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# HIGH GROWTH FIRMS, PUBLIC POLICIES AND ECONOMIC GROWTH

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## **Abstract**

This paper investigates whether the presence of ambitious entrepreneurs is a more important determinant of national economic growth than entrepreneurial activity in general. We use data from the Global Entrepreneurship Monitor to test the extent to which high growth ambitions are reflected in GDP growth for a sample of 36 countries. The rate of ambitious entrepreneurship is defined as the percentage of adult population that is either actively involved in starting a new venture or is the owner/manager of a business that is less than 42 months old, and, in addition, expects to employ 20 employees or more within five years after the start of the firm. Our results suggest that higher levels of ambitious entrepreneurship contribute more strongly to macro-economic growth than higher levels of entrepreneurial activity in general. We find a particularly strong effect of high-expectation entrepreneurship for transition countries. The results in this paper are interpreted in light of the ongoing debate about public policies designed to stimulate high growth firms.

**Keywords:** entrepreneurial activity, high growth firms, growth ambitions, public policy, economic growth

## **1. Introduction**

Entrepreneurship is considered a crucial mechanism of economic development (Schumpeter 1934; Wennekers and Thurik 1999; Baumol 2002; van Stel et al. 2005). The centrality of entrepreneurship in the current economy, or even society, is expressed as such in scientific and policy discourses as ‘the entrepreneurial economy’ (Audretsch & Thurik 2000) and ‘the entrepreneurial society’ (Ministerie van Economische Zaken 1999; Von Bargaen et al. 2003). At the macro level entrepreneurship is seen as a driver of structural change and job creation. At the micro level entrepreneurship is the engine behind the formation and subsequent growth of new firms. With regard to job creation it is not new firms per se that are the key, but the relatively small number of fast-growing ‘gazelles’ that make up the lion’s share of jobs in new firms (Birch 1979; Gallagher & Miller 1991; Kirchhoff 1994; Storey 1997). In addition, these high-growth firms are characterized by rising labour productivity at the same time as they are generating jobs (Verhoeven et al. 2002; Littunen and Tohmo 2003). There has been mixed evidence on the effect of entrepreneurship in general on national economic growth (Audretsch and Fritsch, 2002; van Stel and Storey, 2004), but more consistent positive claims for high-potential start-ups (Wong et al. 2005) and fast-growing firms (Mason 1985; Kemp et al. 2000) on economic growth. High growth firms have become a central target in economic development policies. Within this group of high growth firms, high technology start-ups, also known as techno-starters, are of major importance. Nurturing high growth firms, or “gazelles”, has become a primary target and ultimate goal of entrepreneurship policy (Pages et al. 2003). As a result these high growth firms are high on the agenda of regional (Fischer & Reuber 2003), national (Smallbone et al. 2002), and supra-national policy makers (European Commission 2003b). In this paper we will investigate whether the presence of ambitious entrepreneurs – regarding rapid growth – is a more important determinant of national economic growth than entrepreneurial activity in general. This relation is not straightforward as the ambitious entrepreneurs have not yet realized the rapid growth that they expect. If the ambitions would turn out to be unrealistic it could even be the case that the overoptimistic entrepreneurs actually contribute negatively to macro-economic growth.

The paper is structured as follows. We will start with a review of the literature on growth ambitions and high-growth firms. Next, we will discuss public policy aimed at high-growth firms. In the empirical part of the paper we will present the data and research method used in Section 4, while we will present our empirical analysis of the association of the presence of ambitious entrepreneurs and national economic growth in Section 5. Section 6 concludes.

## **2. Growth ambitions and high growth firms**

Empirical research indicates that it is not new firms (which are often little more than self-employed individuals) as such that are the key; but rather the relatively small number of fast-growing new firms that account for the lion’s share of net new job creation (Kirchhoff 1994; Storey 1997; Schreyer 2000; Buss 2002). These firms are successful in commercializing new ideas on a large scale. Entrepreneurial firms that are able and willing to grow may be the crucial agents of change that play a particularly important role in economic development (Audretsch 1995). Some authors have argued that entrepreneurship is not about self-employment or new firm formation per se, as most of the persons involved in this do not have an ambition to grow (Henrekson, 2005). According to Davidsson (1989) the growth of small firms is determined by the ability, need and opportunity for growth. He emphasizes that growth motivation is a necessary factor for actual firm growth. Such growth motivation is determined by the perceived ability, need and opportunity for growth. Although some objective factors directly affect actual growth, the entrepreneur’s perception of the ability,

need and opportunity for growth is major importance for explaining motivation-mediated effects on growth.

