Scottish Journal of Political Economy, Vol. 50, No. 3, August 2003
© Scottish Economic Society 2003, Published by Blackwell Publishing, 9600 Garsington Road, Oxford OX4 2DQ, UK and 350 Main Street, Malden, MA 02148, USA

ENTREPRENEURSHIP AND UNEMPLOYMENT IN THE UK

*Roy Thurik**

Abstract

The influence of industrial structure, more specifically of entrepreneurship, is investigated on the level of unemployment in the UK. The question is to what extent entrepreneurship, i.e., business ownership can reduce the level of unemployment. The alleged differences between the managed and the entrepreneurial economy will be discussed as well as the links between entrepreneurship and unemployment. It will be concluded that the UK is a relative outlier when using a simple model of the relationship between unemployment and the rate of business ownership. The model is calibrated using recent data of some 23 OECD countries. It underestimates the decrease in unemployment in the UK in the period 1982–1990. Some arguments are brought forward why this might be the case.

I Introduction

The policy debate throughout Europe and in other OECD countries about how to solve the chronic unemployment problem has revolved around a perceived trade-off between higher wage levels but higher rates of unemployment on the one hand, or less unemployment but lower wages on the other. This perceived policy trade-off between wages and unemployment is an illusion (Audretsch and Thurik, 2000). It is possible to achieve rising employment while maintaining an adequate social safety net. The key to breaking out of the perceived trade-off between wages and jobs is to understand how the combined effect of globalisation and the communications revolution has fundamentally shifted the comparative advantage of the leading European economies. This combined effect has lowered transaction costs and moved the advantage away from firms toward markets and the individual as the smallest possible firm (Audretsch and Thurik, 2001). Hence, the last 20 years of the 20th century may be seen as a period of creative destruction. Piore and Sabel (1984) use the term 'Industrial Divide', Jensen (1993) prefers the term 'Third Industrial Revolution', and Freeman and Perez (1988) interpret it as the transition from the fourth to 'the fifth Kondratiev wave'. Audretsch and Thurik (2000) refer to the shift from the managed to the 'entrepreneurial economy'. The most obvious evidence is the

*Erasmus University Rotterdam

emergence of new industries like the software and biotechnology industries. Small firms play an important role in these new industries. Acs and Audretsch (1987) provide empirical evidence that small firms have a relative innovative advantage over their larger counterparts in such highly innovative industries.[1] Also in many other less innovative industries small firms gain market share (Acs and Audretsch, 1993; Audretsch, Thurik, Verheul and Wennekers, 2002).

Recent research shows that the extent and timing of the shift varies across countries and that countries lagging behind in this process of restructuring experience lower growth levels. This has consequences for the level of unemployment in different countries. In the present study the influence of industrial structure, more specifically of entrepreneurship, is investigated on the level of unemployment in the UK. The question is to what extent entrepreneurship, i.e., business ownership[2] can reduce the level of unemployment. In the subsequent sections we deal with the shifting comparative advantage in the knowledge-based economy and the alleged trade-off between wages and unemployment, the mechanisms underlying or the characteristics of the shift to the entrepreneurial, or knowledge-based, economy, and the relationship between unemployment and economic growth in general and in the UK in particular. It will be concluded that the UK is a relative outlier when using a simple model of the relationship between unemployment and the rate of business ownership. The model is calibrated using recent data of some 23 OECD countries. It underestimates the decrease in unemployment in the UK in the period 1982–1990. Some arguments are brought forward why this might be the case.

II The Entrepreneurial Economy

Romano Prodi, the president of the European Commission, addressed the issue of 'European entrepreneurship' in a talk to the Instituto de Empresa in Madrid on 7 February, 2002:

> While competition on and among existing European firms has no doubt increased as result of globalisation, technological change and European policies, Europe still lags behind in the creation of new firms, namely entrepreneurship. Our lacunae in the field of entrepreneurship need to be taken seriously because there is mounting evidence that the key to economic growth and productivity improvements lies in the entrepreneurial capacity of an economy.

Modern technology has lowered transaction costs and moved the advantage away from firms toward markets and the individual as the smallest possible firm (Audretsch and Thurik, 2001). Not only the advent of the knowledge economy contributed to this move (Audretsch and Thurik, 2000) but also that of modern

[1] Evidence for the comparative advantage of small firms in inventing radically new products is also given in Prusa and Schmitz (1991).

[2] The terms entrepreneurship, business ownership and self-employment will be used as synonyms in the present text.

© Scottish Economic Society 2003

organizational forms like networks and other loose alliances and relationships (Nooteboom, 1999). Stability, continuity and homogeneity were the cornerstones of the managed economy (Audretsch and Thurik, 2001). Large firms dominated this economy. In *The Economist* they are described as follows:

> They were hierarchical and bureaucratic organizations that where in the business of making long runs of standardized products. They introduced new and improved varieties with predictable regularity; they provided workers with life-time employment; and enjoyed fairly good relations with the giant trade unions.[3]

Changes in the direction of technological progress, along with changes in the world economy, resulted in a structural shift affecting the economies of all industrialized countries. Piore and Sable (1984) argue that the instability of markets in the 1970s resulted in the demise of mass production and promoted flexible specialization. This fundamental change in the path of technological development led to the occurrence of vast diseconomies of scale as a consequence of falling transaction costs. In other words it led to a new economy. Audretsch and Thurik (2000) refer to this economy as the entrepreneurial economy. Soete and Ter Weel (1999) observe a change from a Schumpeter Mark II regime where concentrated market structures are likely to develop to a Schumpeter Mark I regime where small firms constitute the main engine of economic development.

Recently, a series of studies has identified this fundamental change in terms of its determinants. Technological change, globalisation, knowledge intensity, deregulation, shifts in the labour supply, variety in demand, and the resulting higher levels of uncertainty are brought forward to be the main determinants of this change in the industry structure away from greater concentration and centralization towards less concentration and decentralization.[4] A series of empirical studies has uncovered three findings regarding the response of industry structure to changes in the underlying determinants. The *first* is that the industry structure is generally shifting towards an increased role for small firms. The *second* is that the extent and timing of this shift is anything but identical across countries. Rather, the shift in industry structures towards a greater role for small firms has been heterogeneous and (partly) shaped by country-specific factors. Apparently, institutions and policies in certain countries have facilitated a greater and more rapid response to technological change and globalisation, along with the other underlying factors, by shifting to a less centralized and more dispersed industry structure than has been the case in other countries. See Audretsch, Thurik, Verheul and Wennekers (2002) for a series of country case studies involving Germany, US, France and the Netherlands. The *third* is that cultural variables play an important role in explaining differences in the levels of entrepreneurship across countries. Factors like dissatisfaction, uncertainty

[3] 'A matter of choice', The *Economist* (22 December, 2001, p. 76).

[4] For instance, see Brock and Evans (1986), Loveman and Sengenberger (1991) and Acs and Audretsch (1993).

© Scottish Economic Society 2003

avoidance, power distance and post-materialist values seem to be important determinants of these differences.[5]

A *fourth* finding of a different nature is that countries lagging behind in this process of restructuring experience lower growth levels (Audretsch, Carree and Thurik, 2001; Audretsch, Carree, van Stel and Thurik, 2002). Explanations for economic growth have generally been restricted to the realm of macroeconomics (Romer, 1990; Krugman, 1991a). However, this fourth finding is part of a different scholarly tradition linking growth to industrial organization. This tradition dates back at least to Schumpeter (1934). According to this tradition, performance, measured in terms of economic growth, is shaped by the degree to which the industry *structure* utilizes scarce resources most efficiently. This (most efficient) industrial structure does not alter in case its underlying determinants are stable. However, as Chandler (1990), Scherer and Ross (1990) and Dosi (1988) emphasize, a change in the underlying determinants would be expected to result in a change in the industry structure most conducive to growth. See also Thurik (1996), Carree and Thurik (1998, 1999) and Carree (2002).

An implication of the second finding that the extent and timing of this shift varies across countries and the fourth finding of the growth penalty is that some countries are likely to experience higher growth than others. Clearly, this also has consequences for the level of unemployment in different countries.

III Unemployment and Growth

The policy debate throughout Europe and in other OECD countries about how to solve the chronic unemployment problem has revolved around a perceived trade-off between higher wage levels but higher rates of unemployment on the one hand, or less unemployment but lower wages on the other. This debate has resulted in a caricature of the 'Anglo-American' solution of more jobs through lower wages and the 'European tradition' of higher wages, but at a cost of less employment. Certainly, the American and British economies have generated millions of new jobs, thereby reducing unemployment, while their mean real wage levels have risen only moderately. Also, these countries have experienced some dismantling of social services provided by the government. This leaves policy makers with an apparent uncomfortable choice – either reduce wages and the social safety net to generate more employment, or accept an upward spiral of unemployment in order to maintain the European standards concerning wages and the social safety net (Audretsch and Thurik, 2000).[6]

[5] See Hofstede, Noorderhaven, Thurik, Uhlaner, Wennekers and Wildeman (2002), Uhlaner, Thurik and Hutjes (2002), Uhlaner, Wennekers and Thurik (2002) and Noorderhaven, Thurik and Wennekers (2002).

[6] The fifth annual report of the *European Observatory for SMEs* (EIM/ENSR, 1997, p. 131) characterizes this tradeoff as, 'The stagnation of employment since 1970 in the E.U. as opposed to the employment growth in the U.S. could, at least partially, be explained by the fact that real wages increased significantly in the E.U. while in the U.S. it only increased slightly.' This is supported by van Stel (1998).

