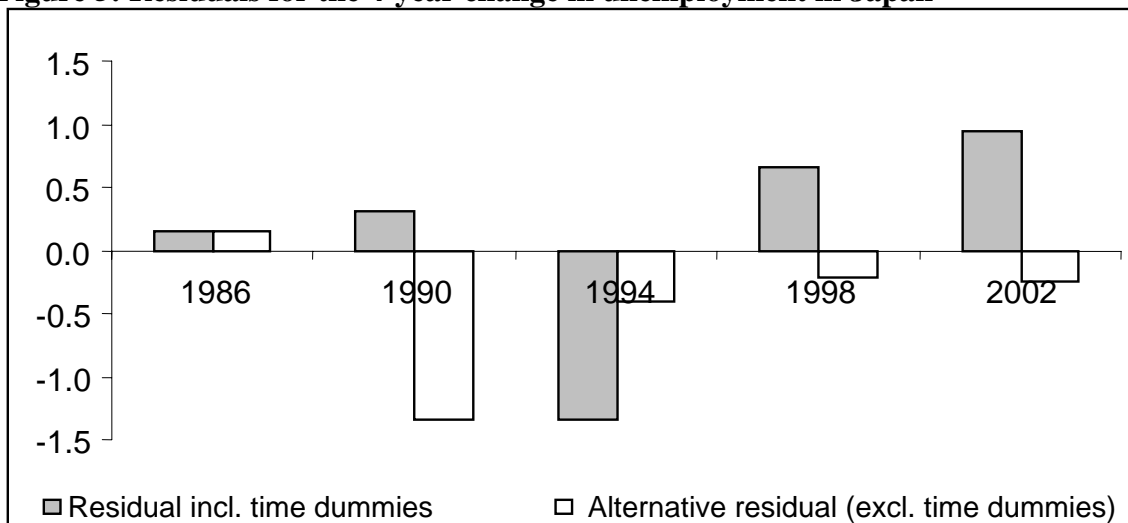
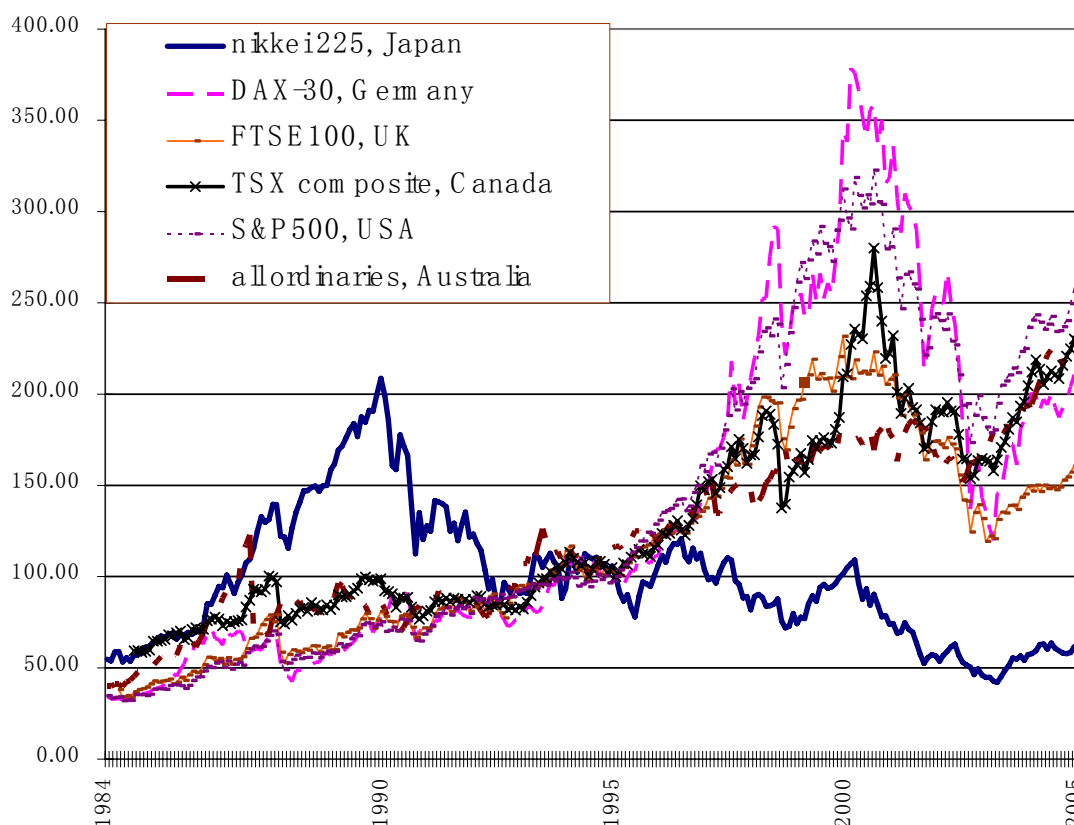
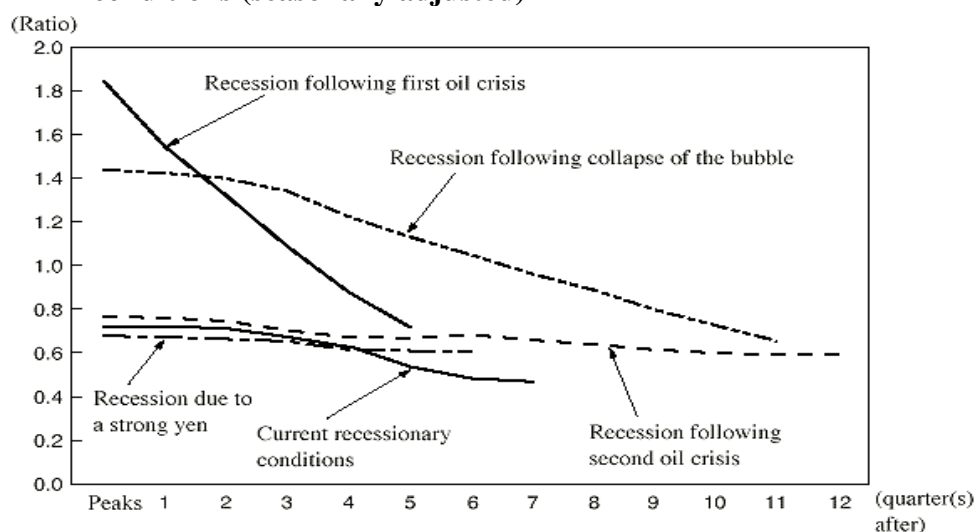