There have been several studies on the determinants of growth intentions of (nascent) entrepreneurs (Davidsson 1989; Wiklund 2001; Welter 2001). These studies found that growth intentions are positively associated with gender (male), age (young), entrepreneurial experience, experience as informal investor (Welter 2001; De Clercq et al. 2003). Perhaps more interesting for the present study are studies on the consequences of growth intentions. In general, the growth intentions of entrepreneurs are found to be positively related to actual firm growth (Bellu and Sherman 1995; Kolvereid and Bullvåg 1996; Miner et al. 1994; Mok and Van den Tillaart 1990; Wiklund and Shepherd 2003). However, this statistical relation between growth intentions and growth realizations tends to be rather weak. It is likely that the effect of growth intentions is moderated by the access to resources and the availability of opportunities. Or, to put it more strongly: in order to grow a new business, growth intentions, resources, and opportunities are necessary conditions. In practice, it remains very hard to identify high-growth firms in advance. This difficulty has led the English DTI to emphasize entrepreneurs with growth aspirations in her competitiveness policy (DTI 1998)<sup>1</sup>.

Recent research found some tendencies: for example opportunity based entrepreneurship, the availability of a large information set, and a spatially broad market orientation in the start-up phase distinguishes entrepreneurs of future high growth firms from entrepreneurs of low growth firms (Vivarelli 2004; Stam and Schutjens 2005; Smallbone et al. 2002).

These insights on the role of growth ambitions of entrepreneurs have important policy implications. General measures such as tax adjustments and other regulations probably have a small effect on most self-employed, while the effect on ambitious entrepreneurs can be assumed to be quite strong. It is imperative that general measures are so designed that only those who react in the intended way are rewarded. If the self-employed with relatively low ambitions get the benefits, reactions that run counter to the intentions of the policy are not unlikely. Subsidizing entrepreneurs and new firms in general might bring about a major bias in the process of market selection. This could include *substitution* as well as *deadweight* effects (Santarelli and Vivarelli 2002; Vivarelli 2004). A deadweight effect refers to the situation in which less efficient or ambitious entrepreneurs are given subsidies, and remain in the market as long as they can use the subsidy; these entrepreneurs do not need such subsidies for improving their business. A substitution effect arises when less efficient entrepreneurs are given an artificial seedbed, while market competition would have induced them to leave the market. These effects advocate a policy oriented towards ambitious entrepreneurs. This is discussed in the next section.

### **3. Public policy aimed at high growth firms**

Due to the important economic, social, and political roles new and small firms play in most economies, governments at all levels – federal, state/regional, and local – have designed strategies to support entrepreneurial activity. One of the most important questions regarding entrepreneurship policy is whether to stimulate new firm formation, to help existing firms survive, or to focus on (potentially) growing firms. Next, it is also important to decide on whether to aim for generic policy, or to focus on particular regions or industries. Perhaps the first question must be whether governments should be involved in supporting entrepreneurs at all. Why should governments do more than enhancing the general investment climate? Market imperfections are often used to legitimise entrepreneurship policy (Storey 2003; 2006). In the specific context of public policy aimed at (potential) high-growth firms, especially information imperfections and externalities may be important reasons for policy interventions.

With regard to information imperfections, entrepreneurs might have too negative expectations concerning the consequences of growth, and they might not realise the private benefits of obtaining expert advice from “outside” specialists. There might also be significant information imperfections at the side of financial institutions, which are unable to assess the viability and growth potential of new firms, and (on balance) overestimate the risk of lending to entrepreneurs of (potential) high growth firms.

Positive externalities may be present when social returns of certain economic activities exceed private returns. Entrepreneurs may not undertake projects which, whilst in the interest of society as a whole, yield the firm insufficient returns. The role of public policy (e.g. subsidy) is to make it privately worthwhile for the firm to undertake the project, enabling society as a whole to benefit. In the context of high growth firms, it might be that entrepreneurs do not pursue certain projects, because the risks are too high (new technology), or because they cannot fully appropriate the returns (innovation). Public policy could raise the private benefits of these projects in order to produce the social benefits, e.g. job creation and improved national productivity.

Sometimes markets are missing to a large extent, which has especially been said of certain financial markets in Europe. A lack of venture capital or opportunities for Initial Public Offerings (IPOs) at the national stock exchange, may hamper the high-growth of new firms. In the US, during the 1990s, access to finance – and in particular venture capital – played an important role in nurturing new high growth firms. In Europe, financial markets are still relatively fragmented and venture capital markets are less developed. This increases financial costs and reduces the availability of capital necessary for the growth of start-ups (European Commission 2003a).