© Scottish Economic Society 2003

This perceived policy trade-off between wages and unemployment is an illusion (Audretsch and Thurik, 2000). The Dutch example shows that it is possible to achieve rising employment while maintaining an adequate social safety net (Thurik, 1999). The key to breaking out of the perceived trade-off between wages and jobs is to understand how the twin forces of globalisation combined with the communications revolution has fundamentally shifted the comparative advantage of the leading European economies.

The comparative advantage was generally attained through large-scale production, facilitating low-cost production through exploiting scale economies. Large-scale mass production was essential to gaining the comparative advantage. The relatively small domestic markets in most European countries seemed to pose a serious threat to European post-war competitiveness. However, they quickly developed two strategies to compensate for their small domestic markets. The *first* strategy was to internationalise by developing markets outside of the domestic market. The *second* was to rely on skilled labour and high levels of human capital to produce products that, although they might cost more, were of superior quality. Large transnational corporations thrived on this dual strategy basing the comparative advantage on large-scale production made possible by superior management and organization combined with high-skilled labour. By and large, the comparative advantage of Europe lies in large-scale production of moderate-technology products in traditional industries, such as machine tools, automobile parts, metalworking, chemicals and the food industry (Audretsch and Thurik, 2001).

This comparative advantage has been lost in the high-cost countries of Europe in the last decade of the 20th century for two reasons. The *first* has to do with globalisation or the advent of competition from low cost countries. While the uncertainties of the Cold War and internal political instabilities rendered transnational activities too risky during the first four post-war decades, this is less the case today.

The *second* factor triggering the loss of the traditional comparative advantage in Europe has been the communications revolution. The new communications technologies have triggered a virtual spatial revolution in terms of the geography of production.[7] The (marginal) cost of transforming information across geographic space has been rendered to virtually nothing. Confronted with lower cost competition in foreign locations, producers in the high-cost countries have three options apart from doing nothing and losing global market share: (1) reduce wages and other production costs sufficiently to compete with the low-cost foreign producers, (2) substitute equipment and technology for labour to increase productivity, and (3) shift production out of the high-cost location and into the low-cost location.

Many of the European and American firms resorted to the last two alternatives. Substituting capital and technology for labour, along with shifting

[7] According to The *Economist*, 'The death of distance as a determinant of the cost of communications will probably be the single most important economic force shaping society in the first half of the next century.' 'The death of distance,' The *Economist* (30 September, 1995).

© Scottish Economic Society 2003

production to lower-cost locations has resulted in waves of corporate downsizing throughout Europe and North America. This corporate downsizing triggered by the shifting comparative advantage as a result of globalisation has not been restricted to just a few countries. Rather, the response to globalisation has led large corporations to downsize throughout the OECD countries.[8] According to Audretsch and Thurik (2000) there is an alternative to corporate downsizing as a means to maintain competitiveness. It does not require sacrificing wages to create new jobs, nor does it require fewer jobs to maintain wage levels and the social safety net. This alternative involves shifting economic activity out of the traditional industries where the high-cost countries of Europe and North America have lost the comparative advantage and into those industries where the comparative advantage is compatible with both high wages and high levels of employment – knowledge based economic activity.

IV The Managed versus the Entrepreneurial Economy

Audretsch and Thurik (2000, 2001) make a distinction between the managed and the entrepreneurial economy. The managed economy, as characterized by Galbraith (1967) and Chandler (1977, 1990), thrived for nearly three-quarters of a century. The entrepreneurial economy emerged in the last quarter. Just as the comparative advantage in economic activity based on capital and labour rendered the managed economy as an appropriate response, the shift to knowledge-based economic activity is the driving force underlying the emergence of the entrepreneurial economy. It would be fair to say that the entrepreneurial economy re-emerged. See Uhlaner, Wennekers and Thurik (2002) for two early examples of an entrepreneurial economy: the Dutch Golden Age of the 17th century and Britain's First Industrial Revolution (1760–1830).

The development towards an entrepreneurial economy can be understood better by investigating the differences between the newly (re)-emerging entrepreneurial economy and the managed economy. These two polar worlds have been identified in Audretsch and Thurik (2001) using four groups of in total 14 trade-offs. The four groups are called 'underlying forces', 'environment', 'how firms function' and 'government policy'. The common thread throughout these trade-offs is the role of new and small enterprises.

Underlying forces

The first group of trade-offs focuses on the forces underlying the managed and entrepreneurial economies. They may be characterized as: localization *versus* globalisation; change *versus* continuity and jobs *and* high wages *versus* jobs *or* high wages.

The inputs of land, labour and capital are the production factors in the managed economy (Romer, 1994). Geography provides a platform to combine mobile capital with (immobile) lower-cost labour. In the entrepreneurial

[8] 'Big is back,' The *Economist* (22 June, 1995) and 'The year downsizing grew up,' The *Economist* (21 December, 1996).

© Scottish Economic Society 2003

economy knowledge has emerged as the dominant factor of production and comparative advantage is based on innovative activity. An important source of this innovative activity is knowledge spillovers.[9] Hence, in the entrepreneurial economy local proximity and regions have emerged as an important locus of economic activity as knowledge tends to be developed in the contexts of localized production networks embedded in innovative clusters.

While the managed economy depended upon and created *continuity* (Chandler, 1977), the entrepreneurial economy provokes and thrives on *change*.[10] Although innovation is present under both change and continuity, the locus of innovative activity differs. A distinction can be made between incremental and radical innovations. Innovations are considered incremental when they are compatible with the core competence and technological trajectory of the firm (Teece, Rumult, Dosi and Winter, 1994).[11] A radical innovation can be defined as extending beyond the boundaries of the core competence and technological trajectory of the firm. The managed economy was designed to absorb change within a given technological paradigm: the typical firm excelled at incremental innovation. In the entrepreneurial economy, the capacity to break out of the technological lock-in imposed by existing paradigms is enhanced by the ability of economic agents to start new firms. Hence, under the managed economy incremental innovative activity along with diffusion played a more important role. This type of innovative activity, while often requiring large investments of R&D, generated incremental changes in products along the existing technological trajectories. In the entrepreneurial economy, the comparative advantage of the high-cost location demands innovative activity earlier in the life cycle and of a more radical nature. One can think of the managed economy as achieving the kind of stability sought in the Lange-Lerner models of general equilibrium 'assisted' by the state, whereas the entrepreneurial economy has more 'Austrian 'characteristics seeking and benefiting from disequilibrium.

An important policy dilemma in the managed economy is that unemployment can be reduced only at the cost of lower wages. Clearly, demand management as well as income policy and technology and training policies have tried to reduce the unemployment-wage relationship, but the mismatch of high wages and low unemployment remained the policy driver. In the entrepreneurial economy high employment can be combined with high wages, just as low wages do not necessarily imply high employment. This is indicated by the fact that although corporate downsizing has been rampant throughout OECD countries, there is a large variance in unemployment rates. There is a growing intuition that more entrepreneurial economies have been more successful at creating new jobs to compensate for jobs lost to corporate downsizing. This intuition is supported by

[9] Knowledge differs inherently from the traditional factors of production in that it cannot be costlessly transferred across geographic space (Krugman, 1991a, 1991b; Lucas, 1993).

[10] See Cohen and Klepper (1992) who have identified an inherent trade-off between continuity and change.

[11] Archibugi and Pianta (1992) show that what holds for firms, also holds for countries.

© Scottish Economic Society 2003

theoretical and empirical evidence (Carree and Thurik, 2003). Below, this intuition will be tested below using data of 23 OECD countries. It is small firms in general, and new firm start-ups in particular, that are assumed to be the locomotive of employment creation. In the managed economy, the job creation contributed by small firms was associated with lower wages. However, through growth new firms may generate not just greater employment but also higher wages. The growth of new firms ensures that the greater employment does not come at a cost of lower wages, but rather the opposite – higher wages. Thus, while small firms generated employment at a cost of lower wages in the managed economy, in the entrepreneurial economy small firms may create both more jobs and higher wages.[12]

Environment

The second group of trade-offs deals with differences in the underlying environment of the managed and the entrepreneurial economy. Turbulence, diversity and heterogeneity are central to the entrepreneurial economy whereas stability, continuity and homogeneity were the cornerstones of the managed economy.

The *stability* of the managed economy resulted from a homogeneous product demand, resulting in a low turnover rate of jobs, workers and firms. The entrepreneurial economy is characterized by a high degree of *turbulence*. Many new firms are started each year and only a subset of these firms survives. Nelson and Winter (1982) argue that the role of diversity and selection has been at the heart of generating change. This holds for both types of economies. However, what differs is the management and organization of the process by which diversity is created as well as the selection mechanism. In the managed economy, research activities are organized and scheduled in departments devoted to creating novel products and services. The management of change fitted into what Nelson and Winter (1982) call the routines of a firm. The ability of existing businesses to manage the process of change pre-empted any opportunities for entrepreneurs to start new firms, resulting in a low start-up rate and a stable industrial structure. In the entrepreneurial economy, the process of generating new ideas, both within and outside of R&D laboratories, creates a diversity of opinions about the value of these new ideas.

There has been a series of theoretical arguments suggesting that the degree of diversity versus specialization may account for differences in rates of growth and technological change. On the one hand, *specialization* of industry activities is associated with lower transactions costs and therefore greater (static) efficiency. On the other hand, a *diversity* of activities is argued to facilitate the exchange of new ideas and therefore greater innovative activity and (dynamic) efficiency. Because spillovers are an important source of knowledge generating innovative activity, diversity is a prerequisite of the entrepreneurial economy. Sacrificing lower transactions costs for greater opportunities for knowledge spillovers is

[12] See Reid (1989) for further endogenous productivity growth arguments.

