

Determinants and Effects of New Business Creation Using Global Entrepreneurship Monitor Data

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ABSTRACT. This paper is an introduction to the present special issue dedicated to scientific research using data collected as part of the Global Entrepreneurship Monitor (GEM) and considering new venture creation as the hallmark of entrepreneurship. After a short description of GEM's theoretical and methodological background, this introduction highlights the main results of seven papers which were presented at the First GEM Research Conference in Berlin from 1 to 3 April 2004. First, there is empirical evidence that the role of entrepreneurial activity differs across the stages of economic development, in that there appears to be a U-shaped relationship between the level of development and the rate of entrepreneurship. Consequently, a positive effect of entrepreneurial activity on economic growth is found for highly developed countries but a negative effect for developing nations. Second, it is shown that different types of entrepreneurship may have a different impact on a nation's innovativeness and economic growth rate. In particular, potentially high-growth business start-ups and so-called opportunity entrepreneurship enhance knowledge spillovers and economic growth. Third, entrepreneurship is again shown to be a regional event that can only be understood if regional framework conditions, including networks and regional policies, are taken into consideration.

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1. Conceptual framework

In colloquial English, entrepreneurship has at least two meanings. First, entrepreneurship refers to owning and managing a business on one's own account and risk. Its 'practitioners' are called entrepreneurs, self-employed or business owners. This is the *occupational notion of entrepreneurship*. This notion has a long history, dating back as far as the middle of the 18th century, and already enjoyed common usage by classical economists such as Say and Mill (Hoselitz, 1951/1960; Hébert and Link, 1982). Within this concept of entrepreneurship, a dynamic perspective focuses on the creation of new businesses, while a static perspective relates to the number of business owners. Second, entrepreneurship refers to 'entrepreneurial behaviour' in the sense of seizing an economic opportunity. Innovator or pioneer can be considered synonyms for entrepreneur in this sense. This is the *behavioural notion of entrepreneurship*. It has an even longer history than the occupational notion (see Hoselitz, 1951/1960, p. 235), although its academic development is more recent. Entrepreneurs in the behavioural sense need not be business owners, they may also be 'intrapreneurs'. At the crossroads of behavioural entrepreneurship and the dynamic perspective of occupational entrepreneurship, a new discipline of 'entrepreneurial academics' (Vesper, 1988) has arisen that considers new venture creation as the hallmark of entrepreneurship (Gartner, 1989; Cooper, 2003, pp. 28–29). The Global Entrepreneurship Monitor (GEM), a collaborative initiative for the collection and analysis of harmonized data on the prevalence of nascent entrepreneurship¹ and young enterprises across

nations (see Reynolds et al., 1999, 2000, 2001, 2002, 2003; Acs et al., 2004), belongs to this new school of thought, as does this volume, which is devoted to economic research on GEM's data.

In addition to the question of what entrepreneurship is about, one may pose the question of whether entrepreneurship matters. What are the *economic and social effects of entrepreneurship*? Entrepreneurship may fulfil several functions (Hébert and Link, 1989), such as dis-equilibrating markets or bearing the risk associated with true uncertainty. Entrepreneurship in the sense of the creation of new businesses is particularly related to innovation, competition and restructuring. A small but significant proportion of business start-ups introduce new knowledge to the economy, embedded in new products or new ways of producing an existing good or service. A larger number of start-ups are not themselves innovators, rather they diffuse new products and techniques developed by others. And by their sheer numbers, all start-ups enhance competition. Innovation and competition contribute to a continuous restructuring of the economy, including business exits, mergers and entrepreneurial ventures by incumbents. However, as can be seen from several articles in this volume, the economic importance of new business creation differs across the different stages of nations' economic development. It may also differ depending on the innovativeness of the new business or its products. Apart from macro-economic effects, there are also consequences at the personal level of the business founders. These include earning an income and the achievement of immaterial goals such as autonomy. Of course, another possible outcome is failure. And in all cases entrepreneurial activity offers opportunities for learning, by surmounting obstacles, through high levels of responsibility and autonomy, and by maintaining relationships with customers, business partners and advisors. Learning in this sense, including learning from failure and from role models, may have positive external effects for the performance of incumbent businesses and for new entrepreneurial ventures, creating a recurrent chain of linkages (Wennekers and Thurik, 1999, p. 51).