However, one could still wonder why public policy should be aimed at high-growth firms, and not on entrepreneurship (or innovative entrepreneurship, see EIM 2002) in general. The arguments against targeting (potential) high-growth firms are (Bridge et al. 2003: 293-295):

- 1- Selecting potential high-growth firms is too difficult.
- 2- Venture capitalist are able to pick winners, with the inclusion of a considerable number of potential winners that turned out to be losers, while public policy would seek to back all the winners and avoid any losers.
- 3- Start-ups in general deserve policy support, due to their seedbed function, unequal access to finance and information, their employment creation (still most of the jobs in the small business sector come from non high-growth firms), their effect on regional prosperity (see also Fritsch and Mueller 2004; van Stel and Suddle, 2005).
- 4- What is needed is an enterprising culture, that has effect on all layers of society: new firms, small firms, large firms, public organizations.

However, there are at least as much arguments in favour of targeting (potential) high growth firms (Bridge et al. 2003: 292-293):

- 1- Targeting increases the *effectiveness* and *efficiency* of support measures. Focusing resources on a small group of ambitious entrepreneurs – i.e. where they are most needed and where they can produce the best results – is more effective than more generalised support. By applying support only to growth firms, the total requirements, and its cost, is reduced. This increases efficiency as a sufficient impact is made with limited resources.

- 2- It provides a clearer strategic focus on the needs of high growth businesses; high levels of expertise are more likely to be developed both in the public sector as well as in the related support fields (such as venture capitalists, bankers, and consultants).
- 3- More start-ups are not needed. In many European countries the number of start-ups has already increased enormously in the last two decades.
- 4- Supporting start-ups distorts the market mechanism.

In the Netherlands, public policy aimed at high-growth firms is often legitimized by an unfavorable ranking in cross-country hitlists of (potentially) fast-growing firms (Deloitte 2004; Ministerie van Economische Zaken 1999). In the yearly international Adult Population Survey of the Global Entrepreneurship Monitor (GEM) nascent entrepreneurs are being asked whether they expect to employ 20 employees or more within five years after the start of their firm. In the Netherlands the share of potential high growth new firms in 2005 is 0.26%. This is rather low in comparison with the average of the OECD-countries participating in GEM; this average is 0.61%. In European context, 0.47% expect to employ 20 or more employees within five years after the start of their firm. Countries that are very much entrepreneurial, like the US and New-Zealand, have a higher share of potential fast growers, with 1.41% respectively 1.42% (Autio, 2005). As long as The Netherlands keeps lagging behind the other benchmark countries, much more policy efforts are needed in order to improve this situation. In order to stimulate growth ambitions in the Netherlands, the government has studied high growth firms and the specific additional bottlenecks that these firms experience in comparison with regular start-ups. According to Deloitte (2004), this group is relatively small (9%), compared with the average of the European countries (15%).

Specifically, three major bottlenecks for high growth firms occur:

1. Fast growing firms have difficulties in getting qualified employees. The employees have to function effectively in a very dynamic environment. It also takes more time and efforts to acquire and dismiss employees;
2. Fast growing firms have difficulties in getting funding or capital against reasonable conditions. Banks are distant, because they perceive a greater risk. For the target group, it is also not always clear which subsidies and regulations exist for them and can benefit them;
3. Finally, fast growing firms experience, more often than other firms, difficulties in the field of management and organisation. The division of tasks is often unclear and this makes it hard to delegate tasks.

Support for high growth firms is currently one of the three pillars of entrepreneurship policy in the Netherlands (next to start-ups and business closures/transfers; Ministerie van Economische Zaken 2004). The major aims of this high growth firms policy is more and better high growth firms, and the two indicators used for these two aims are the number of high growth firms and a reduction of the administrative burden (Ministerie van Economische Zaken 2004: 11). The policy initiatives mainly provide *financial support*, *advice* and *networks* to support the high growth firms.

More specific policy measures have been the Growth Plus and Fast Growth Programmes, which involved networking between, coaching of, and advice to entrepreneurs of high growth firms. These programmes originated from the European Growth Plus organization, which was founded in 1997 with the aim of promoting entrepreneurship throughout Europe by identifying top performers and role models and supporting them by sharing best practices and providing networking opportunities and political lobbying support. These top performers have annually been identified with the ranking of Europe's 500 fastest

growing entrepreneurially led firms. Especially this networking among peers and mentoring by experienced entrepreneurs/managers has been recognized in several contexts as an effective and efficient mechanism to improve the growth of new firms (Smallbone et al. 2002; Fischer and Reuber 2003). The increased visibility of entrepreneurs of high growth firms, acting as role models, might reduce the negative expectations concerning the consequences of growth; in this respect, successful role models may have a positive effect, especially on young people early in their occupational career <sup>2</sup>.