© Scottish Economic Society 2003

preferable. In the managed economy, there is less to be gained from the spillover of knowledge. The higher transactions costs associated with diversity yield little in terms of increased innovative activity, making specialization preferable in the managed economy.

In contrast to the trade-off between diversity and specialisation, focusing on firms, the trade-off between *homogeneity* and *heterogeneity* refers to individuals. There are two dimensions shaping the degree of homogeneity/heterogeneity. The first refers to the genetic make-up of individuals and their personal experiences (Nooteboom, 1994). The second refers to the information set to which they are exposed. The managed economy is based on homogeneity while the entrepreneurial economy is based on heterogeneity. In a heterogeneous population communication across individuals tends to be difficult and costly, resulting in higher transaction costs and lower levels of efficiency than in a homogeneous population. At that same time, new ideas are more likely to emerge from communication in a heterogeneous than in a homogeneous world. Hence, the likelihood of communication in a heterogeneous population is lower but this communication is more prone to produce novelty and innovation. The lower transactions costs resulting from a homogeneous population in the managed economy are not associated with a high opportunity cost, because knowledge spillovers are relatively unimportant in generating innovative activity. However, knowledge spillovers are a driving force in the entrepreneurial economy, which more than offset the higher transactions costs associated with a heterogeneous population.

On the whole, the creative accumulation of the managed economy has been replaced by the creative destruction of the entrepreneurial economy. This process of creative accumulation is the main characteristic of the Schumpeter Mark II regime:

> Innovative activities (are) conducted by large and established firms. The process of innovative activities of these firms is often called creative accumulation, because when large firms successfully innovate, they often appropriate the main part of their invention (instead of being forced to add their newly acquired knowledge to the public basin), which leads to a strong positive feedback loop from innovation to increased R&D activities. This self-reinforcing process is mainly due to the high level of appropriability because firms protect their innovation from imitation, hence, they appropriate profits from an innovation to the largest extent possible. Notable devices or features in this regard are patents, secrecy, lead times, costs and time required for duplication, learning curve effects, superior sales efforts, and differential technical efficiency due to scale economies (Soete and ter Weele, 1999, p. 295).

The process of creative destruction is the main characteristic of what has been called the Schumpeter Mark I regime:

> (It is) characterized by many small firms that use the 'public basin' of existing knowledge or the general and easy accessible knowledge stock to innovate,

© Scottish Economic Society 2003

> while the knowledge created by their invention is added to this public basin and used by the next entrepreneur to challenge the incumbent, and so on (Soete and ter Weele, 1999, p. 295).

Here, knowledge spillovers are important, but so too is the division of thought which becomes possible in a knowledge based economy (Reid, 1989).

How firms function

The third group, consisting of four trade-offs, focuses on how firms function in the different type of economies: motivation *versus* control; market exchange *versus* firm transaction and competition and cooperation as complements *versus* substitutes and flexibility *versus* scale.

The essence of the managerialism was *command and control* of labour effort. Labour was considered to be indistinguishable from all other inputs, as long as management was able to extract a full day's worth of energy for a full day's pay (Wheelwright, 1985). However, as the comparative advantage of the advanced industrialized countries is increasingly based on new knowledge, the command and control approach to labour becomes less effective. What matters less is requiring an established set of activities from knowledge workers and what matters more is *motivating* the workers to facilitate the discovery and implementation of new ideas. Activities shift from exploitation of existing abilities to exploration of new ones. Hence, in the entrepreneurial economy motivating employees to participate in the creation and commercialisation of new ideas matters more than in simply controlling and regulating their behaviour.

The analytical distinction between *exchange via the market* and *intra-firm transactions* is well-known (Coase, 1937; Williamson, 1975). Both Coase and Williamson emphasize that uncertainty and imperfect information increase the costs of intra-firm transactions. As Knight (1921) argued, low uncertainty combined with transparency and predictability of information, make intra-firm transactions efficient relative to market exchange. In the managed economy, which was dominated by a high degree of certainty and predictability of information, transactions within firms tended to be more efficient than market exchange. In the entrepreneurial economy, both of these trends have been reversed (Carlsson, 1989; Carlsson and Taymaz, 1994), witnessed by a decrease in both mean firm size as well as the extent of vertical integration and conglomeration since the mid-1970s.

While models of *competition* generally assume that firms behave autonomously, models of *cooperation* involve linkages among firms. These linkages take various forms, including joint ventures, strategic alliances, and formal and informal networks (Gomes-Casseres, 1996, 1997; Nooteboom, 1999). In the managed economy competition and co-operation are viewed as being substitutes. This is because firms are vertically integrated and compete primarily in product markets. Cooperation between firms in the product market reduces the number of competitors and lessens the degree of competition. In the

© Scottish Economic Society 2003

entrepreneurial economy firms are vertically independent and specialized in the product market. The greater degree of vertical disintegration in the entrepreneurial economy means that cooperation among independent firms replaces internal transactions within a large vertically integrated corporation. At the same time, there are more firms, resulting in an increase in both the competitive as well as the cooperative interface. The likelihood that a firm may end up competing or cooperating with another firm is greater in the entrepreneurial economy.

The classic manner for reducing cost-per-unit in economics under the managed economy was through expanding the scale of output, or through exploiting economies of *scale*. In product lines and industries where a large scale of production renders a substantial reduction in average cost, large firms will have an economic advantage, leading to a concentrated industrial structure. The importance of scale economies no doubt contributed to the emergence and dominance of large corporations in heavy manufacturing industries such as steel, automobiles, and aluminium (Chandler, 1977). Scope economies in the later phase of the managed economy have also been important. The alternative source of reduced average costs under the entrepreneurial economy is through *flexibility* (Teece, 1993). Industries where demand for particular products is constantly shifting require a flexible system of production that can meet such a shifting demand.

Government policy

The final group of trade-offs consists of four trade-offs involving government policy. They cover the goal of policy (stimulation versus regulation), the target of policy (inputs versus outputs), the locus of policy (local versus national), and financing policy (traditional versus new means of finance).

The public policies emerging in the post-war period of the managed economy dealing with the firm in the market were essentially constraining in nature. There were three general types of public policies towards business: antitrust (competition policy), regulation, and public ownership. All three of these policy approaches restricted the firm's freedom to contract. In the entrepreneurial economy the relevant policy question has shifted away from *How can the government constrain firms from abusing their market power?* to *How can governments create an environment fostering the success and viability of firms?* The major issues in the entrepreneurial economy have shifted away from concerns about excess profits and abuses of market dominance to international competitiveness, growth and employment.

A second dimension of governmental policy involves the trade-off between targeting selected *outputs* in the production process and targeting selected *inputs*. Because of the relative certainty regarding markets and products in the managed economy, the appropriate policy response is to target outcomes and outputs. Specific industries along with particular firms could be promoted through government programs. The entrepreneurial economy is based less on the traditional inputs of land, labour and capital, and more on the input of

© Scottish Economic Society 2003

knowledge. It is no longer certain what products should be produced, how they should be produced, and by whom. This increased degree of uncertainty increases the difficulty of selecting the correct outcomes and increases the likelihood that the wrong firm and industry will be targeted. Rather, the appropriate policy in what Paul Krugman (1994) terms as 'The Age of Uncertainty' is to target inputs, and in particular those inputs involved in the creation and commercialisation of knowledge.

A third dimension involves the *locus* of policy. Under the managed economy, the appropriate locus of policy making is mainly at the national or federal level and sometimes the sectoral level, e.g., coal and shipbuilding. While the targeted recipients of policy may be localized in one or a few regions, the most important policy making institutions tend to be at the national level. By contrast, under the entrepreneurial economy, the locus of government policy towards business tends to be decentralized and local in nature.[13] This shift in the locus of policy is the result of two factors. *First*, because the competitive source of economic activity in the entrepreneurial economy is knowledge, which tends to be localized in regional clusters, public policy requires an understanding of regional-specific characteristics and idiosyncrasies. The *second* factor is that the motivation underlying government policy in the entrepreneurial economy is growth and the creation of (high-paying) jobs, largely through the creation of new firms. These new firms are typically small and pose no oligopolistic threat in national or international markets. There are no external costs imposed on consumers in the national economy in the form of higher prices, as is the case in the managed economy. There is no reason that the promotion of local economies imposes a cost on consumers in the national economy, so that local intervention is justified and does not result in any particular loss incurred by agents outside of the region.

In the managed economy, the systems of finance in Europe have provided the existing companies with liquidity for investment.[14] But as the comparative advantage in the European Union shifts away from managed industries towards entrepreneurial activities the demand for finance also shifts away from financing investment in traditional industries towards high-risk ventures. This means that, under the entrepreneurial economy, the traditional means of finance are no longer appropriate: the entrepreneurial economy requires a system of finance different from that in the managed economy. Since the managed economy was based on certainty in outputs as well as inputs, a strong connection between banks and firms fostered growth.[15] Certainty has given way to uncertainty in the entrepreneurial economy, so that financial institutions must also change. Of particular importance in the entrepreneurial economy is venture capital, which has traditionally been a form of finance for high-risk innovative new firms and

[13] Note that it was actually after the rise of Thatcherism that regional policy was abandoned. Market forces were left to resolve regional disparities (Storey, 1994).