Given the potentially important economic and social effects of the creation of new enterprises, it is paramount to understand the *determinants*. Which conditions favour business start-ups and which hamper them? Are there underlying economic 'laws' that govern the rate of start-up activity? Several conceptual models are available. At the micro-level, many disciplines, including economics, psychology and sociology, have developed occupational choice models for understanding the entrepreneurial decision.² At the regional level, Reynolds et al. (1994) identify seven key entrepreneurial processes underlying new firm start-ups, including demand for goods and services, urbanization/agglomeration, small firm presence and government policies. At the country level, the GEM (Reynolds et al., 1999, 2000, 2001, 2002, 2003; Acs et al., 2004) has developed a model distinguishing between nine different 'entrepreneurial framework conditions' which determine entrepreneurial opportunities and entrepreneurial capacity. Audretsch et al. (2002) distinguish between a demand side and a supply side of entrepreneurship. The demand side of entrepreneurship refers to the opportunities available for starting a business and to the viable number of enterprises, based on the carrying capacity of existing and new markets. The supply-side of entrepreneurship refers to the pool of relevant preferences, skills and resources embedded in the individuals of a population. Several of the articles in this special issue are devoted to understanding the determinants of nascent entrepreneurship and new business start-ups, at various levels of analysis, and therefore draw upon either of these conceptual models.

2. The GEM-project – history, goals and methodology

The GEM was set up in 1997 as a joint research initiative of Babson College in Wellesley (USA) and the London Business School. A pilot data collection study in six participating countries (Canada, Denmark, Finland, Germany, UK and USA) took place in 1998. Since 1999, a global GEM report has been published each year. The number of participating countries has risen from 10 in 1999 to consistently above 30 from 2002 onwards. GEM country teams are in operation in almost all of these countries, drawing up

GEM country reports for their own country. All reports may be downloaded in full from www.gemconsortium.org. By the end of 2004, 44 different countries had participated in GEM and more than 120 country reports had been published. The participating countries cover all continents and include developing nations, highly developed countries and transition economies (see Reynolds et al., 2005, in this volume). In January 2005, the founder institutions and the GEM national teams jointly established a Global Entrepreneurship Research Association.

When GEM started at the end of the 20th century, entrepreneurship research suffered from several empirical gaps. First, there were no harmonized, internationally comparable data on entrepreneurial activity. This gap was remarkable given the key policy interest in business start-ups, incubators, science parks and other entrepreneurial phenomena. Many countries did collect data of their own, but these are not suitable for international comparisons, nor are they always uniformly accepted within the country they pertain to (Fritsch et al., 2002). Second, the available statistical data on entrepreneurship are usually not quite up-to-date and, moreover, they do not contain information on the entrepreneurial qualities of the population, while such information is crucial for designing policies to promote business start-ups. Third, no internationally comparable, detailed background information was available about the start-up process. Secondary data sources provide some information about newly established businesses, but not about business founders or about the various phases of the start-up process. Consequently, until recently it was not possible to compare nations in terms of their entrepreneurial activity rates or their entrepreneurial framework conditions, let alone to do an international time-series analysis of these factors.

The main objective of GEM is to find empirically based answers to the following questions:³

- To what extent does the level of entrepreneurial activity vary between countries and how much does it change over time?
- Why are some countries more 'entrepreneurial' than others?
- What kind of policies may enhance the national level of entrepreneurial activity?

- What is the relationship between entrepreneurship and economic growth?