The most recent policy actions (in 2005) have been the development of a national programme of Masterclasses for entrepreneurs of high growth firms, and the start of a Business Angel Programme that aims to connect informal investors and ambitious entrepreneurs. Port4Growth is an initiative that has been developed by the private sector, with ING, Euronext, FEM Business and Deloitte as participating organisations. Port4Growth offers a community for high growth firms and provides the infrastructure to reach other high growth firms and relevant subcontractors. Furthermore, it provides the possibility for these firms to exposure.

A mixture of technology policy and high-growth firms policy can also be observed. This is legitimised by the positive externalities involved in stimulating New Technology Based Firms (NTBFs, see e.g. Storey and Tether 1998), as these firms may be able to turn scientific knowledge into valuable products and processes (cf. Acs et al. 2005). However, this commercialisation of scientific knowledge often necessitates the development and growth of the production and marketing capabilities of these NTBFs. Two major impediments to the growth of these firms are the difficult appropriation of the value of these innovations, and the lack of management skills of the entrepreneurs involved. If these impediments are not taken away, valuable innovations may never be introduced into society. In the Netherlands this mix of technology policy and high-growth firms policy has been central in the policy initiatives to stimulate the growth of new firms in biotech (Biopartner Programme: [www.biopartner.nl](http://www.biopartner.nl)) and ICT (Twinning Programme). These initiatives have recently been integrated in the TechnoPartner Programme ([www.technopartner.nl](http://www.technopartner.nl)). The TechnoPartner Programme has become operational in mid-2004 and aims for more effective spin-offs from research institutes. Besides the encouragement of the exploitation of knowledge by research institutes, this programme aims to improve the capital market for techno-starters. Furthermore, techno-starters will get more personalised and effective information and advice. Third, the government is investigating whether the American SBIR scheme (Small Business Innovation and Research scheme) can be applied in the Netherlands. The SBIR scheme aims to stimulate research and development by innovative SMEs. In order to do so, the scheme subsidises the development of innovative ideas, the development of the prototype and provides an official quality endorsement at the moment of the commercialisation of the product. Another recent initiative is the attempt by the Dutch Ministry of Economic Affairs to replicate the successful Small Business Innovation Research (SBIR) Programme of the US (see e.g. Lerner 2003). This programme stimulates innovative research in SMEs, and is likely to stimulate the growth of new and small technology based firms.

Unfortunately, there are hardly any evaluations of policy interventions to stimulate high-growth firms. This makes it hard to derive normative implications from this overview of public policy aimed at high growth firms. The least we can do is investigating whether the prevalence of ambitious entrepreneurs has an effect on national economic growth at all. In the next sections we will present empirical evidence on this issue.

#### **4. Data and research method**

In the current study we investigate whether the presence of ambitious entrepreneurs is a more important determinant of national economic growth than entrepreneurial activity in general.

Our empirical analysis builds on van Stel et al. (2005). They investigate whether *Total Entrepreneurial Activity* (TEA) -defined as the percentage of adult population that is either actively involved in starting a new venture or is the owner/manager of a business that is less than 42 months old- influences GDP growth for a sample of 36 countries. The authors find that the TEA index indeed affects economic growth but that the influence depends on the level of economic development. In particular the contribution to economic growth is found to be stronger for more highly developed countries (as compared to developing countries).

In this paper we will perform a similar regression analysis but next to the general TEA index, we will also use the TEA *high growth* rate and the TEA *medium growth* rate as independent variables and compare their impact on economic growth with the impact of the general TEA index. The TEA high (medium) growth rate is defined as the percentage of adult population that is either actively involved in starting a new venture or is the owner/manager of a business that is less than 42 months old, *and expects to employ 20 (6) employees or more within five years after the start of the firm*. TEA rates are taken from the Global Entrepreneurship Monitor, Adult Population Survey 2002.

Our dependent variable is the average annual growth of GDP during the period 2002-2005. The growth rates are taken from the IMF World Economic Outlook database. As control variables we use the log of *gross national income per capita 2001* (GNIC; source World Bank, WDI data base), to correct for possible catch-up effects of poorer countries. We also use data on competitiveness, capturing important factors that determine the capacity of national economies to grow (next to entrepreneurship). More specifically we use the *Growth Competitiveness Index* (GCI) 2001 from The Global Competitiveness Report. As a final control, we include *lagged GDP growth* to correct for possible reversed causality effects.

We use a sample of 36 countries participating in the Global Entrepreneurship Monitor (GEM) in 2002. Following van Stel et al. (2005) we allow for the possibility of different effects of highly developed and developing countries. In addition we also test whether the effect of TEA is different for transition countries.<sup>3</sup> For a more elaborate discussion of the model we refer to van Stel et al. (2005).