[14] See Hughes and Storey (1994), Storey (1994), Reid (1996) and the special issue of *Small Business Economics* devoted to *European SME Financing* (Cressy and Olofsson, 1997).

[15] This has also been the case in earlier periods of entrepreneurialism such during the Dutch Golden Age of the 17th century and Britain's First Industrial Revolution (1760–1830).

© Scottish Economic Society 2003

the informal capital market (Gaston, 1989; Gompers, 1999). This was provided in the UK by merchant banks before the emergence of venture capital in the 1980s. I refer to Audretsch and Thurik (2001) for a more elaborate treatment of the trade-offs between the managed and the entrepreneurial economy.

V Why Entrepreneurship Matters

Porter (1990, p. 125) argues that entrepreneurship is 'at the heart of national advantage'. But what is entrepreneurship? Based on their study of the history of economic thought about entrepreneurship, Hébert and Link (1989, p. 47) propose the following 'synthetic' definition of who an entrepreneur is and what he does:

> the entrepreneur is someone who specializes in taking responsibility for and making judgmental decisions that affect the location, form, and the use of goods, resources, or institutions.

However, when searching for links between entrepreneurship and growth, this definition does not suffice. It seems to embrace intrapreneurship being close to management while ignoring the role of risk. The dynamics of perceiving and creating new economic opportunities and the competitive dimensions of entrepreneurship need more attention. The key contribution of entrepreneurship to economic growth might be singled out as being or creating 'newness'. This includes the start-up of new firms but also the transformation of 'inventions and ideas into economically viable entities, whether or not, in the course of doing so they create or operate a firm' (Baumol 1993, p. 198).

The management literature has a broad view upon entry. In surveying this literature, Lumpkin and Dess (1996) integrate the renewing aspects of entrepreneurship:

> New entry can be accomplished by entering new or established markets with new or existing goods or services. New entry is the act of launching a new venture, either by a start-up firm, through an existing firm or via internal corporate venturing' (Lumpkin and Dess 1996, p. 136).

In their view, the essential act of entrepreneurship is more than new entry as we see it. Entrepreneurial activities, 'new entry' in existing, large firms often takes place by mimicking smallness. Newness through start-ups and innovations as well as competition are the most relevant factors linking entrepreneurship to economic growth. While managerial business owners fulfil many useful functions in the economy such as the organization and coordination of production and distribution, they cannot be viewed as the engine of innovation and creative destruction. This is the major function of Schumpeterian entrepreneurs and intrapreneurs.

Implicit in the previous discussion is the argument that entrepreneurship is important for economic growth through carrying out innovations and through enhancing rivalry. There are various strands in the empirical literature showing the effect of entrepreneurship on economic growth. Carree and Thurik (2003)

© Scottish Economic Society 2003

discriminate between four specific strands of empirical research. The *first* deals with the effect of turbulence on economic growth. Turbulence, *viz*., the sum of entry and exit in industries or regions, can be interpreted as an indicator of entrepreneurial activity. The *second* strand concentrates on the effect of (changes in) size-distribution in regions on subsequent economic growth. In case a region has a larger share of small firms when compared to another region this could indicate a higher level of entrepreneurial activity. The *third* strand investigates the effect of the number of market participants in an industry on economic growth. An increase in the number of competitors is usually related to more intensive entrepreneurial activity. The *fourth* strand of empirical literature concentrates on the effect of the number of self-employed, i.e., business owners, on subsequent growth. In developed economies the rate of self-employment will be related to the extent of entrepreneurial activity. New firms usually start with a phase of self-employment *sensu stricto*, i.e., with no paid employees.[16] This fourth strand of literature is of specific importance for the current paper. A fifth and last source of evidence on the relation between self-employment and progress is the economic history of the formerly centralized planned economies. A characteristic of these economies was the almost complete absence of small firms (and private ownership of the means of production), and this extreme monopolization constituted one of the major factors leading to the collapse of state socialism (Acs, 1996). The development of small enterprises is considered a vital part of the current transition process in Eastern Europe[17] while it is perhaps best developed in a progressive way, rather than suddenly.[18]

Carree, Van Stel, Thurik and Wennekers (2002) investigate whether countries that deviate from the 'equilibrium' business ownership rate for comparable levels of economic development suffer in terms of economic growth. In their view deviations between the actual and the equilibrium rate of business ownership will diminish the growth potential of an economy in the medium term. A shortage of business owners is likely to diminish competition with detrimental effects for static efficiency and competitiveness of the national economy. It will also diminish variety, learning and selection and thereby harm dynamic efficiency (innovation). On the other hand, a glut of self-employment will cause the average scale of operations to remain below optimum. It will result in large numbers of marginal entrepreneurs, absorbing capital and human energy that could have been allocated more productively elsewhere. They develop an error-correction model to determine the 'equilibrium' rate of business ownership as a function of GDP per capita. Carree, Van Stel, Thurik and Wennekers (2002) hypothesize an 'equilibrium' relationship between the rate of business ownership and per capita income that is U-shaped. The

[16] See Carree and Thurik (2003) for further discussion of the differences between the five strands.

[17] Others examples of the role of entrepreneurship in economic history are given in Wennekers, Thurik and Uhlaner (2002).

[18] If an economy has suffered the collapse of the sentiment of entrepreneurialism, it needs careful reintroduction or else illegal rent seeking activities take over.

© Scottish Economic Society 2003

U-shaped pattern has the property that there is a level of economic development with a 'minimum' business ownership rate.

VI Linking Entrepreneurship and Unemployment

We have seen that the shift from a managed to an entrepreneurial economy has many faces and many consequences. We have also seen that there is both conceptual and empirical evidence that entrepreneurship fosters growth. The most important question is whether, at the end of the day, the entrepreneurial economy leads to less unemployment than the managed one. In other words: the question is whether a rise in entrepreneurship leads to lower levels of unemployment.

The relationship between unemployment and entrepreneurship has been shrouded with ambiguity. 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' or 'shopkeeper' effect of unemployment stimulating entrepreneurship. Audretsch, Carree and Thurik (2001) try to reconcile the ambiguities found in the relationship between unemployment and entrepreneurship. They present a two-equation model where changes in unemployment and in the number of business owners are linked to subsequent changes in those variables. Their model is based on a framework using elements of the Gibrat's Law literature. Their empirical results are from a panel of 23 OECD countries over the period 1974 through 1998.[19] The existence of two separate relationships between unemployment and entrepreneurship is identified including significant 'Schumpeter' and 'refugee' effects. For the purpose of the present paper we deal with the 'Schumpeter' side of the relationship. To test this first hypothesis that an increase in entrepreneurial activity leads to a decrease in subsequent unemployment Audretsch, Carree and Thurik (2001) estimate the following equation:

$$U_t - U_{t-L} = a + b(E_{t-L} - E_{t-2L}) + c(U_{t-L} - U_{t-2L}) + e_t, \qquad (1)$$

where U is the unemployment rate (unemployed per work force), E is the self-employment rate (business owners per work force) and e is a random coefficient. The index t refers to the year and L to the time lag. The expected sign of the coefficient b is negative. The lagged endogenous variable is used on the right hand side to 'correct' for reversed causality.[20]

[19] This is the COMPENDIA (COMParative ENtrepreneurship Data for International Analysis) dataset constructed by EIM Business and Policy Research, Zoetermeer. This dataset includes employment and entrepreneurship figures for 23 OECD countries for the period 1972–1998. The COMPENDIA data also form the basis for the analysis and discussion in the subsequent section.

[20] The Granger (1969) approach to the question of whether x causes y is to see how much of the current y can be explained by past values of y and then to see whether adding lagged values of x can improve the explanation. y is said to be Granger-caused by x if x helps in the prediction of y, or equivalently if the coefficients on the lagged x's are statistically significant. Two-way causation is frequently the case; x Granger causes y and y Granger causes x. It is important to note that the statement 'x Granger causes y' does not imply that y is the effect or the result of x.

© Scottish Economic Society 2003

Audretsch, Carree and Thurik (2001) estimate equation (1) using the panel data set consisting of 23 OECD countries in the period 1974 through 1998. Weighted least squares using the number of self-employed is applied. We use their results with a time lag of eight years, $L = 8$.[21] The relatively long lag structure of eight years is justified because the employment impact of entrepreneurship is not instantaneous but rather it requires a number of years for the firm to grow.[22] Audretsch, Carree and Thurik (2001) report values of the coefficients a, b and c of 0.004 (1.0), -0.78 (2.6) and -0.18 (2.1), respectively, with absolute t-values between parentheses. Coefficient b is less than zero and significant. This implies that there exists a clear 'Schumpeter' effect of entrepreneurship reducing unemployment. The negative effect of lagged unemployment on subsequent unemployment, $c < 0$, is probably an indicator of cyclical effects related to the influence of policy measures. The autonomous change in the unemployment level, a, does not differ from zero.

The small business sector is generally assumed to be of considerable importance as a driver of growth in modern economies (White, 1982; Thurik, 1999; Audretsch, 1995; Kwoka and White, 2001; Carree and Thurik, 2003). New and small firms are a major vehicle in which entrepreneurship thrives (Wennekers and Thurik, 1999). The present exercise shows the importance of its role bringing down unemployment. In the next section we will present some computations as to how this works out in the UK.

VII Unemployment and Entrepreneurship in the UK

In this section we will discuss developments in unemployment in the UK in the period 1970 through 1998 as well as the development of entrepreneurship (share of business owners in the labour force). Lastly, we will discuss some results when applying equation (1) to the UK.