GEM is a research project devoted to filling some of the most important gaps in the international data on entrepreneurship, as well as to analysing these data. To this purpose, GEM developed a unique data collection strategy aimed at several data sources. Each of these data is collected for each year in each GEM country (for a description of the data collection methodology see Reynolds et al., 2005, in this volume). First and foremost, the so-called Adult Population Surveys provide standardized data on each population's entrepreneurial preferences, capacities and activities. Second, key informants in each country are asked in face-to-face interviews about their assessments of nine entrepreneurial framework conditions in their country (including government policies, government programs, internal market openness, financing of start-ups, technology transfer and cultural values). These experts are also asked for their views on entrepreneurial opportunities and capacities in their country. Additionally, national key informants are asked to fill in a questionnaire covering the same aspects as the face-to-face interviews in a standardized way. The aim is to create a standardized measure of the experts' perceptions of their own country's entrepreneurial framework conditions. Finally, standardized national data from various sources including OECD, World Bank, United Nations, EU, ILO and the Global Competitiveness Reports provide additional information about the entrepreneurial and general national framework conditions.

GEM employs a conceptual model to guide the analysis of these data, ranging from the entrepreneurial framework conditions to entrepreneurial activity at the national level and ultimately to job creation and economic growth (Reynolds et al., 2005, in this volume). More specifically, a nation's level of entrepreneurial activity is the result of its population's assessments of entrepreneurial opportunities and of their entrepreneurial potential (i.e., motivations and capacities). Opportunity recognition and entrepreneurial potential are influenced by both specific entrepreneurial framework conditions and general national framework conditions. While the entrepreneurial

framework conditions are also influenced by the general framework conditions within a nation, both kinds of framework conditions are shaped by social, political and cultural factors. Additionally, a country's stage of economic development may be of importance, and GEM is able to analyse this influence as the participating countries cover the whole range from the developing nations to the most highly developed economies. The GEM global and country reports so far have concentrated on a descriptive analysis of the data, while some first in-depth scientific analyses are assembled in this volume.

3. GEM research conferences

After almost 360000 household interviews and 5000 expert interviews had been conducted from 1999 to 2003,⁴ GEM data had reached sufficient critical mass to warrant scientific analysis. To stimulate such investigations, a first GEM Research Conference⁵ was held in Berlin (Germany), from 1 to 3 April 2004. Specifically, the aim of this Conference was to exchange and discuss scientific research into entrepreneurial activity using GEM data for the participating countries and regions. During the Conference, 19 research papers selected out of 33 abstracts submitted in 2003, were presented. These papers covered a broad range of entrepreneurship research topics and they were grouped into seven sessions. All papers were reviewed in public by international entrepreneurship researchers from outside the GEM consortium. Besides discussing research papers, the more than 150 participants (entrepreneurship researchers and policy makers from 32 countries) had discussions with a panel on "Entrepreneurship Policy – Lessons from GEM" and a panel on "Entrepreneurship Research – The

Future of GEM". Following the Berlin Conference, eight papers were selected for further review and revision, and seven (together with a methodology paper written after the conference) are now included in this volume. The success of the Berlin Conference also led to the decision to organize a second GEM Research Conference in Budapest, Hungary, 26–27 May 2005.

4. Characteristics and key findings of the papers in this volume

The level of analysis used by the seven research papers in this volume ranges from the micro level of individuals (two papers), to the regional level (one paper) and the national level (four papers). Of these papers, four are concerned with explaining the determinants of entrepreneurial activity, while three focus on the effects of entrepreneurship. Table I classifies the seven papers according to these two criteria, while Table II elaborates the main characteristics of each of these papers.

The first of the papers focusing on *the determinants of entrepreneurship*, the paper by Arenius and Minniti entitled 'Perceptual variables and nascent entrepreneurship', uses a very large sample of individuals in 28 countries to investigate what variables are significantly correlated with an individual's decision to become an entrepreneur. Following existing literature in economics they link such a decision to demographic and economic characteristics. In addition, they argue that perceptual variables, including the perception of opportunities (+), fear of failure (–), confidence about one's own skills (+) and knowing other entrepreneurs (+) are also important. Regression analysis confirms the predicted associations between these perceptual variables and

TABLE I
Level of analysis and focus of the research papers presented in this volume

Level of analysis	Focus on	
	Determinants of entrepreneurial activity	Effects of entrepreneurial activity
Micro level (individuals)	Arenius and Minniti Arenius and De Clercq	
Regional level	Rocha and Sternberg	
Macro level (countries)	Wennekers et al.	Van Stel et al. Acs and Varga Wong et al.