## **5. Entrepreneurial growth ambitions and national economic growth**

The results of our empirical exercises are in Tables 1-3. In Table 1 the regression results of the impact of the general TEA index are presented, while Tables 2 and 3 show the results using the TEA medium growth and TEA high growth rates as main independent variables. The possibly different impacts of rich versus poor (Model 2) or highly developed vs transition vs. developing countries (Model 3) is allowed for by defining separate entrepreneurial activity variables for each group of countries.

Table 1: Explain economic growth from TEA rate

<b>TEA</b>	Model 1	Model 2	Model 3
Constant	19.6 ** (4.2)	26.1 ** (3.0)	22.2 ** (2.5)
TEA	.047 (0.8)		
TEA rich		.087 * (1.8)	
TEA poor		-.005 (0.1)	
TEA highly developed			.11 ** (2.2)
TEA transition			.19 (1.4)
TEA developing			.023 (0.2)
log (GNIC)	-2.2 ** (2.8)	-2.8 ** (2.7)	-2.4 ** (2.6)
GCI	.62 (0.7)	.64 (0.8)	.63 (0.7)
Lagged gdp growth	.37 ** (2.9)	.30 ** (2.1)	.22 (1.2)
$R^2$	0.626	0.636	0.662
<i>adjusted R<sup>2</sup></i>	0.577	0.576	0.592

Absolute heteroskedasticity-consistent *t*-values are between brackets. Dependent variable is average annual growth of GDP over the period 2002-2005. TEA is Total Entrepreneurial Activity rate (*Global Entrepreneurship Monitor*); GCI is growth competitiveness index 2001 (*Growth Competitiveness Report*); GNIC is per capita income of 2001; Lagged GDP growth is average annual growth of GDP over the period 1998-2001.

\* Significant at a 0.10 level.

\*\* Significant at a 0.05 level



Table 2: Explain economic growth from TEA medium growth rate (growth ambition > 6 employees within 5 years)

<b>TEA medium growth (6+)</b>	Model 1	Model 2	Model 3
Constant	19.8 ** (4.6)	22.0 ** (3.5)	21.5 ** (4.5)
TEA_hg6	.17 (1.6)		
TEA_hg6 rich		.22 * (1.8)	
TEA_hg6 poor		.12 (0.9)	
TEA_hg6 highly developed			.26 ** (2.2)
TEA_hg6 transition			.50 ** (3.1)
TEA_hg6 developing			.090 (1.0)
log (GNIC)	-2.2 ** (2.9)	-2.4 ** (2.7)	-2.4 ** (3.3)
GCI	.58 (0.7)	.58 (0.7)	.74 (0.9)
Lagged gdp growth	.35 ** (2.6)	.33 ** (2.3)	.20 (0.9)
$R^2$	.638	.641	.679
<i>adjusted R<sup>2</sup></i>	.592	.582	.612

Notes are as in Table 1.

Table 3: Explain economic growth from TEA high growth rate (growth ambition > 20 employees within 5 years)

<b>TEA high growth (20+)</b>	Model 1	Model 2	Model 3
Constant	19.8 ** (4.3)	19.5 ** (2.9)	20.0 ** (3.5)
TEA_hg20	.27 (1.4)		
TEA_hg20 rich		.25 (1.1)	
TEA_hg20 poor		.28 (1.0)	
TEA_hg20 highly developed			.29 (1.3)
TEA_hg20 transition			.70 ** (2.7)
TEA_hg20 developing			.17 (0.8)
log (GNIC)	-2.2 ** (2.9)	-2.2 ** (2.3)	-2.3 ** (2.9)
GCI	.68 (0.8)	.68 (0.8)	.90 (1.1)
lagged gdp growth	.34 ** (2.4)	.34 ** (2.3)	.22 (1.0)
$R^2$	.637	.637	.667
<i>adjusted R<sup>2</sup></i>	.590	.576	.598

Notes are as in Table 1.

Table 1 confirms earlier findings of van Stel et al. (2005) that it is important to distinguish between different groups of countries. While for rich countries the impact of entrepreneurial activity is significantly positive, the impact for poor countries is effectively zero.<sup>4</sup> Furthermore the three tables reveal three important results. *First*, as hypothesized, the presence of ambitious entrepreneurs indeed seems to be more important for achieving GDP growth than entrepreneurship in general. Comparing the coefficients of the various TEA rates across the tables, we see that in each of the three model variants the impact of TEA medium growth (growth ambition of 6 employees) is higher compared to the impact of TEA in general, while, in turn, the impact of TEA high growth (growth ambition of 20 employees) is still higher. For instance, for the group of highly developed countries in Model 3, the TEA rate has a coefficient of 0.11 (Table 1), while the coefficients of the TEA medium and high growth are 0.26 and 0.29, respectively.