Developments in unemployment

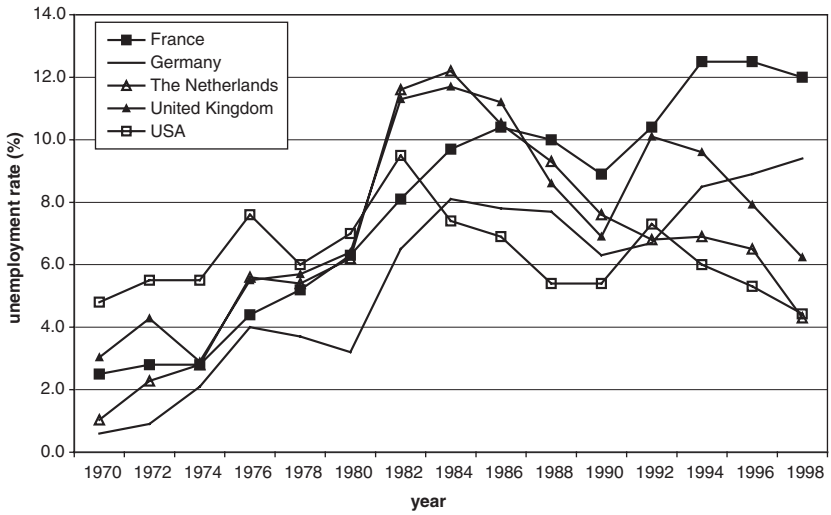
Figure 1 presents the development of unemployment in the period between 1970 and 1998 for the UK and four other OECD countries: France, Germany, The Netherlands and the United States. These four countries are chosen as a benchmark because the development of entrepreneurship and its determinants are discussed extensively in Audretsch, Thurik, Verheul and Wennekers (2002). The development of unemployment in the UK between 1970 and 1998 is characterized by the upswing periods of 1970 through 1984 and 1990 through 1992 and the downswings of the periods 1984 through 1990 and 1992 through

Granger causality measures precedence and information content but does not by itself indicate causality in the more common use of the term.

[21] See Audretsch, Carree and Thurik (2001) for the results using a time lag of 4 and 12 years.

[22] In this respect Geroski (1995, p. 148) states that 'Even successful entrants may take more than a decade to achieve a size comparable to the average incumbent.' Audretsch (1995) shows that share of total employment accounted for by a cohort of new-firm startups in US manufacturing more than doubles as the firms age from two to six years old (no evidence was provided beyond six years).

© Scottish Economic Society 2003



Source: EIM (2000), COMParative Entrepreneurship Data for International Analysis (COMPENDIA). The data for Germany refer to West Germany for the period 1972-1990.

Figure 1. Developments in unemployment in the period 1970–1998.

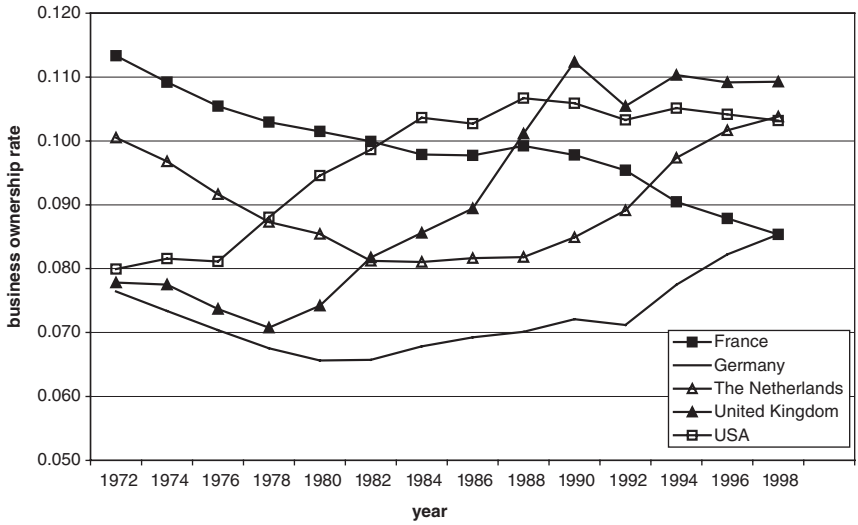
1998. By and large, the direction of the swings are comparable to that of the other countries. The variation in the up- and downswings seems to be somewhat higher in the UK and the Netherlands than elsewhere. The recovery period from 1992 onwards when unemployment dropped from 10% to 6% is remarkable, particularly considering the growing rates in the two other major European economies, Germany and France.

Developments in entrepreneurship

The developments in entrepreneurship in France, Germany, the Netherlands, the UK and the United States are depicted in Figure 2.[23] The pattern of the developments in entrepreneurship in the UK is characterized by a downward movement till 1978, a strong upward movement from 1978 through 1990 and stabilization since 1990. The development of entrepreneurship in most OECD-countries can be characterized by a U-shaped trend, with a decrease in entrepreneurship till the mid-eighties and an increase afterwards (Carree, Van Stel, Thurik and Wennekers, 2002; Audretsch, Thurik, Verheul and Wennekers, 2002). At first sight the developments in the United States and France are not in conformity with this U-shaped pattern. However, although not visible in Figure 2, the share of entrepreneurs in the United States declined until the early 1970s (Blau, 1987; Gartner and Shane, 1995). The turning point of the development of entrepreneurship in the United States is in the early 1970s marking a period of

[23] It involves 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.

© Scottish Economic Society 2003



Source: EIM (2000): COMParative Entrepreneurship Data for International Analysis (COMPENDIA).
The data for Germany refer to West Germany for the period 1972-1990.

Figure 2. Developments in entrepreneurship in the period 1972–1998.

increasing entrepreneurial activity. With respect to the developments in France it may be argued that, although the role of entrepreneurship continued to decline into the late 1990s, entrepreneurship in France will increase in the near future, showing the U-shaped development, albeit one that is initiated at a later point in time. This prediction is justified by the fact that hindering factors, such as the interlock of government and regulations as well as the domination of large firms, are being reduced thereby paving the way for entrepreneurship (Henriquez, Verheul, Van der Geest and Bischoff, 2002). Thus, whereas entrepreneurship in most OECD countries shows a U-shaped development, the periods of down- and upswing differ between countries. What appears to be a divergence, is in fact a process of convergence (Audretsch, Thurik, Verheul and Wennekers, 2002). The reversal of the downward to an upward trend marks the transformation from the managed to the entrepreneurial economy (Audretsch and Thurik, 2000 and 2001). The developments in the UK are in conformity with this U-shaped trend. The trough of the U-shape occurs earlier than in the other European countries but later than in the USA. Like in the USA the increase of the business ownership rate levels off after a period of about twelve to fourteen years.

In Table 1 a full picture is provided of business owners as a percentage of the labour force for the 23 OECD countries of which data are used when estimating equation (1). The 1998 business ownership rate in the UK is about equal to the weighted average of the 23 OECD countries. It is high when compared to the non-Mediterranean European countries. This high level is due mainly to the growth of UK business ownership in the period of 1984 through 1998.

© Scottish Economic Society 2003

Table 1
Business owners as a percentage of the labour force in 23 OECD countries

	Level			Growth		Country percentage in total business owners in all 23 countries		
	1972	1984	1998	1972–84	1984–98	1972	1984	1998
Austria	9.3	6.5	8.0	−2.8	1.5	0.96	0.58	0.69
Belgium	10.5	10.2	11.9	−0.3	1.7	1.35	1.13	1.15
Denmark	8.2	6.6	6.4	−1.6	−0.2	0.68	0.48	0.40
Finland	6.6	6.6	8.2	0.0	1.6	0.49	0.45	0.46
France	11.3	9.8	8.5	−1.5	−1.3	8.40	6.31	4.92
Germany (West)*	7.6	6.8	8.5	−0.8	1.7	7.05	5.20	7.56
Greece	16.1	17.7	18.6	1.6	0.9	1.78	1.83	1.84
Ireland	6.9	8.0	11.2	1.1	3.2	0.26	0.28	0.41
Italy	14.3	16.5	18.2	2.2	1.7	9.56	9.77	9.52
Luxembourg	10.7	8.3	5.9	−2.4	−2.4	0.05	0.04	0.03
The Netherlands	10.0	8.1	10.4	−1.9	2.3	1.99	1.38	1.80
Portugal	11.3	10.6	15.2	−0.7	4.6	1.38	1.28	1.69
Spain	11.8	11.3	13.0	−0.5	1.7	5.28	4.20	4.75
Sweden	7.4	7.2	8.2	−0.2	1.0	0.99	0.84	0.78
United Kingdom	7.8	8.6	10.9	0.8	2.3	6.70	6.24	7.04
Iceland	11.1	9.1	13.2	−2.0	4.1	0.04	0.03	0.04
Norway	9.7	8.7	7.1	−1.0	−1.6	0.56	0.47	0.36
Switzerland	6.6	6.8	9.1	0.2	2.3	0.80	0.67	0.81
USA	8.0	10.4	10.3	2.4	−0.1	24.17	31.91	31.90
Japan	12.5	12.6	10.0	0.1	−2.6	22.04	19.96	15.10
Canada	7.9	10.0	14.1	2.1	4.1	2.50	3.44	4.92
Australia	12.6	16.0	15.5	3.4	−0.5	2.50	3.06	3.24
New Zealand	10.2	11.0	14.2	0.8	3.2	0.45	0.47	0.59
Weighted average	9.8	10.6	10.9	0.8	0.3			
Total business owners in thousands						29,390	37,430	44,927

Note: *The data for Germany refer to West Germany for 1972 and 1984.
Source: EIM: COMParative Entrepreneurship Data for International Analysis (COMPENDIA 2000.1).