TABLE II
Main characteristics of the papers

Authors	GEM data from ... countries	GEM data from ... from year ...	Level of analysis	Measure(s) of entrepreneurial activity	Explained phenomenon	Underlying theories
Arenius and Minniti	28	2002	51721 individuals	Nascent entrepreneurs (binary variable)	Individuals' decision to become an entrepreneur	Human capital theory, (social) psychology and sociology
Arenius and De Clercq	2 (Belgium, Finland)	2002	4536 individuals	Opportunity recognition (binary variable)	Opportunity recognition	Network theory, human capital theory
Rocha and Sternberg	1 (Germany)	2001–2003 (pooled)	97 regions	Overall TEA	Impact of clusters on regional entrepreneurship	Network theories, agglomeration theory, regional growth theory
Wennekers et al.	36	2002	36 countries	Percentage of nascent entrepreneurs	Impact of level of economic development on national rate of nascent entrepreneurship	Schumpeter Mark I and II, theory of structural transformation, stage theories of economic development
Van Stel et al.	36	2002	36 countries	Overall TEA	Impact of entrepreneurship on economic growth	“managed economy” versus “entrepreneurial economy”, stage theories of national economic development
Acs and Varga	9	2001	63 combinations of sectors and countries	TEA (various versions)	Impact of agglomeration and entrepreneurship on knowledge spillovers	Endogenous theory of economic growth, new economic geography
Wong et al.	37	2002	37 countries	TEA (various versions)	Impact of entrepreneurship (general versus innovative) on growth GDP per worker	Exogenous (Solow) and endogenous (Romer) growth theories?

new business creation across all countries in the sample and across gender. Entrepreneurship is, after all, about people. Although the data do not allow the identification of causal relationships, the findings suggest that, when making decisions, nascent entrepreneurs also rely on subjective perceptions rather than (only) on objective expectations of success. Finally, the paper considers the presence of country effects. The empirical results clearly support the assumed importance of aggregate conditions influencing nascent entrepreneurship.

The paper by Arenius and DeClercq entitled 'A network-based approach on opportunity recognition', also explores the determinants of entrepreneurial activities at the micro-level, using a database of 4536 individuals in two selected GEM countries (Finland and Belgium). The authors argue that individuals differ in terms of their perception of opportunities because of the differences between the networks they are embedded in. The theoretical foundations of this study are network theory and human capital theory. Arenius and DeClercq focus on two aspects of individuals' embeddedness in networks, that is (1) individuals' belonging to residential areas that are more or less likely to be characterized by network cohesion, and (2) individuals' differential access to network contacts based on the level of human capital they hold. The empirical analysis shows that the nature of one's residential area influences the perception of entrepreneurial opportunities. Individuals who reside in 'big agglomerate areas' are more likely to perceive opportunities than individuals in rural areas (this effect was much stronger in Finland than in regionally more homogenous Belgium). Further, there seems to be a positive effect relating to education, i.e., people with a higher educational level are more likely to perceive entrepreneurial opportunities compared to those with a lower educational level. The authors conclude that public policy should pay more attention to how different parties interested in or knowledgeable about entrepreneurship should be brought together. Without playing an interventional role in individuals' personal networks, government might play a role in creating a general environment that stimulates information exchange among individuals interested in entrepreneurial activity.

The paper by Rocha and Sternberg is about the impact of clusters on the creation of new enterprises. Defining clusters as a geographically proximate group of interconnected firms and associated institutions in related industries, this paper aims to establish whether and, if so, why clusters matter to entrepreneurship. The paper uses the 97 German planning regions as the level of analysis for testing the hypotheses, while the new firm is the basic unit of data collection. Quantitative data is taken from the German Federal Labour Office and qualitative data is taken from both existing literature on clusters and a questionnaire sent to German regional experts. The source of data to measure the entrepreneurship constructs is a three-year (2001–2003) pooled cross-sectional dataset built up as part of the German participation in the GEM research project. Using an OLS fixed-effects model, the paper clearly finds that clusters do have a positive impact on entrepreneurship, but that industrial agglomerations do not.