Figure 6: Main stock indices for selected countries (January 1984 - June 2005)



Source: econstats.com. Note that January 1995 is the base month.

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).

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

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: Thurik et al. (2008). Note that absolute t-values are between brackets. ** $p < 0.01$.

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Notes

¹ See Lincoln et al. (1998) for a description of the different types of Japanese 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 In this period it became apparent that unemployment insurance (based on the long-term low unemployment rate) in Japan was not sufficient (Ohkusa, 2004).

⁴ Discouraged workers are those individuals who withdraw from the labour market, switching from unemployment to 'homemaker'.

⁵ The inclusion of country dummies in the model is rejected by standard likelihood ratio tests.

⁶ The harmonisations mainly concern corrections for the number of *incorporated* self-employed (harmonization across countries) and corrections for trend breaks (harmonisation over time). The 23 countries included in COMPENDIA are the (old) EU-15 members, Iceland, Norway, Switzerland, USA, Japan, Canada, Australia and New Zealand.

⁷ Using the same methodology Baptista et al. (2006) investigate the two-way relationship between business ownership and unemployment in Portugal. Verheul et al. (2006) and Thurik (2003) use similar models for Spain and the UK.

⁸ For an extensive theoretical discussion of the lags involved in the relation between new-firm entry and regional economic performance we refer to a special issue of Small Business Economics, to appear in the second half of 2007. The special issue also includes several empirical studies that provide evidence for that fact that the positive impact of firm entry comes with a considerable time lag.

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

¹⁰ Further investigations revealed that Japan is indeed the only country in the data base for which the 'alternative' residuals are –on average– smaller than the original residuals.

¹¹ 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). The Australian stock index may have been affected by this Asian financial crisis as well.

¹² As a robustness test we investigated the applicability of the coefficients in Table 1 using an alternative method. We introduce slope dummy variables for Japan for the two variables that capture changes in entrepreneurship. This model allows for a deviating effect for Japan regarding the impact of self-employment on unemployment. Using several variants (e.g. including or excluding an intercept dummy for Japan; just using one lagged slope dummy, etc) it appears that the slope dummies are consistently insignificant and likelihood ratio tests do not reject the original model represented in Table 1 - in favour of a model including slope dummies for Japan. This exercise confirms that the impact of entrepreneurship on unemployment in Japan is similar to that for the other countries in the data set.

¹³ 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).

¹⁴ Urata and Kawai (2002) show that small firms also exhibit lower TFP growth than larger firms.

¹⁵ The election of pro-change prime minister Koizumi in September 2005 has contributed to this expectation. Japan already witnessed the democratization of Japan Post and the split-up of the highway agency (*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.

¹⁸ For example, Northern Ireland organized masterclasses and interactive meetings where business people and young people meet to discuss entrepreneurship. See: <http://www.goforittheenterpriseshow.com/enterprise.html>.

¹⁹ Nevertheless, Hindle and Klyver (2007) argue that the media are not capable of changing or shaping values of people but can merely *reinforce* existing values of people.