It is striking to see that in comparison with the other OECD countries the Mediterranean countries, including Greece, Portugal, Italy and Spain, have a high level of entrepreneurship throughout the period between 1972 and 1998. These high levels of entrepreneurship do not necessarily imply that their contribution to employment and GDP is high since we have not corrected for the innovativeness of the entrepreneurs, i.e., we have made no distinction between 'Schumpetarian' entrepreneurs and 'shopkeepers' or 'refugee' entrepreneurs. It is likely that entrepreneurs in the Mediterranean countries have different characteristics from entrepreneurs in, for instance, the Scandinavian

© Scottish Economic Society 2003

countries. Moreover, the Mediterranean countries have a relatively low per capita income, accompanied by a more traditional industrial structure and different cultural settings. For instance, their populations show relatively high degrees of dissatisfaction (Wennekers and Thurik, 2001; Wennekers, Thurik, Noorderhaven and Hofstede, 2002). This may have an important influence on the quantity and the quality of entrepreneurship in these countries.

The relationship between unemployment and entrepreneurship

To determine whether and to what extent the contribution of entrepreneurship to reducing unemployment in the UK deviates from that in other countries we make use of equation (1). It is straightforward to calculate the estimated values of e for the UK in 1998 and 1990: they are 0.9% and -2.5%, respectively. In other words: the model represented by equation (1) substantially underestimates the decrease in unemployment in the UK in the period between 1982 and 1990. This means that either the nature of entrepreneurship differs from other countries in that it contributes less to bringing down unemployment or that the economic and/or cultural setting in the UK differs from other countries so that variations in unemployment cannot be adequately explained using equation (1) and more influences should be taken into account. Both possibilities will be discussed in the next section.

Using the results of equation (1) a prediction can be made of the level of unemployment in the UK in 2006. It is easy to calculate that $U_t - U_{t-L}$ equals 0.37 for $t = 2006$ and $L = 8$. This would imply that unemployment would increase by about one third per cent point in a period of eight years starting in 1998 and that unemployment would be about 6.6% in 2006. Clearly, this calculation depends upon the validity of equation (1) for the UK. Hence, it has to be interpreted with care because earlier we concluded that the UK is a relative outlier in that the model has underestimated the decrease in unemployment in the UK in the period 1982–1990.

VIII Discussion

Since the mid-1990s the UK economy has been fairly robust with an average growth rate of approximately 2.6%. In 2001 it had the lowest unemployment rate of all large European countries (OECD, 2002a, b). While the UK has an unemployment rate of about 5%, those in Germany, France, Italy and Spain are 7.7%, 8.6%, 9.4% and 10.7%, respectively.

As discussed in earlier sections, entrepreneurship can contribute to the reduction of unemployment. We have also seen that the relationship between entrepreneurship and unemployment in the UK is of a specific nature, where entrepreneurship contributes less than elsewhere to alleviate the unemployment problem. In the present section we discuss the nature of entrepreneurship and the business environment in the UK to discover the specific characteristics of the relationship between unemployment and entrepreneurship in the

© Scottish Economic Society 2003

UK.[24] Moreover, we will end with some policy implications, giving hints as to how the UK government may intervene in the economic process to stimulate employment creation by way of entrepreneurship. It is beyond the scope of the present paper to take into account the important differences between the economies of England, Scotland, Wales and Northern Ireland.

Most businesses in the UK are quite small. In the UK over 60% of the firms have no employees and around 95% have fewer than 10 employees (DTI, 2000). SMEs (with less than 100 employed) account for about 55% of the workforce in 1999 in the UK (DTI, 2000). The relatively low employment contribution of small businesses in the UK becomes apparent in a classification of countries according to the size-class structure, using the dominant size class (European Commission, 2000). The UK is classified as a LSE-dominated country, i.e., a country where large-scale enterprises have the largest share in total employment.

With respect to entry and exit rates, the Small Business Service (2001) notes that in 2000 there were 183,300 VAT registrations and 177,100 VAT de-registrations in the UK. Making use of these VAT (de)registrations, the turbulence rate, i.e., entry plus exit, in the UK amounts up to 21.64% in 2000. To measure the level of start-up and new entrepreneurial activity in different countries Reynolds *et al.* (2001) use the Total Entrepreneurial Activity Index (comprised of the level of start-up activity, i.e., nascent entrepreneurship, and the prevalence rate of new firms).[25] The Total Entrepreneurial Activity Index for the UK amounted to 7.7, i.e., out of every 100 people 7.7 are involved in starting a new firm or running a new business. This rate of 7.7 is slightly below the average of the 29 countries participating in the Global Entrepreneurship Monitor in 2001 (Reynolds *et al.*, 2001).[26]

As compared to other countries the UK has a favourable environment for entrepreneurship (Bygrave *et al.*, 2001; OECD, 2001), based on levels of barriers to entrepreneurship, such as permits, licences and complexity of rules, procedures and administrative costs. According to the OECD (2002b) the UK even has the lowest barrier to entrepreneurship of the OECD countries. Several reforms during the 1980s and the 1990s, especially in the labour market, contributed to this environment in the UK. However, although the support structure for small and new businesses in the UK is well-developed and has been in place for some time, start-up and new firm activity is still low as compared to some other countries. This may be attributed to barriers to entrepreneurship the UK still faces regarding culture and attitudes, education, finance and regulation.

[24] For a comparison between the UK and France see Henriquez (2002) and for a similar analysis of Spain see Thurik and Verheul (2002). The present discussion section builds upon data provided in Henriquez (2002).

[25] The prevalence of nascent firms is measured by the proportion of the adult population in each country that is currently engaged in the process of creating a new business. The prevalence of new firms is measured by the proportion of adults in each country who are involved in operating a business that is less than 42 months old (Reynolds *et al.*, 2000).

[26] The Total Entrepreneurial Activity Index for France, Germany, Italy, Japan and the United States is 7.2, 7.0, 10.2, 5.1 and 11.7, respectively (Reynolds *et al.*, 2001). The UK ranks 19th out of the total group of surveyed countries (Bygrave *et al.*, 2001).

© Scottish Economic Society 2003

Despite measures taken during the Thatcher administration to create an environment fostering entrepreneurship, part of which was aimed at creating a new 'enterprise culture' (Deakins, 1996), these measures have not entirely changed attitudes towards entrepreneurship. Bygrave *et al.* (2001)[27] argue that culture and social attitudes to entrepreneurship are most frequently cited as both key conditions and barriers to entrepreneurship in the UK. Although there seems to be a positive change, attitudes towards wealth creation and self-employment remain relatively negative and there is still some reluctance of people in the UK to become entrepreneurs. This may be attributed to the relatively high level of risk-aversion and fear of failure.

Bygrave *et al.* (2001) point out that in the UK little attention is still paid to teaching entrepreneurship at all levels of the British education system. The focus should be on introducing entrepreneurial projects in school as well as on broader teaching methods that promote creativity, a 'can do' culture and confidence – all precursors of entrepreneurship. In addition, universities should offer more courses on entrepreneurship.

According to the Bank of England (2001), small- and medium-sized businesses have become less reliant on external finance. For firms that do raise external finance, traditional bank lending remains important. Cruickshank (2000) concludes that there is no evidence to suggest that small firms have difficulty accessing debt finance from banks. Nevertheless, there is a limited number of debt finance suppliers in the UK and there is almost no new entry. As a consequence, banks make excess profits in the small business services market. An alternative form of finance is formal venture capital. However, the bulk of the funds raised by UK venture capitalists is invested abroad. Accordingly, relatively few (potential) high-growth firms have benefited from the growth in venture capital funds. The UK venture capital market is characterized by an equity gap in the provision of early stage small-scale finance to viable small businesses (Cruickshank, 2000).[28] Informal venture capital is also a source of finance for small firms. According to the Bank of England (2001) business angel investment faces a great lack of information on investment opportunities, with the exception of the ones recommended by family and friends. In the UK there seems to be an inadequate supply of early stage risk capital for start-up and young companies (Cruickshank, 2000). This lack of risk capital may be an important impediment to the growth of small firms, thereby inhibiting employment creation.

Government regulation and paperwork are perceived as one of the most important business problems by small and new businesses throughout 1999 and 2000 (Bygrave *et al.*, 2001). Regulatory burdens tend to bear disproportionately on small businesses as they often lack the specialized management or resources, to efficiently comply with regulation. Especially employment legislation seems to

[27] Based on interviews with 58 entrepreneurship experts.

[28] In the venture capital market transaction and administration costs are fixed. For small firms these costs are higher per unit of funds invested. Hence, venture capitalists tend to focus on larger capital deals.

© Scottish Economic Society 2003

be a concern for many SMEs (Bank of England, 2001). Hence, although the UK is characterized by an environment relatively conducive to entrepreneurship, the perception of this environment by entrepreneurs themselves is different.

Barriers to small business start-up and development, including the negative attitudes towards self-employment and wealth creation, relatively little attention to entrepreneurship in education and a lack of entrepreneurial teaching methods, the financial gap for financing small and risky, potentially high-growth, ventures and the burden of start-up procedures, inhibit employment creation through new venture creation as well as expansion of established businesses.