The last paper focusing on the determinants of entrepreneurship, and the only one at the macro-level of nations, is by Wennekers et al. This paper is based upon data from 36 GEM countries for the year 2002, while nascent entrepreneurship serves as the dependent variable and the level of economic development as the main independent variable, alongside several control variables. The level of economic development is measured either by per capita income or by an index for innovative capacity. The most striking result is a U-shaped relationship between nascent entrepreneurship and either of these independent variables. As a country develops economically, its rate of entrepreneurship declines, but from a certain level of economic development onwards the rate of entrepreneurship levels off or even tends to rise again. Additional likelihood ratio tests reveal that the statistical fit of a quadratic specification (U-curve) is somewhat better than that of an inverse specification (L-curve). A U-shaped relationship with economic development is found in particular for opportunity-based nascent entrepreneurial activity. The results suggest that the comparative rate of nascent entrepreneurship is to some extent governed by underlying 'laws' related to the level of economic development. Thus, for the most advanced nations, improving

incentive structures for new entrepreneurship and promoting the commercial exploitation of scientific findings offer the most promising approach for public policy. Developing nations, however, may be better off aiming to exploit scale economies, foster foreign direct investment and promote management education.

Three studies in this special issue examine *the economic effects of entrepreneurial activities* at the macro-level of nations. These papers deal with an important knowledge gap in entrepreneurship research: how important are entrepreneurial activities from a national economic perspective? If empirical research were to reveal that there is no clear evidence for such an impact, then numerous policies to support entrepreneurship would be a waste of effort. While there exist several studies on the economic effects of entrepreneurship at the regional level (Carree and Thurik, 2003; Acs and Storey, 2004), to our knowledge there have so far been very few international studies at the country level. In this volume, the paper by van Stel et al. is focussed on entrepreneurial activity at the national level as a determinant of economic growth, while allowing for an intermediating effect of a country's level of economic development. The contribution by Acs and Varga studies the role of agglomerations and entrepreneurship in knowledge spillovers, while the paper by Wong et al. analyses entrepreneurship and technological innovation as separate determinants of economic growth. These two papers also differentiate between high growth potential entrepreneurship, opportunity entrepreneurship and overall entrepreneurship.

Based upon an inter-country analysis for a sample of 36 GEM countries, the study by van Stel, et al. tests the influence of entrepreneurial activity on economic growth, while incorporating the Growth Competitiveness Index to represent competing explanatory variables and the initial level of economic development and lagged economic growth as control variables. Total entrepreneurial activity (TEA) rates are used to measure entrepreneurial activity. The paper establishes that the acclaimed impact of entrepreneurial activity on economic growth stands the test of adding competing variables. However, the impact is not a simple linear effect of the TEA rate on GDP growth. In fact, entrepreneurial activity is

found to have a negative effect for the relatively poor countries, while it has a positive effect for the relatively rich countries. Thus a major conclusion of this paper is that entrepreneurship plays a different role in countries at different stages of economic development. The authors propose that this finding may possibly be interpreted in the light of the distinction between the Schumpeter Mark I versus Mark II regimes or the 'entrepreneurial' versus 'managed' economy.

The paper by Acs and Varga explores the hypothesis that variations across countries in entrepreneurial activity and in the spatial structure of economies could be the source of differing levels of efficiency in knowledge spillovers, and ultimately in economic growth. They develop an empirical model that introduces the effects of entrepreneurial activity and agglomeration on new knowledge within a 'Romerian framework'. The model is tested with data for seven industrial sectors in nine different countries of the European Union, using the number of patent applications to measure new knowledge and the GEM cross-national data to measure entrepreneurial activity, while controlling for the stock of knowledge and research and development expenditures. As for the role of entrepreneurship, the authors find that opportunity entrepreneurship and high-potential entrepreneurial activity have a positive and statistically significant effect on technological change, while necessity entrepreneurship and entrepreneurial activity in general have no such impact. As for the rate of spatial agglomeration, a positive interaction effect with R&D spillovers on new technological knowledge is found when a dummy is introduced to account for an outlier observation in agglomeration, i.e., the United Kingdom. These results suggest that enhancing research and development expenditures may be more effective if they are accompanied by (increasing) entrepreneurial activity and spatial concentration.