*Second*, having more entrepreneurs with high growth ambitions seems to be particularly important in transition countries. Both the magnitude and the statistical significance of the estimated coefficient point at a stronger impact compared to highly developed or developing countries (see Tables 2 and 3). It may be argued that in transition economies opportunities are more widely available and hence, a higher number of ambitious entrepreneurs willing to act on these opportunities may be particularly fruitful for achieving growth in these countries.

*Third*, comparing the coefficients of the various TEA metrics over the three tables, it may be argued that it is important to have a substantial number of entrepreneurs with growth ambitions per se but that it is not so important whether these entrepreneurs expect to employ at least 6 employees or at least 20 employees. The differences between coefficients in Tables 2 and 3 are not that large. Also note that the model fit in Table 2 (TEA medium growth) is higher than that in Table 3 (TEA high growth).

Our regression results should be interpreted with some care as the analysis is based on a limited number of observations.

## 6. Conclusion

It would be naïve to recommend to focus policy completely on ambitious entrepreneurs and their (potentially) fast-growing firms. Economic growth is most likely achieved with a mix of small but high-growth firms and large, mature firms (Baumol 2002; Nooteboom 1994). However, the Netherlands, just like most European countries, has sufficient large firms, but seems to be lacking a sufficient number of these high-growth new firms (see Bartelsman et al. 2005).

In this paper we assumed that the presence of ambitious entrepreneurs leads to economic growth via the successful development of their firms. Indeed, our empirical analysis does suggest that high-expectation entrepreneurs contribute more strongly to economic growth at the *macro-level* than entrepreneurs in general. This effect seems to be particularly strong in transition countries. However, we could not directly trace the assumed success at the *micro-level* of analysis. It would be worthwhile to follow the high potential startups to establish whether such firms fulfill their promised potential and what factors influence their subsequent success or failure. Such research would cast light on the nature of the phenomenon, including the characteristics of individuals, the effect of environmental factors and the mechanism of the development path of high potential startups. We should also be careful not to regard high ambitions as valuable in itself, as entrepreneurs may also be too ambitious in comparison with the financial resources that they have access to, which leads to a premature death of the new firm (Littunen, 2000).

Understanding the transition from growth ambitions into growth realizations allows more effective policies to be drawn to encourage and stimulate entrepreneurial activities with

growth potential. To this end more longitudinal research at the micro-level of analysis will be required.

### Notes

<sup>1</sup> The main rationale for this programme is the potential welfare gains to the economy which will result from enabling more new businesses with growth potential to achieve significant growth (DTI 1999). There is an implicit assumption of market failure in the sense of the support needs of high-growth start-ups not being adequately met by the private sector. The programme is also legitimated by its additionality to the existing start-up support. High growth potential of start-ups is defined as an aspiration of £1 million sales per annum. It is estimated that only about 1% of new business start-ups in the United Kingdom each year achieve annual sales of this amount. Achieving £150 000 sales within twelve months is provided as a stepping stone goal toward this threshold.

<sup>2</sup> According to Davidsson (1991, p.424) persuasive attempts to stimulate growth motivation are likely to be most effective if directed at younger firms and younger owner-managers. Younger firms have a stronger objective need for expansion, and their values, attitudes, and 'company cultures' are less likely to be firmly held. Younger individuals are also likely to be more sensitive to growth objectives than older entrepreneurs that have since long defined and lived up to a role as the manager of a stable firm.

<sup>3</sup> The 36 countries in our sample are: Argentina<sup>D</sup>, Australia, Belgium, Brazil<sup>D</sup>, Canada, Chile<sup>D</sup>, China<sup>T</sup>, Taiwan, Denmark, Finland, France, Germany, Hong Kong, Hungary<sup>T</sup>, Iceland, India<sup>D</sup>, Ireland, Israel, Italy, Japan, Korea, Mexico<sup>D</sup>, Netherlands, New Zealand, Norway, Poland<sup>T</sup>, Russia<sup>T</sup>, Singapore, Slovenia<sup>T</sup>, South Africa<sup>D</sup>, Spain, Sweden, Switzerland, Thailand<sup>D</sup>, United Kingdom and United States. Mark <sup>D</sup> indicates developing country while mark <sup>T</sup> indicates a transition country. In the categorisation rich versus poor, eleven of the twelve countries marked as <sup>D</sup> or <sup>T</sup> are classified as (relatively) poor, the exception being Slovenia.

<sup>4</sup> Van Stel et al. (2005) refer to a possible lack of larger companies in these poorer countries as a possible explanation for the zero effect of entrepreneurial activity.