Although the business start-up rate in the UK is average as compared to that in other countries, businesses are relatively small and moderately innovative. Porter and Stern (1999) use the 'innovation index' to rank 17 OECD countries[29] according to the degree of innovative capacity in the years of 1980, 1986, 1993 and 1995. Between 1980 and 1995 the innovative capacity of the United Kingdom is not among the highest of the included OECD-countries – rather it belongs to the middle category – and has been declining between 1980 and 1995. Between 1989 and 1997 R&D expenditures in the UK dropped from approximately 2.2% of the GDP to less than 2% (OECD, 1996, 2000). Moreover, the proportion of patents in the UK declined by 39% between 1980 and 1999 (Bloom and Griffith, 2001). Also, there is evidence that technology-based small firms in the UK experience difficulties in accessing risk capital at the seed, start-up and early stages (Bank of England, 2001). Hence, both from a cross-sectional, i.e., cross-country, and a longitudinal perspective, there is room for improving UK's businesses capacity for generating or adapting new ideas. This suggests that entrepreneurship in the UK may be of a different nature than in other countries. If entrepreneurship in the UK is less Schumpeterian than several years ago or than in other OECD countries, this will have consequences for employment creation.

IX Conclusion

Coase was the first to ask the question why firms exist (Coase, 1937). To answer this question he introduced the concept of transaction costs. These costs result from buying input factors on the market. When they are higher than the costs involved with setting up and running a firm, this firm has a reason for existence. Modern technology has lowered transaction costs and moved the advantage away from firms toward markets and the individual as the smallest possible firm. The present paper presents some differences between the managed economy (before the transition) and the entrepreneurial economy (after the transition). Countries lagging behind in this transition process suffer from relatively high levels of unemployment. The present paper uses the results of a relationship between unemployment and the rate of self-employment on the level of countries to discuss the specific case of the UK. The UK appears to be a relative outlier in

[29] The 'innovation index' was computed for the following countries: the United States, Switzerland, Germany, Japan, Sweden, Canada, France, the Netherlands, Finland, United Kingdom, Norway, Denmark, Austria, Australia, Italy, New Zealand and Spain.

© Scottish Economic Society 2003

that the model has underestimated the decrease in unemployment in the UK in the period 1982-1990. It may be that either the nature of entrepreneurship in the UK differs from that in other countries or that the economic and/or cultural setting in the UK differs from that in other countries. Both possibilities have been discussed in the previous section.

Acknowledgements

This paper is the written version of the president's lecture given by Roy Thurik at the Scottish Economic Society in Dundee on 11 April, 2002. It builds upon some recent papers, such as Audretsch and Thurik (2000, 2001), Audretsch, Carree and Thurik (2001), Carree and Thurik (2003), Thurik and Verheul (2003) and Audretsch, Thurik, Verheul and Wennekers (2002) and makes use of OECD (1998). The author would like to thank David Audretsch, Maria Callejon, Martin Carree, Candice Henriquez, Gavin Reid, André van Stel, David Storey and Ingrid Verheul for their helpful comments on earlier versions of the paper.

References

Acs, Z. J. (1996). Small firms and economic growth. In Admiraal, P. H. (ed.) *Small Business in the Modern Economy, De Vries Lectures in Economics*. Oxford, UK: Blackwell Publishers.

Acs, Z. J. and Audretsch, D. B. (1987). Innovation, market structure, and firm size. *Review of Economics and Statistics*, 69, pp. 567–74.

Acs, Z. J. and Audretsch, D. B. (1993). Conclusion. In Acs, Z. J. and Audretsch, D. B. (eds.), *Small Firms and Entrepreneurship; an East-West Perspective*. Cambridge, UK: Cambridge University Press.

Archibugi, D. and Pianta, M. (1992). *The Technological Specialization of Advanced Countries*. Boston/Dordrecht: Kluwer Academic Publishers.

Audretsch, D. B. (1995). *Innovation and Industry Evolution*. Cambridge: MIT Press.

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, pp. 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*, 19, pp. 795–821.

Audretsch, D. B., Carree, M. A. and Thurik, A. R. (2001). Does entrepreneurship reduce unemployment? Tinbergen Institute discussion paper TI01-074/3. Erasmus University Rotterdam.

Audretsch, D. B., Carree, M. A., van Stel, A. J. and Thurik, A. R. (2002). Impeded industrial restructuring: the growth penalty. *Kyklos*, 55, pp. 81–97.

Audretsch, D. B., Thurik, A. R., Verheul, I. and Wennekers, A. R. M. (eds.) (2002). *Entrepreneurship: Determinants and Policy in a European–US Comparison*. Kluwer Academic Publishers, 2002.

Bank of England (2001). *Finance for Small Firms, An Eight Report*. Domestic Finance Division, www.bankofengland.co.uk.

Baumol, W. J. (1993). Formal entrepreneurship theory in economics; existence and bounds. *Journal of Business Venturing*, 8, pp. 197–210.

Blau, D. M. (1987). A time series analysis of self-employment in the United States. *Journal of Political Economy*, 95, 3, pp. 445–467.

Bloom, N. and Griffith, R. (2001). The internationalisation of UK R&D. *Fiscal Studies*, 22, 3, pp. 337–55.

Brock, W. A. and Evans, D. S. (1986). *The Economics of Small Businesses: Their Role and Regulation in the U.S. Economy*. New York: Holmes and Meier.

Bygrave, W. D., Hay, M. and Reynolds, P. D. (2001). *Global Entrepreneurship Monitor 2001 UK Executive Report*. London Business School.

© Scottish Economic Society 2003

CARLSSON, B. (1989). The evolution of manufacturing technology and its impact on industrial structure: an international study. *Small Business Economics*, 1, 1, pp. 21–38.
CARLSSON, B. and TAYMAZ, E. (1994). Flexible technology and industrial structure in the U.S. *Small Business Economics*, 6, 3, pp. 193–209.
CARREE, M. A. (2002). Industrial restructuring and economic growth. *Small Business Economics*, 18, 4, pp. 243–55.
CARREE, M. A. and THURIK, A. R. (1998). Small firms and economic growth in Europe. *Atlantic Economic Journal*, 26, 2, pp. 137–46.
CARREE, M. A. and THURIK, A. R. (1999). Industrial structure and economic growth. In Audretsch, D. B. and Thurik, A. R. (eds.) *Innovation, Industry Evolution and Employment*. Cambridge: Cambridge University Press, pp. 86–110.
CARREE, M. A. and THURIK, A. R. (2003). The impact of entrepreneurship on economic growth. In Audretsch, D. B. and Acs, Z. J. (eds.) *Handbook of Entrepreneurship Research*. Boston/Dordrecht: Kluwer Academic Publishers, Forthcoming..
CARREE, M. A., VAN STEL, A. J., THURIK, A. R. and WENNEKERS, A. R. M. (2002). Economic development and business ownership: an analysis using data of 23 OECD countries in the period 1976–1996. *Small Business Economics*, 19, 3, pp. 271–90.
CHANDLER, A. D. (1977). *The Visible Hand: The Managerial Revolution in American Business*. Cambridge: Harvard University Press.
CHANDLER, A. D. Jr. (1990). *Scale and Scope: The Dynamics of Industrial Capitalism*. Cambridge: Harvard University.
COASE, R. H. (1937). The nature of the firm. *Economica*, 4, 4, pp. 386–405.
COHEN, W. M. and KLEPPER, S. (1992). The tradeoff between firm size and diversity in the pursuit of technological progress. *Small Business Economics*, 4, 1, pp. 1–14.
CRESSY, R. C. and OLOFSSON, C. (1997). European SME financing: an overview. *Small Business Economics*, 9, 2, pp. 87–96.
CRUICKSHANK, D. (2000). *Competition in UK Banking, A Report to the Chancellor of the Exchequer*. London: Her Majesty's Stationery Office.
DEAKINS, D. (1996). *Entrepreneurship and Small Firms*. Maidenhead: McGraw-Hill.
DEPARTMENT OF TRADE AND INDUSTRY (DTI). (2000). *The Statistical Bulletin of Small and Medium Enterprise (SME), Statistics for the UK 1999*. London: DTI, SBS Research Unit.
DOSI, G. (1988). Sources, procedures and microeconomic effects of innovations. *Journal of Economic Literature*, 26, pp. 1120–71.
THE ECONOMIST (1995). Big is back. 22 June.
THE ECONOMIST (1995). The death of distance. 30 September.
THE ECONOMIST (1996). The year downsizing grew up, 21 December.
THE ECONOMIST (2001). A matter of choice. 22 December, p. 76.
EIM (2000). COMParative ENtrepreneurship Data for International Analysis (COMPENDIA 2000.1). EIM Business and Policy Research, Zoetermeer.
EIM/ENSR (1997). *The European Observatory for SMEs: Fifth Annual Report 1997*. Zoetermeer: EIM Business and Policy Research.
EUROPEAN COMMISSION (2000). *The European Observatory for SMEs: Sixth Report*. Submitted to the Enterprise Directorate General by KPMG Consulting, EIM Business and Policy Research: Zoetermeer and ENSR: Luxembourg.
FREEMAN, C. and PEREZ, C. (1988). Structural crises of adjustment: business cycles and investment behavior. In Dosi, G., Freeman, C., Nelson, R., Silverberg, G. and Soete, L. (eds.) *Technical Change and Economic Theory*. London: Pinter Publishers.
GALBRAITH, J. K. (1967). *The New Industrial State*. London: Routledge.
GARTNER, W. B. and SHANE, S. A. (1995). Measuring entrepreneurship over time. *Journal of Business Venturing*, 10, 4, pp. 283–301.
GASTON, R. J. (1989). The scale of informal capital markets. *Small Business Economics*, 1, 3, pp. 223–30.
GEROSKI, P. A. (1995). What do we know about entry? *International Journal of Industrial Organization*, 13, pp. 421–40.
GOMES-CASSERES, B. (1996). *The Alliance Revolution: The New Shape of Business Rivalry*. Cambridge, MA: Harvard University Press.
GOMES-CASSERES, B. (1997). Alliance strategies of small firms. *Small Business Economics*, 9, 1, pp. 33–44.
GOMPERS, P. (1999). *The Venture Capital Cycle*. Cambridge, MA: MIT Press.
GRANGER, C. W. J. (1969). Investigating causal relations by econometric models and cross-spectral methods. *Econometrica*, 37, pp. 424–38.