Wong et al. analyse cross sectional data of the 37 countries participating in GEM 2002. They work with an augmented Cobb-Douglas production function to explore the effect of firm formation on economic growth. The paper shows that different types of entrepreneurial activities as measured using GEM TEA rates – high growth potential TEA, necessity TEA, opportunity TEA

and overall TEA – may have different impacts on economic growth. Only high growth potential entrepreneurship is found to have a significant (positive) impact on the dependent variable. This result is consistent with extant findings in the literature that it is fast growing new firms, not new firms in general, that account for most of the new job creation by small and medium enterprises in economically advanced countries.

5. Conclusions and implications

Overall, what have we learned about the causes and effects of entrepreneurship, and what are the main policy implications of the findings presented in this volume?

Table III summarizes the conclusions and policy implications of each individual paper. Combining the results from several papers, there seem to be three key overall conclusions. First, the prevalence and economic role of entrepreneurial activity differs across the stages of economic development, as is born out in the papers by Wennekers et al., and Van Stel et al. While the first study shows that there appears to be a U-shaped relationship between the level of economic development and the rate of entrepreneurship, the second study shows that entrepreneurial activity has a positive effect on economic growth in highly developed countries but a negative effect in developing countries. The result that poorer countries fail to benefit from entrepreneurial activity does not imply that entrepreneurship should be discouraged in these countries. Instead, it may be an indication that developing countries (also) need an adequate prevalence of large (multinational) companies due to their positive external effects on small firms and on the productivity of local labour. While in the economically advanced nations, public policy should thus focus on incentive structures for business start-ups and the exploitation of scientific findings, developing countries should try to exploit scale economies, by fostering FDI and by promoting management education. However, as Van Stel et al. also point out, if the alternative is unemployment, poor countries may still be wise to encourage small business start-ups even though entrepreneurial activity would perhaps be more productive in the presence of large firms.

Second, the papers by Wong et al. and Acs and Varga suggest that different types of entrepreneurship may have a different impact on a nation's innovation and economic growth rate. In particular, potentially high-growth business start-ups and opportunity entrepreneurship appear to enhance knowledge spillovers and economic growth. These findings may have important implications for entrepreneurship policy in highly developed economies. At least from an economic growth perspective, policy should focus primarily on potentially fast growing new firms and not on new enterprises in general. However, as Wong et al. conclude, it will probably always remain a big challenge for policymakers (and academics too) to identify such 'gazelles' during the early stages of the entrepreneurship process. Thus, policymakers may be advised to promote high potential entrepreneurship indirectly, by establishing favourable conditions for knowledge transfer, including adequate intellectual property protection, a well-functioning venture capital market and the presence of spatial agglomerations and/or clusters. However, despite the apparent positive impact of clusters on regional entrepreneurship, Rocha and Sternberg point out that these results alone are not a justification for cluster policies because these may also have negative effects (increasing intra-regional and inter-regional disparities).

Third, several papers again bear out the dictum that "entrepreneurship is a regional event, too" (Feldman, 2001; Wagner and Sternberg, 2004 and the recent special issue of 'Regional Studies', No. 8, 2004). In particular, the matching of different interests and parties involved, as proposed by Arenius and De Clercq, must be organized at the regional or local level. Also, in designing start-up policies at this level, policymakers should be aware that the entrepreneurial history of a community determines a policy's effectiveness, and that policies must therefore be community-specific.