### References

- Acs, Z.J., D.B. Audretsch, P. Braunerhjelm and B. Carlsson, Growth and Entrepreneurship: An Empirical Assessment, Max Planck Institute Discussion Paper #32-2005.
- Audretsch, D.B. (1995), *Innovation and Industry Evolution*, Cambridge, MA: MIT Press.
- Audretsch, D.B. and M. Fritsch (2002), Growth Regimes over Time and Space, *Regional Studies* 36, 113-124.
- Audretsch, D.B. & A.R. Thurik (2000), Capitalism and Democracy in the 21st Century: from the Managed to the Entrepreneurial Economy. *Journal of Evolutionary Economics* 10, pp.17-34.
- Autio, E. (2005), *Global Entrepreneurship Monitor 2005, Report on High-Expectation Entrepreneurship*, London Business School/Mazars/Babson.

- Bartelsman, E., S. Scarpetta and F. Schivardi (2005), Comparative analysis of firm demographics and survival: evidence from micro-level sources in OECD countries, *Industrial and Corporate Change* 14, 365-391.
- Baumol, W. (2002), *The Free-Market Innovation Machine: Analyzing the Growth Miracle of Capitalism*, Princeton: Princeton University Press.
- Bargen, P. von, D. Freedman and E. R. Pages (2003), The Rise of the Entrepreneurial Society, *Economic Development Quarterly*, 17 (4), pp. 315-324.
- Bellu, R. R., and Sherman, H. (1995), Predicting business success from task motivation and attributional style: A longitudinal study, *Entrepreneurship & Regional Development*, 349-363.
- Birch, D.L. (1979), *The Job Generation Process*. Cambridge, MA: MIT Programme on Neighborhood and Regional Change.
- Buss, T.F. (2002), Emerging High-Growth Firms and Economic Development Policy. *Economic Development Quarterly* 16: 17-19.
- Bridge, S., O'Neill, K. & Cromie, S. (2003) *Understanding Enterprise, Entrepreneurship and Small Business* (2nd ed), Basingstoke, Macmillan.
- Davidsson, P. (1989), Entrepreneurship and after? A study of growth willingness in small firms, *Journal of Business Venturing*, 4, pp. 211-226
- Deloitte & Touche (2004), *Snelle groeiers en innovatie* [High Growth Firms and Innovations], in Dutch, Den Haag
- DTI (1998) *Our Competitive Future: Building the Knowledge Driven Economy*, Government White Paper, Department of Trade and Industry.
- EIM (2002), Entrepreneurship in the Netherlands. Innovative entrepreneurship. New policy challenges! Zoetermeer/Den Haag: EIM/Ministry of Economic Affairs
- European Commission (2003a), Benchmarking enterprise policy. Results from the 2002 scoreboard. Luxembourg: Office for Official Publications of the European Communities.
- European Commission (2003b), Green Paper Entrepreneurship in Europe. Luxembourg: Office for Official Publications of the European Communities.
- Fischer, E. & A.R. Reuber (2003), Support for Rapid-Growth Firms: A Comparison of the Views of Founders, Government Policymakers, and Private Sector Resource Providers. *Journal of Small Business Management* 41, pp. 346-365.
- Fritsch, M., and P. Mueller (2004), The Effects of New Business Formation on Regional Development over Time, *Regional Studies* 38, 961-975.
- Gallagher, C. & P. Miller (1991), New Fastgrowing Companies Create Jobs. *Long Range Planning* 24, pp. 96-101.
- Henrekson, M. (2005), Entrepreneurship: a weak link in the welfare state?, *Industrial and Corporate Change*, 14 (3), pp. 437-467.
- Kemp, R., Smith, K., and Becher, G. (2000), *How should we study the relationship between environmental regulation and innovation?*, Final report of project "Methodological Approaches to Regulation and Innovation Studies" for DGIII-IPTS research programme.
- Kirchhoff, B.A. (1994), *Entrepreneurship and Dynamic Capitalism*. Westport, Conn.: Praeger.
- Kolvereid, L., and Bullvåg, E. (1996). Growth intentions and actual growth: The impact of entrepreneurial choice, *Journal of Enterprising Culture*, 4(1), pp. 1-17.
- Lerner, J. (2003): Boom and Bust in the Venture Capital Industry and the Impact on Innovation", typescript.
- Littunen, H. (2000), Networks and Local Environmental Characteristics in the Survival of New Firms, *Small Business Economics*, 15, pp. 59-71
- Littunen, H. and T. Thomo (2003), The High Growth in New Metal-Based Manufacturing and Business Service Firms in Finland, *Small Business Economics*, 21 (2), pp. 187-200.