© Scottish Economic Society 2003

HÉBERT, R. F. and LINK, A. N. (1989). In search of the meaning of entrepreneurship. *Small Business Economics*, 1, pp. 39–49.
HENRIQUEZ, C. M. (2002). Determinants of entrepreneurship: a comparison between the UK and France. Master's thesis in economics, Erasmus University Rotterdam.
HENRIQUEZ, C. M., VERHEUL, I., VAN DER GEEST, I. and BISCHOFF, C. (2002). Determinants of entrepreneurship in France. In Audretsch, D. B., Thurik, A. R., Verheul, I. and Wennekers, A. R. M. (eds.) *Entrepreneurship: Determinants and Policy in a European–US Comparison*. Kluwer Academic Publishers, pp. 83–120.
HOFSTEDE, G., NOORDERHAVEN, N. G., THURIK, A. R., WENNEKERS, A. R. M., UHLANER, L. and WILDEMAN, R. E. (2002). Culture's role in entrepreneurship: self-employment out of dissatisfaction. In Ulijn, J. and Brown, T. (eds.) *Innovation, Entrepreneurship and Culture: The Interaction between Technology, Progress and Economic Growth*. Cheltenham, US and Brookfield, UK: Edward Elgar. Forthcoming.
HUGHES, A. and STOREY, D. J. (1994). *Finance and the Small Firm*. London: Routledge.
JENSEN, M. C. (1993). The modern industrial revolution, exit, and the failure of internal control systems. *Journal of Finance*, 68, pp. 831–80.
KNIGHT, F. H. (1921). *Risk, Uncertainty and Profit*. New York: Houghton Mifflin.
KRUGMAN, P. (1991a). *Geography and Trade*. Cambridge: MIT Press.
KRUGMAN, P. (1991b). Increasing returns and economic geography. *Journal of Political Economy*, 99, 3, pp. 483–99.
KRUGMAN, P. (1994). *The Age of Uncertainty*. Cambridge: MIT Press.
KWOKA, J. E. and WHITE, L. J. (2001). The new industrial organization and small business. *Small Business Economics*, 16, 1, pp. 21–30.
LOVEMAN, G. and SENGENBERGER, W. (1991). The re-emergence of small-scale production; an international comparison. *Small Business Economics*, 3, pp. 1–37.
LUCAS, R. E. Jr. (1993). Making a miracle. *Econometrica*, 61, 2, pp. 251–272.
LUMPKIN, G. T. and DESS, G. G. (1996). Clarifying the entrepreneurial orientation construct and linking it to performance. *Academy of Management Review*, 21, pp. 135–172.
NELSON, R. R. and WINTER, S. G. (1982). *An Evolutionary Theory of Economic Change*. Cambridge: Harvard University Press.
NOORDERHAVEN, N., THURIK, A. R. and WENNEKERS, S. (2002). Self-employment out of dissatisfaction: an international study, ERIM report ERS-2002-??-STR. Erasmus University Rotterdam. Forthcoming.
NOOTEBOOM, B. (1994). Innovation and diffusion in small firms. *Small Business Economics*, 6, pp. 327–47.
NOOTEBOOM, B. (1999). *Inter-Firm Alliances; Analysis and Design*. London: Routledge.
OECD (1996). *Main Science and Technology Indicators*. Paris: OECD.
OECD (1998). *Fostering Entrepreneurship, The OECD Jobs Strategy*. Paris: OECD.
OECD (2000). *OECD Employment Outlook*. Paris: OECD.
OECD (2001). *Science, Technology and Industry Outlook, Drivers of Growth: Information Technology, Innovation and Entrepreneurship*. Paris: OECD.
OECD (2002a). *Main Economic Indicators*. Paris: OECD.
OECD (2002b). *Economic Surveys United Kingdom 2001–2002*. Paris: OECD.
PIORE, M. J. and SABEL, C. F. (1984). *The Second Industrial Divide: Possibilities for Prosperity*. New York: Basic Books.
PORTER, M. E. (1990). *The Competitive Advantage of Nations*. New York: Free Press.
PORTER, M. E. and STERN, S. (1999). *The New Challenge to America's Prosperity. Findings from the Innovation Index*. Washington DC: Council on Competitiveness.
PRUSA, T. J. and SCHMITZ, J. A. Jr. (1991). Are new firms an important source of innovation? evidence from the software industry. *Economics Letters*, 35, 339–42.
REID, G. C. (1989). *Classical Economic Growth*. Oxford: Basil Blackwell.
REID, G. C. (1996). Financial structure and the growing small firm: theoretical underpinning and current evidence. *Small Business Economics*, 8, 1, pp. 1–7.
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., HAY, M., BYGRAVE, W. D., CAMP, S. M. and AUTIO, E. (2000). *Global Entrepreneurship Monitor: 2000 Executive Report*. Babson College, London Business School and the Kauffman Center for Entrepreneurial Leadership.
ROMER, P. M. (1990). Endogenous technological change. *Journal of Political Economy*, 98, pp. 71–101.

© Scottish Economic Society 2003

ROMER, P. M. (1994). The origins of endogenous growth. *Journal of Economic Perspectives*, 8, 1, pp. 3–22.
SCHERER, F. M. and ROSS, D. (1990). *Industrial Market Structure and Economic Performance*. Boston, MA: Houghton Mifflin Company.
SCHUMPETER, J. A. (1934). *The Theory of Economic Development*. Cambridge, Ma: Harvard University Press.
SMALL BUSINESS SERVICE (2001). *Business Start-ups and Closures: VAT Registrations and De-Registrations in 2000*. Statistical Press Release, 6 September, www.sbs.gov.uk.
SOETE, L. L. G. and TER WEEL, B. J. (1999). Innovation, knowledge creation and technology policy: the case of the Netherlands. *De Economist*, 147, pp. 293–310.
STEL, A. J. van (1998). The determinants of employment in Europe, the USA and Japan. Research Report 9803/E, EIM Business and Policy Research: Zoetermeer.
STOREY, D. J. (1994). *Understanding the Small Business Sector*. London: Routledge.
TEECE, D. J. (1993). The dynamics of industrial capitalism: perspectives on Alfred Chandler's scale and scope. *Journal of Economic Literature*, 31, pp. 199–225.
TEECE, D. J., RUMULT, R., DOSI, G. and WINTER, S. (1994). Understanding corporate coherence: theory and evidence. *Journal of Economic Behavior and Organization*, 23, 1, pp. 1–30.
THURIK, A. R. (1996). Small firms, entrepreneurship and economic growth. In Admiraal, P. H. (ed.), *Small Business in the Modern Economy*. De Vries Lectures in Economics, Oxford: Blackwell Publishers.
THURIK, A. R. (1999). The Dutch polder model: shifting from the managed economy to the entrepreneurial economy. Annual Meeting of the American Economic Association, New York, 2–5 January.
THURIK, A. R. and VERHEUL, I. (2003). The relationship between entrepreneurship and unemployment: the case of Spain (in Spanish). In Urbano, D. ET AL. (eds.), *Entrepreneurship (Creación de Empresas)*. Barcelona: Servei de Publicacions de la UAB, pp. 521–547.
UHLANER, L. M., THURIK, A. R. and HUTJES, J. (2002). Post-materialism as a cultural factor influencing entrepreneurial activity across nations. ERIM Report ERS-2002-62-STR. Erasmus University Rotterdam.
UHLANER, L. M., WENNEKERS, A. R. M. and THURIK, A. R. (2002). Entrepreneurship and its conditions: a macro perspective. *International Journal of Entrepreurship Education*, 1, 1, pp. 25–64.
WENNEKERS, A. R. M. and THURIK, A. R. (1999). Linking entrepreneurship and economic growth. *Small Business Economics*, 13, 1, pp. 27–55.
WENNEKERS, A. R. M. and THURIK, A. R. (2001). Institutions, entrepreneurship and economic performance. In Lundström, A. and Stevenson, L. (eds.), *Entrepreneurship Policy for the Future*. Swedish Foundation for Small Business Research, pp. 51–87.
WENNEKERS, A. R. M., THURIK, A. R., NOORDERHAVEN, N. G. and HOFSTEDE, G. (2002). Cultural and economic determinants of business ownership across countries. In Bygrave, W. D. (eds.) *Frontiers of Entrepreneurship Research 2001*. Babson College, MA: Center for Entrepreneurial Studies, pp. 179–90.
WHEELWRIGHT, S. C. (1985). Restoring competitiveness in U.S. manufacturing. *California Management Review*, 27, pp. 113–121.
WHITE, L. J. (1982). The determinants of the relative importance of small business. *Review of Economics and Statistics*, 64, pp. 42–49.
WILLIAMSON, O. (1975). *Markets and Hierarchies: Antitrust Analysis and Implications*. New York: The Free Press.

Date of receipt of final manuscript: 16 January 2003.

© Scottish Economic Society 2003