Finally, a major implication arises for future research with GEM data. In all papers presented in this special issue, data constraints have limited the analysis to a cross-sectional approach rather than a time-series based analysis where causality can be investigated more conclusively. Also, the temporal specifications for variables in the regres-

TABLE III
Conclusions and policy implications of the papers

Authors	Conclusions	Policy implications
Arenius and Minniti	Perceptions that individuals have of their own entrepreneurial abilities (alertness to opportunities, fear of failure, confidence about own skills) are very important for entrepreneurial decision; these perceptions are likely to be biased	More recognition of perceptual variables in the scope of start-up policies; entrepreneurial history of a community determines start-up policies' effectiveness; policies must be community specific
Arenius and De Clercq	Network cohesiveness of big agglomerations is high and individuals living there more likely perceive opportunities; same holds true for individuals' educational level but not for their working status; extent of impacts differs between Finland and Belgium	Public policy should pay more attention to how different parties interested in or knowledgeable about entrepreneurship should be brought together; creation of a general environment that stimulates the exchange of information among individuals interested in entrepreneurship activities
Rocha and Sternberg	Regions with cluster characteristics have higher levels of entrepreneurship than non-clustered regions incl. industrial agglomerations; most important explanation is that clusters show spatial proximity and interorganizational relations	While clusters have a positive impact on regional entrepreneurship, these results alone are not a justification for cluster policies because these may also have negative effects (increasing intra-regional and interregional disparities)
Wennekers et al.	Controlling for other influences, there appears to be an underlying U-shaped relationship between the rate of nascent entrepreneurship of countries and their level of economic development, either measured by per-capita income and innovative capacity	In economically advanced nations public policy should focus on incentive structures for business start-ups and the exploitation of scientific findings; in developing countries policy should try to exploit scale economies, to foster FDI and to promote management education
van Stel et al.	Entrepreneurial activity affects economic growth but this effect depends upon the level of per-capita income: positive effects for highly developed countries but negative effects for developing countries	Role of entrepreneurship differs across stages of economic development; developing countries need an adequate prevalence of large (multinational) companies for external effects on small firms and on the productivity of local labour
Acs and Varga	Regressions show significant, but weak effects of agglomeration and entrepreneurship on technological change for selected European countries and industries	Only new high growth potential enterprises and opportunity entrepreneurial activity appear to enhance knowledge spillovers
Wong et al.	Only high growth potential new firms have a significant impact on national growth, but not new firms in general; technological innovation and new business creation are two separate phenomena with different impacts on economic growth	Policymakers should focus more on promoting (conditions for) fast growing "gazelles" rather than on new firms in general when they have effects on economic growth in mind

sion models are sometimes problematic. In an analysis focusing on the effects of entrepreneurship, data on entrepreneurship should ideally be available for a sufficiently long period preceding the measurement of the dependent variable (technological development, economic growth or job creation). Similarly, in an analysis of the determinants of entrepreneurship, time series data on entrepreneurial activity for a large number of countries or longitudinal data on entrepreneurial individuals may shed more light on the factors determining entrepreneurship. Therefore, the findings presented in this special issue should be regarded as a first major step. Nevertheless, they await further confirmation in the future when a longer time-series of entrepreneurial activity data will be available. If only for that reason, the continuation of the GEM in the coming years is of prime importance.

Notes

¹ The prevalence of people engaged in activities to start a new business.

² For overviews of the literature, see Kilby (1971), Kent et al. (1982), Wit (1993), Swedberg (2000) and Acs and Audretsch (2003).

³ While there is not one single document formally stating the research objectives of GEM, these four questions represent the gist of the goals as they are expressed in most GEM-reports and documents.

⁴ By the end of 2004 these figures totaled 505372 household interviews and almost 6350 expert interviews.

⁵ The local organizer of the first GEM Research Conference and first author of this paper would like to thank the German Research Foundation, the KfW banking group (specifically Dr. Irsch and Dr. Tchouvakhina) and "Invest in Germany" for supporting and financing this Conference. The organizer is also very grateful for the valuable support provided by the scientific committee of the Conference consisting of, apart from himself, Erkko Autio, Paul Reynolds and Sander Wennekers.

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