- Mason, C.M. (1985), The geography of 'successful' small firms in the United Kingdom, *Environment and Planning A*, 17, pp. 1499-1513.
- Miner, J. B., Smith, N. R., & Bracker, J. S. (1994), Role of entrepreneurial task motivation in the growth of technologically innovative businesses: Interpretations from follow-up data, *Journal of Applied Psychology*, 79(4), 627-630.
- Ministerie van Economische Zaken (1999), *De Ondernemende Samenleving. Meer Kansen, Minder Belemmeringen voor Ondernemerschap*. The Hague: Department of Economic Affairs.
- Ministry of Economic Affairs (2004), *Action for Entrepreneurs; Entrepreneurship Policy in the Netherlands*, The Hague
- Mok, A. L., & van den Tillaart, H. (1990), Farmers and small businessmen: A comparative analysis of their careers and occupational orientation. In R. Donckels & A. Miettinen (Eds.), *New Findings and Perspectives in Entrepreneurship*, Aldershot, VA: Avebury.
- Nooteboom, B. (1994), "Innovation and Diffusion in Small Firms: Theory and Evidence," *Small Business Economics*, 6, pp. 327-347.
- Pages, E.R., Freedman, D., and Von Bargen, P. (2003), Entrepreneurship as a State and Local Economic Development Strategy. In: Hart, D. (Ed) *Entrepreneurship Policy*. Cambridge: Cambridge University Press, pp.240-259.
- Santarelli, E. and M. Vivarelli (2002), Is subsidizing entry an optimal policy?, *Industrial and Corporate Change* 11 (1), 39-52.
- Schreyer, P. (2000), High-growth Firms and Employment. STI Working Paper 2000/2, Paris: OECD.
- Schumpeter, J.A. (1934), *The Theory of Economic Development*, Cambridge, MA: Harvard University Press.
- Smallbone, D., R. Baldock & S. Burgess (2002), Targeted Support for High-growth Start-ups: some Policy Issues. *Environment and Planning C* 20(2), pp. 195-209.
- Stam, E. and Schutjens, V., The fragile success of team start-ups (papers on Entrepreneurship, Growth and Public Policy #17-2005, Max Planck Institute, Jena, Germany)
- Stel, A.J. van, M. A. Carree & A.R. Thurik (2005), The Effect of Entrepreneurial Activity on National Economic Growth, *Small Business Economics*, 24, 311-321.
- Stel, A.J. van, and D.J. Storey (2004), The Link between Firm Births and Job Creation: Is there a Upas Tree Effect?, *Regional Studies* 38, 893-909.
- Stel, A.J. van, and K. Suddle (2005), 'The Impact of New Firm Formation on Regional Development in the Netherlands', EIM Research Report H200503.
- Storey, D.J. (1997), *Understanding the Small Business Sector*. London: International Thomson Business Press.
- Storey, D.J. and B.S. Tether (1998), Public Policy Measures to Support New Technology-based Firms in the European Union, *Research Policy* 26, 1037-1057.
- Storey, D.J. (2003), Entrepreneurship, Small and Medium Sized Enterprises and Public Policies, In: Z.J. Acs and D.B. Audretsch (eds.), *Handbook of Entrepreneurship Research*, Kluwer Academic Publishers, Boston/Dordrecht, USA/NL, 473-514.
- Storey, D.J. (2006), Evaluating SME Policies and Programmes: Technical and Political Dimensions, In: M. Casson, B. Yeung, A. Basu and N. Wadeson (eds.), *Oxford Handbook of Entrepreneurship*, Oxford: Oxford University Press.
- Verhoeven, W.H.J., R.G.M. Kemp & H.H.M. Peeters (2002), Het effect van beleid voor (innovatieve) starters en snelle groeiers op de ontwikkeling van de arbeidsproductiviteit

- [The effect of policy for (innovative) start-ups and high growth firms on the development of the labour productivity], in Dutch, EIM, Zoetermeer, 2002
- Vivarelli, M. (2004), Are all the potential entrepreneurs so good?, *Small Business Economics*, 23 (1), pp. 41-49.
- Wennekers, A.R.M. and A.R. Thurik (1999), Linking Entrepreneurship and Economic Growth, *Small Business Economics* 13 (1), pp. 27-55.
- Wiklund, J. (2001). Growth motivation and its influence on subsequent growth. In W. D. Bygrave & E. Autio & C. G. Brush & P. Davidsson & P. G. Green & P. D. Reynolds & H. J. Sapienza (Eds.), *Frontiers of Entrepreneurship Research 2001*, Wellesley, MA: Babson College, pp. 101-112.
- Wiklund, J. and Shepherd, D. (2003), Aspiring for, and Achieving Growth: The Moderating role of Resources and Opportunities, *Journal of Management Studies*, 40 (8), pp. 1919–1941.
- Wong, P., Y. Ho and E. Autio (2005), Entrepreneurship, Innovation and Economic Growth: Evidence from GEM data, *Small Business Economics*, 24 (3), pp. 335-350.